

Minnesota Statewide Freight System Plan

Task 3 - Freight Planning and Policy Framework

draft

prepared for

Minnesota Department of Transportation

prepared by

Cambridge Systematics, Inc.

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date

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1.0 Minnesota Department of Transportation Guidance

Over the past several years, MnDOT has developed two key documents to guide statewide planning and policy, and that provide a framework for developing the Minnesota Statewide Freight System Plan (Freight Plan). These are:

- Minnesota GO 50-Year Transportation Vision, and
- Minnesota Statewide Multimodal Transportation Plan

Figure 1.1 depicts how these plans provide a strategic direction for MnDOT and how they are linked to MnDOT's system plans, which includes this Plan.

Minnesota GO sets the overarching transportation vision and guiding principles, and the Minnesota Statewide Multimodal Transportation Plan takes the vision and establishes policy direction and guidance for the integration of all modes. A third document, the Minnesota State Highway Investment Plan (MnSHIP), solidifies this direction for the highway system by identifying highway funding priorities for the next 20 years. Minnesota GO and Minnesota's Statewide Multimodal Transportation Plan are described in more detail in the following sections.

Metropolitan, Regional, Tribal, and Local Transportation Plans and Investment Programs

Metropolitan, Regional, Tribal, and Local Transportation Plans and Investment Programs

State Aviation System Plan

Statewide Bicycle System Plan

Statewide Freight System Plan

Statewide Freight System Plan

Statewide Programs

Modal

Programs

Modal

Programs

Maintenance and Operations

4-year Plans

Supporting Plans, Studies, and Initiatives

Monitoring / Reporting / Adjustments (Annual Performance Report)

Figure 1.1 Relationship between MnDOT Plans and Programs

Source: MnDOT

1.1 MINNESOTA GO¹

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. The actions required to reach the vision are outlined in other statewide planning documents, such as this Freight Plan.

A vision is a description of a desired future. It answers the question "what are we trying to achieve?" It does not answer the question "how will we do it?" –

Vision

Minnesota GO's vision is a "transportation vision for generations," and desires in the future that Minnesota's multimodal transportation system maximizes the health of people, the environment and our economy. The 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
- Provides safe, convenient, efficient and effective movement of people and goods
- Is flexible and nimble enough to adapt to changes in society, technology, the environment and the economy

Minnesota GO is a vision that aims to align the transportation system to what Minnesotans expect for their quality of life, environment and economy. Namely:

• 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
- Is accessible regardless of socio-economic status or individual ability

Environmental Health

- Is designed in such a way that it enhances the community around it and is compatible with natural systems
- Minimizes resource use and pollution

Economic 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
- Attracts human and financial capital to the state

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¹ The content for this section is taken from Minnesota GO, Crafting a Vision for Generations, MnDOT, November 2011

The freight portions of Minnesota's transportation system are critical to realizing this vision, in large part because the freight system serves as a conduit for economic activity, linking businesses and consumers to the global marketplace.

Guiding Principles

Minnesota GO also established guiding principles. These principles were adopted to serve as a compass or touchstone for all transportation partners to help guide progress toward achieving the vision for a transportation system that maximizes the health of people, the environment, and the economy. Again, these principles are important to this Freight Plan, and in planning for the future of the multimodal freight system these principles must be considered. These principles, and what they mean to the freight system, are described in no particular order in Table 1.1. Note, while all eight principles may not apply in every instance, taken together, the principles are a tool for transportation planning, evaluating alternatives and trade-offs, and making decisions about investment priorities.

Table 1.1 Minnesota GO Guiding Principles

Principle	What this means	What this means to the freight system
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.	The multimodal freight system should support public purposes, such as environmental stewardship, economic competitiveness, public health and energy independence.
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.	All freight modes must be accessible for all freight system users. This includes providing seamless connectivity between modes and first- and last-mile connectivity at marine ports, airports, rail facilities, and other major freight generators.
Build to a maintainable scale	Consider and minimize long-term obligations—don't overbuild. The scale of the system should reflect and respect the surrounding physical and social context of the facility. The transportation system should affordably contribute to the overall quality of life and prosperity of the state.	Many freight corridors in Minnesota are shared with passengers; consider these shared operations as part of building to a maintainable scale. Consider advanced technology applications and operational adjustments as lower cost alternatives to major infrastructure investments, and a means to contribute to the overall quality of life and prosperity of the state.
Ensure regional connections	Key regional centers need to be connected to each other through multiple modes of transportation.	Key regional centers need to be connected to each other through multiple, competitive freight transportation modes.
Integrate safety	Systematically and holistically improve safety for all forms of transportation.	Systematically and holistically improve safety for all freight modes. Be proactive, innovative and strategic

