

Integrating Freight in Statewide Planning and Programming

June 2013

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Integrating Freight in Statewide Planning and Programming

Final Report

**Office of Freight and Commercial Vehicle Operations
Minnesota Department of Transportation**



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Executive Summary

The purpose of this study is to explore how freight issues and needs are currently addressed by the Minnesota Department of Transportation (MnDOT) in its highway planning, project scoping, programming, and delivery processes.

There are two primary reasons behind this effort. First is the approaching update to Minnesota's 2005 Statewide Freight Plan, which establishes a long-range plan for freight transportation in Minnesota. Second is the recent passage of the new federal surface transportation bill, Moving Ahead for Progress in the 21st Century (MAP-21), which makes recommendations for state freight planning efforts.

This report seeks to identify where and how freight can be better integrated into state highway investment decisions.

Freight is defined in this report as the transportation of cargo and commodities, both raw and finished. This report focuses primarily on freight movements on Minnesota's 12,000-mile state highway system, which is comprised of Interstates, U.S. highways, and Minnesota state highways. Over seven million miles were traveled on the state highway system each day by heavy commercial vehicles in 2011¹.

Minnesota's economic health and high quality of life are closely linked to freight highway movements, and MnDOT's transportation planning activities play a central role in ensuring that these freight needs are adequately addressed. To that end, this report seeks to identify where and how freight can be better integrated into state highway investment decisions given that there is not an existing dedicated source of highway freight funds, nor is there a consistent approach to identifying freight needs across the state.



¹ Data is from MnDOT's Transportation Information System database. The most recent year available is 2011: <http://www.dot.state.mn.us/roadway/data/reports/vmt.html>

Study Background

This study is a comprehensive analysis of how freight is planned and programmed in Minnesota. It examines federal and state policy for opportunities to better align the two. This report includes interviews and surveys of District and Metropolitan Planning Organization (MPO) planning staff, as well as staff from MnDOT's specialty offices at Central Office (CO). The study also gathers existing sources of freight-related data and sets forth possible performance measures that could be implemented as part of the approaching Statewide Freight Plan update.

Stakeholder involvement played an important role in identifying ways to better integrate freight into the planning and programming process. This involvement included the following methods:

- Project Management Team (PMT) meetings
- Multi-agency Steering Committee meetings
- External meetings (MPO Directors' meeting, a MnDOT Planning Management Group meeting, and a freight scenario planning workshop with the Minnesota Freight Advisory Committee)
- A [project website](#)² with background information, technical memoranda, meeting agendas, and presentations



² <http://www.dot.state.mn.us/planning/freightintegration/>

Key Findings and Recommendations

There are opportunities for freight issues and needs to be better integrated into MnDOT's planning and programming processes. To accomplish this, a series of findings and recommendations were developed for MnDOT to consider.

Federal and State Freight Policy

Currently, MnDOT policy is well aligned with MAP-21's policy requirements and guidance, including MAP-21 National Strategic Freight Goals. The three MnDOT plans that address these requirements are Minnesota GO, the Statewide Multimodal Transportation Plan, and the Minnesota State Highway Investment Plan.

MAP-21 also establishes a Primary Freight Network (PFN) and a network of Critical Rural Freight Corridors, and there may be opportunity to include Minnesota routes on these networks.

In addition, MAP-21 policy recommends development of Statewide Freight Plans, and establishes required and recommended elements for these plans.

Recommendations:

Recommendations for better aligning freight policy in Minnesota with MAP-21 include the following:

1. Ensure that the Statewide Freight Plan clearly describes how it will approach the National Strategic Freight Goals, while at the same time aligning it with other statewide planning documents.
2. More explicitly reference freight or the movement of goods in future updates of Minnesota GO and the Statewide Multimodal Transportation Plan.
3. Encourage USDOT to include as many miles as possible of Minnesota roadway with regional and national significance for freight on the Primary Freight Network and on the Critical Rural Freight Corridor Network. MnDOT should comment on the draft network and criteria when released, and suggest changes as needed. Potential PFN roadways in Minnesota include segments of TH 52, TH 169, and TH 212, while segments of TH 10 and TH 2 are potential Critical Rural Freight Corridors. Key connections to the Great Lakes and Mississippi River shipping systems are also strong candidates. All Interstate miles are automatically designated as part of the National Freight Network.

Ensure that the Minnesota Statewide Freight Plan is consistent with MAP-21 requirements including the six required Statewide Freight Plan elements.

4. Ensure that the Minnesota Statewide Freight Plan is consistent with MAP-21 requirements including the six required Statewide Freight Plan elements.
5. Strongly consider including the recommended Statewide Freight Plan elements. Specific examples of recommended elements that MnDOT should consider include a comprehensive implementation strategy and proposed partnerships with private infrastructure owners.
6. Leverage knowledge from the 2005 Statewide Freight Plan, MnDOT Regional Freight Plans, and the Mid-America Freight Coalition's Regional Freight Plan as resources for the Minnesota Statewide Freight Plan.

Current MnDOT Processes and Practices

MnDOT maintains and/or acquires a large amount of information that it uses in establishing its investment and project priorities. District planners identified a handful of key freight data that could be useful in their planning efforts. Some of this information is already available, while other information would need to be developed. Heavy Commercial Average Daily Traffic (HCADT) data is highlighted as needing more accuracy on a greater extent of the highway system. Currently this data is collected only at selected segments and then translated to other segments through the use of algorithms.

It should be noted that District planners generally indicated that they had sufficient awareness of freight issues such that they could make judgments on investments and priorities that impact freight. While better information is desirable, they indicated that they do not often rely on freight data in order to prioritize projects.

However, alternative financing options exist beyond the ordinary project planning processes that Districts might use to fund freight-related projects.

Recommendations:

Recommendations for improving freight planning processes and practices include the following:

7. Disseminate high-priority freight data (e.g., HCADT, oversized/overweight routes, a statewide list of freight generators, etc.) more consistently at the District level.
8. Improve communication between Districts and the Freight Office by creating opportunities for discussion, trainings, and dialogue.

9. Consider the freight data needs expressed by District Planners (e.g., value of goods shipped on corridors, map of freight barriers, time of day truck travel) based on usefulness, feasibility, and cost.
10. Investigate the need for more Automated Traffic Recorders to improve the accuracy of HCADT data and to gather this data for more highways on the system.
11. During the planning phase of the project planning, scoping, and programming cycle, better integrate freight performance measures, a prioritized list of projects that greatly benefit freight by District, a map of freight barriers, and a prioritized list of freight routes by District.
12. Develop an internal freight council. This group would create and build support among Districts for a methodology for identifying and prioritizing projects as part of the annual State Highway Investment Plan and State Transportation Improvement Program updates.
13. Update the project scoping worksheets (used during the scoping phase of the project planning, scoping, and programming cycle) to include freight needs and use other high priority freight data (e.g., freight generators, intermodal facilities, routes with height or weight restrictions, etc.).
14. Identify the costs and impacts of quickly implementing smaller freight improvement projects that are more highly sought after by the private sector.
15. Encourage the local agencies through their respective MnDOT Districts to pursue funding from sources such as the Corridor Investment Management Strategy (CIMS) initiative or the Transportation and Economic Development (TED) grant program. Freight projects are ideal candidates for these solicitations, which seek to leverage economic and quality of life outcomes through transportation investments. The Corridors of Commerce program may also fund projects that significantly benefit freight.
16. Encourage the State Legislature to fund CIMS and TED with additional funding sources that could be used for projects beyond those on the trunk highway system (such as rail and ports).
17. Advocate for a dedicated funding source for freight-related highway improvements at the state level. Funding would be distributed on a competitive basis and include both quantitative and qualitative factors.

Update the scoping worksheets to include freight needs.

18. Encourage MnDOT Metro District to submit freight-related improvement projects as part of the Regional Solicitation process in the seven-county Twin Cities metropolitan area.
19. Encourage greater use of freight criteria and freight performance measures as a part of the scoring in the CIMS, TED, Corridors of Commerce, and the Regional Solicitation.
20. Offer guidance and best practices to the Districts regarding the use of private sector contributions to fund transportation improvements.

Freight Performance Measures

MnDOT has an effective and well-developed performance management system, and many of its current measures capture roadway conditions that are relevant to freight movement. However, freight planning efforts in Minnesota could be reinforced by the development of a new federal freight performance measures and the possibility of new state freight performance measures.

GPS data could be especially effective in enhancing highway travel time information, and could greatly expand MnDOT's ability to report on highway conditions throughout the state.

Any successful effort to develop freight performance measures depends on successfully integrating them into other MnDOT planning documents and processes.

Recommendations:

Performance measure recommendations include the following:

21. Integrate MnDOT's current freight-related performance measures into the update of the Statewide Freight Plan.
22. Work with internal MnDOT staff and external stakeholders to develop urban and rural targets for the federal freight performance measure, once it is released.
23. Implement the American Association of State Highway and Transportation Officials' (AASHTO's) recommended freight performance measures related to annual hours of delay and travel time reliability for further consideration as new freight-specific measures at the statewide level. MnDOT has many of these tools in place including Interregional Corridor (IRC) travel time estimates for all major

Implement AASHTO's recommended freight performance measures for further consideration at the statewide level.

corridors. These travel times can be converted into an estimate for hours of delay on a daily or annual basis.

24. Work with MnDOT staff, transportation partners and other stakeholders to develop new freight-specific measures. Vet these measures to determine data availability, cost, and usefulness.
25. Continue to explore the use of private-sector commercial GPS data to aid in measuring performance in a more comprehensive way on a large system.
26. Integrate new freight performance measures into the Statewide Freight Plan, the Annual Minnesota Transportation Performance Report, the Minnesota State Highway Investment Plan, the Highway Systems Operations Plan, and other supplemental plans and studies where it is appropriate.



Freight Projects and Freight Benefits

MnDOT currently does not distinguish freight projects from other types of projects in its highway planning processes. MAP-21's Freight provisions, however, suggest that identification of freight projects will be important for state DOTs to be in a position to receive future federal freight funds. Furthermore, a clear understanding of freight projects and their freight-related benefits would help MnDOT more effectively consider them in the project selection process. In addition, improved communication of these benefits within MnDOT and with its external stakeholders is also needed to improve the overall understanding of the importance of freight movement to the state's economy.

Recommendations:

Recommendations for better defining and communicating freight projects and freight benefits include the following:

27. Identify projects with significant freight benefits as part of the annual update to the State Transportation Improvement Program (STIP) and the Highway Investment Plan (HIP) to ensure MnDOT can pursue possible state and federal freight funding opportunities. Develop criteria to identify projects with significant freight benefits (e.g., reduction in total commercial vehicle delay).
28. Consider the following definition of a freight project: "A freight project is a surface transportation project that improves the safety and efficiency of freight movements." Use the Federal Highway Administration's list of freight project types that are eligible for a higher federal cost share to further support a clear freight definition at MnDOT.
29. Consider giving special attention to three freight-related project types that are difficult to fund with the normal project prioritization process (i.e., highway-rail grade separations, truck parking facilities/rest areas, and improvements to intermodal connectors).
30. Conduct internal and external outreach about the freight benefits that result from many types of highway investments.
31. Complete or update regional freight plans, which capture information on freight challenges encountered by businesses and freight operators in Minnesota. Benefits include better communication with private stakeholders, identification of freight issues, and potential development of new tools for communicating with the private sector about freight benefits of various improvement projects, detours, incidents, weather,

congestion, and other operational challenges (e.g., needed turn lanes and traffic signals).

32. Communicate early and often with businesses about construction detours. This recommendation can be accomplished by making contact with businesses (ideally two years prior to construction), thus allowing them time to adjust to new freight movements.
33. Consider discussing work programs and snow plowing procedures with businesses to better meet their needs.
34. Develop new communication materials targeted at businesses that rely heavily on the highway system for viability. This could include a list of construction projects with details on timing and expected business impacts. It could also include marketing collateral on larger projects related to the expected freight benefits for the business community.



Next Steps

This study effort is a precursor to the Minnesota Statewide Freight Plan.

This study effort is a precursor to the Minnesota Statewide Freight Plan. As a preliminary study, its role is to explore how to better tie freight policies and performance measures to current MnDOT planning and programming efforts. This study also aims to advance a clearer understanding of freight projects and improve communication and awareness of freight benefits related to transportation investments. To that end, it presents the current state of freight planning at MnDOT and recommends policies, strategies, and performance measures that will more closely integrate freight issues and needs into MnDOT's transportation investments.

The update to the Statewide Freight Plan will also incorporate MnDOT's freight planning efforts completed at the regional level. Additionally, feedback from the Minnesota Freight Advisory Committee (MFAC) gathered during the scenario planning workshop will need to be reviewed and formalized, and MnDOT will begin planning for greater MFAC involvement in the Statewide Freight Plan update, as recommended by MAP-21.

Chapter 1. Introduction

The purpose of this study was to explore how freight issues and needs are currently addressed in MnDOT's planning, project scoping, programming, and delivery processes.

This report presents findings and recommendations from a study effort that was completed in the first one-half of 2013 and led by MnDOT's Office of Freight and Commercial Vehicle Operations (Freight Office). The purpose of this study was to explore how freight issues and needs are currently addressed in MnDOT's highway planning, project scoping, programming, and delivery processes. This report also evaluates and recommends opportunities for freight to be better integrated into these processes.

The 2012 Federal Surface Transportation Act, Moving Ahead for Progress in the 21st Century (MAP-21), includes a number of recommendations, one of which is that states should complete a State Freight Plan. As such, MnDOT expects to update the 2005 Minnesota Statewide Freight Plan in the coming fiscal year. This report presents a timely resource for this update, as it systematically examines MAP-21's recommended and required elements for Statewide Freight Plans and compares them to the 2005 Minnesota Statewide Freight Plan.

The efficient movement of goods in Minnesota is vitally important to Minnesota companies. For example, increased shipping costs caused by rough roads or congestion directly increase the cost of production resulting in reduced profitability and/or higher costs for consumers. Furthermore, consumers rely on timely delivery of products to be able to sustain a high quality of life.

1.1 Study Overview

This study uses a comprehensive approach to explore freight issues at MnDOT. It examines federal and state policy for guidance and direction, and identifies opportunities to better align the two. The study completed interviews and surveys of District and Metropolitan Planning Organization (MPO) planning staff, as well as staff from MnDOT's specialty offices at Central Office (CO). Insights gathered from these discussions show where, and to what extent, freight is considered in highway planning, project scoping, programming, and delivery processes given that there is not a dedicated source of highway freight funds, nor is there a consistent approach to identifying freight needs across the state.

The report focuses on over-the-road truck movements, but acknowledges the important role that rail, ports, air, and intermodal facilities play in the movement of goods. Numerous sources of freight-related data and possible performance measures are also presented as a result of this study.

This report is comprised of the following chapters:

Chapter 2. Federal and State Freight Policy

This chapter reviews the MAP-21 Freight provisions for consistency with MnDOT’s existing body of transportation policy and also compares MnDOT’s major statewide planning documents against each other for consistency. It identifies key findings and recommendations that will position MnDOT to align with MAP-21’s freight requirements and guidance including those related to the Minnesota Statewide Freight Plan and the Minnesota Freight Advisory Committee.

A central theme of this study is the need for clarification of freight projects. This includes defining freight projects and identifying the benefits to freight that result from transportation investments.

Chapter 3. Current Process and Practice

MnDOT undertakes a large, sustained, and coordinated agency-wide effort to plan, program, and deliver projects that meet the state’s transportation needs. The extent to which freight needs are accommodated in these efforts varies by District and depends heavily on local knowledge of freight issues. District and MPO planning staff, and staff from MnDOT’s specialty offices (such as the Freight Office, Statewide Multimodal Planning Office, and Office of Capital Programs and Performance Measures) play a strong role in addressing freight needs, but in some cases these efforts can be better coordinated and supported with additional freight information. This report explores several opportunities to more fully integrate freight into MnDOT’s current planning and programming process.



Chapter 4. Freight Performance Measures and Indicators

MAP-21 will establish one performance-based measure for freight movements, and MnDOT will be required to create targets based on this measure. In addition, MnDOT uses its own set of performance measures and indicators to guide its capital investment, operations, and maintenance activities. These measures and indicators serve to guide funding for transportation projects and will play a central role in freight planning efforts. This report provides recommendations for the freight measures and indicators that are the most feasible for MnDOT to implement.

Chapter 5. Freight Projects and Freight Benefits

A central theme of this study is the need for clarification and better communication of freight projects. This includes defining freight projects and identifying the benefits to freight that result from many transportation investments. For example, poor pavement quality is closely linked to increased wear on commercial vehicles, damaged goods, and driver fatigue. Safety improvements reduce the risk of crashes while also reducing travel delays. Well-maintained bridges ensure the efficiency and reliability of major freight routes. This report identifies a variety of project types and their freight benefits, and recommends ways to better communicate freight benefits within MnDOT and to transportation partners and stakeholders.

1.2 MnDOT Statewide Freight Plan

As previously mentioned, MnDOT will initiate an update to the 2005 Minnesota Statewide Freight Plan in the next fiscal year (July 1, 2013 to June 30, 2014). This plan will need to incorporate the information presented in this report, as well as related freight planning studies and efforts. This includes:

1. Federal guidance, including MAP-21 Freight provisions that recommend development of a Statewide Freight Plan.
2. MnDOT policy, including the possible need for additional performance measures and indicators relating to freight movement.
3. Guidance from MnDOT's freight scenario planning efforts, undertaken in coordination with the Minnesota Freight Advisory Committee in June 2013.
4. Opportunities to incorporate freight issues and needs into MnDOT planning processes, project scoping documents, and data collection efforts.

MnDOT will initiate an update to the 2005 Minnesota Statewide Freight Plan in the next fiscal year (July 1, 2013 to June 30, 2014).

5. A clear definition of freight projects, broader benefits to freight that come from transportation investments, and communication opportunities and resources to improve freight planning outcomes.
6. Identification of major freight projects for inclusion in the Statewide Transportation Improvement Program, 10-year Work Plans, and Minnesota 20-year State Highway Investment Plan.
7. Potential freight performance measures, including the expected MAP-21 performance measures and new state performance measures.

1.3 Stakeholder Involvement

This study used an extended stakeholder involvement effort to gather additional information and guidance related to freight planning in Minnesota (more information can be found in Appendix B). Knowledge and expertise from MnDOT's specialty offices, District and MPO planning staff, and other transportation partners is incorporated in this report. This effort included the following elements:

- A Project Management Team (PMT) led by MnDOT's Freight Office (see Table 1).

Table 1. List of Project Management Team Members

PMT Member	Title
Jarrett Hubbard	District 8 Planning, Project Manager
John Tompkins	Freight Office
Matthew Pahs	Freight Office
Patrick Phenow	Freight Office

- A Steering Committee with members from MnDOT CO and District offices, local and regional transportation partners, the Federal Highway Administration, and the National Center for Freight and Infrastructure Research and Education (CFIRE) (see Table 2).

Table 2. List of Steering Committee Members

Steering Committee Member	Title
Lisa Bigham	District 7 Planning
Lynne Bly	Metro Planning
Dave Christianson	Freight Office
Peter Dahlberg	Freight Office
William Gardner	Freight Office
Connie Kozlak	Metropolitan Council
Molly McCartney	Metro Planning
Andy McDonald	Arrowhead RDC
Susan Moe	FHWA
Mark Nelson	Office of Capital Programs
Philip Schaffner	Multimodal Planning
Tim Spencer	Freight Office
Patrick Weidemann	Office of Capital Programs
John Wilson	Office of Capital Programs
Ben Zietlow	CFIRE

- Interviews and surveys of staff from MnDOT's specialty offices (including the Freight Office, Statewide Multimodal Planning Office, and Office of Capital Programs and Performance Measures), District

This study used an extended stakeholder involvement effort to gather additional information and guidance related to freight planning in Minnesota.

planning staff, and MPO planning staff (see Table 3 and Table 4). These interviews explored how freight is currently being planned in Minnesota, freight issues and needs, and other information that is used in freight planning.

Table 3. List of District Planning Staff and Decision Maker Interviewees

Interviewee	Title and District
Bryan Anderson	Planning Director, District 1
Joseph McKinnon	Principal Engineer, District 2
Steve Voss	Planning Director, District 3
Bridget Miller	Planning Director, District 4
Molly McCartney	Senior Planner, Metro District
Lynne Bly	Planning Director, Metro District
Mark Schoenfelder	Planning Director, District 6
Lisa Bigham	Planning Director, District 7
Mary Safgren	Senior Planner, District 8
Jarrett Hubbard	Senior Planner, District 8

Table 4. List of Survey Respondents

Respondent	Title and Office
Paul Vogel	Mankato MPO
Connie Kozlak	Metropolitan Council
Scott Mareck	St. Cloud Area Planning Organization
Dan Farnsworth	Fargo-Moorhead Council of Governments
Earl Haugen	Grand Forks-East Grand Forks MPO
Mark Nelson	MnDOT Office of Capital Programs
Dave Janisch	MnDOT Pavement Office
Philip Schaffner	MnDOT Multimodal Planning
Sue Groth	MnDOT Office of Traffic Safety

- External meetings, including an MPO Directors' meeting (April 2013), MnDOT Planning Management Group meeting (May 2013), and a freight scenario planning workshop with the Minnesota Freight Advisory Committee (June 2013).
- A [project website](http://www.dot.state.mn.us/planning/freightintegration)³ including background information, technical memoranda, meeting agendas, and presentations.

³ <http://www.dot.state.mn.us/planning/freightintegration>

Chapter 2. Federal and State Freight Policy

This chapter identifies the primary freight elements in the new Federal Surface Transportation Act (MAP-21) State Freight Plans. It compares the National Strategic Freight Goals listed in MAP-21 with freight-related policies and objectives outlined in three MnDOT statewide planning documents: Minnesota GO (2011), the Minnesota Statewide Multimodal Transportation Plan (2012), and the 20-Year Minnesota State Highway Investment Plan (2013). In addition, this chapter compares freight policies among these three MnDOT planning documents to identify any areas where they are inconsistent with one another. It concludes with a series of findings and recommendations.

2.1 MAP-21 Summary

MAP-21 was signed into law on July 6, 2012, and took effect on October 1, 2012. It introduced several substantial changes to how transportation is planned and funded in the United States. The bill broadened the definition of the National Highway System (NHS) to include all principal arterials. In addition, MAP-21 introduced standards and programs that place emphasis on the performance of this expanded NHS system. Freight planning and programming efforts are likely to be affected by these changes. MAP-21 also established a national freight policy to improve the condition and performance of the National Freight Network.

As part of MAP-21, the Secretary of Transportation encourages states to develop a comprehensive State Freight Plan and establish a State Freight Advisory Committee. Fortunately, Minnesota is well positioned in regard to both of these provisions as MnDOT has previously developed a Statewide Freight Plan in 2005 and has an active Minnesota Freight Advisory Committee (MFAC) that meets on a quarterly basis to discuss freight issues that affect Minnesota.

A number of other provisions are included in MAP-21 to improve freight movements. A summary of the significant freight provisions is included in Table 5 along with the recommended MnDOT response.

MAP-21 was signed into law on July 6, 2012 and took effect on October 1, 2012.

