DEPARTMENT OF TRANSPORTATION

APRIL 2024

TSMO

STRATEGIC PLAN

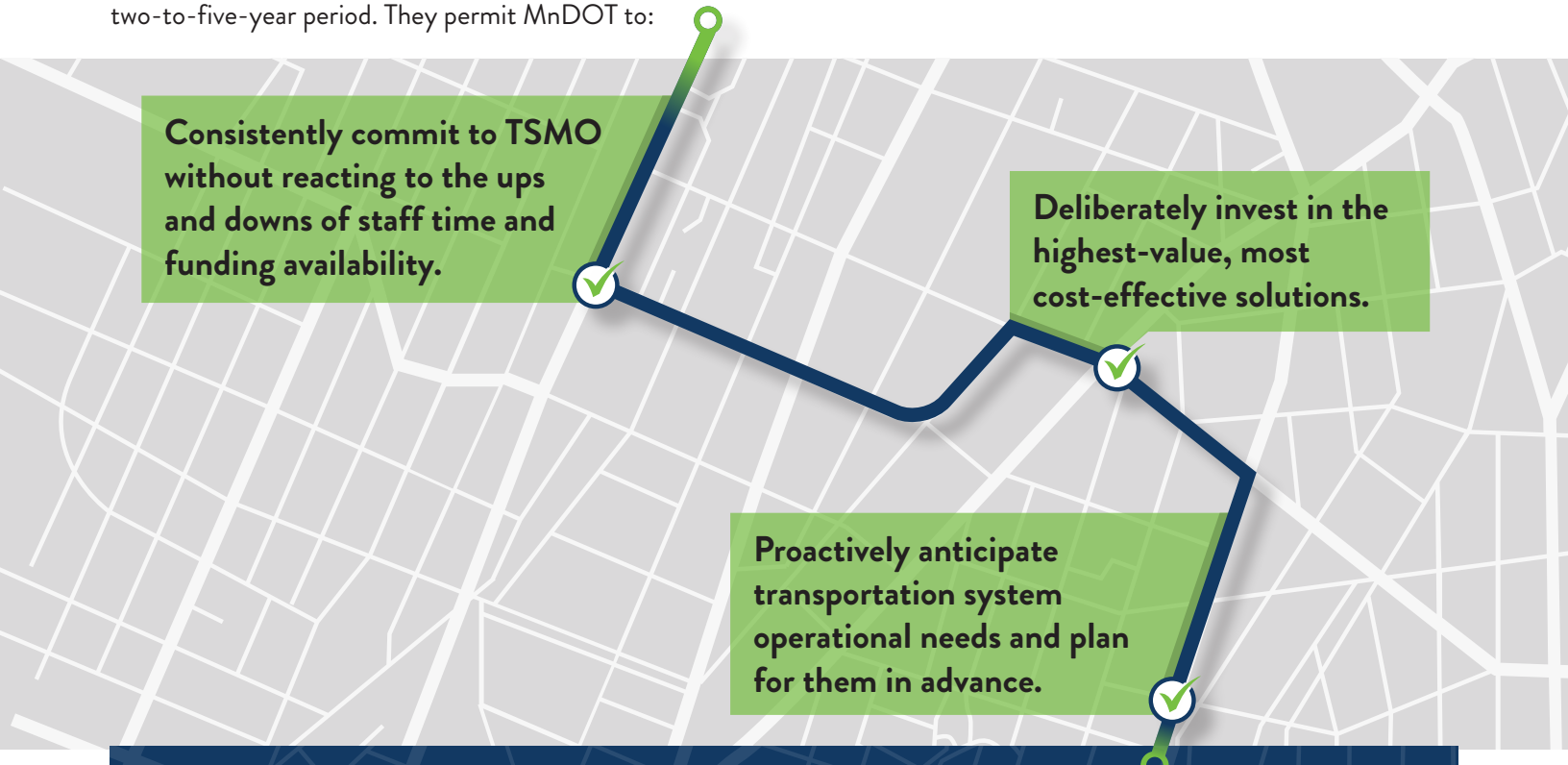
INTRODUCTION

DEPARTMENT OF TRANSPORTATION

The safety, reliability, and continuous availability of Minnesota's transportation network for all users continue to be critical priorities for the state. Transportation Systems Management and Operations (TSMO) are the strategies and approaches for achieving these goals by optimizing transportation system performance. Sustaining these outcomes, though, depends on periodic, consensus-driven planning. This TSMO Strategic Plan builds on the prior successes of MnDOT's TSMO planning and practices and sets the direction for TSMO over the next 10 years.