Principle	What this means	What this means to the freight system
	Be proactive, innovative and strategic in creating safe options.	in creating safe options and separating freight from other uses when practical.
Emphasize reliable and predictable options	The reliability of the system and predictability of travel time are frequently as important as or more important than speed. Prioritize multiple multimodal options over reliance on a single option.	The reliability of the system and predictability of travel time are frequently as, or more, important than speed for the transport of goods and the demand for "just in time" delivery. Provide multimodal freight options/connectivity throughout the State to ensure system resiliency. Consider advanced technology applications to inform freight users of system conditions and 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.	Strategically maintain, upgrade and expand multimodal freight infrastructure to meet changing demand for goods movement, and industry and supply chain shifts.
Use partnerships	Coordinate across sectors and jurisdictions to make transportation projects and services more efficient.	Coordinate across freight industrial sectors, jurisdictions (including across state borders), and with the myriad public and private sector freight stakeholders to make freight projects and services more efficient. This includes collaboration on planning, project development, and funding.

Source: Minnesota GO

1.2 MINNESOTA STATEWIDE MULTIMODAL TRANSPORTATION PLAN

The Statewide Multimodal Plan was 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 the Minnesota State Highway Investment Plan (MnSHIP).

The Statewide Multimodal Plan established objectives and strategies so that the Minnesota GO vision could be realized; the freight system has a role in realizing this vision. Table 1.2 on the following pages identifies the objectives and strategies that were established for the total transportation system and indicates if the multimodal freight system has a role. In several cases, developing components of this Freight Plan fulfilled strategies identified in the Statewide Multimodal Plan. In other cases, strategies identified in the Statewide Multimodal Plan are not applicable to the freight system.

Table 1.2 Minnesota Statewide Multimodal Transportation Plan, Objectives and Strategies

Objective Area	What this means	Strategies	Applicability to Freight Plan
Accountability, Transparency and Communication Make transportation system decisions through processes that are open and supported by	decisions through processes that are open and supported by	Work with users of the system to better understand what is important to meet their needs today and what will matter tomorrow.	Employed as part of Freight Plan development; Recommended Strategy for continued freight system understanding.
	data and analysis; provide for and support coordination, collaboration, and innovation; and ensure efficient and effective use of resources.	Align all plans and performance measures with the Minnesota GO Vision and Guiding Principles, Statewide Multimodal Transportation Plan objectives and strategies, and how Minnesotans define quality of life.	Employed as part of Freight Plan development.
		Educate stakeholders on systemwide and project- specific transportation issues.	Employed as part of Freight Plan development; Recommended Strategy for continued freight system awareness.
		Improve early communication and coordination on projects to minimize resource use and maximize benefits.	Employed as part of Freight Plan development; Recommended Strategy for pursing freight projects that provide benefits.
Transportation in Context	• • • • • • • • • • • • • • • • • • • •	Support the development of land use plans or policies that minimize long-term costs by taking advantage of investments made in existing and planned infrastructure.	Recommended Strategy for coordinating land use and freight planning, so freight assets remain and are not turned over to other, incompatible uses.
		Work together to improve accessibility and safety for everyone traveling on, along, and across roads.	Recommended Strategy for designing for freight safety.
		Plan, design, develop, and maintain projects in a way that is consistent with the principles of CSS.	Employed as part of Freight Plan development. Several Recommended Strategies planning for and mitigating impacts of freight activity throughout MN.
		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.	Employed as part of Freight Plan development; Recommended Strategy on mitigating negative environmental impacts of freight.