Table 5. MAP-21 Freight Provisions and MnDOT Action Items

MAP-21 Freight Provision	Description	Recommended MnDOT Response
National Freight Network	<p>Requires USDOT to establish a national freight network to assist states in strategically directing resources toward improved movement of freight on highways. The national freight network includes three components:</p> <ol style="list-style-type: none"> 1. A Primary Freight Network (PFN); maximum of 27,000 centerline miles and up to 3,000 additional centerline miles of road critical to the future efficient movement of goods on the PFN 2. Any portions of the Interstate System not designated as part of the PFN 3. Critical Rural Freight Corridors 	Encourage USDOT to include MN roadways on PFN
		Designate the Critical Rural Freight Corridors using criteria contained in MAP-21
Freight Data, Planning, and Reporting	Directs USDOT to develop or improve data and tools to support an outcome-oriented, performance-based approach to evaluating proposed transportation projects. In addition, MAP-21 also directs the USDOT to consider improvements to existing freight flow data collection.	Identify future MnDOT projects that may compete well in this new evaluation system
		Track data collection efforts at the USDOT
National Freight Strategic Plan	Directs USDOT to develop a national freight strategic plan and update the plan every five years.	Track development of this plan
Freight Conditions and Performance Report	Requires USDOT to prepare a biennial report describing the condition and performance of the national freight network.	Track development of this report
Prioritization of Projects to Improve Freight Movement	Authorizes USDOT to allow a maximum federal share of 95 percent for an Interstate System project (or 90 percent for a non-Interstate System project) if the project makes a demonstrable improvement in the efficiency of freight movement and is identified in a state freight plan.	Identify and list specific freight projects in the Statewide Freight Plan to better compete for future federal dollars; higher federal match does not help MnDOT at this time.
Changes in Freight Eligibility Under Grant and Loan Programs	<p>Various grant/loan opportunities are now available for freight-related projects. These include:</p> <ol style="list-style-type: none"> 1. <u>Surface Transportation Program (STP)</u>: Provides eligibility for truck parking and surface transportation infrastructure improvements in port terminals for direct intermodal interchange, transfer, and port access. 2. <u>Highway Safety Improvement Program (HSIP)</u>: Offers eligibility for truck parking. 3. <u>Congestion Mitigation and Air Quality Program (CMAQ)</u>: Allows use of funds for a project or program to establish electric vehicle recharging stations for natural gas vehicle refueling stations. 4. <u>Projects of National and Regional Significance (PNRS)</u>: Continues program with some changes. 5. <u>Transportation Infrastructure Finance and Innovation Act (TIFIA)</u>: Restricts use of loans for freight rail projects to direct intermodal transfer. 	Consider prioritizing these types of projects in the 10-year HIP
Jason's Law	Enables the construction of safety rest areas, commercial motor vehicle parking facilities, electric vehicle, and natural gas vehicle infrastructure eligible for federal funding.	Identify potential projects to take advantage of future federal funding opportunities
Compilation and Study of Truck Size and Weight Limits	Requires USDOT to report to Congress on a comprehensive study of truck size and weight limits. Also requires USDOT to report to Congress on a compilation of State limitations on the size and weight of trucks that may travel on the National Highway System.	Provide data and information representing Minnesota's needs and past experiences.
Idle Reduction Technology	Raises the truck weight exemption for idle reduction equipment from 400 to 550 pounds.	Completed; advanced same change to state statues

Table 5 (Continued). MAP-21 Freight Provisions and MnDOT Action Items

MAP-21 Freight Provision	Description	Recommended MnDOT Response
Special Permits During Periods of National Emergency	Allows states to issue divisible load permits to overweight trucks exclusively carrying relief supplies for up to 120 days following a Presidential declaration of a major disaster.	Establish criteria for issuing these permits
State Freight Advisory Committees	Establish a freight advisory committee composed of a representative cross-section of public- and private-sector freight stakeholders.	Completed (MFAC); mission and roles are being evaluated and refined
State Freight Plans	<p>The State Freight Plan is recommended and should include the following required elements (also see Table 10):</p> <ol style="list-style-type: none"> 1. An identification of significant freight system trends, needs, and issues with respect to the State; 2. A description of the freight policies, strategies, and performance measures that will guide the freight-related transportation investment decisions of the State; 3. A description of how the plan will improve the ability of the State to meet the national freight goals; 4. Evidence of consideration of innovative technologies and operational strategies, including intelligent transportation systems, that improve the safety and efficiency of freight movement; 5. In the case of routes on which travel by heavy vehicles (including mining, agricultural, energy cargo or equipment, and timber vehicles) is projected to substantially deteriorate the condition of roadways, a description of improvements that may be required to reduce or impede the deterioration; and 6. An inventory of facilities with freight mobility issues within the State, such as truck bottlenecks, and a description of the strategies that the State is employing to address those freight mobility issues. <p>The State Freight Plan is encouraged to follow this suggested USDOT outline (also see Table 11):</p> <ol style="list-style-type: none"> 1. Strategic Goals 2. Economic Context of Freight Transportation Planning 3. Freight Policies, Strategies, and Institutions 4. State Freight Transportation Assets 5. The Conditions and Performance of the State’s Freight Transportation System 6. Freight Forecast 7. Overview of Trends, Needs, and Issues 8. Strengths and Problems of the State’s Transportation System 9. The State’s Decision-Making Process 10. The State’s Freight Improvement Strategy 11. Implementation Plan 	<p>Include required Plan elements as feasible</p> <hr/> <p>Follow suggested USDOT outline for Plan</p> <hr/> <p>Describe how the Plan will help achieve National Strategic Freight Goals and state goals</p> <hr/> <p>Encourage involvement from public and private freight stakeholders in the Plan, including MFAC</p> <hr/> <p>Incorporate the findings from the Statewide Freight Plan into the statewide strategic long-range transportation plan</p> <hr/> <p>Develop at least one performance target for each Statewide Freight Plan goal</p>
Performance	Requires USDOT to establish measures for States to assess freight movement on the Interstate System. Also requires each State to set performance targets in relation to these measures and integrate the targets within its planning processes. States must also report periodically on their progress in relation to these targets and how they are addressing congestion at freight bottlenecks. Similar requirements are in place for MPOs in regards to setting performance targets for freight measures, integrating these targets within their planning processes, and reporting periodically on their progress.	<p>Set performance targets for established federal measures, integrate into State Freight Plan, and report progress to USDOT</p> <hr/> <p>Work with MPOs to align performance targets with State as applicable</p>

As shown on the previous pages, the MAP-21 Freight provisions are quite broad and cover a variety of freight topics. For example, MAP-21 will establish a National Freight Network to assist states in strategically directing resources toward improved movement of freight on highways. MAP-21 also sets forth specific elements that make up a State Freight Plan and the information that should be included in this document. Since MnDOT will be updating its Statewide Freight Plan later this year, they are well positioned to address these areas identified in MAP-21.

2.2 National Strategic Freight Goals

MAP-21 identifies six National Strategic Freight Goals. As part of a State's Freight Plan, states are required to describe how the plan will improve their ability to meet the National Strategic Freight Goals. A summary of these goals is included below:

As part of a State's Freight Plan, states are required to describe how the plan will improve their ability to meet the National Strategic Freight Goals.

1. Improving the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness
2. Reducing congestion on the freight transportation system
3. Improving the safety, security, and resilience of the freight transportation system
4. Improving the state of good repair of the freight transportation system
5. Using advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system
6. Reducing adverse environmental and community impacts of the freight transportation system

In general, there is good agreement between these national goals and current state planning documents. MnDOT has a 50-Year Vision, a Multimodal Plan, and the Minnesota State Highway Investment Plan (MnSHIP). These plans incorporate many of these national goals. However, better organization of the information could draw more direct linkages between the national goals and state goals/policy direction. The National Strategic Freight Goals are compared to existing MnDOT Statewide documents later in this chapter.

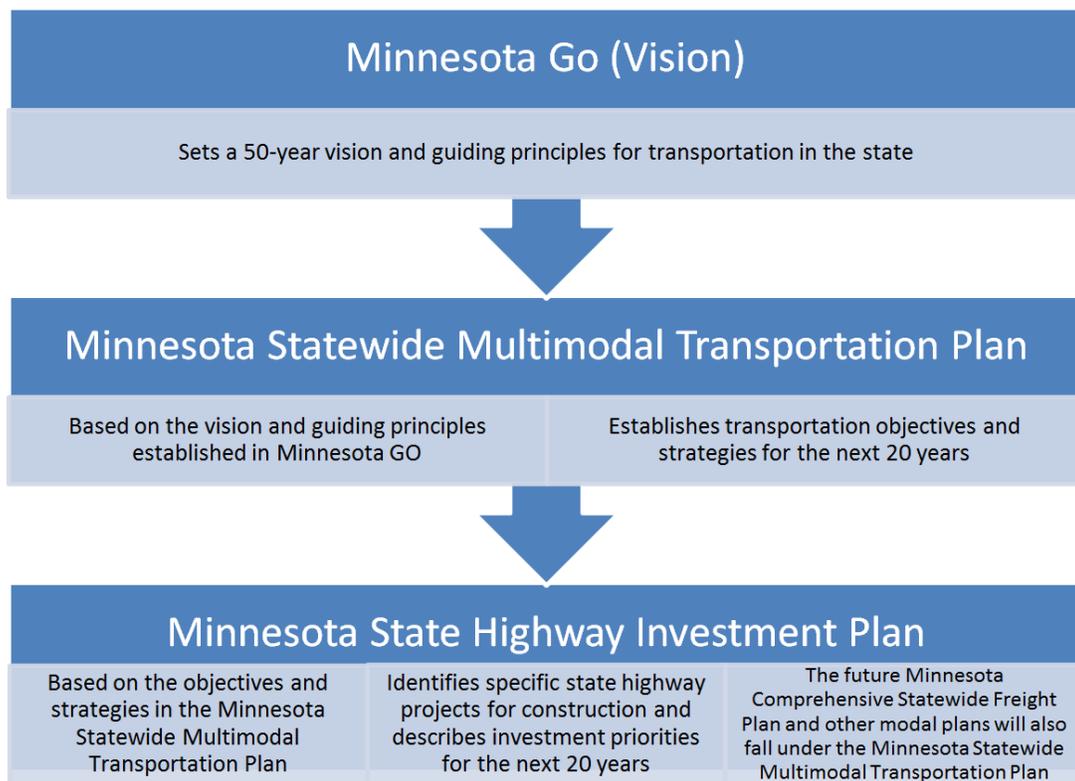
2.3 State Planning Document Summary

Over the past several years, MnDOT has developed three primary statewide planning documents that have helped shape policies as they relate to the movement of freight in Minnesota: the Minnesota GO 50-Year Transportation Vision, the Minnesota Statewide Multimodal Transportation

Plan, and the Minnesota State Highway Investment Plan. Figure 1 depicts how the three plans relate to one another. Minnesota GO sets the overarching transportation vision and guiding principles, the Minnesota Statewide Multimodal Transportation Plan takes the vision and establishes policy direction and guidance for the integration of all modes, and the Minnesota State Highway Investment Plan implements this direction for the highway system by identifying highway funding priorities for the next 20 years.

Excerpts from these documents, including some of the policy goals and objectives as they relate to freight, are included in the following pages.

Figure 1. Relationship between Minnesota’s Statewide Planning Documents



Minnesota GO (2011)

Minnesota GO establishes a 50-year statewide vision for transportation. It is a long-term plan that describes the end goal of what is envisioned in Minnesota, but does not identify strategies for how to reach the vision (this is done in other statewide planning documents). Freight is an important component of Minnesota GO, as six of the nine vision elements (67 percent)

Freight is an important component of Minnesota GO.

and seven of the eight guiding principles (88 percent) have a direct or indirect connection to freight.

Some of these connections include the key freight concepts such as linking people, resources, and businesses with each other and ensuring the safety of all users. A more detailed listing of all the vision elements and guiding principles is shown in Table 6.

Table 6. Minnesota GO Freight-Related Vision Elements and Guiding Principles

Vision Elements for Transportation in Minnesota	Guiding Principle
Connect Minnesota’s primary assets—the people, natural resources and businesses within the state—to each other and to markets and resources outside the state and country.	Ensure regional connections: Key regional centers need to be connected to each other through multiple modes of transportation.
Provide safe, convenient, efficient and effective movement of people and goods.	Integrate safety: Systematically and holistically improve safety for all forms of transportation. Be pro-active, innovative and strategic in creating safe options. Strategically fix the system: Some parts of the system may need to be reduced while other parts are enhanced or expanded to meet changing demand. Strategically maintain and upgrade critical existing infrastructure.
Be flexible and nimble enough to adapt to changes in society, technology, the environment and the economy.	Use partnerships: Coordinate across sectors and jurisdictions to make transportation projects and services more efficient. Emphasize reliable and predictable options: The reliability of the system and predictability of travel time are frequently as important, or more important, than speed. Prioritize multiple multimodal options over reliance on a single option.
Recognize and respect the importance, significance and context of place – not just as destinations, but also where people live, work, learn, play, and access services.	Leverage public investments to achieve multiple purposes: The transportation system should support other public purposes, such as environmental stewardship, economic competitiveness, public health and energy independence.
Minimize resource use and pollution.	
Enhance and support Minnesota’s role in a globally competitive economy as well as the international significance and connections of Minnesota’s trade centers.	Ensure accessibility: The transportation system must be accessible and safe for users of all abilities and incomes. The system must provide access to key resources and amenities throughout communities.

As identified in Table 6, the freight-related vision elements and guiding principles listed in Minnesota GO provide overall guidance for MnDOT as they relate to freight policies and goals. More specific objectives, strategies, and measures are identified in the Minnesota Statewide Multimodal Transportation Plan.

In addition to the vision elements and guiding principles, Minnesota GO describes 10 potential long-term outcomes for carrying out the 50-year vision. Five of these 10 potential outcomes (50 percent) relate to freight. They align with many of the major goals for MnDOT's highway network such as multi-modalism, safety, livability, and innovation. The freight-related outcomes include the following:

1. Waterways, rail, transitways, roads, trails, airports and pipelines integrated and strategically located to enable critical connections for Minnesota's businesses and communities
2. An integrated network of streets, roads and highways collectively support freight, mass transit, non-motorized transportation and personal vehicles
3. Zero deaths or serious injuries in any form of transportation
4. Transportation infrastructure and services designed to enhance, enable and encourage productive land uses
5. Technology and innovation improve the safety, accessibility and productivity of each mode of transportation and may be implemented as an alternative to expanding the physical layout of the system



Minnesota Statewide Multimodal Transportation Plan (2012)

The Minnesota Statewide Multimodal Transportation Plan directly and indirectly emphasizes freight.

This plan is the first statewide plan to be written based on the Minnesota GO Vision. It includes all modes of travel and sets the framework for investment plans such as MnSHIP. Similar to Minnesota GO, the Minnesota Statewide Multimodal Transportation Plan emphasizes freight, directly and indirectly, in the document. Five out of the six objective areas (83 percent), 11 out of the 33 strategies (33 percent), and 10 of the 20 performance measures (50 percent)⁴ have some form of a connection to freight. This plan includes concepts that affect freight movements, such as highway access and response times to incidents.

The area with the most direct connection to freight is Critical Connections (see Table 7). Many of the strategies within the Critical Connections area specifically cite freight or the movement of goods. In addition, when the update to the Minnesota Statewide Freight Plan commences in the upcoming fiscal year (July 1, 2013 to June 30, 2014), not only will it need to meet the requirements set forth in MAP-21, it will also need to align with the Minnesota Statewide Multimodal Transportation Plan and Minnesota GO.

Table 7 identifies a number of areas where freight is indirectly referenced in the Minnesota Statewide Multimodal Transportation Plan. While not specifically cited, freight is impacted by many of the objectives, strategies, and performance measures that are included in the Statewide Multimodal Transportation Plan.

⁴ Clearance time for incidents on metro urban freeways is a performance measure that is not included in the total count of 20 performance measures (it is not listed in the Minnesota Statewide Multimodal Plan), but is currently used by MnDOT. This measure is a three-year average of the time it takes MnDOT and its partners to go from lane blockage to lane opening. If included, the performance measure aligns well with the System Security objective area.

Table 7. Minnesota Statewide Multimodal Transportation Plan Freight-Related Objective Areas, Strategies, and Performance Measures

Objective Area	Strategy	Example Performance Measure
<p><u>Traveler Safety:</u> Safeguard travelers, transportation facilities, and services; apply proven strategies to reduce fatalities and serious injuries for all travel modes.</p>	<p>Increase participation of all road authorities in the collaborative safety initiative TZD and explore new opportunities to work together to improve safety for all modes.</p>	<p><u>Fatalities on All Roads:</u> Annual vehicle-related fatalities on all state and local roads</p>
	<p>Implement strategic and sustainable engineering solutions to improve traveler safety.</p>	<p>None</p>
<p><u>Transportation in Context:</u> Make fiscally responsible decisions that respect and complement the natural, cultural, and social context; integrate land uses and transportation systems to leverage public and private investments.</p>	<p>Work together to improve accessibility and safety for everyone traveling on, along, and across roads.</p>	<p>None</p>
	<p>Work together to support and implement both system-wide and project-specific approaches to avoid, minimize and mitigate adverse impacts to Minnesota’s natural and cultural resources.</p>	<p><u>Compliance with Criteria Air Pollutant Standards:</u> Federal compliance standards. Outdoor levels of ozone, nitrogen dioxide, carbon monoxide, and particulate matter</p>
<p><u>Critical Connections:</u> Identify global, national, statewide, regional, and local transportation connections essential for Minnesotans’ prosperity and quality of life; maintain and improve these connections by maximizing return-on investment, given constrained resources; consider new connections.</p>	<p>Work together to define priority networks for all modes based on connectivity and accessibility.</p>	<p>None</p>
	<p>Collaborate to provide greater accessibility and more efficient movement of goods and people throughout the Twin Cities metropolitan area.</p>	<p><u>Travel Time Index (TTI) and National Ranking:</u> Ratio of peak to free-flow travel time <u>Twin Cities Urban Freeway System Congestion:</u> Percent of miles below 45 mph in the AM or PM peak; duration of this congestion</p>
	<p>Work together to improve freight operations and connections for better access to the transportation system.</p>	<p><u>Travel Speed on Greater Minnesota Interregional Corridors (IRC):</u> Percentage of Greater Minnesota Interregional Corridor miles meeting or close to target speed</p>
<p><u>Asset Management:</u> Strategically maintain and operate transportation assets; rely on system data, partners’ needs, and public expectations to inform decisions; put technology and innovation to work to improve efficiency and performance; recognize that the system should change over time.</p>	<p>Prioritize maintaining and operating assets on identified priority networks.</p>	<p><u>Structural Condition of State Highway Bridges:</u> National Bridge Inventory (NBI) Structural Condition Index <u>Snow and Ice Removal:</u> Frequency of achieving bare lane within targeted number of hours</p>
	<p>Ensure that safety, operations, and maintenance needs are considered and addressed in transportation planning and programming.</p>	<p><u>Ride Quality Index (RQI) for State Highway Pavements:</u> Ride Quality Index</p>
	<p>Monitor and report system condition and identify investment needs for key transportation infrastructure that is owned and operated within the private sector.</p>	<p>None</p>
<p><u>System Security:</u> Reduce system vulnerability and ensure system redundancy to meet essential travel needs during emergencies.</p>	<p>Collaborate with emergency planning efforts to ensure efficient and coordinated response to special, emergency, and disaster events.</p>	<p><u>Traffic Signal, Lighting and ITS Maintenance:</u> Under development</p>

Minnesota State Highway Investment Plan (2013)

The Minnesota State Highway Investment Plan (MnSHIP) is currently being finalized. As a result, this analysis is based on draft text that has been assembled as of May 2013. As mentioned previously, MnSHIP is one of MnDOT's transportation investment plans and is responsible for directing a large portion of the agency's expenditures (i.e., highway investments).

Based on MAP-21, risk management strategies, and recent MnSHIP scenario planning exercises, some revisions to MnDOT's planning processes have been made, including the following:

The deepening imbalance between highway revenues and costs has shaped how MnDOT approaches highway investment over the 20-year planning period.

- New emphasis has been placed on solutions that ensure a high return-on-investment (i.e., solutions that extend across modes and demand a broader view of MnDOT's role in supporting local and regional economic competitiveness, public health, and energy independence).
- The agency recognizes the need to continue improving its project selection process to better ensure that investments more fully align with both statewide and local priorities.
- The importance of establishing multimodal strategies – the integration of different modes and adherence to objectives and strategies that apply across modes – have been incorporated into MnSHIP and will influence how Minnesota's roads are built and managed in the future.

MnSHIP estimates that there will be \$18 billion of statewide highway investment over the next 20 years. It also recognizes that \$30 billion is needed to work toward the vision established in Minnesota GO. This leaves a \$12 billion gap between the anticipated level of funding and what is needed over the 20-year period. This imbalance is the result of a widening gap between revenues collected from primary highway funding sources and the growing costs of preserving and building upon the state highway system. Sources such as gas taxes (at the federal and state level), vehicle sales taxes, and vehicle registration taxes will have to stretch further in order to address Minnesota's needs. The effects of inflation, meanwhile, are expected to erode the state's buying power as costs of raw materials and construction grow. The deepening imbalance between highway revenues and costs has shaped how MnDOT approaches highway investment over the 20-year planning period. Most importantly, this gap severely limits MnDOT's ability to construct larger projects (e.g., grade separations, port connections, and two-lane to four-lane expansions) that could benefit the movement of freight.

There are currently 10 investment categories that are listed in MnSHIP. Seven of the 10 (70 percent) investment categories⁵ relate to freight (see Table 8).

Table 8. MnSHIP Freight-Related Investment Categories

Investment Category	Description
Pavement Condition	Investments in pavement condition are designed to meet targets set in MAP-21 for the Interstate and NHS systems.
Bridge Condition	MAP-21 has set a target of 10 percent poor for the bridge deck area condition on NHS roads.
Roadside Infrastructure	This category typically involves the repair/replacement of existing elements such as culverts, guardrails, signals, rest areas, signs, and pavement markings.
Traveler Safety	The Statewide Performance Program includes investments identified as part of the Highway Safety Improvement Program (HSIP).
Twin Cities Mobility	MAP-21 emphasizes reliability of movement on major state highways that move the majority of freight throughout the country. The Twin Cities have the most extensive congestion issues and carry the largest volumes as well as the most freight.
Critical Connections (Interregional Corridor Mobility)	This category focuses on reducing delay and travel time on routes between regional trade centers. The NHS system is a priority in MAP-21 and the IRC system overlaps the NHS system.
Regional Community Improvement Program (RCIP)	Investments that respond to regional concerns and collaboration opportunities, opportunities to deliver innovative and creative proposals (destination innovation), Transportation and Economic Development Program (TED), and the Corridor Investment Management Strategy (CIMS) Solicitation.

The investment categories included in MnSHIP do not specifically identify freight.

Again, similar to the objectives and strategies listed in the Statewide Multimodal Transportation Plan, the investment categories included in MnSHIP do not specifically identify freight; however, many of the outcomes from investments made in these investment categories provide significant benefit to freight movements. Examples of this include smooth pavements, which provide lower operating costs, greater fuel efficiency, less damage to goods, and improved safety; or improvements to critical connections, which will decrease delays and reduce travel times. Traveler safety improvements likewise reduce the frequency and severity of crashes, simultaneously

⁵ The number and composition of the investment categories may change as MnSHIP is further developed. The table reflects investment categories as of May 2013.

decreasing risk and delay. All of these improvements have significant benefits for freight.

2.4 Findings and Recommendations

Based on the review of MAP-21, Minnesota GO, the Minnesota Statewide Multimodal Transportation Plan, the Minnesota State Highway Investment Plan, and the 2005 Statewide Freight Plan, the following findings and recommendations have been developed.

Consistency of MnDOT Plans to MAP-21

Findings:

- A. Table 9 aligns MAP-21's National Strategic Freight Goals with the three major MnDOT statewide planning documents as they relate to freight:
- Minnesota GO (vision elements and guiding principles)
 - Minnesota Statewide Multimodal Transportation Plan (objective areas, strategies, and performance measures)
 - Minnesota State Highway Investment Plan (general investment priorities)

Generally, the six National Strategic Freight Goals have been identified and are recognized in these three MnDOT plans including in such key topics as congestion management and freight system condition. These MnDOT documents are aligned with MAP-21 and encourage the safe and efficient movement of freight throughout Minnesota.

Recommendations:

1. MnDOT's upcoming Statewide Freight Plan needs to include a description of how it will improve the state's ability to meet the National Strategic Freight Goals, while at the same time aligning with other statewide planning documents.
2. In addition, while freight is indirectly referenced in many statewide planning documents, an effort should be made to more explicitly reference freight or the movement of goods where feasible.

MnDOT's upcoming Statewide Freight Plan needs to include a description of how it will improve the state's ability to meet the National Strategic Freight Goals.

Table 9. Comparison of MAP-21 National Strategic Freight Goals and Minnesota Freight-Related Measures

MAP-21	Minnesota Go	Minnesota Statewide Multimodal Transportation Plan			Minnesota State Highway Investment Plan	
National Strategic Freight Goal	Vision Element	Guiding Principle	Objective Area	Strategy	Performance Measure	General Investment Priorities (Draft)
1. Reducing congestion on the freight transportation system	Connects Minnesota’s primary assets—the people, natural resources and businesses within the state—to each other and to markets and resources outside the state and country	Ensure regional connections	<u>Critical Connections:</u> Identify global, national, statewide, regional, and local transportation connections essential for Minnesotans’ prosperity and quality of life; maintain and improve these connections by maximizing return-on investment, given constrained resources; and consider new connections.	Work together to define priority networks for all modes based on connectivity and accessibility.	None	<u>Twin Cities Mobility:</u> MAP-21 emphasizes reliability of movement on major state highways that move the majority of freight throughout the country. The Twin Cities have the most extensive congestion issues and carry the largest volumes as well as the most freight. <u>Critical Connections (Interregional Corridor Mobility):</u> This category focuses on reducing delay and travel time on routes between regional trade centers. The NHS system is a priority in MAP-21 and the IRC overlaps the NHS system.
				Collaborate to provide greater accessibility and more efficient movement of goods and people throughout the Twin Cities metropolitan area.	<u>Travel Time Index (TTI) and National Ranking:</u> Ratio of peak to free-flow travel time <u>Twin Cities Urban Freeway System Congestion:</u> Percent of miles below 45 mph in the AM or PM peak; duration of this congestion	
				Work together to improve freight operations and connections for better access to the transportation system.	<u>Travel Speed on Greater Minnesota Interregional Corridors (IRC):</u> Percentage of Greater Minnesota Interregional Corridor miles meeting or close to target speed	
2. Improving the safety, security, and resilience of the freight transportation system		Integrate safety	<u>Traveler Safety:</u> Safeguard travelers, transportation facilities, and services; apply proven strategies to reduce fatalities and serious injuries for all travel modes.	Increase participation of all road authorities in the collaborative safety initiative TZD and explore new opportunities to work together to improve safety for all modes.	<u>Fatalities on All Roads:</u> Annual vehicle-related fatalities on all state and local roads	<u>Traveler Safety:</u> The Statewide Performance Program includes investments identified as part of the Highway Safety Improvement Program (HSIP).
				Implement strategic and sustainable engineering solutions to improve traveler safety.	None	
3. Improving the state of good repair of the freight transportation system	Provides safe, convenient, efficient and effective movement of people and goods	Strategically fix the system	<u>Asset Management:</u> Strategically maintain and operate transportation assets; rely on system data, partners’ needs, and public expectations to inform decisions; put technology and innovation to work to improve efficiency and performance; and recognize that the system should change over time.	Prioritize maintaining and operating assets on identified priority networks.	<u>Structural Condition of State Highway Bridges:</u> National Bridge Inventory (NBI) Structural Condition Index <u>Snow and Ice Removal:</u> Frequency of achieving bare lane within targeted number of hours	<u>Bridge Condition:</u> MAP-21 has set a target of 10 percent poor for the bridge deck area condition on NHS roads. <u>Roadside Infrastructure:</u> This category typically involves the repair/replacement of existing elements such as culverts, guardrails, signals, rest areas, signs, and pavement markings. <u>Pavement Condition:</u> Investments in pavement condition are designed to meet targets set in MAP-21 for the Interstate and NHS systems.
				Ensure that safety, operations, and maintenance needs are considered and addressed in transportation planning and programming.	<u>Ride Quality Index (RQI) for State Highway Pavements:</u> Ride Quality Index	
				Monitor and report system condition and identify investment needs for key transportation infrastructure that is owned and operated within the private sector.	None	
4. Using advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system	Is flexible and nimble enough to adapt to changes in society, technology, the environment and the economy	Use partnerships	None	None	None	<u>Regional Community Improvement Program (RCIP):</u> Investments that respond to regional concerns and collaboration opportunities, opportunities to deliver innovative and creative proposals (destination innovation), Transportation and Economic Development Program (TED), and the Corridor Investment Management Strategy (CIMS) Solicitation.
		Emphasize reliable and predictable options	<u>System Security:</u> Reduce system vulnerability and ensure system redundancy to meet essential travel needs during emergencies.	Collaborate with emergency planning efforts to ensure efficient and coordinated response to special, emergency, and disaster events.	<u>Traffic Signal, Lighting and ITS Maintenance:</u> Performance measure under development <u>Clearance Time for Metro Urban Freeway Incidents:</u> Three-year average of the time it takes MnDOT and its partners to go from lane blockage to lane opening (used by MnDOT, but not listed in Statewide Multimodal Plan)	
5. Reducing adverse environmental and community impacts of the freight transportation system	Recognizes and respects the importance, significance and context of place – not just as destinations, but also where people live, work, learn, play, and access services; Minimize resource use and pollution	Leverage public investments to achieve multiple purposes	<u>Transportation in Context:</u> Make fiscally responsible decisions that respect and complement the natural, cultural, and social context; and integrate land uses and transportation systems to leverage public and private investments.	Work together to improve accessibility and safety for everyone traveling on, along, and across roads.	None	
				Work together to support and implement both system-wide and project-specific approaches to avoid, minimize and mitigate adverse impacts to Minnesota’s natural and cultural resources.	<u>Compliance with Criteria Air Pollutant Standards:</u> Federal compliance standards. Outdoor levels of ozone, nitrogen dioxide, carbon monoxide, and particulate matter	
6. Improving the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness	Enhances and supports Minnesota’s role in a globally competitive economy as well as the international significance and connections of Minnesota’s trade centers	Ensure accessibility (includes access to key resources)	Could also align with Critical Connections Objective Area shown above	Could also align with Strategies listed as part of Critical Connections Objective Area shown above	Could also align with Performance Measures listed as part of Critical Connections Objective Area shown above	

Primary Freight Network

Findings:

- B. USDOT is in the process of designating a Primary Freight Network (PFN) that will consist of up to 27,000 miles of roadway, plus up to 3,000 additional miles of road critical to the future efficient movement of goods on the PFN. Segments of a roadway that are designated as part of the PFN, Critical Rural Freight Corridors, or are part of the Interstate System (collectively these form the National Freight Network) will likely be in a better position to be eligible and be awarded future federal freight dollars.
- C. Minnesota has lower levels of freight movement compared to some major U.S. freight corridors and gateways (I-95 corridor, Chicago, LA/Long Beach, etc.). However, Minnesota and the Twin Cities in particular, is a major distribution hub for the Upper Midwest and connecting roadways provide important freight access for the larger region.