MnDOT's 2019 TSMO Strategic Plan effectively established a vision for TSMO along with a set of goals and objectives, initiated organization and process improvements to an effective TSMO program, and directed implementation of TSMO strategies, programs, and services across the state that improve the transportation system experience for all MnDOT customers. The strategic plan was one element of MnDOT's TSMO Program Plan, which also included a Business Plan and Implementation Plan.

This 2024 TSMO Strategic Plan defines TSMO in Minnesota, explains how it aligns with the MnDOT Family of Plans, sets TSMO goals and objectives, and establishes a set of TSMO Tactical Plans. The TSMO Tactical Plans provide direction on the implementation of specific areas of TSMO, such as traffic management or traveler information. The plans identify specific actions, services, programs, projects, and business process improvements MnDOT will make in each area over a two-to-five-year period. They permit MnDOT to:



Together, the TSMO Strategic Plan and Tactical Plans will guide investment and policy decisions for TSMO, communicate the value and direction of TSMO, and maximize the effectiveness of the TSMO program's contribution to MnDOT's vision for transportation in the state.

TSMO Mission

DEPARTMENT OF TRANSPORTATION

Using a broad set of operational strategies to optimize the safe, efficient, and reliable use of transportation infrastructure for all users.

TSMO is a broad set of strategies that aim to optimize the safe, efficient, and reliable use of transportation infrastructure for all travelers. TSMO strategies target all elements of the multimodal transportation system, range widely in complexity—often but not always using technology—and may be characterized as a tool, service, activity, or infrastructure improvement.

EXAMPLE TSMO STRATEGIES

TRAFFIC INCIDENT MANAGEMENT

TRAVELER INFORMATION

TRAFFIC SIGNAL TIMING AND COORDINATION

TRANSIT ADVANTAGES

FREIGHT MANAGEMENT

WORK ZONE MANAGEMENT

SPECIAL EVENT MANAGEMENT

ROAD WEATHER MANAGEMENT

MANAGED LANES

RIDESHARING PROGRAMS

LOW-COST GEOMETRIC IMPROVEMENTS

TSMO strategies optimize multimodal transportation system performance. But TSMO is also an approach to solving transportation challenges using an operational mindset. While programs, practices, and supporting activities are led by the TSMO Office, all staff have a hand in applying TSMO. Across all regions—from urban to rural—all functional groups, and all modes, a MnDOT operational mindset means that travelers benefit from getting the most performance out of existing (and future) infrastructure, services, and systems in terms of outcomes like safety, mobility, reliability, and environmental sustainability.

TSMO GOALS and OBJECTIVES

DEPARTMENT OF TRANSPORTATION

GOAL
Increase Safety of the Public and Workers in the Right-of-Way

- ☑ Support a safe system approach through TSMO strategies for all users of the transportation system.
- ☑ Reduce the frequency of fatal and serious injury crashes for all users of the transportation system.
- ☑ Reduce the frequency of secondary crashes.
- ☑ Reduce the frequency of crashes related to road weather conditions (e.g. snow, ice, fog, etc.).
- ☑ Enhance the security of transportation system users by using TSMO strategies to support emergency response activities.
- ☑ Assess and prioritize the health and safety of MnDOT employees, partners, and other personnel working in the right-of-way during operational activities, including incident response, construction and maintenance work zone activities, and severe weather.

GOAL
Improve System Reliability, Mobility, and Efficiency

- ☑ Reduce recurring (bottlenecks) and non-recurring (work zones, weather, incidents, special events) congestion for all travel modes.
- ☑ Apply a holistic, system-level approach to actively managing capacity and reducing delay across facilities, modes, and time of day.
- ☑ Provide and promote alternatives to single occupant vehicle travel.
- ☑ Reduce the impacts of weather events on mobility.
- ☑ Reduce incident response and clearance times in the Twin Cities and Greater Minnesota.
- ☑ Provide or enable traveler information regarding travel conditions, advisories, multimodal travel options, and alternate routes.
- ☑ Reduce excessive delays associated with construction and maintenance activities.

GOAL
Promote, Integrate, and Sustain a MnDOT TSMO Program

- ☑ Foster a culture of TSMO through outreach, education, and the sharing of effective practices.
- ☑ Identify and plan for TSMO funding opportunities by understanding funding eligibilities, sources, and responsibilities; maintaining a roster of "shelf projects;" and managing environmental review process lead times.
- ☑ Proactively and cost-effectively operate, maintain, upgrade, replace, and secure the assets required for effective operations (staff, data, equipment).
- ☑ Acquire, secure, manage, and share the data needed for TSMO planning, operations, and asset management.
- ☑ Engage in partnerships and facilitate multijurisdictional coordination that supports TSMO strategies (e.g., traveler information, traffic incident management, and emergency response).
- ☑ Understand the implications of connected and automated vehicles (CAV) on MnDOT mission, goals, and objectives, and take steps to maintain a state of CAV readiness.