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Objective Area	What this means	Strategies	Applicability to Freight Plan
		Support statewide economic vitality and create and maintain jobs through transportation infrastructure investments.	A goal of the Freight Plan is to support Minnesota's economy, and numerous Recommended Strategies relate to ensuring the freight system is available and a conduit for economic activity.
Critical Connections	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	Apply multimodal solutions that ensure a high return on investment, given constrained resources, and that complement the unique social, natural and economic features of Minnesota.	Several Recommended Strategies relate to both ensuring the freight system provides multimodal access, as well as advancing projects that provide benefits for the dollars spent.
		Support and develop multimodal connections that are accessible for all Minnesotans regardless of socioeconomic status or individual ability.	Recommended Strategy on ensuring first- and last-mile connectivity is available to connect modes; Recommended Strategy on working toward increased modal options.
	consider new connections.	Work together to define priority networks for all modes based on connectivity and accessibility.	The priority network for the multimodal freight system was developed as part of this Freight Plan.
		Collaborate to provide greater accessibility and more efficient movement of goods and people throughout the Twin Cities metropolitan area.	Recommended Strategy related to projects and programs that support efficient urban goods movement.
		Work together to improve the connections between transit services to provide greater transportation options for travel within and between cities.	N/A
		Work to develop intercity passenger rail and improve intercity bus service for better connections between cities and regions in Minnesota and across the nation.	N/A
	Work together to ensure the people and businesses of Minnesota have convenient access to the air transportation network.	Essential air connections were designated as part of this Freight Plan during priority network development.	
		Work together to improve freight operations and connections for better access to the transportation system.	This Freight Plan, and numerous Recommended Strategies outlined within, is targeted toward improving operations and connections to users have access to the freight transportation system.

Objective Area	What this means	Strategies	Applicability to Freight Plan
Asset Management Strategically maintain and operate transportation assets; rely on system data, partners' needs, and public expectations	Prioritize maintaining and operating assets on identified priority networks.	The priority network for the multimodal freight system was developed as part of this Freight Plan. Recommended Strategies related to making strategic investments on the network, as warranted.	
	to inform decisions; put technology and innovation to work to improve efficiency and performance; and recognize that the system should change over time.	Keep Minnesota's transportation system on a sustainable track for the future.	A goal of the Freight Plan is to protect Minnesota's environment and communities, and numerous Recommended Strategies relate to ensuring they are considered in planning and protected.
		Ensure that safety, operations, and maintenance needs are considered and addressed in transportation planning and programming.	Recommended Strategy for including freight in transportation planning and programming processes.
		Better align ownership of Minnesota's roadways with statewide, regional, and local priorities.	N/A
		Work with transportation partners to implement a transparent and collaborative approach to corridor investment along the state highway system.	Employed as part of Freight Plan development; Recommended Strategies for continued partnership with freight stakeholders on a project basis.
		Monitor and report system condition and identify investment needs for key transportation infrastructure that is owned and operated within the private sector.	Freight system performance measures were developed as part of Freight Plan for MnDOT's annual tracking. Recommended Strategies related to making strategic investments on the freight system, as warranted, including private infrastructure when the public benefits.
Traveler Safety	Safeguard travelers, transportation facilities, and services; apply proven strategies to reduce fatalities	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.	A goal of the Freight Plan is to safeguard Minnesotans and Recommended Strategies relate to ensuring their safety is considered in planning and protected.
	and serious injuries for all travel modes.	Develop and share critical safety information and support educational initiatives.	Recommended Strategies relate to providing traveler information to system users have tools to make informed choices.
		Collaborate with law enforcement to promote compliance with traffic laws, affect driver behavior, and reduce unsafe driving practices for all modes.	N/A

Objective Area	What this means	Strategies	Applicability to Freight Plan
		Work with local and regional partners that are public transit providers to ensure enforcement of safety and security requirements.	N/A
		Ensure that transportation facilities are planned, engineered, operated, and maintained with consideration for the safety of all users.	Recommended Strategy for designing for freight system safety.
		Implement strategic and sustainable engineering solutions to improve traveler safety.	Recommended Strategy for designing for freight system safety.
		Work with emergency medical and trauma services to reduce response time and increase survivability.	Recommended Strategy for having incident management and emergency response plans in place in the event of a catastrophic freight-related event.
System Security	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.	Recommended Strategy for having incident management and emergency response plans in place in the event of a catastrophic freight-related event.
		Expand emergency communications infrastructure across the state.	Recommended Strategy for coordinating across state borders, and with public and private stakeholders, on all freight-related planning activities.
		Collaborate with local emergency management to address security issues in their planning efforts.	N/A