Recommendation:

- 3. MnDOT should work with its partners (AASHTO, Mid-America Freight Coalition, etc.) to advance designation of important Minnesota roadways that have regional and national freight significance. MnDOT should comment on the draft network and criteria when released, and suggest changes as needed.

Potential PFN roadways in Minnesota include segments of TH 52, TH 169, and TH 212, while segments of TH 10 or TH 2 are potential Critical Rural Freight Corridors. Key connections to the Great Lakes and Mississippi River shipping systems are also strong candidates. All Interstate miles are automatically designated as part of the National Freight Network.

Statewide Freight Plan Elements

Findings:

- D. USDOT strongly recommends that states complete Statewide Freight Plans. These plans have six required elements and a large number of recommended elements.

Table 10 compares the 2005 Minnesota Statewide Freight Plan to the USDOT's required elements. It should be noted that much work has been completed since the 2005 Plan as documented in many of the Regional Freight Plans. In addition, CFIRE is working on a 10-state Regional Freight Plan for the Mid-America Freight Coalition that will likely be completed in late 2013.

- E. Table 11 expands this comparison to include not just the required elements, but also the recommended outline and topic areas. Overall, MnDOT's 2005 Statewide Freight Plan incorporates many of the topic areas suggested, presenting a strong base from which to prepare the update.

Recommendations:

4. MnDOT's Freight Office should ensure that the upcoming Minnesota Statewide Freight Plan is consistent with MAP-21 requirements, including the six required plan elements. New sections that MnDOT should develop include performance targets, identification and evaluation of specific improvements, and expected outcomes of the improvements on the state, including natural resource areas.
5. MnDOT's Freight Office should give careful consideration to the USDOT's recommended elements to determine if they are applicable to Minnesota. MnDOT should include these freight elements where feasible, to assist with consistency with neighboring states (freight movements often extend beyond state lines). Some examples of specific sections of the Statewide Freight Plan that MnDOT should consider addressing include a comprehensive implementation strategy and proposed partnerships with private infrastructure owners.
6. Finally, MnDOT's Freight Office should use 2005 Statewide Freight Plan, the MnDOT Regional Freight Plans, and the Mid-America Freight Coalition's Regional Freight Plan as resources for the Minnesota Statewide Freight Plan.

MnDOT's Freight Office should give careful consideration to the USDOT's recommended elements to determine if they are applicable to Minnesota.

Table 10. Comparison of 2005 Minnesota Statewide Freight Plan and MAP-21 Required Elements

MAP-21 Required Elements	Consistency with 2005 Statewide Freight Plan¹	Comments
An identification of significant freight system trends, needs, and issues with respect to the State	Yes	Chapter 6
A description of the freight policies, strategies, and performance measures that will guide the freight-related transportation investment decisions of the State	Partial	Includes freight policies and strategies in Chapter 8, but excludes discussion of how they will guide investment; various performance measures have been discussed and identified, but further analysis is needed
A description of how the plan will improve the ability of the State to meet the national freight goals established under section 167 of title 23, United States Code	No	New requirement of MAP-21 and not applicable to previous Statewide Freight Plan
Evidence of consideration of innovative technologies and operational strategies, including intelligent transportation systems, that improve the safety and efficiency of freight movement	Partial	Chapter 8 (Policy Direction 3), but discussion could be expanded
In the case of routes on which travel by heavy vehicles (including mining, agricultural, energy cargo or equipment, and timber vehicles) is projected to substantially deteriorate the condition of roadways, a description of improvements that may be required to reduce or impede the deterioration	No	New requirement of MAP-21 and not applicable to previous Statewide Freight Plan
An inventory of facilities with freight mobility issues, such as truck bottlenecks within the State, and a description of the strategies the State is employing to address those freight mobility issues	Yes	Chapters 4 and 8

Table 11. Comparison of 2005 Minnesota Statewide Freight Plan and MAP-21 Recommended Plan Outline

MAP-21 State Freight Plan Chapter Recommendations	Required or Recommended Elements within each State Freight Plan Chapter	Consistency with 2005 MN Statewide Freight Plan	Comments*
1. Strategic Goals	Required Element: Description of how the plan will improve the ability of the State to meet the National Strategic Freight Goals	No	(New requirement of MAP-21 and not applicable to the 2005 Statewide Freight Plan)
	Recommended Element: State freight goals; prioritize national and state goals based on importance to the State	Partial	Includes MnDOT freight policy directions (similar in some respects to goals) in Chapter 8, but does not prioritize them
2. Economic Context of Freight Transportation Planning	Recommended Element: Identification of important industries and their supply chains, including exports	Partial	Existing Statewide Freight Plan (2005) identifies commodities and the amount of products that are imported/exported, but does not do in-depth analysis of supply chains
3. Freight Policies, Strategies, and Institutions	Required Element: State freight policies and strategies and how they will guide freight-related investment decisions in the State	Partial	Includes freight policies and strategies in Chapter 8, but excludes discussion of how they will guide investment
	Recommended Element: State freight policies and strategies and how they will guide broader freight improvement (e.g., operations strategies and policy changes)	Yes	Chapter 8
	Recommended Element: State grant and loan programs that are available to freight	Yes	Chapter 5
	Recommended Element: State's freight-related institutions, their governance structures, and funding mechanisms	Partial	Chapter 5 has a broad overview of OFCVO and private operators, but more detail could be provided
	Recommended Element: Private transportation infrastructure owners, such as railroads, terminals, pipelines, and freight transfer facilities	Partial	Identified in Chapters 2 and 5, but not all major facility types are mapped
	Recommended Element: Statutory and constitutional constraints on freight-related investments and policies, such as prohibitions on spending State funds for certain kinds of freight infrastructure	Partial	Chapter 5 describes some of these funding constraints, but could be expanded
	Recommended Element: Regional freight planning activities in which the State participates, such as planning for key multi-state freight corridors, multi-state metropolitan areas, or for other regional groups of States	Partial	New recommendation of MAP-21 and not applicable to the 2005 Statewide Freight Plan; MnDOT's Northern Minnesota/Northwestern Wisconsin Regional Freight Plan (2009) and Western Minnesota Regional Freight Study (2009) address multi-state freight planning issues
	Recommended Element: State's priorities in freight transportation infrastructure development	Partial	Chapter 4 identifies deficiencies in the state's freight transportation system and severity of each impediment; Chapter 5 of the plan identifies areas in MnDOT's planning process where freight needs can be better integrated
4. State Freight Transportation Assets	Required Element: Inventory of facilities with freight mobility issues, such as truck bottlenecks, within the State	Yes	Chapter 4
	Recommended Element: Other public and private freight facilities, including routes/facilities that serve energy development, mining, agriculture, and timber production areas	Partial	Noted in Chapters 2 and 5, but could be expanded for resource production areas
5. The Conditions and Performance of the State's Freight Transportation System	Recommended Element: Existing conditions and performance of freight system, including problem areas	Partial	Included in Chapter 4, but could be expanded
	Recommended Element: Measures that the State considers most reasonable and appropriate (use USDOT measures once established)	Yes	Chapters 7 and 8; USDOT measures still in development
	Required Element: Freight performance targets that will guide the freight-related investment decisions in the State	Partial	Various performance measures have been discussed and identified, but further analysis is needed
	Recommended Element: One performance target for each State Freight Plan goal	No	New recommendation of MAP-21 and not applicable to the 2005 Statewide Freight Plan
6. Freight Forecast	Recommended Element: 20-year forecast of freight transportation demands by mode, commodity classification, and origin/destination (movements into, out of, through, and within the State)	Partial	Only a 15-year forecast developed in Chapter 3 versus the requested 20-year forecast
7. Overview of Trends, Needs, and Issues	Required Element: Significant freight system trends, needs, and issues with respect to the State	Yes	Chapter 6
	Recommended Element: Emerging trends and their impact on freight	Yes	Chapter 6
8. Strengths and Problems of the State's Transportation System	Recommended Element: Strengths of the freight system	Yes	Various references throughout the Plan
	Recommended Element: Areas where the state does not meet State Freight goals and a prioritized list of existing/future problem areas to be addressed	No	New recommendation of MAP-21 and not applicable to the 2005 Statewide Freight Plan

Table 11 (Continued). Comparison of 2005 Minnesota Statewide Freight Plan and MAP-21 Recommended Plan Outline

MAP-21 State Freight Plan Chapter Recommendations	Required or Recommended Elements within each State Freight Plan Chapter	Consistency with 2005 MN Statewide Freight Plan	Comments*
9. The State's Decision-Making Process	<u>Required Element</u> : Evidence of consideration of innovative technologies and operational strategies, including intelligent transportation systems, that improve the safety and efficiency of freight movement	Partial	Chapter 8 (Policy Direction 3), but could be expanded as this is a required element
	<u>Recommended Element</u> : State's decision-making process on freight improvements (stakeholder/public outreach, how State prioritized the various strategies, projects, and policy changes it considered)	Partial	Public involvement listed in Chapter 9, but other items not included
	<u>Recommended Element</u> : Coordination of improvements with different modes to achieve goals in a cost-effective way	Yes	Chapter 8 describes policies aimed at providing an integrated system of freight transportation in Minnesota across the different transportation systems in the state
	<u>Recommended Element</u> : Coordination with other states and metropolitan areas within the State	Partial	Chapter 8 (Policy Direction 5) references coordination with other states, but does not include lengthy discussion on how or coordination with metropolitan areas
	<u>Recommended Element</u> : Economic analysis of the benefits and costs of various improvements considered, including comparing alternative approaches to achieving the same goal	No	New recommendation of MAP-21 and not applicable to the 2005 Statewide Freight Plan
10. The State's Freight Improvement Strategy	<u>Required Element</u> : Description of the strategies the State is employing to address freight mobility issues	Yes	Chapter 8
	<u>Required Element</u> : a description of improvements that may be required to reduce or impede the deterioration of routes on which travel by heavy vehicles (including mining, agricultural, energy cargo or equipment, and timber vehicles) is projected to substantially deteriorate the condition of roadways	Partial	New requirement of MAP-21 and not applicable to the 2005 Statewide Freight Plan; the 2005 plan does describe the importance of maintaining 10-ton roadway system, and discusses expansion of 10-ton roads
	<u>Recommended Element</u> : Overall freight improvement strategy with different improvements ranked in order of priority (or grouped into higher and lower priority groups)	Partial	Strategies listed in Chapter 8, but there are no specific improvements identified or prioritization of improvements
	<u>Recommended Element</u> : Analysis of how the improvement strategy will advance the State's strategic goals relating to capital investments, operational improvements, policy changes, ITS, other innovative technologies	Partial	Chapter 1 describes the overlap between the 2005 Statewide Freight Plan and the 2003 Minnesota Statewide Transportation Plan
	<u>Recommended Element</u> : Analysis on how the proposed improvements will affect supply chains and important industries	No	New recommendation of MAP-21 and not applicable to the 2005 Statewide Freight Plan
	<u>Recommended Element</u> : Outcomes that are expected from the proposed improvements	Partial	New recommendation of MAP-21 and not applicable to the 2005 Statewide Freight Plan; however, the 2013MnSHIP update has identified outcomes expected to result from proposed investments
11. Implementation Plan	<u>Recommended Element</u> : Compatibility of State Freight Plan to other related metropolitan or statewide plans; compatibility of State Freight Plan to Freight Plans of adjacent states	Partial	Chapters 5 and 7, but compatibility with other states' plans could be expanded
	<u>Recommended Element</u> : Comprehensive implementation strategy, including both short-term and long-term strategies	Partial	Strategies listed in Chapter 8, but there are no specific improvements identified or prioritization of improvements
	<u>Recommended Element</u> : Schedule for each proposed freight improvement	No	New recommendation of MAP-21 and not applicable to the 2005 Statewide Freight Plan
	<u>Recommended Element</u> : Funding plan showing how each project will be funded	No	New recommendation of MAP-21 and not applicable to the 2005 Statewide Freight Plan
	<u>Recommended Element</u> : Proposed partnerships with private infrastructure owners	Yes	Chapters 5 and 8 (Policy Direction 5)
<u>Recommended Element</u> : Coordination with other States on projects of regional importance	Yes	Chapters 3 and 8 (Policy Directions 2 and 5)	

*Chapters noted refer to chapters in the 2005 Minnesota Statewide Freight Plan.

Chapter 3. Current MnDOT Processes and Practices

This chapter reviews freight data that is currently collected by MnDOT and identifies additional data needs. It also describes how freight data is or is not utilized in the project prioritization process. Drawing on information gathered in telephone interviews with District planning staff, Central Office staff, and MPO Executive Directors, this document presents findings and recommendations with regard to how freight data might be used to improve freight planning in Minnesota via MnDOT's project selection and scoping process. Freight's role in alternative financing programs is also explored.

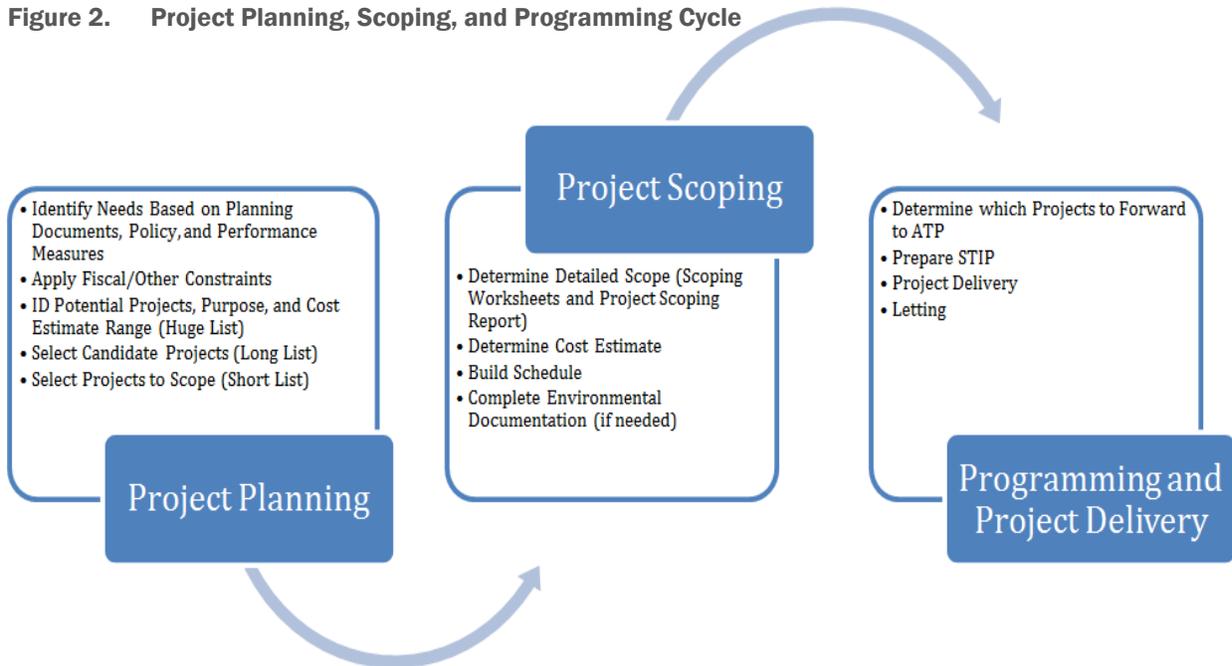
This document presents findings and recommendations with regard to how freight data might be used to improve freight planning in Minnesota via MnDOT's project selection and scoping process.

Current Project Planning, Scoping and Programming Process

Figure 2 depicts MnDOT's current highway project development process at the District level. In the project planning phase, the needs of the transportation system are identified. These needs are prioritized based on a series of steps that reduces a long list of projects to a short list of projects that progress into the project scoping phase. Fiscal constraints, performance of assets such as pavements and bridges, District priorities, and other constraints aid in narrowing down the list of potential projects. A cost estimate range is also produced.

As the short list of projects moves into the project scoping phase, a project manager is assigned to each project. A more detailed cost estimate is developed, along with a project schedule. If environmental documentation is needed on a project, it is completed as part of this step. Scoping worksheets are distributed to MnDOT functional groups to further refine the project. The assigned project manager will then prepare a Project Scoping Report, which summarizes all of the feedback received and presents the final scoped project.

Once this report is complete, the scoped projects are submitted to the Area Transportation Partnerships (ATPs) for inclusion in the Statewide Transportation Improvement Program (STIP) for possible funding. Projects then move into project delivery and are let for construction in their identified program year.

Figure 2. Project Planning, Scoping, and Programming Cycle

3.1 Existing Freight Data

Given the above-referenced cycle, this study effort examined the types of freight data that are available to District staff during this process. MnDOT has developed several regional and statewide studies and plans centered on freight issues. Many of these plans have a variety of freight-related data that could play an enhanced role in freight planning in Minnesota. The following studies and plans were reviewed for freight-related data and information:

1. Statewide Freight Plan (2005)
2. Safety Rest Area Studies (2007-2009)
3. Regional Freight Plans (2007-2009)
4. Minnesota GO (2009)
5. MnDOT Measurement Sources for Freight Performance Measures and Indicators (2008)
6. IRC Update and Supplemental Freight Routes Study (2011/2012)
7. Twin Cities Metro Freight Initiative (2012)
8. Minnesota Statewide Multimodal Transportation Plan (2012)
9. CIMS Meetings (2012/2013)
10. Minnesota State Highway Investment Plan (MnSHIP) (2013)

A review of these studies identified a variety of freight-related data and information that could be used by MnDOT. Some of this data is currently used in other planning efforts. For example, mobility and safety measures are regularly used in planning capital highway investments. A prioritized list of the most relevant data is presented in Table 12. Appendix C includes the full data list. Most of the data is currently collected by MnDOT, while a few of the data sets are potential future data sets. It is important to note that each data set is updated with different degrees of frequency, from those collected annually to others only being collected once as part of a special study effort.



Table 12. Prioritized List of Freight-Related Data

Focus Area	Data	Description	Data Source
Asset Condition	Bridge conditions	National Bridge Inventory Structural Condition Index ratings.	MnDOT Bridge Office
	Pavement conditions	Ride Quality Index, Surface Rating, and Pavement Quality information.	MnDOT Office of Materials and Road Research
Safety	Vehicle-related fatalities and injuries	Crash incidents for vehicles, including commercial vehicles, involving a fatality or injury.	MnDOT Office of Traffic, Safety and Technology
	Rest area locations and truck parking information	Locations of rest areas and truck parking information, including number of days/year that Interstate rest area truck parking facilities are at or over capacity.	MnDOT Office of Traffic, Safety and Technology
Mobility	Twin Cities congestion	Percent of miles below 45 mph in the AM or PM peak travel period, and the duration of this congestion.	MnDOT Regional Transportation Management Center
	Travel speed on IRCs	Percentage of Greater Minnesota Interregional Corridor miles meeting or close to their target speeds.	MnDOT Office of Capital Programs and Performance Measures
	Peak-period travel time reliability on IRCs	Measure of variation in travel times on IRCs and other high-use truck roadways.	MnDOT Office of Capital Programs and Performance Measures
	Miles per stop	Measure of the number of times a vehicle must stop due to a traffic signal or stop sign on a given route.	MnDOT video log data
	Snow and ice removal times	Frequency of achieving bare lane within a targeted number of hours (targets are based on research with Minnesotans and historical results).	MnDOT Office of Traffic, Safety and Technology
	State highway speed limits	Posted speed limits on Minnesota's state highways.	MnDOT Office of Traffic, Safety and Technology
System Extent and Dimensions	Shoulder widths	Shoulder widths and locations on state highways.	MnDOT Office of Traffic, Safety and Technology
	Lane widths	Lane widths on state highways.	MnDOT Office of Traffic, Safety and Technology
	Oversize/overweight routes and restrictions	Location of primary oversize/overweight routes in Minnesota and restrictions on routes such as bridge heights, bridge weight limits, width restrictions, etc.	State of Minnesota Commercial Vehicle Operations Office
	Expanded envelope and superload corridors	Location of routes that can accommodate superload and expanded envelope freight.	MnDOT Office of Freight Planning and Development
	Intermodal facility connections	Locations of Interregional Corridor connections to intermodal facilities, including air cargo service, lake terminals, and river terminals.	MnDOT Office of Freight Planning and Development
	Major freight generator locations	Locations of major freight generators within and near Minnesota.	MnDOT Office of Freight Planning and Development
Volumes	AADT (Average Annual Daily Traffic)	Volume of motorized vehicles that travel past count locations during a specific period of time.	MnDOT Office of Traffic Forecasting and Analysis
	HCADT	Volume of heavy commercial vehicles that travel past count locations during a specific period of time.	MnDOT Office of Traffic Forecasting and Analysis

Data Currently Used by District Planning Staff and Decision Makers

District planners were asked to share what, if any, of this freight-related data or information is used in the project development process. There are many factors that are considered with respect to prioritization of projects; however, asset conditions (e.g., bridge and pavement conditions) receive greater emphasis over other elements due to federal and state performance requirements as well as risks for not meeting these requirements. However, maintaining asset conditions does provide benefits to freight (such as travel time savings, safety benefits, and improved access to freight destinations). Freight-specific data is not usually a primary driver in project planning and prioritization, but it is more often incorporated in scoping a project after it has been selected (see Appendix D for Project Scoping Worksheets).

A handful of key freight data was identified as playing a role in either the planning or project scoping phases. This data helps planning staff and decision-makers identify and anticipate the need for additional investment geared toward improving highways for freight use. Briefly, these freight-related data include the following:

1. Oversize/overweight routes
2. Other identified freight networks
3. Heavy Commercial Average Daily Traffic (HCADT)
4. Regional Freight Plans
5. Freight generators list/local knowledge of freight generators
6. Comments from the public and internal staff on trouble spots
7. Truck-per-hour counts, where available
8. Regional transportation modeling efforts in the Twin Cities metropolitan area
9. Equivalent Single Axle Load (ESAL) forecasts

District staff already has a sufficiently clear understanding of where the priority freight movements are located.

The data identified above represents a small subset of available data that could be used in developing and prioritizing future projects. However, based on discussions with planning staff, two factors make the use of an abundance of freight data less important. First, performance targets such as those for pavement conditions currently guide where and how MnDOT will invest the majority of highway funds (it should be noted, however, that pavement and other asset management projects benefit freight movements). Second, given the limited amount of revenue available for programming toward freight-specific projects, District staff already has a sufficiently clear understanding of where the priority freight movements are located and often do not need additional data to identify these projects that help improve the movement of freight. Interviewees noted that qualitative data and knowledge of the major

freight issues in their District was often more important than the use of any quantitative data.