TSMO supports MnDOT'S VISION, MISSION, AND GOALS

TSMO is an integrated, multimodal approach to addressing travelers' safety, mobility, and reliability needs and improves outcomes for passenger vehicles, freight vehicles, transit services, non-motorized travelers, and more. MnDOT's approach to TSMO will further the vision, mission, and goals of the department through proactive and efficient management and operation of the transportation network. TSMO complements MnDOT's ongoing commitment to the state's transportation system and maximizes the return on investment by operating and managing the system as efficiently and effectively as possible. The set of TSMO goals and objectives expresses how TSMO will contribute to achieving MnDOT's vision and mission, the TSMO mission, and agency-wide goals.

MnDOT MISSION AND VISION

MISSION

Connect and serve all people through a safe, equitable and sustainable transportation system.

VISION

Minnesota's multimodal transportation system maximizes the health of people, the environment and our economy.

MnDOT TSMO'S RELATIONSHIP TO THE MnDOT FAMILY OF PLANS

MnDOT maintains a Family of Plans under Minnesota GO, a 50-year visioning process that set principles and a framework for planning transportation in the state across all modes. The MnDOT Family of Plans includes individual modal plans that address all areas of surface transportation. MnDOT also has other related plans such as the Highway Safety Improvement Plan. This TSMO Strategic Plan maintains an expectation that existing or future MnDOT plans reflect the TSMO mindset and incorporate relevant TSMO strategies to meet their respective visions and goals.

The Statewide Multimodal Transportation Plan (SMTP) serves as the framework for the family of plans. It is the highest transportation policy plan in Minnesota and looks forward 20 years. It answers the question how the state will achieve its vision and the goals for the transportation system set forth in Minnesota Statute (Section 174.01, Subdivision 2).

The desired outcomes from the statutory goals are expressed through six objectives, and TSMO plays an important role in supporting all of them. In addition, MnDOT's strategic approach to TSMO broadly incorporates **safety**, **operational resilience**, **environmental sustainability**, and **equity** across all TSMO goals and objectives and implementation of specific TSMO strategies. Integration of these principles is demonstrated through TSMO's role in achieving the SMTP's objectives.

STATEWIDE MULTIMODAL TRANSPORTATION PLAN OBJECTIVES AND TSMO'S ROLE

TRANSPORTATION SAFETY

Safeguard transportation users as well as the communities the system travels through. Apply proven strategies to reduce fatalities and serious injuries for all modes. Foster a culture of transportation safety in Minnesota.

TSMO's Role: TSMO strategies support MnDOT's commitment to the Safe System Approach. A prime focus of TSMO strategies is to reduce safety risks to all users of the transportation system through operational enhancements and treatments. TSMO strategies specifically promote safe speeds, safe roads, and post-crash care. TSMO strategies also promote the safety of workers in the right-of-way. Examples include safe, quick clearance of incidents, work zone management to protect travelers and workers, and intersection signalization and geometric improvements to protect pedestrians and bicyclists. And while some TSMO strategies focus on congestion reduction, which can restore free-flow travel speeds, data indicate that incidence of crashes are much greater under congested conditions. The application of TSMO can also reduce speed differentials, which are a major cause of crashes and contribute to more severe injuries.

SYSTEM STEWARDSHIP

Strategically build, maintain, operate, and adapt the transportation system based on data, performance, and community needs. Ensure effective and efficient use of resources.

TSMO's Role: TSMO strategies operate existing transportation system infrastructure to their maximum potential. TSMO solutions also are often relatively less expensive to implement than traditional capital improvements, making the best use of available resources. A key institutional element of successful TSMO is the use of data and performance management, often in real time or near-real time, to identify operational needs or deficiencies, analyze and determine an appropriate response or solution, and measure the impact. Active management of the transportation system increases the rate and degree of attaining system performance goals.

CLIMATE ACTION

Advance a sustainable and resilient transportation system. Enhance transportation options and technology to reduce greenhouse gas emissions. Adapt Minnesota's transportation system to a changing climate.

TSMO's Role: Real-time system management enabled by features like traveler information, detour routing, and coordinated emergency response enhance the operational resilience of the transportation system and help adapt to climate change. TSMO strategies that promote modal shifts or help to reduce congestion and delay directly contribute to greenhouse gas emission reductions.