Source: Minnesota GO, Minnesota Statewide Multimodal Plan

2.0 Minnesota Statewide Freight System Plan

As previously noted, MnDOT's system investment plans will use the Minnesota GO vision and guiding principles, and the objectives and strategies described in the previous sections as their framework for development. However, these plans (like this Freight Plan) also draw on a broad array of other plans and studies to establish mode-specific strategies, performance measures, performance-based needs over upcoming years, and recommended priorities. In the case of this Freight Plan, there are numerous regional and modal plans to build on (e.g., the State Rail Plan, the Ports and Waterways Plan, and others), as well as national transportation legislation to consider.

2.1 MAP-21 CONSIDERATIONS

A provision in MAP-21 was that all states develop a statewide freight plan and describe in that plan how states will improve their ability to meet the national freight goals. The MAP-21 National Freight Policy goals are:

- Improve the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness,
- Reduce congestion on the freight transportation system,
- Improve the **safety**, **security**, **and resilience** of the freight transportation system,
- Improve the state of good repair of the freight transportation system,
- Use advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system, and
- Reduce adverse **environmental and community impacts** of the freight transportation system.

These goals are not dissimilar from, or in conflict with, Minnesota's statewide vision or planning objectives, but they do imply a slightly different organizing mechanism based on what is most important to freight planning and the public/private nature of the system. In order to clearly show full MAP-21 compliance of this Freight Plan, the following table illustrates how these goals link to Minnesota's vision and objectives, and how they will be addressed in this Freight Plan.

 Table 2.1
 Crosswalk between Federal and State Requirements and Freight Plan Contents

MAP-21 National Freight Policy Goal	Link to MN GO Vision or Guiding Principle Element	Link to State Planning Objectives	Addressed in Freight Plan
Improve the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness	Economy is a key part of MN GO, and the plan notes the important link that smart and strategic transportation investments can have an effect on state and national economies.	Critical Connections; Asset Management; Transportation in Context	Freight Plan Goal - Support Minnesota's Economy
Reduce congestion on the freight transportation system	MN GO identifies multimodal solutions that deliver "lower cost, high benefit" projects to address congestion and improve safety.	Transportation in Context; Critical Connections	Freight Plan Goal - Improve Minnesota's Mobility
Improve the safety, security, and resilience of the freight transportation system	Ensuring that investment decisions include safety, operations, and maintenance needs are part of MN GO decision-making process. MN GO also cites importance of working with local and regional partners to ensure enforcement of safety and security.	Critical Connections; Traveler Safety; System Security	Freight Plan Goal - Safeguard Minnesotans
Improve the state of good repair of the freight transportation system	Plan acknowledges struggles of keeping existing system in state of good repair, but notes its importance in providing access to national and global markets for MN's economy.	Asset Management; Critical Connections	Freight Plan Goal - Preserve Minnesota's Infrastructure
Use advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system	MN GO cites using technology to increase the flexibility of the transportation system to adapt to changes in society, the environment, and economy.	Accountability, Transparency, and Communication; Asset Management	The concepts of advanced technology applications, performance management, innovation and accountability cut across all goal areas identified in this Freight Plan; these concepts have been incorporated as strategies under goals, as warranted.
Reduce adverse environmental and community impacts of the freight transportation system	Quality of life and Environmental health are cornerstones of MN GO, and the vision indicates that transportation should be designed to enhance neighboring communities, remain compatible with natural resources, and minimize resource use and pollution.	Transportation in Context; Critical Connections; Traveler Safety	Freight Plan Goal - Protect Minnesota's Environment and Communities

2.2 MINNESOTA STATEWIDE FREIGHT SYSTEM PLAN GOALS

As shown in Table 2.1, there are links between the MAP-21 National Freight Policy Goals, Minnesota GO, and MnDOT's State Planning Objectives, however, they are not perfectly matched. This is because the MAP-21 goals have been designed to focus on freight, specifically, whereas the State Planning Objectives have been designed to provide a framework for all transportation planning, without a bias over one topic or another. As this Freight Plan is focused on "freight," an organizing structure that is closer to the MAP-21 goals was employed. As noted in the previous sections of this document, much time and attention was taken to ensure that the process used to develop the Freight Plan, and the resultant strategy recommendations, were in line with those of the Minnesota Statewide Multimodal Transportation Plan.