Additional Data Needs

A brainstorming exercise was held with District Planning staff and decision makers to identify an array of information that, if available, may help in developing and prioritizing projects; this information includes the following:

1. New industries in the District
2. Major freight generators (updated)
3. Value of goods shipped on major corridors
4. Costs to shippers resulting from delays on the highway system
5. Commodity flow information (volume)
6. Origin/destination information
7. Prioritized list of projects that significantly benefit freight and low-cost, high-benefit freight projects
8. Map of freight barriers on the state system and OSOW network
9. Prioritized list of freight routes by District
10. Additional HCADT information and an increased level of accuracy, especially on non-Principal Arterial routes
11. Automatic Traffic Recorder (ATR) data on major corridors (to provide additional HCADT information and increased accuracy)
12. Time of day travel on the system for freight
13. Data on the seasonal nature of freight movements
14. Data on weight restrictions across state borders
15. Data on the amount and type of road closures
16. Private sector freight contacts
17. Routes approved by the OSOW permit office and their frequency of use
18. Accessibility to OSOW routes
19. Speeds on OSOW routes
20. Delay/freight bottlenecks
21. Distance between rest areas on major corridors
22. Incident clearance time on major corridors (outside of the Twin Cities metropolitan area)
23. IRC travel time delay measure expanded to other NHS routes not currently on the IRC system
24. Delay to passenger vehicles caused by OSOW weight movements
25. Identification of companies that must take alternate routes due to products being damaged on poorly maintained roadways

It is important to note that while a large list of future freight data types were generated from the phone interviews, this was more of a wish list, identified to improve the understanding of current freight activities. The list will need to be further vetted to determine the feasibility of some of these ideas.

District staff clearly articulated that they did not foresee that this information would change MnDOT's priorities or significantly alter investment decisions.

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Alternative Financing

While this chapter focuses on the standard project programming process, there are other alternative financing programs that consider freight in project selection and have a tremendous benefit to freight movements throughout the state. Examples of these programs include MnDOT's Corridor Investment Management Strategy (CIMS) initiative and MnDOT's Transportation Economic Development (TED) program, which provide funding for improvements on state trunk highways. The Metropolitan Council's Regional Solicitation process is another potential alternative source of funds for projects in the seven-county Twin Cities metropolitan area. All three programs are competitive transportation funding solicitations, and all provide special consideration for projects that improve freight movements.

MnDOT's new Corridors of Commerce program also offers opportunities to fund projects that significantly benefit freight. While the details of this program are being finalized, including project selection criteria, \$300 million in funding will be available.

Finally, private sector contributions provide opportunities for businesses to help fund transportation improvements in partnership with MnDOT. This is one of the ways that MnDOT could partner with the private sector to fund transportation improvements into the future.

CIMS funding is intended to address issues that are not tied to an existing MnDOT system performance target and are therefore unlikely to be funded through the normal programming process.

Corridor Investment Management Strategy Initiative

CIMS is a MnDOT-led program started in 2013 that awarded \$30 million to fund 10 trunk highway projects that improve quality of life, environmental health, or economic competitiveness. Given these objectives, a wide range of projects are eligible for CIMS funding, including those that benefit freight.

CIMS funding is intended to address issues that are not tied to an existing MnDOT system performance target and are therefore unlikely to be funded through the normal programming process. Projects must show a high return-on-investment and be let for construction within two years of the funds being awarded.

Based on comments received from the CIMS Project Manager, a benefit-cost analysis (BCA) accounts for 60 percent of the scoring, and freight plays a role in this calculation. As part of the BCA, truck travel time and travel time reliability are monetized for the proposed projects using Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) data. In addition, the

operating costs for trucks (e.g., tires, diesel fuel, maintenance expenses), as well as the potential reduction in noise and truck emissions resulting from the project are considered in the BCA.

Beyond the benefit-cost analysis, projects that benefit freight movements can also score points if they:

1. Close or address a gap in the oversize/overweight network of other identified system
2. Create system redundancy that will improve the overall transportation system's reliability
3. Improve access to an airport or intermodal facility
4. Positively impact rail (e.g., removal of an at-grade rail crossing)
5. Improve economic competitiveness

Transportation and Economic Development Grants

This funding program began in 2010 as a joint effort between MnDOT and the Department of Employment and Economic Development (DEED). TED invested \$56 million in 24 projects in the 2010 and 2012 funding cycles and awarded an additional \$15.7 million to five projects in 2013. The program's purpose is to fund construction, reconstruction, and improvement of state and local transportation infrastructure in order to:

1. Create and preserve jobs
2. Improve the state's economic competitiveness
3. Increase the tax base
4. Accelerate transportation improvements to enhance safety and mobility
5. Promote partnerships with the private sector

TED targets transportation investments that improve specific industries (many of which will rely heavily on freight movements).

TED provides state funding to close financing gaps for transportation infrastructure improvement construction costs. These highway improvements enhance the statewide transportation network while promoting economic growth through the preservation or expansion of an existing business, or development of a new business.

TED targets transportation investments that improve specific industries (many of which will rely heavily on freight movements) including manufacturing, industrial parks, warehousing/distribution, and agricultural processing. In reviewing the 54 TED projects were awarded in 2010 and 2012, every one of them directly benefited freight movements and many of them fall under the definition of a freight project described in the next chapter. Examples of projects that have been funded since 2010 and have a direct impact on freight movements include:

1. New or improved interchanges
2. Improved access roads to industrial parks
3. Road strengthening in order to allow trucks to carry heavier loads
4. Construction of multi-modal facilities
5. Additional turn lanes, bypass lanes, truck acceleration lanes, intersection improvements, road widening, and other upgrades near freight generators
6. Access management projects

Projects are awarded more points in the TED solicitation if they have the following freight characteristics:

1. Improve economic competitiveness (projects will likely benefit freight movements based on the list of targeted industries)
2. Have higher HCADT
3. Improve access to existing eligible business facilities (relates to last-mile connections)
4. Supports modal integration, now or in the future (relates to intermodal connections and last-mile connections)

Regional Solicitation

The Regional Solicitation is a competitive process for allocating federal transportation funds in the seven-county Twin Cities metropolitan area. Since 1993 and approximately every two years thereafter, the Transportation Advisory Board (TAB), with the assistance of its Technical Advisory Committee (TAC) and the Metropolitan Council, solicits, evaluates, ranks, and recommends projects for inclusion in the region's Transportation Improvement Program (TIP).

Approximately \$150 million in federal funds is distributed every two years in three major federal programs: Surface Transportation Program (STP) – Urban Guarantee, Congestion Mitigation and Air Quality (CMAQ), and Transportation Alternatives (TA). The improvements fund a wide range of projects, many of which enhance freight movements.

MnDOT, Metro Transit, counties, cities, and other government entities are eligible to apply for the federal funds. While MnDOT is not as active in submitting applications as many of the other agencies, MnDOT has received funds in three of the funding subcategories that positively affect freight movements:

- STP “A” Minor Arterials: MnDOT owns 20 percent of the total “A” Minor Arterial system – projects may include new interchanges, roadway

Approximately \$150 million in federal funds is distributed every two years in three major federal programs. The programs fund a wide range of improvements, many of which enhance freight movements.

expansions, intersection enhancements, access modifications, shoulder improvements, or other safety improvements

- STP Non-Freeway Principal Arterials: MnDOT owns the majority of this system – projects may include new interchanges, roadway expansions, intersection enhancements, access modifications, shoulder improvements, or other safety improvements
- CMAQ System Management: includes signal timing projects, cameras, variable message signs, and other ITS improvements

Some Regional Solicitation funds that are awarded to counties and cities as part of this process also benefit freight such as improvements to non-MnDOT owned “A” Minor Arterials or non-freeway Principal Arterials that facilitate the movement of freight from freight generators to the Principal Arterial system. In addition, many trail grade separation projects are completed that reduce conflicts with bicyclists/pedestrians with busy arterial roadways used by freight.

All roadway projects awarded federal funds in the Regional Solicitation must be built to 10-ton standards. Comments received from Metropolitan Council staff estimated that eight to 10 percent of the STP roadway’s scoring criteria are freight-related. A review of the scoring indicated that there is a wide variation in the amount of points awarded to projects in the freight-related scoring criteria, indicating that freight does play at least a small role in the types of projects that are funded. Points are awarded to projects that have a connection to freight include the following:

- Upgrade non-10-ton roads to 10-ton standards (in two of the five STP roadway categories) and do so in a cost-effective manner (in one of the five STP roadway categories)
- Have higher HCADTs (all roadway categories)
- Improve roadways that connect to identified Intermodal Freight Terminals or connect Intermodal Freight Terminals to a freeway (all roadway categories)

While HCADTs are requested as part of the application, these numbers are generally estimates since counts are not generally taken on city and county-owned “A” Minor Arterials. In addition, many of the other criteria such as emissions reductions and crash improvements calculations do not account for freight vehicles.

Corridors of Commerce

In 2013, the State Legislature authorized \$300 million in trunk highway bonds for the Corridors of Commerce program. This program directs funds

for roadway expansion, downtown state highway improvements, and other related projects primarily on the Interregional Corridor (IRC) system. The specific project selection criteria have not been established for these funds, but freight movements may play a role.

Private Sector Contributions

Private sector contributions help fund need transportation improvements such as new turn lanes, traffic signals, and new highway access. Businesses request these improvements either during the construction period or as the business grows, thus requiring improved transportation infrastructure to support the growth.

3.2 Findings and Recommendations

This chapter identifies the current freight data that is available and how it is used (or not used) in MnDOT's normal project planning and scoping process. The use of freight data in alternative financing programs such as CIMS, TED, and the Regional Solicitation is also explored. Based on this assessment, the following findings and recommendations are proposed.

Interviews with District Planners indicated that they did not know that some of this freight data existed.

Existing Freight Data

Findings:

- F. The District planner interviews identified a handful of key freight data and other information that is currently used in project planning. These and other data are also incorporated into MnDOT's various freight studies and plans.
- G. Interviews with District Planners indicated that they did not know that some of this freight data existed.
- H. Finally, there are varying degrees of communication between the Districts and the Freight Office. Some Districts have continual dialogue with the Freight Office, while others do not have communication on an ongoing basis. In addition, there is an opportunity for the Freight Office to better educate District staff on freight initiatives and for District staff to better educate Freight Office staff on their planning and programming process.

Recommendations:

7. Based on the freight data currently available, MnDOT's Freight Office should focus its attention on distribution, education, and promotion of high-priority freight data to the Districts. This data includes the following:
 - a) The use, accuracy, and application of Heavy Commercial Average Daily Traffic (HCADT) data
 - b) An overview of oversize/overweight routes, finalized OSOW maps, and the rationale for how and why these routes were selected
 - c) Routes with height or weight restrictions
 - d) Expanded Envelope and Superload Corridors and the differences between these routes and other systems (i.e., OSOW routes)
 - e) A list of the most important intermodal facility connections
 - f) An accurate and up-to-date freight generators list (the last map/list was updated on March 2010)

8. Furthermore, MnDOT can improve communication between the Districts and the Freight Office by distributing newly completed MnDOT Freight studies and/or updates to freight data at the Planning Management Committee and other similar forums. The Freight Office should also travel out to the Districts and hold educational trainings/brown bags on freight issues, so that the Districts are informed of key freight initiatives and that the Freight Office is aware of key issues occurring within the Districts.

In addition, Freight Office staff should act as spectators in key District meetings in the project planning process where a large number of projects are reduced to a list of scoped projects. Freight Office staff should also meet with the assigned Project Managers for projects to see how Scoping Worksheets and Scoping Reports are filled out with respect to freight considerations.

Future Freight Data

Findings:

- I. As mentioned previously, District Planners indicated certain additional freight data that would be helpful in better integrating freight needs into projects (while acknowledging that more data would not necessarily improve their ability to program investments effectively).

Recommendations:

9. MnDOT's Freight Office should determine the feasibility of gathering the list of high priority freight data generated from District telephone interviews and confirm how or if this information would be used. An initial evaluation of each data set is presented below.

Potential data should be evaluated to determine its use, effectiveness, cost, and ease to collect. Data that is collected should be added to the high-priority freight data recommended previously and packaged in an easy to use format for Districts to use in the project development process. A list of potential data is provided on the next page:

Potential data should be evaluated to determine its use, effectiveness, cost, and ease to collect.

Table 13. Potential Freight Data Identified in District Telephone Interviews

Potential Data	Details and Challenges
Map/list of new industries in the District.	Data will likely be easy to gather, but should be updated on an annual or biannual basis to capture and highlight major new industries. This could be completed in conjunction with updates to the freight generators map.
Value of goods shipped on major corridors	Various types of data are available to purchase, but it may be a better indicator of the health of the economy than the freight system.
Costs to shippers resulting from delays on the highway system	Data could help inform MnDOT staff and the general public on the benefits to improvements on major freight corridors.
Commodity flow volumes	Data is available to purchase, but it may be a better indicator of the health of the economy than the freight system.
Origin/destination information	Data is likely expensive and difficult to collect on a large scale.
Prioritized list of projects that significantly benefit freight movements and low-cost, high-benefit freight projects	Would require each District or the MnDOT Freight Office to develop a process to identify and prioritize these lists and update them on an annual basis. Until dedicated freight funding is identified, prioritize projects in the annual updates to the HIP and STIP based on their impact to freight movements.
Prioritized list of freight routes by District	Would require each District or the MnDOT Freight Office to develop a process to identify and prioritize these lists and update them on an annual basis. The list will likely be a blending of the IRC/Supplemental Freight Routes, National Freight Network, OSOW network, and NHS system.
Map of freight barriers on state system and OSOW network	Would require identification of freight barriers across the state. Barriers on the OSOW network were last updated January 2013.
Additional HCADT data and locations, especially on non-Principal Arterial routes	See HCADT discussion on the next page for details and challenges.
Time of day truck travel	Currently available where an ATR exists, primarily on the Interstate System. In order to get other data it would require detailed information from freight companies and other private-sector sources regarding their shipping movements. Data from INRIX, Inc. can provide some of this information, but would not capture the variety of businesses and areas desired. In general, this data would contribute greatly to freight planning, but is probably not feasible at this time.
National Freight Network routes	Should be added once this network is established by USDOT.

There is a need for more accurate and robust HCADT data to use in decision making.

HCADT

Findings:

- J. Interviews with District Planners indicated that there is a need for more accurate and robust HCADT data to use in decision making. Where currently reported, they are usually estimated values and District Planners are not always comfortable using this data in the decision making process.

Recommendation:

10. MnDOT should consider expanding the use of ATR data on major freight corridors to increase the accuracy of HCADT data. Beyond increasing the accuracy of data, MnDOT should also consider reporting HCADT on more roadways, so that stakeholders have a clearer understanding of freight movements throughout the state.

Freight-Related Data and Project Planning

Findings:

- K. Although freight movements are important to MnDOT, freight-related data and information does not necessarily play a significant role in the project planning process. Most of the Districts note that they have sufficient information to adequately weigh project priorities given their current funding, performance measures, and risks.

Two main factors contribute to this:

- MnDOT's need to maintain asset conditions and meet federal and state performance requirements results in a large share of state highway investment being targeted at pavement and bridge assets (it should be noted that pavement and other asset management projects result in benefits to freight movements). There is also a loss of buying power based on construction costs rising faster than transportation revenues.
- Once projects are selected based on meeting MnDOT's performance targets, there is usually limited funding that remains to direct to other needs, including those that benefit freight. District staff generally "know" the most important freight issues/projects through discussions with stakeholders throughout the District.

Most of the Districts note that they have sufficient information to adequately weigh project priorities given their current funding, performance measures, and risks.

In addition, it is important to note that there is no dedicated funding source for highway freight projects at this time.

- L. The scoping worksheets distributed to the functional groups in the District as part of the scoping phase have two freight-related questions for which the District Planner must answer “yes” or “no.” If the answer is yes, then they are asked to describe the issue. The two issues currently being tracked include the following:
 1. Freight issues (yes or no)
 2. Load restriction issues (yes or no)
- M. Finally, interviews conducted as part of this study indicated that small, strategic infrastructure fixes can sometimes provide tremendous value to freight movements. MnDOT is not always aware of these small fixes unless they are voiced from businesses.
- N. Furthermore, District planner interviews noted that the freight community often operates on a different timeline than MnDOT. The freight community would prefer that infrastructure investments are made quickly to respond to a changing market and needs, whereas MnDOT has a much longer, multi-year project development process.

Small, strategic infrastructure fixes can sometimes provide tremendous value to freight projects.

The freight community would prefer that infrastructure investments are made quickly to respond to a changing market and needs, whereas MnDOT has a much longer, multi-year project development process.

Recommendations:

11. In the planning phase of the project planning, scoping, and programming cycle, the use of freight performance measures will make it easier to identify deficiencies on the freight system. They will also make it easier to compare freight projects to safety or other projects using performance measures to aid in prioritization. As described in a previous recommendation, MnDOT should also develop a prioritized list of projects that significantly benefit freight, map of freight barriers, and prioritized list of freight routes by District. Until dedicated freight funding is identified, projects in the HIP and STIP should be prioritized based on their impact to freight movements. It should also be noted that some of the data described in this chapter may be used as part of performance measures once they are more firmly established as part of the Statewide Freight Plan.
12. To aid in the development of the recommended prioritized list of projects that significantly benefit freight, MnDOT should develop an internal freight council. This group would create a methodology for identifying and prioritizing projects as part of the annual HIP

and STIP updates. The Districts, which typically have responsibility for project prioritization and development, would then incorporate this methodology into their normal processes. Earning buy-in from the Districts will be critical to this effort.

13. As part of the scoping phase of the project planning, scoping, and programming cycle, MnDOT Districts should add the following line items to the Scoping Worksheets (see Appendix D):
 - a) Coordination with CO Freight Office (add to the Project Managers Scoping Worksheet)
 - b) Freight movements to/from businesses (add Under Potential Business Impacts heading in the Business Impact Assessment Scoping Worksheet)
 - c) Freight benefits (hyperlink to freight benefits table; add to Planning Section Scoping Worksheet)
 - d) OSOW issues (including a hyperlink to the latest OSOW Super Corridors map; add to the Planning Section Scoping Worksheet). This map identifies the current and best OSOW Super Load corridors, Interstates with vertical restrictions, and other segments with restricts such as height, width, length, weight, or roundabouts. District Planners would use this map to ensure that routes with no restrictions are constructed to these standards and that restrictions on OSOW routes are removed as roadway segments and bridges are constructed/reconstructed.
 - e) Freight issues (add to the State Aid Scoping Worksheet)
 - f) Freight and OSOW accommodations (add to the Bridge Scoping Worksheet)
 - g) Freight and OSOW accommodation (add to the Design Scoping Worksheet)

MnDOT Districts should also use other high priority existing and future freight data (e.g., HCADT, oversize/overweight routes, a statewide list of freight generators, etc.) as part of the project scoping phase. This data may be used to lengthen a turn lane to better accommodate freight or raise a bridge height for OSOW vehicles. Maintaining an updated list of data and communicating educating District staff on the quality and accuracy of this data may help promote funding of additional projects that have freight.

As part of this effort the draft OSOW Super Load Corridors maps should be finalized.

14. MnDOT Districts should identify the costs and impacts of quickly implementing smaller freight improvement projects that are more highly sought after by the private sector.

Alternative Financing

Findings:

Use of CIMS and TED as a funding mechanism can speed up the delivery of freight projects in comparison to the normal project development process.

- O. The CIMS and the TED solicitations are part of the Regional and Community Improvement Priorities (RCIP) investment category and fund projects on the state trunk highway system (the funds cannot be used for rail or port projects that would benefit freight). Many of the criteria in these solicitations are weighted to benefit freight-related projects. The solicitations gather a significant amount of freight-related information and, in addition to funding freight projects, could be used by the Freight Office to identify freight deficiencies in Minnesota (e.g., the CIMS outlooks). Furthermore, the federal funds distributed to the seven-county Twin Cities metropolitan area through the Regional Solicitation process also greatly benefit freight movements. Some of the potential benefits of projects selected in these competitive solicitations include the following:

- Reduced freight delay by improving capacity, managing highway access, or constructing bypass lanes.
- More direct access (such as a new interchange) to freight generating facilities to more efficiently transport goods.
- Ability to respond to dynamic freight needs/business environment.
- Enhanced collaboration between government agencies and the business community to identify and solve freight-related problems that occur on MnDOT facilities and adjacent local roadways.

The federal funds distributed to the seven-county Twin Cities metropolitan area through the Regional Solicitation process also greatly benefit freight movements.

- P. The new Corridors of Commerce program, funded by the State Legislature in 2013 with \$300 million in trunk highway bonds, may present opportunity to advance projects that improve the efficient movement of freight.
- Q. Private sector contributions have also been used by MnDOT to fund transportation improvements that meet the specific needs of a

business. However, there is not a consistent approach towards having businesses pay for requested improvements. This approach can vary based on the District, economic development needs of a community, or general economic climate at the time of the request. MnDOT's TED program has helped fund some of these types of improvements.

Recommendations:

15. MnDOT's Freight Office should encourage local agencies through their respective MnDOT Districts to submit state trunk highway projects with potential freight benefits in alternative financing programs such as CIMS, TED, and the new Corridors of Commerce program. The funds could be used to improve the state highway system and adjacent local roadway (i.e., last mile connections). Use of CIMS and TED as a funding mechanism can speed up the delivery of freight projects in comparison to the normal project development process. Both TED and CIMS stress projects that can be delivered quickly so that their benefits can be realized. The Corridors of Commerce program may also fund projects that significantly benefit freight.
16. MnDOT should encourage the State Legislature to fund CIMS and TED with additional funding sources that could be used for projects beyond those on the trunk highway system (such as rail and ports).
17. MnDOT should advocate for a dedicated funding source for freight-related highway improvements at the state level. Funding would be distributed on a competitive basis and include both quantitative and qualitative factors.
18. Traditionally, MnDOT has not been as active as other local agencies in the Regional Solicitation, so this federal funding source could be better utilized for freight projects in the seven-county Twin Cities metropolitan area.
19. Once freight performance measures are established, MnDOT's Freight Office should encourage this data to be used as part of an input in the CIMS benefit-cost analysis, which accounts for 60 percent of the project scoring. MnDOT's Freight Office should also encourage the TED and Regional Solicitation processes to more fully incorporate freight and/or freight performance measures into their scoring criteria given the emphasis placed on the efficient movement of freight in MAP-21. A review of the

Regional Solicitation criteria is completed every two years and this is an opportunity to advocate that freight scoring criteria should be given higher weight.

20. Finally, MnDOT should offer guidance to the Districts regarding the use of private sector contributions in funding transportation improvements. As part of this guidance, examples of projects within Minnesota and with other DOTs should be used to highlight best practices that could be incorporated by the Districts. This guidance could be distributed both in short informational pamphlets, but also as part of MnDOT trainings.

Chapter 4. Performance Measures and Indicators

MAP-21 directs states to use performance- and outcome-based programs to make progress toward seven National Goal Areas, including a freight national goal area.

MnDOT currently has several performance measures and indicators that are linked to freight. These measures show MnDOT's progress toward freight-related goals and policies presented in Minnesota GO and the Statewide Multimodal Transportation Plan, but have not been substantially updated since the 2005 Statewide Freight Plan. This chapter reviews federal performance measures, MnDOT's existing performance measures, and potential new measures.

By better defining these measures, MnDOT would be better able to identify the amount of investment that is needed for freight projects. Understanding these needs is vital to a concerted effort that makes progress toward meaningful freight-related goals.

4.1 Federal Performance Measures

MAP-21 identifies seven National Goal Areas as an overarching policy framework and includes a national goal for Freight Movement and Economic Vitality (see Table 14). MAP-21 directs states to use performance- and outcome-based programs to make progress toward these seven National Goal Areas, including a freight national goal area. MnDOT has substantial experience in performance management and is well positioned to respond to this requirement.

MAP-21 also directs the USDOT to establish specific measures for states to reference in assessing freight movements. A final rulemaking on freight performance measures is expected as early as fall 2013. At the time of the rulemaking, MnDOT and MPOs in Minnesota will be required to establish related freight performance targets within one year. Tracking and reporting of these measures will be important to show progress toward established targets. In addition, MAP-21's Freight provisions recommend that states develop performance-based State Freight Plans, incorporating the one federal performance measure and developing at least one state-initiated performance measure for each goal listed in the Statewide Freight Plan.

Table 14. MAP-21 National Goal Areas

MAP-21 National Goal Area	Description
Safety	Achieve a significant reduction in traffic fatalities on all public roads.
Infrastructure Condition	Maintain the highway infrastructure asset system in a state of good repair.
System Reliability	Improve the efficiency of the surface transportation program.
Congestion Reduction	Achieve a significant reduction in congestion on the National Highway System.
Freight Movement and Economic Vitality	Improve the national freight network; strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
Reduced Project Delivery Delays	Reduce project costs, promote jobs and the economy, and expedite movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.
Environmental Sustainability	Enhance the performance of the transportation system while protecting and enhancing the natural environment.

AASHTO Performance Measures

The American Association of State Highway and Transportation Officials (AASHTO) [Standing Committee on Performance Management](http://scopm.transportation.org/Pages/default.aspx)⁶ developed a set of possible national performance measures in response to anticipated MAP-21 requirements. The committee recommended two new measures related to freight and offered guidance on them. As mentioned previously, it is expected that USDOT will release a freight-related performance measure(s). This measure may or may not be one of the two proposed AASHTO measures below. Any measures not adopted by USDOT should be considered by MnDOT for development of new freight performance measures.

The two performance measures proposed by AASHTO include:

- **Annual Hours of Truck Delay (AHTD).** This measure would capture the amount of extra time spent by freight traffic on a given corridor due to congestion. It could be used on different timeframes (peak and off-peak, weekly, monthly, and annually), corridors, and geographic regions. Speed data would be collected from sources within the private-sector freight industry and volume data would come from its Highway

⁶ <http://scopm.transportation.org/Pages/default.aspx>

Performance Monitoring System (HPMS). MnDOT would need to determine a threshold speed of congestion for each corridor (for example, Washington State estimates congestion to begin at 85 percent of the free-flow speed, beyond which maximum vehicle volume per hour per lane decreases⁷). MnDOT, in collaboration with MPOs, would be able to set targets for this measure that show percent increases or decreases in AHTD by corridor, regionally, and statewide.