CRITICAL CONNECTIONS

Maintain and improve multimodal transportation connections essential for Minnesotans' prosperity and quality of life. Strategically consider new connections that help meet performance targets and maximize social, economic, and environmental benefits.

TSMO's Role: TSMO encourages maximizing the mobility and accessibility of all system users by improving the safety and effectiveness of travel by all modes. This includes not just vehicle users, but vulnerable road users and transit users also. TSMO improves system connectivity by integrating access among modes and facilities through applications of technology, traveler information, and coordination across agencies and jurisdictions.

HEALTHY EQUITABLE COMMUNITIES

Foster healthy and vibrant places that reduce disparities and promote healthy outcomes for people, the environment, and our economy.

TSMO's Role: TSMO strategies encourage more efficient travel by reducing congestion, delay, and providing accurate and reliable traveler information. These outcomes minimize environmental impacts and increase economic productivity. Further, the TSMO program commits to serving all user groups equally and reducing existing disparities in how the transportation system serves everyone.

OPEN DECISION MAKING

Make equitable transportation decisions through inclusive and collaborative processes that are supported by data and analysis.

TSMO's Role: TSMO strategies depend on collaboration across functional groups and districts within MnDOT as well as with partners across the state—other state agencies, local governments, metropolitan planning organizations, transit agencies, the public safety community, the private sector, and others. TSMO strategies depend on data and analytics to make real-time operational decisions and to identify long-term investment priorities. The TSMO program commits to making decisions on real-time operations and future TSMO strategy investments in an inclusive and collaborative manner that serves all systems users equitably.

PLANNING the TSMO PROGRAM

DEPARTMENT OF TRANSPORTATION

Complementing this strategic plan, the TSMO program is guided by a set of tactical plans and supporting business plan activities.

TACTICAL PLANS

Tactical Plans identify specific actions, services, programs, and projects that support TSMO goals and objectives in a specific TSMO area. Examples could include traffic incident management, work zone management, traffic management systems, or connected and automated vehicles. Tactical plans describe the tactical area and its objectives. Each tactical plan describes how it relates to other tactical areas. Tactical plans provide additional details beyond what is included in TSMO strategic or business plans. Tactical plans typically include the following for the tactical area:

- Prioritized services and activities
- Implementation policies and guidelines
- Multi-year investment plan
- Performance measures and assessment

BUSINESS PLANNING

TSMO business planning identifies business processes and organizational improvements within the TSMO Office and MnDOT more broadly that enable more effective TSMO strategies. These improvements also help MnDOT better achieve its goals and objectives.

This strategic plan is not accompanied by a standalone business plan, but rather recommended business plan activities are incorporated into the tactical plans and into the biennial TSMO Office Business Plan. Each tactical plan contains business plan recommendations specific to the needs of the tactical plan. The TSMO Office Business Plan documents and tracks program-wide recommendations for all plan objectives, especially those under the goal to "Promote, Integrate, and Sustain a MnDOT TSMO Program." The TSMO Director develops the office business plan in conjunction with the TSMO Leadership Team and consistent with the tactical plans.

Initial Set of Tactical Plans

- ☑ Traffic Management Systems
- ☑ Signal Operations
- ☑ Traveler Information
- ☑ Road Weather Management
- ☑ Traffic Incident Management
- ☑ Work Zone Management
- ☑ Connected and Automated Vehicles

TSMO is focused on specifically optimizing the transportation network and providing a safe, efficient and reliable transportation system.

ACCOMPLISHMENTS

DEPARTMENT OF TRANSPORTATION

MnDOT has successfully implemented many of the TSMO strategies in the 2019 TSMO Implementation Plan and program improvements in the TSMO Business Plan.

EXAMPLE TSMO STRATEGIES

More routine applications of intelligent work zone systems to increase work zone safety.

Expanded and enhanced road weather information systems deployment to improve weather event response.

Greater use of innovative intersection technology and design to reduce conflict intersections.

Upgraded signal controller and communications equipment for connection to central system to improve safety and mobility.

Expanded snow fence deployment to reduce drifting and blowing snow conditions on adjacent highways, improving safety.

Increased use of third-party data to enhance work zone monitoring, improve traffic signal performance, and integrate with real-time traveler information.

EXAMPLE TSMO PROGRAM IMPROVEMENTS

- Established a TSMO strategic and tactical planning process.
- Developed the TSMO Office which contains the CAV-X Unit and the Electrical Services Section.
- Established a TSMO Leadership Team.
- Hired a Traffic Incident Management Coordinator.
- Designated a statewide TSMO Director.
- Provided dedicated funding for TSMO pilot projects and TSMO staff.