Freight Plan Goals have been developed to reflect the features most important to Minnesota's multimodal freight system. These goals are noted below, including description of why they are important to Minnesota.

Support Minnesota's Economy

The ability of businesses and industries in Minnesota to compete goes beyond simply being industrious; they also demand an efficient freight transportation system and workforce that can produce/deliver goods competitively. The freight transportation system that these businesses depend on is multimodal and conveys goods not only within Minnesota, but also to key freight hubs like Chicago and to export ports such as those in the Pacific Northwest. For this reason, Minnesota's freight system (i.e., physical infrastructure, operations, policies, and partnerships) needs to incorporate and respond to the conditions of the state, as well as to the significant transportation and economic condition of the greater U.S. economy.

Improve Minnesota's Mobility

Freight system mobility can be described in several ways. Delay, slow travel speeds and congestion are all terms used to describe mobility and each translates into a freight transportation system that has limited mobility and may be unreliable. A freight system that has limited mobility may be unattractive for industries to use and rely upon, especially where "just-in-time" delivery is critical. The annual hours of freight system delay are increasing nationally. This delay is worst in the largest urban areas in the U.S.; the Minneapolis-St. Paul region ranked in the Top 20 U.S. cities with the worst delay. Typically, urban areas also have the most congestion and slowest travel speeds. This holds true for the Minneapolis-St. Paul region today, and it is expected to get worse as more

passenger vehicles and trucks use these roadways, especially during peak hours, in the future.

Preserve Minnesota's Infrastructure

In 2012, 1 billion tons of freight moved over Minnesota's transportation system, and by 2040 that volume is expected to rise to 1.8 billion tons - an increase of 44 percent overall. In 2012 trucks carried 63 percent of all inbound, outbound, intrastate and through freight tonnage, while rail (carload and intermodal) carried about 25 percent.² MnDOT expects pavement ride quality and bridge deck conditions to be reduced in the future, and this growth in freight (and truck) transportation will continue to stress the infrastructure making Minnesota's roadways less attractive for goods movement. Making strategic investments in multimodal freight system infrastructure to ensure critical segments are in a state of good repair and that the system provides access for all freight users is essential to the Minnesota's ability to meet expected demand.

Safeguard Minnesotans

Safety is one of MnDOT's top priorities; the agency is taking steps to make sure that safety is considered and integrated into all that it does. Freight-focused system safety is a relatively new topic for Minnesota, but in recent years has been the focus of significant efforts related to the rail system and the increase in rail movements of crude oil through the state. It is important to safeguard all freight system users, ensure places where freight and the public interface are safe, and that there are way to share information on response actions during emergencies.

Protect Minnesota's Environment and Communities

Minnesota's residents and businesses rely on freight to provide their day-to-day needs, however this activity sometimes leads to unintended impacts. Some of these impacts relate to air quality and noise, the presence of trucks in neighborhoods, and incompatible land uses adjacent to each other. Sometimes these issues more severely impact Minnesota's environmental justice populations-racial and ethnic minorities, households without vehicles, and persons who are low-income, are age 65 or older, are age 16 or younger, or who have limited English proficiency. It is important to plan, design, develop, and maintain the freight system in a way that respects and complements the natural, cultural, and social context and is consistent with the principles of context sensitive solutions.

² The data source for freight demand for other modes but rail was FHWA's FAF version 3.5. FAF utilizes a 2007 base year with synthesized 2012 values, and a 2040 forecast.

Integrate Freight Throughout MnDOT

Over the past several years MnDOT's Office of Freight and Commercial Vehicle Operations has explored ways to more thoroughly consider freight in the day-to-day activities of MnDOT. Much of this work has been documented in the *Integrating Freight in Statewide Planning and Programming* report. While integration opportunities have been identified, an implementation plan has not been developed. Three cornerstones for better integrating freight within MnDOT relate to 1) establishing ongoing partnerships with public and private sector freight stakeholders, 2) including consideration of freight in the planning process, and 3) advocating for and advancing projects that benefit multimodal goods movement.

These goals will be used and referenced throughout development of the Freight Plan, in large part to determine the freight system needs, issues and opportunities. Freight Plan recommendations will be organized around their ability to help meet these goals.