- **Truck Reliability Index (RI).** The truck reliability index measures the difference between actual truck travel times and expected travel times for a given stretch of roadway. This measure depends on data from private-sector speed data and HPMS volume data. With this measure, MnDOT would essentially calculate how much delay that truckers and shippers should expect to encounter on a given stretch of road due to congestion. As an index, this measure would also enable MnDOT to compare different roadway lengths.

Freight-specific performance measures would enable MnDOT to better track and evaluate an investment's impact on freight movements.

4.2 State Performance Measures

MnDOT's transportation performance management program tracks conditions for Minnesota's highways, railways, waterways, aviation facilities, and other elements of its aviation and transportation system. The Annual Minnesota Transportation Performance Report captures these conditions, and comprises numerous measures related to freight including port and rail shipments, Interregional Corridor travel speeds, and congestion in the Twin Cities metropolitan area.

However, for highways, freight is typically considered a component of larger, non-freight vehicle volumes. Freight-specific performance measures would enable MnDOT to better track and evaluate an investment's impact on freight movements. It would also provide more information for benefit-cost analyses used in MnDOT's Corridor Investment Management Strategy (CIMS) and Transportation and Economic Development (TED) solicitations. Within the context of the Minnesota State Highway Investment Plan and other transportation plans, better recognition of the investment impacts to freight would enable MnDOT to make more informed tradeoff decisions as it sets investment priorities and programs its funds.

⁷ As described by the AASHTO Standing Committee on Performance Management Task Force Findings on National Level Measures, November 9, 2012.

2005 Statewide Freight Plan Performance Measures

The 2005 Statewide Freight Plan identified performance measures related to freight movements along highways, as presented in Table 15. These measures were originally developed in the Minnesota Statewide Transportation Plan (adopted 2003); although a number of these have continued to develop/evolve, while others have been dropped from consideration. The 2003 Statewide Transportation Plan has since been replaced, and the most recent version is the 2012 Statewide Multimodal Transportation Plan.

Table 15. Performance Measures from the 2005 Statewide Freight Plan

	Performance Measure	Still in Use in 2013 (Yes/No)
1	Percent of highways that meet “good” and “poor” ride quality targets.	Yes
2	Percent of townships, counties, and municipalities along IRCs whose adopted local plans and ordinances support IRC Management Plans and Partnership studies.	No
3	Percent of IRC and bottleneck removal projects identified in the 10-Year Program for which right-of-way needs have been protected.	No
4	Clearance time for incidents, crashes, or HazMats (in the Twin Cities metro).	Yes
5	Snow and ice removal clearance time.	Yes
6	Percent of miles of Principal Arterial corridors in major Regional Trade Centers that are managed.	No
7	Percent of major generators with appropriate roadway access to IRCs and major highways.	No
8	Percent of IRC miles meeting speed targets.	Yes
9	Peak-period travel time reliability on IRCs and other high-use truck roadways.	No
10	Ratio of peak to off-peak travel time (Travel Rate Index for the Twin Cities Metro).	Yes
11	Peak-period travel time reliability on Twin Cities metropolitan area highways.	No
12	Miles of peak-period congestion per day in major Regional Trade Centers.	No
13	Heavy truck crash rate (three-year average).	Yes
14	Number of heavy truck-related fatalities (three-year average).	Yes

Current Freight-Related Performance Measures and Indicators

The 2012 Statewide Multimodal Transportation Plan presents an updated list of performance measures related to different key transportation objectives (such as Asset Management, Traveler Safety, and Critical Connections). Several of the measures (such as snow and ice removal times, ride quality, and IRC speed targets) have been carried over from the previous plan. Additional performance measures are incorporated in MnDOT's [Annual Minnesota Transportation Performance Report](#)⁸, and both are presented in Table 16.

Table 16. Current Freight-Related Performance Measures and Indicators

	Freight Performance Measures and Indicators	Source
1	Fatalities on all roads: Annual vehicle-related fatalities on all state and local roads.	Annual Performance Report
2	Bridge conditions: National Bridge Inventory (NBI) Structural Condition Index	Annual Performance Report
3	Ride Quality Index (RQI) for state highway pavements: Ride Quality Index	Annual Performance Report
4	Snow and ice removal: Frequency of achieving bare lane within targeted number of hours.	Annual Performance Report
5	Port shipments: Port shipments to and from Minnesota Great Lakes and river ports (annual tonnage)*	Annual Performance Report
6	Railroad shipments: Shipments on Minnesota railroads (annual tonnage from, to, and through Minnesota)*	Annual Performance Report
7	Travel speed on greater Minnesota Interregional Corridors: Percent of interregional corridor miles within 2 mph of target speed (55, 60, or 65 mph or faster)	Annual Performance Report
8	Twin Cities urban freeway system congestion: Percent of Twin Cities metropolitan area miles below 45 mph in a.m. or p.m. peak.	Annual Performance Report
9	Travel Time Index (TTI) and National Ranking: Ratio of peak to free-flow travel time.	Statewide Multimodal Transportation Plan
10	Twin Cities clearance time: Clearance time for metro urban freeway incidents (3-year average)	Annual Performance Report
11	Traffic signal, lighting, and ITS maintenance (in development): (Measure will relate to development of safe, coordinated system for response to major special, emergency and disaster events.)	Statewide Multimodal Transportation Plan
12	Compliance with criteria air pollutant standards: Federal compliance standards. Outdoor levels of ozone, nitrogen dioxide, carbon monoxide, and particulate matter	Statewide Multimodal Transportation Plan

**This information serves to indicate freight conditions, and is not strictly a performance measure.*

⁸ <http://www.dot.state.mn.us/measures/>

Potential Freight Performance Measures and Indicators

Planning staff from Districts, MPOs and MnDOT's specialty offices were asked what performance measures or indicators should be used with respect to freight.

A list of potential performance measures and indicators that were mentioned or discussed in response to this question is presented in Table 17. This list represents concepts that need to be further vetted by MnDOT staff based on data availability, usefulness, cost, and other factors. It is not meant to be a list of performance measures endorsed by the Districts or Central Office. In addition to the potential performance measures and indicators, a summary of the potential issues or concerns with each one is also identified.

Additional Considerations for Performance Measures and Indicators

The FHWA recommends evaluating potential performance measures for several key factors to determine whether they should be implemented:

1. **Focus.** Does the potential measure or indicator focus on an area that is relevant to MnDOT's freight goals and objectives?
2. **Collaboration.** Was there a collaborative effort to develop the potential measure in partnership with transportation stakeholders?
3. **Maintenance.** Can the measure be maintained if MnDOT makes substantial changes to how it tracks data or invests in highways?
4. **Impact.** Can the measure be used to support investment decisions, policymaking and target-setting?
5. **Trackability.** Can the measure be used to effectively analyze performance trends?
6. **Feasibility.** Is it feasible and practical to collect, store, and report data for the measure that is being considered?

Any state-developed measures should be consistent with federal performance measures. They should also reflect the quality of freight service provided to freight shippers and the impact of the freight transportation system on the general public (e.g., amount/value of goods shipped; reductions in crashes, fatalities, and injuries; reduced delay and congestion; reduced vehicle operating costs), as opposed to measures such as miles of railroad track or number of bridges inspected each year. USDOT also recommends that at least one performance target be developed for each goal that is listed in a State Freight Plan. States are required to report periodic progress toward the performance targets to USDOT.

USDOT also recommends that at least one performance target be developed for each goal that is listed in the Statewide Freight Plan.

Table 17. Potential Performance Measures and Indicators from District, MPO and MnDOT Central Office Surveys*

	Potential Performance Measures and Indicators	Potential Issues or Concerns (If Any)
1	Travel speed on other NHS routes not already tracked as part of the existing IRC measure	<i>Data availability, accuracy</i>
2	Hours of delay on designated truck routes	<i>Data availability, accuracy, cost to obtain</i>
3	Truck travel time reliability in the Twin Cities metropolitan area (similar to proposed AASHTO measure)	
4	Time-of-day HCADT volume	<i>Data availability, accuracy, cost to obtain</i>
5	Delay caused by bottlenecks	
6	Volume and value of goods shipped (measured by corridor)	
7	Travel speed on oversize/overweight routes	<i>Data availability, cost to obtain</i>
8	Proximity of routes to oversize/overweight system	<i>How to define?</i>
9	Delay to passenger vehicles caused by oversize/overweight vehicles	<i>Data availability, accuracy</i>
10	Incident clearance time (expanded beyond the Twin Cities metropolitan area)	<i>Data availability, where to expand to outside of the Twin Cities</i>
11	Distance between rest areas	
12	Number of bridge hits	<i>How to define?</i>
13	Miles of rumble strips	<i>What type of rumble strips?</i>
14	Reduction in number of at-grade rail crossings	
15	10-ton spring load restrictions (miles of restricted highways)	
16	Removal of identified freight barriers on state system and OSOW system	<i>Data availability</i>

**The performance measures presented in this table are the result of a brainstorming session with District, MPO, and CO planning staff. The use of these measures will need to be further vetted to ensure their usefulness and associated costs.*

4.3 Integrating Freight Performance Measures

MnDOT uses a comprehensive, coordinated, and collaborative planning process to maintain and improve the state highway system. Guiding policy documents such as Minnesota GO and the Statewide Multimodal Transportation Plan establish a framework for system plans, modal plans, and supplemental plans and studies. For freight needs to be effectively integrated into MnDOT's investment decision making, freight-related performance measures will first need to be developed in coordination with MnDOT's Central Office staff, District planning staff, and external stakeholders.

Development of freight performance measures will help the Districts effectively compare the benefits of freight projects to other highway investments. These measures will eventually need to be integrated into the following plans, at a minimum:

- **Statewide Freight Plan Update.** This plan establishes the linkages between freight goals, current conditions, policies and performance measures that will be used to guide freight planning efforts.
- **Annual Minnesota Transportation Performance Report.** MnDOT's annual performance reports capture recent years of performance across all transportation activities in Minnesota. Any new freight performance measure will need to be explored, vetted, and included in this report.
- **Minnesota State Highway Investment Plan.** This plan is updated every four years and sets the long-term investment direction for different categories of capital highway investments. Freight performance measures would help define outcomes for freight and related economic investment areas (such as Interregional Corridor travel times). Any new performance measures related to highways should be incorporated into subsequent updates of this plan.
- **Highway System Operations Plan (HSOP).** The HSOP establishes how MnDOT will operate and maintain the state highway system. A key recommendation of the current HSOP (2012-2015) was the continued effort to expand and enhance the use of performance measures. In particular, the plan indicates that operations activities should have related performance measures, if feasible. Information on freight-related Intelligent Transportation Systems improvements, truck parking facilities, and preventive and reactive pavement and bridge repairs could guide funding decisions in this plan.

Development of freight performance measures will help the Districts effectively compare the benefits of freight projects to other highway investments.

4.4 Findings and Recommendations

This report presents findings and recommendations for how performance measures could be developed based on federal requirements and Minnesota's freight needs.

Freight is indirectly, but well-represented within MnDOT's performance management system.

Strengthening Current Freight Measures.

Finding:

- R. Freight is indirectly, but well-represented within MnDOT's performance management system. Some measures, such as port and rail shipment tonnages, directly relate to freight. Others, such as pavement quality and congestion measures, capture freight benefits and can be used to track freight performance on the highway system (for more information on the relationship of freight benefits to transportation investments, see Chapter 5).

Recommendations:

21. MnDOT's Freight Office should strengthen the emphasis of these existing MnDOT performance measures on freight outcomes by integrating them into the upcoming Statewide Freight Plan.

Developing New Performance Measures

Findings:

- S. A new federal performance measure for freight will be developed in the coming year. In addition, new state freight performance measures developed as part of the Statewide Freight Plan could be considered to better ensure freight needs are reflected in MnDOT's various investment decision making processes. While several freight-related measures exist, there are no freight-specific measures on the state highway system.

Recommendations:

22. MnDOT's Freight Office should work with internal MnDOT staff and external stakeholders to develop urban and rural targets for the federal freight performance measure, once it is released.
23. MnDOT should work with staff and stakeholders to vet and possibly implement new, freight-specific performance measures at the statewide level, with priority given to the two AASHTO performance measures (Annual Hours of Truck Delay and the Truck Reliability Index). MnDOT has many of these tools in place

including Interregional Corridor (IRC) travel time estimates for all major corridors. These travel times can easily be converted into an estimate for hours of delay on a daily or annual basis.

24. MnDOT should vet the potential measures brainstormed by District Planners to determine data availability, cost, and usefulness. A list of potential measures is included in Table 18.

Table 18. Potential Freight Performance Measures.

Federal Performance Measure
(Likely released fall 2013)
Proposed AASHTO Performance Measures
Annual Hours of Truck Delay
Truck Reliability Index
Performance Measures Identified by District, MPO and MnDOT CO Planning Staff
Travel speed on other NHS routes not already tracked as part of the existing IRC measure
Hours of delay on designated truck routes
Truck travel time reliability in the Twin Cities metropolitan area (similar to proposed AASHTO measure)
Time-of-day HCADT volume
Delay caused by bottlenecks
Volume and value of goods shipped (measured by corridor)
Travel speed on oversize/overweight routes
Proximity of routes to oversize/overweight system
Delay to passenger vehicles caused by oversize/overweight vehicles
Incident clearance time (expanded beyond the Twin Cities metropolitan area)
Distance between rest areas
Number of bridge hits
Miles of rumble strips
Reduction in the number of at-grade rail crossings
10-ton spring load restrictions (miles of restricted highways)
Removal of identified freight barriers on the state system and the OSOW system

**The performance measures identified by District, MPO, and CO planning staff are the result of brainstorming sessions. The use of these measures will need to be further vetted to ensure their usefulness and associated costs.*

Use of GPS Data in Performance Measures

Finding:

- T. Many freight companies are using GPS to track shipments and their fleet. This type of data could be used by MnDOT to enhance existing highway travel time information and greatly expand its ability to report on roadway conditions throughout the state. MnDOT has begun exploring the use of this data as it would provide very useful information as it relates to performance measures on the highway system.

Recommendations:

25. MnDOT should continue to explore using private sector commercial GPS data to aid in measuring performance in a comprehensive way on a large system. Much of this data will be supplied by USDOT. Depending on the scope and breadth of the data supplied, MnDOT should evaluate if additional data is needed.

Integrating Freight Measures into Existing Planning Documents

Finding:

- U. Performance measures are used in the Statewide Multimodal Transportation Plan, Minnesota State Highway Investment Plan, and the Annual Minnesota Transportation Performance Report. For those documents that establish capital investment direction or maintenance and operation activities, integration of applicable performance measures can inform the decision-making processes.

Recommendations:

26. MnDOT should tie potential freight performance measures into other planning documents including the Statewide Freight Plan, the Annual Minnesota Transportation Performance Report, the Minnesota State Highway Investment Plan, the Highway Systems Operations Plan, and other supplemental plans and studies where reasonable.

Integration of applicable performance measures can inform the decision-making process.

Chapter 5. Freight Projects and Freight Benefits

This chapter's primary purpose is to define highway-related freight projects. As part of this effort, a distinction is made between projects that can be classified as freight projects and other general transportation improvement projects that may also provide benefits to the freight system. The value of communicating these benefits internally within MnDOT and externally to the freight community, other stakeholders, and the general public is also emphasized.

Currently, MnDOT does not specifically identify freight projects on its highway network as it does with other kinds of projects (for example, bicycle improvement projects).

5.1 Identification of Freight Projects

Currently, MnDOT does not specifically identify freight projects on its highway network as it does with other kinds of projects (for example, bicycle improvement projects). In addition, there currently is no dedicated highway funding explicitly for freight projects at either the state or federal level that would help set criteria for what types of improvements constitute a freight project. Interviews with MnDOT District Planners, MnDOT Central Office staff, and MPO Directors further affirmed that there is no definition or standard for what is a freight project at this time. This portion of the study focuses, therefore, on laying the groundwork for better identification of freight projects.

There are a number of reasons why MnDOT should begin identifying freight projects, including the following:

1. There is potential for future federal funds to become available for freight projects as a result of MAP-21's emphasis on freight mobility. More specifically, MAP-21's Freight provisions will identify a National Freight Network. In addition, by identifying and prioritizing freight projects in the upcoming Statewide Freight Plan (as recommended in MAP-21), it will ensure that the state has freight projects identified, planned for, if future freight funding becomes available at the federal level. Identifying some projects on the National Freight Network may further increase the likelihood of receiving federal funding.
2. As mentioned above, identification and prioritization of freight projects is recommended by FHWA as part of State Freight Plans. However, states are required to identify freight improvements that reduce or impede the deterioration of routes traveled by heavy vehicles (e.g., mining, agricultural, energy, timber vehicles) in their State Freight Plans.

It should be noted that development of a State Freight Plan is recommended by FHWA, but it is not required.

3. MAP-21 expands the types of freight projects that are eligible for existing federal funds such as Surface Transportation Program (STP), Highway Safety Improvement Program (HSIP), Congestion Mitigation and Air Quality Improvement Program (CMAQ), Projects of National and Regional Significance (PNRS), and Transportation Infrastructure and Innovation Act Program (TIFIA). For example, STP funds can now be used for truck parking and surface transportation infrastructure improvements in port terminals for direct intermodal interchange, transfer, and port access. Given this expanded eligibility, identifying potential freight projects is the first step in determining if this funding should be allocated to freight projects or other surface transportation investments.
4. The USDOT is increasing the maximum federal funding share to 95 percent of total project cost for projects on the Interstate system and 90 percent on the non-Interstate system if the project improves the efficiency of freight movements, makes progress toward identified state or national freight performance measures, and is listed in a State Freight Plan. This provision would be a benefit if MnDOT had insufficient state match funding. However, this is currently not the case so it does not substantially affect MnDOT's prioritization or the programing of projects.
5. An improved ability to identify freight projects will enhance how MnDOT Districts and Metropolitan Planning Organizations incorporate freight needs into existing transportation improvement planning processes. Moreover, an enhanced understanding of a freight project could increase the likelihood that these types of projects are prioritized and selected.
6. Identifying freight projects communicates the most important freight projects in the state to the private sector, other states, and MPOs.

An improved ability to identify freight projects will enhance how MnDOT Districts and MPOs incorporate freight needs into existing transportation improvement planning processes.

As mentioned previously, highway related, Federal-Aid freight projects are eligible to receive a higher federal contribution as outlined in MAP-21.⁹ The types of freight projects that FHWA lists as eligible for the higher federal contribution can be used as the basis for determining what constitutes a freight project.

A freight project is a surface transportation project that improves the safety and efficiency of freight movements.

FHWA notes that their list shown below of freight project types is not exhaustive and there may be other types of freight projects that align with the intent of legislation.

1. Construction, reconstruction, rehabilitation, and operational improvements directly relating to improving freight movement
2. Intelligent transportation systems and other technology to improve the flow of freight
3. Efforts to reduce the environmental impacts of freight movement on the primary freight network
4. Highway-rail grade separation
5. Geometric improvements to interchanges and ramps
6. Truck-only lanes
7. Climbing and runaway truck lanes
8. Truck parking facilities eligible for funding under Section 1401, "Jason's Law"
9. Real-time traffic, truck parking, roadway condition, and multimodal transportation information systems
10. Improvements to NHS Intermodal Connectors
11. Improvements to truck bottlenecks (a list of projects will be developed as part of National Strategic Freight Plan)

In addition to being a project that improves the efficient movement of freight, freight projects seeking a higher federal contribution must also make progress toward meeting state/national freight performance goals and be listed in a State Freight Plan. While useful, these two criteria are of secondary importance compared with the project types/definition listed above. Once performance measures are developed and a project is identified in a State

⁹ This list of eligible freight follows the Prioritization of Projects to Improve Freight Movement Guidance issued by FHWA on October 19, 2012.

<http://www.fhwa.dot.gov/map21/guidance/guidesec1116.cfm>

Freight Plan, then these two criteria may make more sense to include in the definition.

The definition of a freight project, as set forth in MAP-21, is a surface transportation project that improves the safety and efficiency of freight movements.

5.2 Connection between MAP-21 Freight Projects and MnDOT

The definition of a freight project, as set forth in MAP-21, is a surface transportation project that improves the safety and efficiency of freight movements. Many of the surface transportation projects listed as freight projects could be funded under MnDOT's investment categories. For example, repaving a segment of a state highway is a general improvement project intended to benefit all vehicles, though freight haulers derive substantial benefits from these improvements.

Expanding the above example of a pavement project, freight haulers derive a breadth of benefits, including:

1. Lower operating costs since wheels, shocks, brakes, axels, and other vehicle parts are subject to less abuse, thus extending their useful life
2. Greater fuel efficiency and in turn lower operating costs
3. Less damage to goods in transport, and reduced insurance costs
4. Improved safety
5. More efficient movement/route since freight haulers will not have to reroute to other roadways to avoid poor pavements and the risk to damaging good or vehicles
6. Reduced driver fatigue since drivers will be able to drive more direct routes at higher speeds
7. Reduced travel time since drivers will be able to drive more direct routes at higher speeds

Other project types such as bridge replacements, improved signage, or guardrail enhancements, all derive their own set of freight benefits. For example, ITS projects that improve travel conditions for daily commuters can significantly benefit freight by reducing travel time and related shipping costs.

The location of a highway improvement project also greatly determines its value to freight movements. For instance, road projects completed on identified routes with heavy truck traffic (e.g., National Highway System, National Freight Network, Interregional Corridors, Oversize/overweight routes, etc.) will likely benefit freight movements more so than projects on other routes. Most freight trips use a combination of state and local systems

to reach their destinations. However, the primary mover of freight truck traffic in the state is the NHS system.

Research into the effects of typical highway improvements – particularly pavement improvements – shows clear benefits to larger vehicles such as those used in freight transportation.¹⁰ Vehicle operating costs are closely related to rough roads, which damage vehicles and increase the need for early repairs, maintenance, and tire replacement.¹¹

Research into the effects of typical highway improvements – particularly pavement improvements – shows clear benefits to larger vehicles such as those used in freight transportation.

While most of the listed MAP-21 freight projects fit into one of MnDOT’s investment categories, a few of them may not be easily funded under MnDOT’s normal prioritization process due to their high cost and targeted benefits. These freight projects include the following:

- Highway-rail grade separations
- Truck parking facilities/rest areas
- Improvements to intermodal connectors

5.3 Communicating Freight Projects and Freight Benefits

Interviews conducted as part of this study indicated that the benefits to freight are not easily understood by the public, industry, or technical staff. Furthermore, these freight benefits are not communicated and well understood by the public, unless it is a major project where the benefits are more obvious or intuitive such as a two- to four-lane expansion. Also, when MnDOT discusses freight benefits internally, it is usually only in connection to a future project. It rarely discusses the freight benefits of completed projects with internal or external stakeholders.

5.4 Findings and Recommendations

Based on the discussions identifying freight projects, the freight benefits derived from other highway investments, and the communication of these benefits, the following findings and recommendations have been developed.

MnDOT does not currently identify freight projects as part of its planning or project selection process.

¹⁰ “Rough Roads Ahead,” AASHTO (2009):

http://roughroads.transportation.org/RoughRoads_FullReport.pdf

¹¹ “Status of the Nation’s Highways, Bridges, and Transit: Conditions and Performance,” FHWA (2010): <http://www.fhwa.dot.gov/policy/2010cpr/chap3.htm>

Identification of Freight Projects

Finding:

- V. MnDOT does not currently identify freight projects as part of its planning or project selection process, and MnDOT does not identify freight investment needs as it does with its current highway investment categories. However, MAP-21's emphasis on freight suggests that Minnesota should consider this as it updates its priorities next year.

Recommendation:

27. MnDOT's Freight Office, in cooperation with the Districts, should identify projects with significant freight benefits as part of the annual updates of the State Transportation Improvement Program (STIP) and the Highway Investment Plan, and/or determine how they might be identified in a future MnSHIP update. While the body of this chapter lays out the reasons for doing so, the most compelling motivations are that there may be future federal funding available for freight projects and MAP-21 recommends that freight projects be identified and prioritized.

Definition of a Freight Project

Findings:

- W. Since freight projects have not been distinguished from other projects in the past, there is no clear understanding or consensus as to what constitutes a freight project.

This lack of identification may be the result of no specific funding source and the fact that MnSHIP does not list freight as one of its 10 investment categories. The investment categories listed in MnSHIP include:

1. Pavement condition
2. Bridge condition
3. Roadside infrastructure condition
4. Interregional corridor mobility
5. Twin Cities mobility
6. Bicycle infrastructure
7. Accessible pedestrian infrastructure

8. Regional and community improvement priorities
9. Traveler safety
10. Project support

However, an identified freight project could conceivably deliver benefits to and/or be included within most of these investment categories.

Recommendations:

28. MnDOT should consider adopting the definition of a freight project that includes the following:

A freight project is a surface transportation project that improves the safety and efficiency of freight movements.

Adopting this broad definition could potentially provide MnDOT greater flexibility and the ability to fund projects that benefit freight. The definition could also be modified to include rail and port projects. As previously mentioned, while there currently is not a dedicated funding source for freight projects, future federal funding may be available for freight projects. Examples of these freight projects may include the following:

1. Construction, reconstruction, rehabilitation, and operational improvements directly relating to improving freight movement
2. Intelligent transportation systems and other technology to improve the flow of freight
3. Efforts to reduce the environmental impacts of freight movement on the primary freight network
4. Railway-highway grade separation
5. Geometric improvements to interchanges and ramps
6. Truck-only lanes
7. Climbing and runaway truck lanes
8. Truck parking facilities eligible for funding under Section 1401, "Jason's Law"
9. Real-time traffic, truck parking, roadway condition, and multimodal transportation information systems
10. Improvements to freight intermodal connectors
11. Improvements to truck bottlenecks

A freight project is a surface transportation project that improves the safety and efficiency of freight movements.

What is not easily understood by the public, industry, and technical staff is how many and to what extent investments benefit freight movement.

29. As part of the discussion of freight projects, MnDOT should pay particular attention to three freight-related project types that are difficult to fund with the normal project prioritization/development process. These types of freight projects include the following:

- Highway-rail grade separations
- Truck parking facilities/rest areas
- Improvements to intermodal connectors

It should be noted that intermodal connectors often involve roadways that are on the local system. The seamless movement of goods requires coordination between government agencies.

Communicating Freight Benefits of Highway Projects

Findings:

X. Many types of highway projects greatly enhance freight movements, even if they are not specifically identified as a “freight project.” What is not easily understood by the public, industry, and technical staff is how many and to what extent investments benefit freight movement. As described previously, research suggest that a pavement improvement on a roadway that is in poor condition prevents wear on vehicles (brakes, shocks, tires, etc.), improves fuel efficiency, and decreases damage to products (lower insurance costs), among other benefits. These types of benefits are not being communicated as well as they could be or they are being taken for granted. Another example is guardrails or barrier systems that eliminate head-on crashes. This reduces insurance costs, delays in the system due to major crashes and crash reconstruction, and vehicle damage. These are all beneficial to freight, but would not normally be thought of as freight projects. Table 19 identifies a number of different highway improvement projects and identifies their associated freight benefits.



Table 19. Freight Benefits from State Highway Investments.

Investment Category		Statewide Allocation of Resources (% of Total Highway Funding)*		Type of Improvement	Type of Freight Benefits								
		Years 1-10	Years 11-20		Lower Operating Costs	Greater Fuel Efficiency	Less Damage to Goods	Improved Safety	More Efficient Movement/Route	Reduced Driver Fatigue	More Parking for Larger Trucks	Reduced Travel Time	
Asset Management	Pavement	34%	62%	Better Pavement Condition	✓	✓	✓	✓	✓	✓		✓	
				10-Ton Routes (Strengthening of Pavements)	✓	✓			✓			✓	
	Bridges	17%	22%	Bridge Replacements (No Posting on Structures)					✓			✓	
	Roadside Infrastructure	9%	3%	Improved Signage/Visibility				✓					
				Replacing Guardrails & Barriers				✓					
				Rest Area Improvements/Upgrades						✓	✓		
Critical Connections	Interregional Corridor (IRC) Mobility	0%	0%	Improved Capacity on Critical Connections (e.g., 2 - 4 lane conversions on IRCs, interchanges, etc.)		✓		✓	✓	✓		✓	
	Twin Cities Mobility	10%	0%	MnPASS Lanes								✓**	
				Metro Congestion Management Safety Program		✓		✓				✓	
	Bicycle	3%	0%	Bicycle (Filling gaps, paved shoulders, wider bridges)				✓					
	Pedestrian	2%	2%	Pedestrian (Americans with Disabilities Act) infrastructure, sidewalk, etc.)				✓					
Regional Community Improvement Program (RCIP)	RCIP	10%	0%	RCIPs – Turn lanes, interchanges, intersection upgrades, etc.				✓	✓			✓	
Safety	Safety	5%	3%	Intersection upgrades, improved lighting, signing, etc.				✓					

*Allocation adds to approximately 89-92%; project support requires the remaining 8-11%; based on draft MnSHIP as of May 2013

**Improved flow in MnPASS lanes results in improved flow for mixed lanes

Recommendation:

30. MnDOT should better communicate the freight benefits of highway projects both within MnDOT and to its transportation partners. Specific recommendations related to communicating freight benefits include the following:
1. MnDOT should reference the Freight Benefits from State Highway Investments Table (Table 19) for all projects to highlight the potential freight benefits that may result.
 2. MnDOT's Freight Office should try to further document the economic benefits of making transportation improvements. This recommendation may involve investing in a tool that will allow MnDOT to quickly determine the economic benefits of various improvements when comparing projects
 3. MnDOT's Freight Office should increase coordination with MnDOT Districts to aid in identifying and promoting freight benefits.
 4. MnDOT Districts should discuss how a project benefits freight as part of public outreach efforts, including public open houses and mailings.
 5. In the Districts, the freight benefits associated with completed projects need to be better communicated in order for MnDOT to effectively consider freight needs in developing projects. When MnDOT discusses freight benefits, it is usually only in connection to a future project. Oftentimes a project may benefit freight even when it was not originally intended or expected to do so.

Expanded communication with the freight industry could improve freight planning at MnDOT.

Expand Communication with the Freight Industry

Finding:

- Y. Expanded communication with the freight industry could improve freight planning at MnDOT. Regional freight planning efforts may provide opportunities to undertake new outreach efforts, such as the recent District 8 Market Study. The interviews conducted as part of the project allowed businesses to directly communicate the freight challenges their companies face with MnDOT and propose changes that would help reduce their costs and ultimately, make them more viable.

Recommendations:

MnDOT should develop new communication materials targeted at businesses because of their reliance on the highway system to remain viable.

31. MnDOT's regional freight planning efforts should include expanded communication with the freight industry. The Freight Office should evaluate the benefits of completing or updating regional freight plans. This will help MnDOT to identify freight issues, especially opportunities for small infrastructure projects that could greatly improve freight movements. Many of these low-cost improvements may not be known by MnDOT or not be viewed as a major priority unless they receive this important stakeholder input. Additional benefits include potential development of new materials for communicating with the private sector about freight benefits of various improvement projects, detours, incidents, weather, congestion, and other operational challenges (e.g., needed turn lanes and traffic signals).
32. MnDOT should communicate early and often with businesses about construction detours. This recommendation can be accomplished by making contact with businesses (ideally two years prior to construction), thus allowing them time to make adjustments to the freight movements coming into and out of their business. Furthermore, MnDOT will be able to gather input from businesses and potentially modify detour routes or project staging to limit disruption.
33. MnDOT Operations should consider discussing work programs and snow plowing procedures with businesses to better meet their needs. MnDOT can recommend routes that are likely to be plowed first during snowstorms and roads to avoid during poor conditions (e.g., fog, ice, and flooding).
34. MnDOT should develop new communication materials targeted at businesses because of their reliance on the highway system to remain viable (i.e., freight shipments are one of many key input costs faced by businesses). Additional tools may include a list of construction projects with improved detail on the timing of construction and business impacts including small projects or those considered standard maintenance items. Other marketing collateral could be developed on selected, larger projects that discuss the freight benefits of the project to the business community.

Chapter 6. Summary of Findings and Recommendations

This study explains how freight needs are addressed in MnDOT's highway planning, project scoping, programming, and delivery processes. By identifying where and how these processes can be improved, MnDOT will be better positioned to respond to federal planning requirements established in MAP-21 and to integrate freight improvements into highway investments.

The findings and recommendations presented in this report are summarized in Table 20, and are broken down into the following sections:

1. **MnDOT's Freight Policies and MAP-21.** Currently, MnDOT policy is well-aligned with MAP-21 policy requirements and guidance. However, there are a few opportunities for improvement, which MnDOT will be able to take advantage of as it initiates an update of the Minnesota Statewide Freight Plan within the next fiscal year.
2. **Current MnDOT Processes and Practices.** A large amount of freight-related information exists that MnDOT might use in establishing its investment priorities. Better integration of freight information into planning processes, and identification of funding sources for freight projects, will be important in ensuring Minnesota's freight needs are met in the future.
3. **Performance Measures and Indicators.** MnDOT's well-developed performance management system will need to incorporate the new federal freight performance measures when it is developed. It can also incorporate other freight performance measures in order to ensure that Minnesota's freight goals are addressed by the agency's freight investments.
4. **Freight Projects and Freight Benefits.** There is currently little distinction between freight projects and other types of highway improvements at MnDOT. A better definition of a freight project, and of the benefits that accrue to freight movements from general highway improvements, would improve freight planning outcomes in Minnesota.

Table 20. Summary of Findings and Recommendations

Report Chapter		Finding	Recommendation
Chapter 2: Federal and State Freight Policies	<u>Consistency of MnDOT Plans to MAP-21</u>	A. MnDOT's three major statewide planning documents (the Minnesota GO Vision, the Statewide Multimodal Transportation Plan, and the Minnesota State Highway Investment Plan) are generally well-aligned with requirements and guidance in MAP-21. Generally, the six National Strategic Freight Goals have been identified and are recognized in these three MnDOT plans.	1. Ensure that the Statewide Freight Plan clearly describes how it will approach National Strategic Freight Goals, while at the same time aligning it with other statewide planning documents. 2. More explicitly reference freight or the movement of goods in future updates of Minnesota GO and the Statewide Multimodal Transportation Plan.
	<u>Primary Freight Network</u>	B. USDOT is in the process of designating a Primary Freight Network and Critical Rural Freight Network. Roads with this designation may be in an advantageous position for federal funding. C. Minnesota has lower levels of freight movement compared to some major U.S. freight corridors and gateways. However, Minnesota is a major distribution hub for the Upper Midwest and connecting roadways provide important freight access for the region.	3. Encourage USDOT to include as many miles as possible of Minnesota roadway with regional and national significance for freight the Primary Freight Network and on the Critical Rural Freight Corridor network. MnDOT should comment on the draft network and criteria when released, and suggest changes as needed. Potential PFN roadways in Minnesota include segments of TH 52, TH 169, and TH 212, while segments of TH 10 and TH 2 are potential Critical Rural Freight Corridors. Key connections to the Great Lakes and Mississippi River shipping systems are also strong candidates. All Interstate miles are automatically designated as Potential PFN roadways in Minnesota include segments of TH 52, TH 169, and TH 212, while segments of TH 10 or TH 2 are potential Critical Rural Freight Corridors.
	<u>Statewide Freight Plan Elements</u>	D. USDOT strongly recommends that states complete Statewide Freight Plans. These plans have six required elements and a large number of recommended elements. E. Overall, MnDOT's 2005 Statewide Freight Plan and Regional Freight Plans incorporate many of the required and recommended elements of Statewide Freight Plans described in MAP-21.	4. Ensure that the Minnesota Statewide Freight Plan is consistent with MAP-21 requirements including the six required Statewide Freight Plan elements. 5. Strongly consider including the recommended Statewide Freight Plan elements. Specific examples of recommended elements that MnDOT should consider include a comprehensive implementation strategy and proposed partnerships with private infrastructure owners. 6. Leverage knowledge from the 2005 Statewide Freight Plan, MnDOT Regional Freight Plans, and the Mid-America Freight Coalition's Regional Freight Plan as resources for the Minnesota Statewide Freight Plan.
Chapter 3: Current MnDOT Processes and Practices	<u>Existing Freight Data</u>	F. District planner interviews identified key freight data and other information that is currently used in project planning. These and other data are incorporated into MnDOT's various freight studies and plans. G. Interviews with District Planners indicated that they did not know that some freight data existed. H. There are varying degrees of communication between the Districts and the Freight Office. Some have continual dialogue while others do not have communication on an ongoing basis.	7. Disseminate high-priority freight data (e.g., HCADT, oversize/overweight routes, a statewide list of freight generators, etc.) more consistently at the District level. 8. Improve communication between Districts and the Freight Office by creating opportunities for discussion, trainings, and dialogue.
	<u>Future Freight Data</u>	I. District planners were interested in some freight data and information that is not currently available.	9. Consider the freight data needs expressed by District Planners (e.g., value of goods shipped on corridors, map of freight barriers, time of day truck travel) based on usefulness, feasibility, and cost.
	<u>Heavy Commercial Average Daily Traffic (HCADT)</u>	J. Interviews with District planners indicated that there is a need for more accurate and robust HCADT data to use in decision making.	10. Investigate the need for more Automated Traffic Recorders to improve the accuracy of HCADT data and to gather this data for more highways on the system.
	<u>Freight-Related Data and Project Planning</u>	K. Freight-related data is not currently heavily used in project planning. L. The scoping worksheets distributed to the functional groups in the District have two freight-related questions, related to whether a project has freight issues or load restriction issues. M. Interviews conducted as part of this study indicated that small, strategic infrastructure fixes can sometimes provide tremendous value to freight movements; MnDOT is not always aware of the need for these small fixes unless they are voiced from businesses. N. District planner interviews noted that the freight community often operates on a different timeline than MnDOT. The freight community would prefer that infrastructure investments are made quickly to respond to a changing market and needs, whereas MnDOT has a much longer, multi-year project development process.	11. During the planning phase of the project planning, scoping, and programming cycle, better integrate freight data such as freight performance measures, a prioritized list of projects that greatly benefit freight by District, a map of freight barriers, and a prioritized list of freight routes by District. 12. Develop an internal freight council. This group would create and build support among Districts for a methodology for identifying and prioritizing projects as part of the annual State Highway Investment Plan and State Transportation Improvement Program updates. 13. Update the project scoping worksheets (used during the project scoping phase of the project planning, scoping, and programming cycle) to include freight needs and use other high priority freight data (e.g., freight generators, intermodal facilities, routes with height or weight restrictions, etc.). 14. Identify the costs and impacts of quickly implementing smaller freight improvement projects that are more highly sought after by the private sector.
	<u>Alternative Financing</u>	O. Freight is an important part of TED and CIMS funding applications. These projects are encouraged to be constructed shortly after project selection. The federal funds distributed to the seven-county Twin Cities metropolitan area through the Regional Solicitation process also greatly benefit freight movements, although MnDOT does not always apply for these funds. P. The Corridors of Commerce program, funded by the State Legislature in 2013 with \$300 million in trunk highway bonds, may also present an opportunity to improve freight movements. Q. There are varying approaches to how MnDOT works to share costs with businesses for requested transportation improvements.	15. Encourage the local agencies through their respective MnDOT Districts to pursue funding from sources such as the Corridor Investment Management Strategy (CIMS) initiative or the Transportation and Economic Development (TED) grant program. Freight projects are ideal candidates for these solicitations, which seek to leverage economic and quality of life outcomes through transportation investments. The Corridors of Commerce program may also fund projects that significantly benefit freight. 16. Encourage the State Legislature to fund CIMS and TED with additional funding sources that could be used for projects beyond those on the trunk highway system (such as rail and ports). 17. Advocate for a dedicated funding source for freight-related highway improvements at the state level. Funding would be distributed on a competitive basis and include both quantitative and qualitative factors. 18. Encourage MnDOT Metro District to submit freight-related improvement projects as part of the Regional Solicitation process in the seven-county Twin Cities metropolitan area. 19. Encourage the greater use of freight criteria and freight performance measures as a part of the scoring in the CIMS, TED, Corridors of Commerce, and the Regional Solicitation. 20. Offer guidance to the Districts regarding the use of developer private sector contributions to fund transportation improvements.

Report Chapter	Finding		Recommendation
Chapter 4: Freight Performance Measures	<u>Strengthening Current Freight Measures</u>	R. MnDOT has an effective and well-developed performance management system, and many of its current measures capture roadway conditions that are relevant to freight movement.	21. Integrate MnDOT's <u>current</u> freight-related performance measures into the update of the Statewide Freight Plan.
	<u>Developing New Performance Measures</u>	S. The development of a new federal freight performance measure and the possibility of new state freight performance measures could reinforce freight planning efforts in Minnesota.	22. Work with internal MnDOT staff and external stakeholders to develop urban and rural targets for the federal performance measure, once it is released. 23. Implement the American Association of State Highway and Transportation Officials' (AASHTO's) recommended freight performance measures related to annual hours of delay and travel time reliability for further consideration as new freight-specific measures at the statewide level. MnDOT has many of these tools in place including Interregional Corridor (IRC) travel time estimates for all major corridors. These travel times can be converted into an estimate for hours of delay on a daily or annual basis. 24. Work with MnDOT staff, transportation partners and other stakeholders to develop <u>new</u> freight-specific measures at the statewide level. Vet these measures to determine data availability, cost, and usefulness.
	<u>Use of GPS Data in Performance Measures</u>	T. GPS data could aid in the tracking of performance measures.	25. Continue to explore the use of private-sector commercial GPS data to enhance and expand existing travel time and speed data for use in performance measurement.
	<u>Integrating Freight Measures into Existing Planning Documents</u>	U. MnDOT uses performance measures in its planning and investment documents. Integration of applicable freight performance measures can inform the decision-making process.	26. Integrate new freight performance measures into the Statewide Freight Plan, the Annual Minnesota Transportation Performance Report, the Minnesota State Highway Investment Plan, the Highway Systems Operations Plan, and other supplemental plans and studies where it is appropriate.
Chapter 5: Freight Projects and Freight Benefits	<u>Identification of Freight Projects</u>	V. MnDOT currently does not identify freight projects in its planning or project selection processes. However, MAP-21 suggests that identification of freight projects may be important to be in a position to receive future federal freight funds.	27. Identify projects with significant freight benefits as part of the annual update to the State Transportation Improvement Program (STIP) and the Highway Investment Plan (HIP) to ensure MnDOT can pursue possible state and federal freight funding opportunities. Develop criteria to identify projects with significant freight benefits (e.g., reduction in total commercial vehicle delay).
	<u>Definition of a Freight Project</u>	W. As freight projects are not typically distinguished from other projects, there is no clear understanding or consensus as to what constitutes a freight project.	28. Consider the following definition of a freight project: "A freight project is a surface transportation project that improves the safety and efficiency of freight movements." Use the Federal Highway Administration's list of freight project types that are eligible for a higher federal cost share to further support a clear freight definition at MnDOT. 29. Consider giving special attention to three freight-related project types that are difficult to fund with the normal project prioritization process (i.e., highway-rail grade separation, truck parking facilities/rest areas, and improvements to intermodal connectors).
	<u>Communicating Freight Benefits of Highway Projects</u>	X. A clear understanding of how highway investments benefit freight movement is needed.	30. Conduct internal and external outreach about the freight benefits that result from many types of highway investments.
	<u>Communication with the Freight Industry</u>	Y. Recent interviews have emphasized the value of reaching out to freight haulers and major freight generators, allowing for direct communication with businesses regarding the freight challenges that they face.	31. Complete or update regional freight plans, which capture information on freight challenges encountered by businesses and freight operators in Minnesota. Benefits include better communication with private stakeholders, identification of freight issues, and potential development of new tools for communicating with the private sector about freight benefits of various improvement projects, detours, incidents, weather, congestion, and other operational challenges (e.g., needed turn lanes and traffic signals). 32. Communicate early and often with businesses about construction detours. This recommendation can be accomplished by making contact with businesses (ideally two years prior to construction), thus allowing them time to adjust to new freight movements. 33. Consider discussing work programs and snow plowing procedures with businesses to better meet their needs. 34. Develop new communication materials targeted at businesses that rely heavily on the highway system for viability. This could include a list of construction projects with details on timing and expected business impacts. It could also include marketing collateral on larger projects related to the expected freight benefits for the business community.

Appendix A: Glossary of Acronyms

GLOSSARY of ACRONYMS

AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
AHTD	Annual Hours of Truck Delay
BCA	Benefit-Cost Analysis
CIMS	Corridor Investment Management Strategy
CMAQ	Congestion Mitigation and Air Quality
CO	Central Office
DEED	Department of Employment and Economic Development
ESAL	Equivalent Single Axle Load
FHWA	Federal Highway Administration
HCADT	Heavy Commercial Average Daily Traffic
HPMS	Highway Performance Monitoring System
HSIP	Highway Safety Improvement Program
HSOP	Highway System Operations Plan
IRC	Interregional Corridor
MAP-21	Moving Ahead for Progress in the 21st Century
MFAC	Minnesota Freight Advisory Committee
MPO	Metropolitan Planning Organization
MnSHIP	Minnesota State Highway Investment Plan
NBI	National Bridge Inventory
NHS	National Highway System
PFN	Primary Freight Network
PMT	Project Management Team
PNRS	Projects of National and Regional Significance
RCIP	Regional Community Improvement Program
RQI	Ride Quality Index
STP	Surface Transportation Program
TA	Transportation Alternatives
TAB	Transportation Advisory Board
TAC	Technical Advisory Committee
TED	Transportation Economic Development Program
TIP	Transportation Improvement Program
TIFIA	Transportation Infrastructure Finance and Innovation Act Program
TTI	Travel Time Index
RI	(Truck) Reliability Index
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled

Appendix B: Stakeholder Involvement Efforts

Integrating Freight in Statewide Planning and Programming Study

Steering Committee Team Meeting March 15, 2013

MEETING AGENDA

- I. Introductions
- II. Statewide Freight Plan Overview
- III. Integrating Freight in Statewide Planning and Programming Study Overview
 - a. Role of Steering Committee
 - b. Scope of Work
 - c. Key Deliverables
- IV. Review Schedule
- V. Discuss White Paper #1 on Freight Goals and Objectives
- VI. Discuss District Planner Survey
 - a. Coordination with District Planners
 - b. Survey Questions
- VII. Next Steps/Action Items
 - a. Freight Data Tech Memo (*Task 3*)
 - b. Scenario Planning Exercise (*Task 4*)
 - c. Freight Friendly Terminology (*Task 5*)

**Integrating Freight in Statewide Planning and Programming Study
Stakeholder Meeting #1
March 15, 2013**

Meeting Summary

ATTENDEES:

Bill Gardner, Freight Office

Dave Christianson, Freight Office

Lynne Bly, Metro Planning

John Wilson, Capital Programming

Susan Moe, FHWA

Mark Nelson, Planning and Programming

Andy Mielke, SRF Consulting Group

Steve Peterson, SRF Consulting Group

Connie Kozlak, Met Council

Tim Spencer, Freight Office

Bobbi Retzlaff, Planning

John Tompkins, Freight Office

Jarrett Hubbard, Project Manager

Patrick Phenow, Freight Office

Via Phone:

Ben Zietlow, Mid-America Freight Coalition

Molly McCartney, Metro Planning

Dave Montebello, SRF Consulting Group

Via Teleconference:

Lisa Bigham, District Planning

Handouts: Scope of Work, Schedule, White Paper #1 Tables, Survey Questions, and Freight Friendly Terminology Table

Introductions

Jarrett Hubbard began the meeting with a brief overview of the study and meeting agenda. Everyone introduced themselves, including three people via phone and one via teleconference.

Statewide Freight Plan Overview

John Tompkins provided an overview of the upcoming State Freight Plan. The first plan was written in 2005. Since then, six regional freight plans have been written to identify freight issues unique to different parts of the state. The 2005 State Freight Plan was a policy-based plan; this update will be policy-based, but will also include a project element to it. This current effort is the precursor to the State Freight Plan.

John told the group that there would be two webinars next week regarding freight. He will send the group more information on how to register for the webinars.

Integrating Freight in Statewide Planning and Programming Study Overview

Andy explained that this project has a tight time frame (needs to be completed by the end of June 2013). The Steering Committee will meet on three occasions during the study:

1. March 15, 2013
2. May 3, 2013
3. June 18, 2013

In addition, the Steering Committee is encouraged to attend the MFAC meeting on June 7, 2013, where a freight scenario planning exercise will take place. This exercise will determine the impacts of different future scenarios that could impact freight. Potential topics are still being finalized, but ideas discussed include:

1. Increased use of ports on the Hudson Bay
2. Increased use of Gulf of Mexico and East Coast ports due to the widening of the Panama Canal
3. Other behavioral changes
4. Changes in resource extraction movements (shipping oil to the Duluth/Superior Ports, silica sand mining, continued oil and natural gas extraction in North Dakota, coal movements, etc.)
5. Increased use of marine highway/inland ports

The Steering Committee noted that USDOT will likely release the freight performance measures this fall. Two measures have been proposed to USDOT for their consideration by the American Association of State Highway and Transportation Officials (AASHTO): truck travel times and reliability. These measures would only be tracked on the Interstate system and would require hourly truck volumes. USDOT would be responsible for providing the data.

Other discussion topics included the following:

1. The group discussed if the next State Freight Plan should only include the required USDOT performance measures (easier to get started) or include additional ones.
2. AASHTO and a number of states have commented on MAP-21's Interim Guidance. Jarrett and John will send out a link of these comments to the Steering Committee. The Steering Committee discussed that many of the suggested items in the Freight Provision are aspirational, but MnDOT now operates in a risk-based planning environment.
3. A consultant will be reviewing all regional freight plans, characterizing linkages to MAP-21, and identifying how they will be integrated into the State Freight Plan.
4. There will likely be another round of federal TIGER funding that will be released in September.
5. Does Minnesota have the "correct" NHS Freight Connectors; some of the roadways identified, especially in the Twin Cities, are passenger-related, not freight-related.
6. The draft Primary Freight Network will be released in April, along with criteria for identifying the critical rural freight corridors. However, it has not been determined what the benefit of being on these networks will be, as no specific freight funding has been authorized to date. If funding is made available, it will likely be advantageous to have roadways on these networks.

Review Schedule

Andy highlighted key points on the project schedule, including the dates for the previously mentioned Steering Committee meetings and MFAC meeting.

Discuss White Paper #1 on Freight Goals and Objectives

Steve Peterson described that the purpose of the first white paper was to identify the primary freight elements in the new federal surface transportation act, Moving Ahead for Progress in the 21st Century (MAP-21), including the requirements for State Freight Plans. It compares the national strategic freight goals listed in MAP-21 with freight-related policies and objectives outlined in three MnDOT statewide planning documents: Minnesota GO (2011), the Minnesota Statewide Multimodal Transportation Plan (2012), and the Minnesota State Highway Investment Plan (currently under development). In addition, this white paper compares freight policies among the three MnDOT planning documents to identify any areas where they are inconsistent with one another. It concludes with seven findings and recommendations for how MnDOT should proceed with satisfying MAP-21's Freight Provisions.

The group liked the draft table that was presented that identified a number of different highway improvement projects and their associated freight benefits. What is not easily understood by the public, industry and technical staff is how many of the investments benefit freight movement. For example, a pavement improvement on a roadway that is in poor condition saves wear on vehicles (brakes, shocks, tires, etc.), reduces operating costs (conserves fuel), and decreases damages to products (lower insurance costs). These types of benefits are not being communicated as well as they could be or they are being taken for granted.

The Steering Committee has the following comments related to the white paper discussion:

1. The check marks in the freight benefits table should be bolder and more benefits should be identified.
2. Is data available to support the freight benefits table? One example is fuel savings resulting from better pavement.
3. According to Dave Christianson's interviews with private industries in District 8, pavement quality is important to minimize damage to goods, including injury or death of livestock. Directness of route is also important; shippers will go out of the way to avoid roads with poor pavement. Direct routes and reduced congestion translate into time savings for shippers.
 - a. In addition, a question was asked as to what quality level of pavement is good enough for shippers? In other state planning documents, rural parts of the state place a high priority on pavement quality, while the Twin Cities metropolitan area wants mobility as a top priority.
4. If we prioritize projects in the future State Freight Plan, how does this list mesh with lists in other statewide documents?
5. MFAC is currently further defining its role and composition.
6. We should explore where we are now versus where we thought we would be as documented in the 2005 State Freight Plan.
7. The draft white paper will be sent to the Steering Committee once finalized.

Discuss District Planner Survey

Andy discussed the approach to the interviews with the various MnDOT Districts by going through the questions that would be asked of interviewees. The interviews will be completed in the next two weeks. In addition, future interviews will be set up with key MnDOT Central Office staff. There was discussion about the importance of including MPOs in this study effort. A presentation could be made at the MPO meeting at the end of April to gather their input. An email explaining the project should be sent to MPO directors prior to the meeting.

Next Steps/Action Items

Andy highlighted some of the future tasks that would be completed as part of this study effort. The next Steering Committee meeting will take place on May 3, 2013.

Integrating Freight in Statewide Planning and Programming Study

Steering Committee Team Meeting #2 May 3, 2013 (1 PM to 3 PM)

MEETING AGENDA

- I. Meeting Overview and Introductions
- II. Introduce Companion Effort with Olsson Associates
 - a. Overview of Olsson scope and coordination with SRF
 - b. Freight Scenario Planning
 - c. Discuss selected scenarios
- III. White Paper #1 on Freight Goals and Objectives
- IV. Update on District Planner, MPO, and Central Office Surveys
 - a. Freight Data Tech Memo
- V. Discussion Topic - "What is a Freight Project?"
- VI. Next Steps/Action Items
 - a. Schedule
 - b. Planning Managers Group Meeting (5/13)
 - c. Freight Scenarios Planning/MFAC (6/13)
 - d. Next Steering Committee Meeting (6/18)
 - e. Project Development and Prioritization Process
 - f. Freight Performance Measures

**Integrating Freight in Statewide Planning and Programming Study
Stakeholder Meeting #2
May 3, 2013**

Meeting Summary

ATTENDEES:

Bill Gardner, Freight Office
Dave Christianson, Freight Office
Lynne Bly, Metro Planning
John Wilson, Capital Programming
Susan Moe, FHWA
Mark Nelson, Planning and Programming
Andy Mielke, SRF Consulting Group
Steve Peterson, SRF Consulting Group
Andrew Harrison, SRF Consulting Group
Connie Kozlak, Met Council
Tim Spencer, Freight Office
John Tompkins, Freight Office

Jarrett Hubbard, Project Manager
Patrick Phenow, Freight Office
Ben Zietlow, Mid-America Freight Coalition
Philip Schaffner, CIMS
Mark Berndt, Olsson Associates
Al Cathcart, Olsson Associates

Via Phone:

Andy McDonald, Duluth-Superior MPO

Via Videoconference:

Lisa Bigham, District 7 Planning

Handouts: Agenda, Project Schedule and White Paper #1

Introductions

Jarrett Hubbard began the meeting with a brief overview of the study and meeting agenda. Everyone introduced themselves, including Andy McDonald via phone and Lisa Bigham via Videoconference.

Scenario Planning (Olsson Associates)

Mark Berndt provided an overview of the scenario planning effort and timeline. The scenario planning session itself is expected to take place on Thursday, June 13th. The schedule will include a facilitated discussion of each scenario, as well as consideration of their broader implications. The scenario planning event is intended to bring in about 100 attendees, and will rely upon Freight Office mailing lists, the Carlson Supply Chain Management Program mailing list and the Center for Transportation Studies to encourage attendance. This meeting will also serve as the June Minnesota Freight Advisory Committee meeting.

Mark indicated that the scenarios will not be limited to freight movements within Minnesota, but will include adjacent states, regions, and more universal factors affecting freight movements. Discussion during the Steering Committee meeting indicated that it is important to identify common threads among each scenario and remedies or responses to various types of scenarios and situations. In general, the Steering Committee recognized the importance of being responsive to change and the ability to react in the face of changing freight conditions.

White Paper #1 Overview

Andy Mielke provided an overview of White Paper #1: Comparing National Freight Policies and MnDOT Planning Documents. He began with an overview on the white paper and identified key freight-related elements in MAP-21:

- Establishment of a national freight policy to improve condition and performance of the national freight network
- Encouragement of states to create State Freight Plans and State Freight Advisory Committees
- Identification of national strategic freight goals

With regard to State Freight Advisory Committees, John Tompkins commented that the Minnesota Freight Advisory Committee will be reevaluating its role based on MAP-21.

Lynne Bly indicated that System Security is an important Statewide Multimodal Transportation Plan key objective, and should be included with other key objectives in freight planning. The System Security objective reads as follows: *Reduce system vulnerability and ensure system redundancy to meet essential travel needs during emergencies.*

There was discussion of required versus recommended elements in the State Freight Plan. The issue is that some MAP-21 requirements are very difficult to meet. The primary examples are the requirements for a comprehensive benefit-cost analysis on all freight projects, and the requirement for funding information about each project. There were also issues regarding how to respond to a *recommended* plan with required elements.

Update on District Planner, Metropolitan Planning Organization (MPO) and Central Office (CO) Interviews

Andy Mielke discussed the findings from the District Planner, MPO and CO interviews.

District Planner Interviews

Discussion covered the various freight issues that were identified by District staff – for example, grade separations or congestion in the Twin Cities. The Steering Committee explored the fact that bike/pedestrian feedback tends to overwhelm other kinds of feedback. Another key issue is the speed with which projects get put into place. Freight stakeholders, especially in the private sector, tend to seek very quick project delivery time. Other main points of discussion were as follows:

- **Project Prioritization**
The Steering Committee considered the idea that freight preferences are built into our different highway systems. Interstates, NHS, and non-NHS designations are heavily based on how we invest in freight.
- **Access Management**
Access management was also discussed. It is relatively easy to get a new access approved, but these requests do not always include acceleration/deceleration lanes which often needed.

- **Data Needs**

Districts' data needs were reviewed by the Steering Committee. In particular, there are certain datasets on freight flows that will soon be usable, and Freight Analysis Framework data in particular will be revised in 2015. Part of Olsson Associates' scope of work is developing more information on this data.

However, in general, the Districts indicated that they do not rely heavily on freight data in planning. Most District planners already have a well-developed understanding of local and regional freight issues without needing additional information.

- **Communicating Freight Benefits**

There is a recognized need for a better way to communicate the benefits of freight. In addition to improving freight outcomes, it would also align with the multimodal nature of planning at MnDOT. Currently, when MnDOT discusses freight benefits, it is usually only in connection to a future project. There is little evaluation of the freight benefits of a completed project. However, there may be an opportunity to use the information being generated by some of the non-traditional funding grants such as the Corridor Investment Management Strategy (CIMS) and Transportation and Economic Development (TED) competitive solicitations to better capture freight benefits.

MPO Interviews

Discussion was similar to the review of the District Planner interviews. The MPOs noted the importance of time-of-day truck volumes, which provide a better picture of when freight is on the road (i.e. at peak or non-peak hours). During the meeting, the Steering Committee also considered the differing importance of freight in Greater Minnesota versus in the Twin Cities in terms of vehicle movements. In a smaller city, the transportation needs of manufacturers and shippers may receive additional consideration versus in the Twin Cities where freight volumes constitute a smaller percentage of the total vehicle traffic.

Last-mile issues are particularly relevant to MPOs. About five years ago, the MPOs in Minnesota examined last-mile issues and made a number of fixes; this information may need updating.

CO Interviews

MnDOT and SRF will coordinate to complete additional interviews with the following MnDOT Central Offices: Pavement, Bridge, Geometrics, Safety, Statewide Multimodal, and Capital Programs and Performance Measures.

Discussion Topic: What is a Freight Project?

The Steering Committee was invited to consider what constitutes a freight project, what the freight benefits are, and how this relates to freight planning.

A primary question is whether this is a necessary distinction, given that current MnSHIP investment categories effectively encapsulate freight investments as well as other types of investments. Furthermore, without freight-specific funding sources, it may not be necessary to categorize freight projects at all. During the discussion, John Wilson pointed out that developing the concept of a freight project and related performance measures may help compare freight specific projects to other types of highway investments. One potential performance measure would be tracking the

number of identified freight barriers (e.g., too-tight turning radii along a major freight route) that are solved through MnDOT projects.

The Steering Committee considered two other ways to approach this discussion. First, is there a freight-specific issue that is addressed by a project? For example, a project that remediates last-mile, intermodal needs, or adjusts bridge height to accommodate freight, is by definition a freight project. Second, if the project on the NHS, IRC, OSOW, or National Freight Networks, it could be considered a freight system project (this second distinction applies more broadly, and there may be exceptions).

There is a sense that freight input is missing from the project development/prioritization process in some way. In the Districts, freight benefits need to be better communicated in order for planners to effectively consider freight needs in developing projects.

The topic of “what is a freight project” will be further discussed with MnDOT’s Planning Management Group to get additional input and ideas on this issue.

Next Steps/Action Items

Andy Mielke highlighted some of the future tasks that would be completed as part of this study effort. The scenario planning meeting will be on June 13th and the next Steering Committee meeting will take place on June 18.

Integrating Freight in Statewide Planning and Programming Study

Steering Committee Team Meeting #3 June 18, 2013 (1 PM to 3 PM)

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Access Code: 638-135-486**

MEETING AGENDA

- I. Meeting Overview and Introductions
- II. Future Freight Scenario Planning Workshop Recap
 - a. Discuss key themes and findings
- III. Integrating Freight Final Report Overview
 - a. Discuss potential findings and recommendations
 - b. Report finalization process
- IV. Concluding Discussion
 - a. Open discussion and final thoughts

**Integrating Freight in Statewide Planning and Programming Study
Stakeholder Meeting #3
June 18, 2013**

Meeting Summary

ATTENDEES:

John Tompkins, Freight Office	Jarrett Hubbard, Project Manager
Tim Spencer, Freight Office	Patrick Weidemann, Capital Programming
Lynne Bly, Metro Planning	Philip Schaffner, CIMS
John Wilson, Capital Programming	Mark Berndt, Olsson Associates
Molly McCarthy, Metro Planning	William Boulay, Olsson Associates
Mark Nelson, Planning and Programming	
Andy Mielke, SRF Consulting Group	<u>Via Phone:</u>
Steve Peterson, SRF Consulting Group	Ben Zietlow, Mid-America Freight Coalition
Peter Dahlberg, Freight Office	<u>Via Videoconference:</u>
Patrick Phenow, Freight Office	Lisa Bigham, District 7 Planning

Handouts: Agenda and Summary Table of Draft Final Report Findings and Recommendations

I. Introductions

Jarrett Hubbard began the meeting with a brief overview of the meeting agenda. Everyone introduced themselves, including Ben Zietlow via phone and Lisa Bigham via videoconference.

II. Future Freight Scenario Planning Workshop Recap (Olsson Associates)

Mark Berndt provided an overview of the scenario planning that took place on Thursday, June 13th at the University of Minnesota. Many of the Steering Committee members were in attendance at the event. Opening remarks the workshop were provided by MnDOT Commissioner Zelle and former U.S. Congressman Oberstar.

Mark will be preparing a report that summarizes the workshop including common themes heard among the four different scenarios. These commonalities will help the Freight Office to start thinking about future policies that should be pursued with relation to freight. In addition, some of the information heard can be used in the update to the Statewide Freight Plan as part of the issues and trends chapter (a required MAP-21 element in the document).

One Steering Committee member noted that Mark's final report should note what trends are unique to Minnesota.

Integrating Freight Final Report Overview

Steve Peterson and Andy Mielke provided an overview of Integrating Freight Final Report. A handout was given to the group that listed the report's draft findings and recommendations. The group discussed these findings and recommendations and following are key points from this conversation:

1. CFIRE is working on a Regional Freight Plan that includes 10 states for the Mid-America Freight Coalition. A draft of this plan will be completed by the end of June. This will be a good resource for the Minnesota Statewide Freight Plan, which will be developed later this year.
2. TED and CIMS funding can only be used for trunk highways, but if a different state funding source was used, then it could be expanded to other types of freight projects like rail and ports.
3. It is important to note that most freight trips use a combination of the state and local systems. However, the NHS system includes most of the freight trips. Thus, all improvements to the NHS system benefit freight.
4. MnDOT needs a consistent approach to identifying the needs and barriers for freight. Discussion included some of the differences between the Districts (OSOW, river crossings, 10-ton road needs, etc.), but the group felt that MnDOT needed to further define the needs and other barriers that existed for freight. Freight needs may be tied to the types of freight projects that are difficult to fund (e.g., truck parking at rest areas).
5. MnDOT also needs to be consistent in making businesses pay for needed improvements (e.g., turn lanes into their business) both when the facility is originally constructed and when improvements are requested as the businesses grows (i.e., cumulative impacts). This concept should be added to the findings and recommendations of the report.
6. The private sector may become more important to help fund major freight projects. Public-Private Partnerships, joint funding, and other strategies may be used to tie in the private sector.
7. The State Legislature just passed a bill funding the Corridors of Commerce program. It directs \$300 million of trunk highway bonds to be used for roadway expansion, downtown state highway improvements, and other related projects on the IRC system (however, this does not include the Supplemental IRC Freight Routes). The specific project selection criteria have not been established, although freight movements may play a role.
8. The District 8 Market Study interviews could be completed as part of updates to the Regional Freight Plans.
9. CIMS outlooks could help identify freight deficiencies.
10. More specific details should be included in the recommendations.
11. Recommendations regarding the use of TED and CIMS funding should be coordinated with Matt Shands and Phillip Schaffner.
12. Another recommendation should be to formalize the OSOW map.
13. In the seventh finding in Table 20, "investment planning" should be changed to "project planning."
14. In the 11th finding in Table 20, replace the language listed with "GPS data could aid in tracking and monitoring of performance measures."

15. There was discussion on whether the proposed definition for a freight project was too broad or should be narrowed to a list of very specific project types. The definition will stay as it is written for now.

A first draft of the report was provided to the PMT on June 14th. Besides incorporating the comments heard at this Steering Committee meeting, Jarrett will also send out the full report to the group if they want to provide additional comments. Comments should be received by June 25th in order for them to be incorporated by the end of June.

III. Concluding Discussion

John Tompkins thanked the Steering Committee for their participation in this study.

Impact of Freight in Statewide Planning and Programming Study

Questions for District Planners Regarding Freight

1. What are most important freight related issues in your district?
2. Based on freight movements in your District, what type of transportation improvements would benefit these movements the most?
3. Do you feel freight is adequately represented in your project identification and prioritization process? Have you heard complaints from stakeholders in your District? Explain or provide examples.
4. Does your District take into account freight when identifying and prioritizing future projects in the STIP and HIP? How much weight are these factors given?
 - a. What existing freight-related data/information is currently used when developing and prioritizing future projects?
 - b. What existing freight-related data/information is available, but not used when developing and prioritizing future projects?
 - c. What freight information is not available, but would you like to have?
5. How do you communicate the benefits of projects to stakeholders? Do you distinguish “freight” projects in this process? If so, how? Do you think this is necessary? If so, how would you do this?
6. What kinds of metrics or freight performance measures do you think should be tracked over time to determine how Minnesota is doing with respect to accommodating/moving freight?

MnDOT's Impact of Freight in Statewide Planning and Programming Study

Questions for MPOs Regarding Freight

1. What are most important freight related issues in your MPO?
2. Based on freight movements in your MPO, what type of transportation improvements would benefit these movements the most?
3. Do you feel freight is adequately represented in your project identification and prioritization process? Have you heard complaints from stakeholders in your MPO? Explain or provide examples.
4. Does your MPO take into account freight when identifying and prioritizing future projects in the TIP and STIP? How much weight are these factors given? How is it different for state-owned roadways compared to county roads or other local roads?
 - a. What existing freight-related data/information is currently used when developing and prioritizing future projects?
 - b. What existing freight-related data/information is available, but not used when developing and prioritizing future projects?
 - c. What freight information is not available, but would you like to have in the future?
5. How do you communicate the benefits of projects to stakeholders? Do you distinguish “freight” projects in this process? If so, how? Do you think this is necessary? If so, how would you do this?
6. What kinds of metrics or freight performance measures do you think should be tracked over time by MPOs and/or MnDOT to determine how Minnesota is doing with respect to accommodating/moving freight?

Impact of Freight in Statewide Planning and Programming Study

Questions for Central Office(s) Regarding Freight

1. How much consideration is given to freight-related issues in your office?
2. Do you coordinate with the Freight Office or District staff to address freight-related issues?
3. Do you feel that freight is adequately represented in MnDOT's project identification and prioritization process? Are there shortcomings to how freight is planned within/outside your office?
4. Do you take into account freight when identifying and prioritizing future projects? How much priority is freight given?
 - a. What existing freight-related data/information is currently used when developing and prioritizing future projects?
 - b. What existing freight-related data/information is available, but not used when developing and prioritizing future projects?
 - c. What freight information is not available, but you would like to have?
5. Does your office consider the benefits of highway improvements to stakeholders and users? Does your office distinguish "freight" projects in this process? If so, how? Do you think this is necessary? If not, how would you do this?
6. What kinds of metrics or freight performance measures do you think should be tracked over time by MnDOT to determine how Minnesota is doing with respect to accommodating freight movements?

Appendix C: Freight-Related Data and Information

Table A1: Full List of Freight-Related Data and Information

Type	#	Data/Measure	Description	Geographic Extent	Update Frequency	Referenced in	Data Source
Asset Condition	1	Bridge condition	National Bridge Inventory Structural Condition Index ratings.	Approximately 4,500 state bridges	Annually	Task 2 Matrix, 2011 Performance Report	MnDOT Bridge Office
	2	Pavement condition	Ride Quality Index, Surface Rating, and Pavement Quality information.	12,000 miles of state highways	Annually	Task 2 Matrix, 2011 Performance Report	MnDOT Office of Materials and Road Research Pavement Management Unit
	3	Roadside infrastructure	Locations and age of traffic signals, lighting, ITS systems, culverts, retaining walls, sound barriers, medians, etc.	12,000 miles of state highways	Annually	Task 2 Matrix, 2011 Performance Report	MnDOT
Safety	4	Number of truck-related fatalities at at-grade rail crossings	MnDOT Crash Mapping Analysis Tool data on heavy commercial vehicle crash incidents involving a fatality at at-grade rail crossings.	Full extent of Minnesota's 141,000-mile roadway system.	Monthly	NCFRP #10, 2005 MN Statewide Freight Plan	MnDOT
	5	Total crashes at at-grade rail crossings	MnDOT Crash Mapping Analysis Tool data on all vehicle crashes at at-grade rail crossings.	Full extent of Minnesota's 141,000-mile roadway system.	Monthly	NCFRP #10, 2005 MN Statewide Freight Plan	MnDOT
	6	Heavy commercial vehicle-related fatalities, injuries and crashes	MnDOT Crash Mapping Analysis Tool data on heavy commercial vehicle related fatalities, injuries and crashes on all roads in Minnesota.	Full extent of Minnesota's 141,000-mile roadway system.	Monthly	Metro Freight Initiative: Performance Management Framework (2011), NCFRP #10, 2005 MN Statewide Freight Plan	MnDOT
	7	Fatalities on All Roads	MnDOT Crash Mapping Analysis Tool data on all fatalities on all roads in Minnesota.	Full extent of Minnesota's 141,000-mile roadway system.	Monthly	Task 2 Matrix, 2011 Performance Report	MnDOT
	8	Injuries on All Roads	MnDOT Crash Mapping Analysis Tool data on vehicle-related injuries on all roads in Minnesota.	Full extent of Minnesota's 141,000-mile roadway system.	Monthly	[No reference]	MnDOT
	9	Rest area locations and truck parking information	Locations of rest areas and truck parking information.	Interstates and US Highways	Infrequently	MnDOT Truck Parking Study Phase II	MnDOT
	10	Interstate rest area days at/over capacity	Number of days per year that Interstate rest area truck parking facilities are at or over capacity.	Interstates	Infrequently	MnDOT Truck Parking Study Phase II	MnDOT Office of Freight Planning and Development
	11	Hazardous material releases	US DOT Pipeline and Hazardous Materials Safety Administration hazardous materials incident reports for incidents on Minnesota highways.	12,000 miles of state highways	Unknown delay between incident and report	Metro Freight Initiative: Performance Management Framework (2011)	US DOT Pipeline and Hazardous Materials Safety Administration

Table A1 (continued): Full List of Freight-Related Data and Information

Type	#	Data/Measure	Description	Geographic Extent	Update Frequency	Referenced in	Data Source
Mobility	12	FHWA-ATRI Travel Time Measurements	Travel time measurements using Automatic Vehicle Location (AVL) technology on specific interstate routes.	Interstates	Continuous	MnDOT 2008 Freight Performance Indicators	FHWA/American Transportation Research Institute
	13	Travel Speed on Greater Minnesota Interregional Corridors (IRC)	Percentage of Greater Minnesota Interregional Corridor miles meeting or close to target speed.	2,690 miles of state highways in Greater Minnesota designated as IRCs.	Daily	Task 2 Matrix, 2011 Performance Report	MnDOT
	14	State Highway Speed Limits	Posted speed limits on Minnesota's state highway system.	Full extent of 12,000-mile state highway system including IRCs.	Quarterly	IRC Supplemental Measures and Targets	MnDOT
	15	Twin Cities Urban Freeway System Congestion	Percent of miles below 45 mph in the AM or PM peak; duration of this congestion.	379 centerline miles of freeway in the Twin Cities	Annually	Task 2 Matrix, 2011 Performance Report	MnDOT Regional Transportation Management Center
	16	Clearance Time for Metro Urban Freeway Incidents	3-year average of the time it takes MnDOT and its partners to go from lane blockage to lane opening.	About 400 miles of Twin Cities freeways.	Annually	Task 2 Matrix, 2011 Performance Report	MnDOT Regional Transportation Management Center
	17	Travel Time Index (TTI) and National Ranking	Ratio of peak to free-flow travel time, indicating the severity and duration of congestion. Data is managed by the Texas Transportation Institute.	Minneapolis-St. Paul	Annually	Task 2 Matrix, 2011 Performance Report	Texas Transportation Institute.
	18	Snow and Ice Removal Times	Frequency of achieving bare lane within targeted number of hours. "	State highways (approximately 30,000 lane miles), including all storm and snowplow routes.	Annually	Task 2 Matrix, 2011 Performance Report	MnDOT
	19	Ratio of peak to off-peak travel time	Twin Cities peak travel time costs in AM and PM. Data is calculated as a byproduct of the Met Council's Regional Travel Demand Model.	379 centerline miles of freeway in the TC Metropolitan region	Infrequently	NCFRP #10, 2005 MN Statewide Freight Plan, Task 2 Matrix, 2011 Performance Report	MnDOT/Met Council
	20	Peak-period travel time reliability on Twin Cities highways	Measure of variation in travel times on Twin Cities highways. Data is available for the metro area but merits further analysis.	379 centerline miles of freeway in the TC metropolitan region	Infrequently	MnDOT 2008 Freight Performance Indicators	MnDOT
	21	Miles of peak-period congestion per day	Extent of delays experienced in Regional Trade Centers.	Major Regional Trade Centers	Infrequently	MnDOT 2008 Freight Performance Indicators	MnDOT
	22	Miles/Stop	Measure of the number of times a vehicle needs to stop due to a traffic signal or stop sign. Information gathered using MnDOT video log data from 2009.	IRC and supplemental freight routes	Infrequently	IRC Supplemental Measures and Targets	MnDOT
	23	Peak-period travel time reliability on IRCs and other high-use truck roadways	Measure of variation in travel times on IRCs and other high-use truck roadways. Data could be developed based on current travel time measures.	12,000-mile state highway system including IRCs	N/A	MnDOT 2008 Freight Performance Indicators	N/A
	24	Cost of goods movement and travel time on key regional corridors	No current measurement method identified.	Full extent of IRC system	N/A	Metro Freight Initiative: Performance Management Framework (2011)	N/A
	25	Number of detours for heavy commercial traffic	Number of detours occurring along IRCs.	12,000-mile state highway system including IRCs	N/A	Metro Freight Initiative: Performance Management Framework (2011)	N/A
Environmental	26	Compliance with Criteria Air Pollutant Standards	Federal compliance standards: outdoor levels of ozone, nitrogen dioxide, carbon monoxide, and particulate matter.	Twin Cities Metropolitan Area	Annually	Task 2 Matrix	MnDOT Office of Air/Water Quality and Analysis
	27	Transportation fuel consumption	Billions of gallons sold in Minnesota.	Statewide	Annually	2011 Performance Report	MnDOT

Table A1 (continued): Full List of Freight-Related Data and Information

Type	#	Data/Measure	Description	Geographic Extent	Update Frequency	Referenced in	Data Source
System Extent and Dimensions	28	Weight Limitations/Spring Load Restrictions	Location of routes with seasonal weight limitations on highways that have deteriorated due to rain, snow or other climactic conditions.	Full extent of 12,000-mile state highway system.	Annually	[No reference]	MnDOT Office of Materials and Road Research
	29	Interregional Corridor Map	Full extent of IRC system.	Full extent of 2,939-mile IRC system.	Infrequently	IRC Supplemental Measures and Targets	MnDOT
	30	High Priority IRCs	Extent of high-priority IRC routes.	Full extent of 2,939-mile IRC system.	Infrequently	IRC Supplemental Measures and Targets	SRF Consulting Group
	31	Medium Priority IRCs	Extent of medium-priority IRC routes.	Full extent of 2,939-mile IRC system.	Infrequently	IRC Supplemental Measures and Targets	SRF Consulting Group
	32	Supplemental freight routes	Information on supplemental freight routes.	Full extent of 2,939-mile IRC system.	Infrequently	IRC Supplemental Measures and Targets	SRF Consulting Group
	33	IRC Access Control	Access control information for IRC routes.	Full extent of 2,939-mile IRC system.	Infrequently	IRC Supplemental Measures and Targets	MnDOT
	34	IRCs with Stub Connectors	Stub connectors for IRCs.	Full extent of 2,939-mile IRC system.	Infrequently	IRC Supplemental Measures and Targets	SRF Consulting Group
	35	IRC lane configurations	Lane configurations for IRCs.	Full extent of 2,939-mile IRC system.	Infrequently	IRC Supplemental Measures and Targets	MnDOT
	36	IRC HPI/MPI status	High priority and medium priority IRC routes.	Full extent of 2,939-mile IRC system.	Infrequently	IRC Supplemental Measures and Targets	MnDOT/SRF Consulting Group
	37	National Highway System	Information on National Highway System routes in Minnesota.	Full extent of Minnesota National Highway System.	Infrequently	IRC Supplemental Measures and Targets	MnDOT
	38	Principal and non-Principal Arterial system	Functional classification of state highway system routes.	Full extent of Minnesota state highway system.	Infrequently	IRC Supplemental Measures and Targets	MnDOT
	39	Shoulder Widths	Shoulder widths on state highway system.	Full extent of 12,000-mile state highway system.	Infrequently	IRC Supplemental Measures and Targets	MnDOT
	40	Pavement Widths	Pavement widths on state highway system.	Full extent of 12,000-mile state highway system.	Infrequently	IRC Supplemental Measures and Targets	MnDOT
	41	Roundabout locations	Location of roundabouts on Minnesota state highway system.	Full extent of 12,000-mile state highway system.	Infrequently	IRC Supplemental Measures and Targets	MnDOT/State Aid Office
	42	Oversize/Overweight Routes and Restrictions	Location of primary oversize/overweight routes in Minnesota and restrictions on routes such as vertically-restrictive bridges, weight-restrictive bridges, width restrictions, police escort required, and roundabouts	Full extent of 12,000-mile state highway system.	Infrequently	IRC Supplemental Measures and Targets	MnDOT/SRF Consulting Group
43	Height Limitations	Location of routes with height limits.	Full extent of 12,000-mile state highway system.	Infrequently	IRC Supplemental Measures and Targets	SRF Consulting Group	

Table A1 (continued): Full List of Freight-Related Data and Information

Type	#	Data/Measure	Description	Geographic Extent	Update Frequency	Referenced in	Data Source
System Extent and Dimensions (cont'd)	44	Benefit of truck weight enforcement on pavement service life	A measure of reduced agency costs (enforcement and pavement repair) and freight productivity (enforcement may reduce freight loads) associated with truck weight enforcement.	Full extent of 12,000-mile state highway system; oversized/overweight/superload routes.	Infrequently	MnDOT 2008 Freight Performance Indicators	MnDOT WIM Database, CVO Database
	45	10-ton Roadways	All Interstates, U.S. Highways, MN State Trunk Highways and certain designated local highways.	Full extent of 12,000-mile state highway system.	Infrequently	[No reference]	MnDOT Office of Freight Planning and Development
	46	Expanded Envelope and Superload Corridors	Location of routes with extended envelop (16'6" x 16'6" x 130") capacity.	Full extent of 12,000-mile state highway system.	Infrequently	IRC Supplemental Measures and Targets	SRF Consulting Group
	47	Canadian Border Crossings	Location of Canadian border crossings.	Full extent of Minnesota-Canada border.	Infrequently	[No reference]	MnDOT/SRF Consulting Group
	48	Twin Trailer Truck Network and National Truck Network	Location of twin trailer truck routes and national truck routes.	Full extent of 12,000-mile state highway system.	Infrequently	[No reference]	MnDOT Office of Freight Planning and Development
	49	Freight Railroads	Railroad speeds, volume, railroad class, abandoned lines, state rail bank corridors	Full extent of Minnesota rail system.	Infrequently	[No reference]	MnDOT Office of Freight Planning and Development
	50	Pipelines	Location of major pipeline facilities.	Statewide	Infrequently	[No reference]	MnDOT Office of Freight Planning and Development.
	51	Frac Sand Facilities	Mines, transload facilities, and processing plants	Statewide	Infrequently	MnDOT Freight Office Website	MnDOT Office of Freight Planning and Development
	52	Escort Vehicle Requirements	Location of routes with pilot escort requirements	Full extent of 12,000-mile state highway system.	Infrequently	IRC Supplemental Measures and Targets	SRF Consulting Group
	53	Tier 1 Freight Routes	Location of Tier 1 freight routes, classified as routes with HCAADT greater than 650.	Full extent of 12,000-mile state highway system.	Infrequently	IRC Supplemental Measures and Targets	MnDOT/SRF Consulting Group
	54	Regional trade centers	MnDOT keeps information on regional trade centers broken down as major metro areas, primary wholesale/retail centers, secondary wholesale/retail centers, and shopping centers.	Statewide	Infrequently	IRC Supplemental Measures and Targets	MnDOT
	55	Intermodal facility connectivity	Evaluation of IRC connections to intermodal facilities. Includes air cargo service, lake terminals, and river terminals	Full extent of 2,939-mile IRC system.	Infrequently	IRC Supplemental Measures and Targets	MnDOT Office of Freight Planning and Development
	56	Major Freight Generators	Locations of major freight generators within Minnesota.	Statewide	Infrequently	IRC Supplemental Measures and Targets	MnDOT Office of Freight Planning and Development
	57	Percentage of major generators with appropriate roadway access to IRCs and major highways	Measure of distance of major freight generators from IRCs and major highways. MnDOT Office of Freight Planning and Development maintains records of freight generators.	Full extent of 2,939-mile IRC system.	Infrequently	NCFRP #10, 2005 MN Statewide Freight Plan	MnDOT Office of Freight Planning and Development

Table A1 (continued): Full List of Freight-Related Data and Information

Type	#	Data/Measure	Description	Geographic Extent	Update Frequency	Referenced in	Data Source
Volumes	58	AADT	Volume of motorized vehicles that travel past count locations during a specific period of time.	4,500 count locations on state highways (33,000 count locations on all roadways)	Monthly	IRC Supplemental Measures and Targets	MnDOT
	59	HCAADT	Volume of heavy commercial vehicles that travel past count locations during a certain period of time.	4,500 count locations on state highways (33,000 count locations on all roadways)	Monthly	IRC Supplemental Measures and Targets	MnDOT
	60	Tons of goods moved	No current measurement method defined. MnDOT traffic recording devices can classify trucks by axles and weights in some cases.	Highway segments with weigh-in-motion stations.	Monthly	[No reference]	MnDOT
	61	TRANSEARCH	Commercial freight information database with detailed U.S./cross-border origin-destination data. This includes "county-level freight-movement data by commodity group and mode of transportation."	Minnesota counties	Annually	MnDOT 2008 Freight Performance Indicators	IHS Global Insight - TRANSEARCH
	62	Tonnage and value of shipments to/from state and within state	Snapshots of this data are available by major commodity groups and modes. Costs for obtaining this data on a regular basis are high.	Statewide	Infrequently	MnDOT 2008 Freight Performance Indicators	MnDOT
	63	Freight origin/destinations	MnDOT's Freight Planning Information System data tool captures certain information regarding goods movements, including origins/destinations. TRANSEARCH (Global Insight Data) also provides some of this information.	Unknown - full extent of 12,000-mile state highway system.	Infrequently	[No reference]	MnDOT Office of Freight Planning and Development
	64	Freight Ton-Miles and Dollar Value	Freight tonnage and dollar value multiplied by mileage. This measure has not yet been developed in Minnesota but data may be derived from other tonnage and value measurements.	Statewide	N/A	Metro Freight Initiative: Performance Management Framework (2011); MnDOT 2008 Freight Performance Indicators	N/A
Policy/Planning	65	Percentage of townships, counties and municipalities along IRCs whose adopted local plans and ordinances support IRC Management Plans and Partnership Studies	MnDOT IRC management plans and partnership studies	Full extent of 2,939-mile state highway system.	N/A	NCFRP #10, 2005 MN Statewide Freight Plan	N/A
	66	Percentage of IRCs and bottleneck removal projects identified in the 10-year program for which ROW needs have been protected	Information can be found in MnDOT 10-year work plan, but may require additional effort to find out if ROW needs have been protected.	Full extent of 12,000-mile state highway system.	N/A	NCFRP #10, 2005 MN Statewide Freight Plan	N/A

Appendix D: Scoping Worksheet

The purpose of the Project Scoping Worksheets is to provide functional groups with a tool to investigate and record potential items that could be included in the scope of the project.

Distribution of Scoping Worksheets

District XX

Scoping worksheets are to be completed by functional groups responsible for each area. Below is a recommendation for distribution of each of the attached scoping worksheets.

Worksheet	Title	Name	Date Completed
Project Manager Scoping Worksheet	Project Manager		
Business Impact Assessment Scoping Worksheet	Project Manager		
Planning Section Scoping Worksheet	District Planning Director		
State Aid Scoping Worksheet	District State Aid Engineer		
Land Management Scoping Worksheet	District Land Management Engineer		
Surveys Scoping Worksheet	District Principal Surveyor		
State Patrol Scoping Worksheet	District State Patrol office		
Environmental Documentation Scoping Worksheet	District Preliminary Design Engineer		
Access Management Scoping Worksheet	Chair of district Access Management Committee		
Bridge Scoping Worksheet	District Bridge Engineer		
Construction Scoping Worksheet	District Construction Engineer		
Design Scoping Worksheet	District Design Engineer		
Hydraulics Scoping Worksheet	District Hydraulic Engineer		
Maintenance Scoping Worksheet	Area Maintenance Engineer		
Materials Scoping Worksheet	District Materials Engineer		
Traffic Scoping Working	District Traffic Engineer		

In general, the scoping worksheets should be sent to the person that oversees each functional area (principal engineer or above). In many districts, multiple worksheets may be sent to one person, since they may oversee more than one functional area. District should complete the above table with the name of the person that will receive each worksheet so that it is done consistently across the district. The person that completes each worksheet should fill in the “Date Completed” box when it is finished.

Most items have check boxes associated with them in the worksheets. Below is guidance to aid in determining how to complete the checkboxes.

“**Yes**” – There is a known issue that needs to be addressed

“**No**” – As the project currently stands, the item is not an issue

“**Not Needed**” – The task is not needed

“**Maybe**” – The potential for an issue exists, but more information is needed to determine specifics

“**Need**” – The item is required because it currently does not meet standards, is required by law, must be included to accomplish purpose of the project, etc...

“**Want**” – The item is not required, but it would be ideal to address as part of the project

“**Not**” – The item is not applicable to this project

The list of items in the worksheets is not an exhaustive list, but merely guidance to help functional groups scope individual projects. Districts should feel free to make changes to the scoping worksheets as they see fit.

SP (IH) #:

Prj Mgr:

Prj Limits:

PROJECT MANAGER SCOPING WORKSHEET

The purpose of this form is to record notes on issues that may affect the scope of the project.

Project Managers should utilize the principles of Context Sensitive Solutions (CSS) by including a full range of stakeholders with transportation officials in the scoping phase in order to clearly define the project purpose and develop consensus on the scope before proceeding. Thus, potential stakeholders should be contacted for input into the scope of the project.

ITEM	YES	NOT NEEDED	If Yes, Describe (or see below)
Coordination on Context Sensitive Solutions with CSS Director	<input type="checkbox"/>	<input type="checkbox"/>	
Public Information Plan	<input type="checkbox"/>	<input type="checkbox"/>	
Coordination with city, county, townships	<input type="checkbox"/>	<input type="checkbox"/>	
Coordination with other external and likely stakeholder groups	<input type="checkbox"/>	<input type="checkbox"/>	
Coordination with FHWA	<input type="checkbox"/>	<input type="checkbox"/>	
Coordination with permitting agencies	<input type="checkbox"/>	<input type="checkbox"/>	
Coordination with utilities	<input type="checkbox"/>	<input type="checkbox"/>	
Coordination with CO Rail office	<input type="checkbox"/>	<input type="checkbox"/>	
Coordination with Aeronautics office	<input type="checkbox"/>	<input type="checkbox"/>	
Coordination with CO Bikes & Peds section	<input type="checkbox"/>	<input type="checkbox"/>	
Coordination with Transit Agencies	<input type="checkbox"/>	<input type="checkbox"/>	
Coordination with Bridge Office	<input type="checkbox"/>	<input type="checkbox"/>	
Coordination on Business Impacts (see scoping worksheet)	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	

Comments and Risk Identification:

SP (IH) #:

Prj Mgr:

Prj Limits:

Project Manager should complete this form

Date:

BUSINESS IMPACT ASSESSMENT SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on potential business impacts associated with the project

Refer to the HPDP for additional project scoping guidance on assessment of business impacts:

<http://dotapp7.dot.state.mn.us/edms/download?docId=857394>. A project map showing the location of construction and businesses identified as potentially impacted is also helpful.

	YES	NO	MAYBE	If Yes, Describe (or see below)
Are Business Impacts Anticipated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is Business Impacts Mitigation Required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Potential Business Impacts				Duration of Impact (# days)/Comments
Access*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Parking*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Visibility*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Increased Congestion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lane or Street Closures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Detour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Right-of-way Acquisition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Noise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Dust or Vibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sidewalks/Trails/ADA Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

*Effective August 1, 2009, Minnesota Statute 160.165 requires the identification of businesses whose access, parking, or visibility is impaired for a minimum of one month as a result of project construction work. An individual must be identified as a Business Liaison to work with those businesses.

If checked "Yes" or "Maybe", then describe, identify any risks, and document recommended scope items:

SP (TH) #:

Prj Mgr:

Prj Limits:

Person completing this form:

Date:

PLANNING SECTION SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on issues that may affect the scope of the project.

ITEM	YES	NO	If Yes, Describe (or see below)
City Issues	<input type="checkbox"/>	<input type="checkbox"/>	
County Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Turn Back Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Access Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Business Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Developer Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Transit Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Freight Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Load Restriction Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Railroads Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Airports Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Bike Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Pedestrian and ADA Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Utility Issues	<input type="checkbox"/>	<input type="checkbox"/>	
CSS Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Land Owners Issues	<input type="checkbox"/>	<input type="checkbox"/>	
TSP Issues	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	

Comments and Risk Identification:

SP (TH) #:

Prj Mgr:

Prj Limits:

Person completing this form:

Date:

STATE AID SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on issues that may affect the scope of the project.

ITEM	YES	NO	If Yes, Describe (or see below)
City Issues	<input type="checkbox"/>	<input type="checkbox"/>	
County Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Turn Back Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Access Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Business Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Developer Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Land Owners Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Utility Issues	<input type="checkbox"/>	<input type="checkbox"/>	
Locally administered TH project	<input type="checkbox"/>	<input type="checkbox"/>	
Local Projects Planned	<input type="checkbox"/>	<input type="checkbox"/>	
Cooperative Project Program	<input type="checkbox"/>	<input type="checkbox"/>	
Fed. Aid Project Program	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	

Comments and Risk Identification:

Person completing this form:

Date:

SP (IH) #:

Prj Mgr:

Prj Limits:

LAND MANAGEMENT SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on existing conditions for Surveys and R/W to determine what will be needed to deliver the project. Maps would be useful.

Existing R/W Width	
Potential Parcels	
Potential Business Impacts	
Potential Relocations	
Access Issues	<input type="checkbox"/> Yes <input type="checkbox"/> No
Plats Needed	<input type="checkbox"/> Yes <input type="checkbox"/> No

Comments and Risk Identification:

Person completing this form:

Date:

SP (IH) #:

Prj Mgr:

Prj Limits:

SURVEYS SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on existing conditions for Surveys and R/W to determine what will be needed to deliver the project. Maps would be useful.

ITEM	YES	NO	If Yes, Describe (or see below)
Existing Photos	<input type="checkbox"/>	<input type="checkbox"/>	
Existing Mapping	<input type="checkbox"/>	<input type="checkbox"/>	
Existing Surveys	<input type="checkbox"/>	<input type="checkbox"/>	
As-Builts Available	<input type="checkbox"/>	<input type="checkbox"/>	
Use Contractor Staking	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	

Comments and Risk Identification:

SP (TH) #:

Prj Mgr:

Prj Limits:

Person completing this form:

Date:

STATE PATROL SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on potential needs of the Department of Public Safety that may be incorporated into a Trunk Highway improvement project.

ITEM	YES	NO	If Yes, Describe (or see below)
High Crash Rate Locations	<input type="checkbox"/>	<input type="checkbox"/>	
Design Concerns	<input type="checkbox"/>	<input type="checkbox"/>	
Portable Weigh Station Pullouts Needed	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	

Comments and Risk Identification:

SP (TH) #:

Prj Mgr:

Prj Limits:

Person completing this form:

Date:

ENVIRONMENTAL DOCUMENTATION SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on potential social, economic and environmental impacts associated with the project. Also include a [Geometric Design Table](#) with the existing and standard columns completed. Maps are very useful.

ITEM	YES	NO	MAYBE	If Yes, Describe (or see below)
Trails, Parks or other Recreation (4(f)) areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wildlife / Waterfowl Refuges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Historic sites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAWCON (6(f)) sites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extensive Cultural/Historical Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bicycle Accommodation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pedestrian & ADA Accommodations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Environmental Justice Populations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Noise Concerns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wetlands present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Public Waters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Floodplain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sensitive Erosion areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Known T&E Species-State	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Known T&E Species - Federal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Contaminated site potential	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Farmland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Conservation easements (RIM, CREP)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bluff Lands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Navigable Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Air Quality Maintenance Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Vegetation & Landscape Concerns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Visual Quality Concerns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If checked "Yes" or "Maybe", then Describe (type of document, permits, reviews, etc) also identify any risks:

SP (TH) #:

Prj Mgr:

Prj Limits:

Person completing this form:

Date:

ACCESS MANAGEMENT COMMITTEE SCOPING WORKSHEET

The purpose of this form is to record notes on access management issues that the Access Management Committee would like considered during scoping on this Trunk Highway improvement project.

Please describe in detail any access issues and risks that should be considered in scoping this project:

Person completing this form:

Date:

BRIDGE SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on issues that may affect the scope of the project.

ITEM	ITEM NEEDED			Struc.#	RP	NOTES (Quantity/Cost estimate and other comments)
	Need	Want	Not			
8. Replace Bridge ^b	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/> Span Bridge <input type="checkbox"/> Box <input type="checkbox"/> Unique Structure
9. Replace Bridge Deck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Bridge Widening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Bridge Railing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
10. Barriers for Sidewalk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
11. Corrosion protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
12. Structural Repairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
13. Replace Exp. Joints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
14. Approach Panels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
15. Bridge Slope ^a Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
16. RWIS ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
17. Anti-icing System ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
18. Erosion/Scour protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
19. Existing Bridge Clearances						
20. Over water	<input type="checkbox"/> Yes <input type="checkbox"/> No					
21. Painting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
22. Utility accommodation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
23. Abutments <input type="checkbox"/> MSE <input type="checkbox"/> Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
24. Removals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
25.						

(^a these items and any other out-of-the ordinary major quantity item needs a quantity and cost estimate) (^b include bridge materials) **Note: For bridge replacements and major rehabs, the Request for Bridge Scoping and Cost Estimating Assessment form (EDMS doc#XXXXXXX) should be sent to the Bridge Office.**

Person completing this form:

Date:

CONSTRUCTION SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on issues that may affect the scope of the project.

ITEM	ITEM NEEDED			NOTES (or see below) (Quantity/Cost estimate and other comments)
	Need	Want	Not	
26. Detour ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27. Temporary Construction ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28. Staging ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29. Innovative Contracting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(^a these items and any other out-of-the ordinary major quantity item needs a quantity and cost estimate)

Comments and Risk Identification:

Person completing this form:

Date:

DESIGN SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on issues that may affect the scope of the project.

ITEM	ITEM NEEDED			NOTES (or see below) (Location, Quantity/Cost estimate and other comments)
	Need	Want	Not	
32. Design Exception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33.
34. CSS Design Flexibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35.
36. Hor. Curve Correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	37.
38. Vert. Curve Correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	39.
40. Crown Correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
41. Super Correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Side Slope Correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	42.
Shlder slope correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	43.
44. Flatten Entrance Slopes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
45. Sight-line Obstr. Correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Guardrail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	46.
Curb & Gutter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	47.
48. Ped. Ramps/Accomodation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	49.
50. Retaining Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	51.
52. Municipal Agreements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
53. RR Agreements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Utilities Relocation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
69kV lines Steel Poles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Note: any out-of-the ordinary major quantity item needs a quantity and cost estimate

Comments and Risk Identification:

Person completing this form:

Date:

HYDRAULICS SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on issues that may affect the scope of the project.

ITEM	ITEM NEEDED			Struc. # If any	RP	NOTES (or see below) (Quantity/Cost estimate and other comments)
	Need	Want	Not			
Mainline Culverts <input type="checkbox"/> Repair <input type="checkbox"/> Line <input type="checkbox"/> Replace <input type="checkbox"/> Extend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
54. Sideline Culverts <input type="checkbox"/> Replace <input type="checkbox"/> Extend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Tile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Storm Sewer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Erosion Repairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Waterway analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Risk Assessment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Ditch Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Special Structures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Weirs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Vortex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Fish Passage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Ponds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

Note: any out-of-the ordinary major quantity item needs a quantity and cost estimate

For projects that require waterway analysis, risk assessment or scour evaluation, the district hydraulics engineer should forward this scoping worksheet to Bridge Hydraulics for their comments.

Comments and Risk Identification:

Person completing this form:

Date:

MAINTENANCE SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on issues that may affect the scope of the project.

ITEM	ITEM NEEDED			NOTES (or see below) (Location, Quantity/Cost estimate and other comments)
	Need	Want	Not	
55. Striping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	56.
57. Signing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	58.
59. Lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	60.
61. Curb & Gutter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	62.
63. Low gravel shoulder correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	64.
65. Guard Rail Repair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	66.
67. Fencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	68.
69. Noisewall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	70.
71. Drainage Repair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	72.
73. Erosion Area Correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	74.
75. Flooding Area Correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	76.
77. Snow Trap, Storage, Icing Correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	78.
79. RWIS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	80.
81. Anti-Icing System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	82.
83. Frost Heave Correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	84.
85. Rest Area Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	86.
87. Landscaping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	88.
89. Millings needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	90.
91. Other salvage items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
92.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

any out-of-the ordinary major quantity item needs a quantity and cost estimate

Comments and Risk Identification:

Person completing this form:

Date:

MATERIALS SCOPING WORKSHEET

Have basins been done? <input type="checkbox"/> Yes <input type="checkbox"/> No

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on issues that may affect the scope of the project.

Proposed Fix ¹ [Attach typical section(s)]		Alternate Fixes ¹ :						
					1.		2.	
ITEM	ITEM NEEDED	Approx. RP			NOTES (or see below) (Quantity/Cost estimate and other comments)			
		Need	Want	Not				
93. Bituminous	94. Paving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<i>(include lane width)</i>	
	95. Reclamation ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	96. Pavement Milling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	97. Millings re-use ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	98.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
99. Concrete	100. Paving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<i>(include lane width)</i>	
	101. Joint Repairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	102. Dowel Bars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	103. Planing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	104. Major CPR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	105. Minor CPR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	106.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
107. Sub-surface	108. Base Repairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	109. Grading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	110. Muck, groundwater, rock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
1. Shl-der	112. Shoulder Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<i>(include shoulder width)</i>	
	113.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
4. Edge Drains	115. Edge Drain Video Insp. ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	116. Edge Drain Flushing ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	117. New Edge Drains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

¹ Materials should provide proposed fix and alternates

^a these items and any other out-of-the ordinary major quantity item needs a quantity and cost estimate

Comments and Risk Identification:

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Person completing this form:

Date:

TRAFFIC SCOPING WORKSHEET

To 'check' in the check boxes, double click and click on 'checked' in the Default value box

The purpose of this form is to record notes on issues that may affect the scope of the project.

ITEM	ITEM NEEDED			NOTES (or see below) (Location, Quantity/Cost estimate and other comments)
	Need	Want	Not	
118. Horizontal Curve Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	119.
120. Vertical Curve Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	121.
122. Super Correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	123.
124. Rumble Strips - Shoulder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	125.
126. Rumble Strips - Centerline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	127.
128. Guard Rail ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	129.
130. Striping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	131.
132. Median Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	133.
134. Signing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	135.
136. Lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	137.
138. Turn Lanes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	139.
140. Intersection Revision ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	141.
142. Traffic Signals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	143.
RR Crossing Work ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Path/Trail Crossing Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Access Changes ^a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
144. Significant project under FHWA Final Rule for Safety and Mobility in Work Zones?	<input type="checkbox"/> Yes <input type="checkbox"/> No			
145. Proposed Traffic Control				
146. Road Safety Review	Any special concerns:			

(^a these items and any other out-of-the ordinary major quantity item needs a quantity and cost estimate)

Comments and Risk Identification: