

# Transportation System Performance Report

December 2022

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# Prepared by

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December 15, 2022

The Honorable Frank Hornstein, Chair, Chair  
House Transportation Finance & Policy Committee  
545 State Office Building  
Saint Paul, MN 55155

The Honorable Scott Newman, Chair  
Senate Transportation Finance & Policy Committee  
3105 Minnesota Senate Building  
Saint Paul, MN 55155

The Honorable John Petersburg, GOP Lead  
House Transportation Finance & Policy Committee  
251 State Office Building  
Saint Paul, MN 55155

The Honorable Scott Dibble  
Ranking Minority Member  
Senate Transportation Finance & Policy Committee  
2213 Minnesota Senate Building  
Saint Paul, MN 55155

RE: 2022 Transportation System Performance Report

Dear Legislators:

The Minnesota Department of Transportation is pleased to present this first Transportation System Performance Report to the Legislature. As required by [Minn Stat. 174.03, Subd. 12](#), the report presents trunk highway and transportation system performance measures, describes performance gaps, and outlines the agency's progress toward achieving the state transportation goals established in [Minn. Stat. 174.01](#).

Minnesota's transportation system made performance gains in several areas over the last year such as sustainable construction and maintenance practices and pavement conditions. However, transportation safety has been a particular challenge the last two years with fatalities and serious injuries on Minnesota roadways the highest in five years. These mixed performance results emphasize the fluid and complex nature of transportation system management. Going forward, MnDOT will continue to revisit current performance measures for improvement and identify new areas for performance management.

I hope you find this report valuable, and I look forward to working with you to address challenges described in this report. With your help, we can maintain and build a transportation system that makes that state transportation goals a reality.

Please let me know if you have questions.

Sincerely,



Jean Wallace  
Chief Engineer, Department of Transportation

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# Legislative Request

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This report is issued to comply with [Minn Stat. 174.03, subd. 12\(d\)](#).

**Subd. 12. Trunk highway performance, resiliency, and sustainability.** (a) The commissioner must implement performance measures and annual targets for the trunk highway system in order to construct resilient infrastructure, enhance the project selection for all transportation modes, improve economic security, and achieve the state transportation goals established in section [174.01](#).

(b) At a minimum, the transportation planning process must include:

(1) an inventory of transportation assets, including but not limited to bridge, pavement, geotechnical, pedestrian, bicycle, and transit asset categories;

(2) lag (resulting), and where practicable lead (predictive), performance measures and annual targets that are:

(i) statewide and district-specific;

(ii) for assets in each asset category specified in clause (1) for a period of up to 60 years; and

(iii) identified in collaboration with the public;

(3) gap identification and an explanation of the difference between performance targets and current status; and

(4) life cycle assessment and corridor risk assessment as part of asset management programs in each district of the department.

(c) At a minimum, the ten-year capital highway investment plan in each district of the department must:

(1) be based on expected funding during the plan period;

(2) identify investments within each of the asset categories specified in paragraph (b), clause (1);

(3) recommend specific trunk highway segments to be removed from the trunk highway system; and

(4) deliver annual progress toward achieving the state transportation goals established in section [174.01](#).

(d) Annually by December 15, the commissioner must report trunk highway performance measures and annual targets and identify gaps, including information detailing the department's progress on achieving the state transportation goals, to the chairs and ranking minority members of the legislative committees having jurisdiction over transportation policy and finance. The report must be signed by the department's chief engineer.

*The cost of preparing the report elements required by [Minn. Stat. 174.03, subd. 12\(d\)](#) is approximately \$140,000.*

# Introduction

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## Purpose of Report

This report is submitted to the Minnesota Legislature to satisfy Minnesota Statutes. 174.03, Subd. 12. It directs the commissioner of the Department of Transportation to implement performance measures and annual targets for the trunk highway system. These performance measures and annual targets are to support construction of resilient infrastructure, enhance the project selection for all transportation modes, improve economic security, and achieve the state transportation goals established [Minn. Stat. 174.01](#). The statute specifically directs the commissioner to annually report on trunk highway performance measures, annual targets, identify performance gaps, and detailing MnDOT's progress on achieving the state transportation goals (from this point forward referred to as "the goals").

## SMTP and the Goals

The goals and the related performance measures are organized around the Statewide Multimodal Transportation Plan objectives.

The SMTP objectives are:

- **Transportation Safety:** Safeguard transportation users and 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.
- **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.
- **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.
- **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.
- **Healthy Equitable Communities:** Foster healthy and vibrant places that reduce disparities and promote healthy outcomes for people, the environment, and our economy.
- **Open Decision Making:** Make transportation system decisions through processes that are inclusive, engaging, and supported by data and analysis.

Because the Open Decision Making objective does not directly relate to the goals and focuses primarily on MnDOT rather than the entire transportation system, measures related to this goal are not presented in the main body of the report. A summary of the public trust and public confidence performance measures tracked by MnDOT is available in Appendix A: Minnesota Go Vision on page 63.

Based on MnDOT's [50-year Minnesota GO Vision](#), the SMTP sets the policy direction, priorities, and the framework for MnDOT's modal and system investment plans (i.e., Family of Plans). The Family of Plans offer mode-specific strategies and guidance and include aviation, bicycle, freight, highway, pedestrian, ports and waterways, rail, and transit. Nearly all the performance measures analyzed and described in the report come from the Family of Plans. Appendix A: Minnesota Go Vision on page 63 describes the Minnesota GO Vision,

the SMTP, and the Family of Plans in more detail and the related background information about the Capital Highway Investment Plan, corridor risk and resilience, and open decision-making.

The SMTP objectives, the legislative goals, and the performance measures presented in this report help describe how Minnesota's transportation system is performing. The transportation system is operated by MnDOT and many other partner agencies including the Metropolitan Council, other metropolitan and regional planning organizations, city and county governments, tribal governments, the Minnesota Department of Public Safety, the Metropolitan Airports Commission, the Federal Aviation Administration, the US Army Corps of Engineers, and local government airports, port authorities, transit operators, and non-profit partners.

An important component of Minnesota's transportation system is the state highway system, which consists of the following systems of roadways:

- **National Highway System roadways:** Includes all interstate highways (i.e., NHS – Interstate) and other NHS highways (i.e., NHS – Non-Interstate) that serve statewide and inter-state travel and are the primary connection between large urban areas.
- **Non-NHS roadways:** State highways that provide connections for regional and local travel and generally carry lower traffic volumes.

Certain performance measures in the report describe current and historic conditions by roadway system.

An inter-division MnDOT work group assigned the goals to a corresponding SMTP objective, and then existing performance measures, tracked by MnDOT, were assigned to the goals. Performance measures already in the SMTP were automatically assigned to the same objective while other MnDOT performance measures were assessed and prioritized by the work group. The resulting prioritization informed which measures are highlighted in this report.

Each SMTP objective report section presents the associated goals, an analysis of the current and historical performance of the measures (as available), regional or district-level performance measure data (where data and reporting allow), and a description of what MnDOT and its partners are doing to move towards the goals.

As directed in the statute, this report identifies gaps between historical and current conditions and the statewide targets, where applicable. The gaps are explored by elaborating on historical trends compared to targets in terms of desired outcomes.

# Relationship of SMTP Objectives to State Transportation Goals

As described in the previous section, the goals are addressed in their corresponding SMTP objective sections and performance measures are expanded upon under the designated goal. The SMTP objectives and associated goals are listed in Table 1. There are four goals that do not have primary performance measures associated with them (goals 5, 7, 10, and 13). These goals are described with the correlated measures in their applicable SMTP objective sections. Appendix C on page 70 lists all the measures and their definitions presented in this report.

**Table 1. SMTP objective relationship to the legislative goals**

SMTP Objective	Associated Transportation Goals
Transportation Safety	(1) <b>Safety</b> : to minimize fatalities and injuries for transportation users throughout the state (7) <b>Technological advancements</b> : to promote accountability through systematic management of system performance and productivity through the utilization of technological advancements
System Stewardship	(8) <b>Maximizing long-term benefits</b> : to maximize the long-term benefits received for each state transportation investment (9) <b>Infrastructure maintenance</b> : to provide for and prioritize funding of transportation investments that ensure that the state’s transportation infrastructure is maintained in a state of good repair (16) <b>Minimize environmental impacts</b> : to accomplish these goals with minimal impact on the environment
Climate Action	(11) <b>Promote high-occupancy and low-emission vehicles</b> : to promote and increase the use of high-occupancy vehicles and low-emission vehicles (15) <b>Reduce GHG emissions</b> : to reduce greenhouse gas emissions from the state’s transportation sector
Critical Connections	(3) <b>Reasonable travel time</b> : to provide a reasonable travel time for commuters (4) <b>Enhance economic development</b> : to enhance economic development and provide for the economical, efficient, and safe movement of goods to and from markets by rail, highway, and waterway (5) <b>Encourage tourism</b> : to encourage tourism by providing appropriate transportation to Minnesota facilities designed to attract tourists and to enhance the appeal, through transportation investments, of tourist destinations across the state (6) <b>Transit in all counties</b> : to provide transit services to all counties in the state to meet the needs of transit users (12) <b>Air transportation</b> : to provide an air transportation system sufficient to encourage economic growth and allow all regions of the state the ability to participate in the global economy (13) <b>Transit mode shift</b> : to increase use of transit as a percentage of all trips statewide by giving highest priority to the transportation modes with the greatest people-moving capacity and lowest long-term economic and environmental cost



SMTP Objective	Associated Transportation Goals
Healthy Equitable Communities	<p>(2) <b>Multimodal and intermodal access:</b> to provide multimodal and intermodal transportation facilities and services to increase access for all persons and businesses and to ensure economic well-being and quality of life without undue burden placed on any community</p> <p>(10) <b>Environmental and energy consistency:</b> to ensure that the planning and implementation of all modes of transportation are consistent with the environmental and energy goals of the state</p> <p>(14) <b>Bike and walk mode shift:</b> to promote and increase bicycling and walking as a percentage of all trips as energy-efficient, nonpolluting, and healthy forms of transportation</p>

### Primary and Correlated Measures

Many of the goals have primary and correlated measures associated with them. Figure 1 shows the relationship between SMTP Objective, the goals, and measures using the Climate Action objective as an example. Figure 2 shows the legislative goals with entire set of performance measures in this report and identifies the primary (P) and correlated (C) relationships.

**Figure 1. Example relationship**

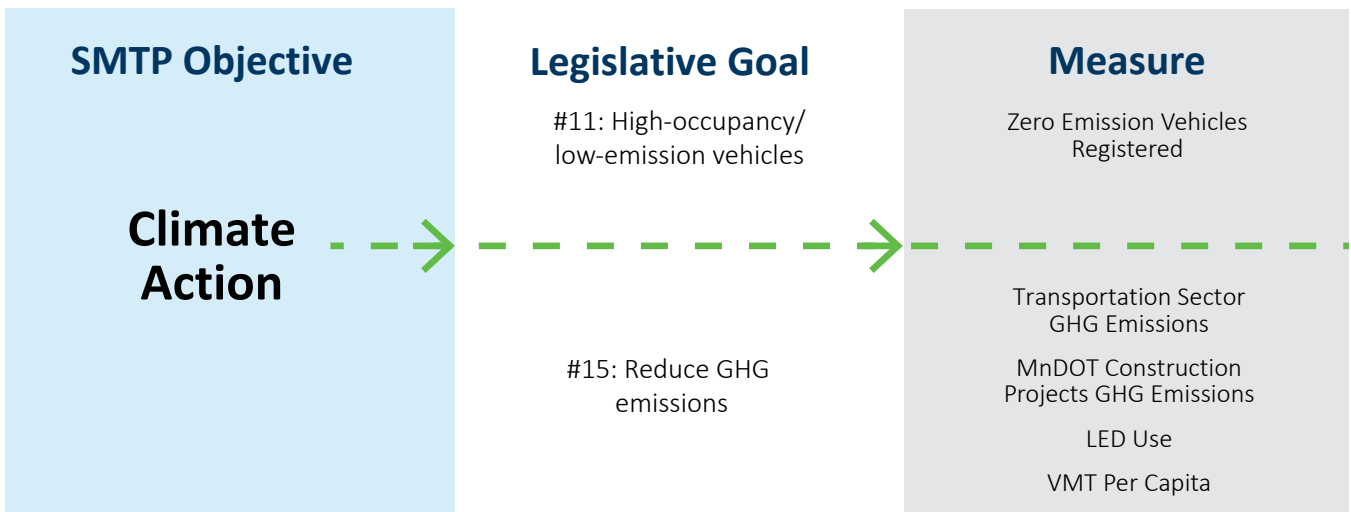


Figure 2. Primary and correlated measures by goals

MEASURE:	GOAL:															
	1. Safety	2. Multimodal & intermodal access	3. Reasonable travel time	4. Economic development	5. Tourism	6. Transit in all counties	7. Use technology	8. Maximize long-term benefits	9. Asset maintenance	10. Environment & energy	11. High-occupancy/low-emission vehicles	12. Air transportation	13. Transit mode shift	14. Walk/bike mode shift	15. Reduce GHG emissions	16. Minimal environmental impact
Roadway Fatalities	P															
Roadway Serious Injuries	P															
Highway-Rail Grade Fatalities and Serious Injuries	P	C		C												
Pedestrian fatalities and serious injuries	P													C		
Bicycle fatalities and serious injuries	P													C		
Snow Fences	P						C									
Bridge Inspection							C	P								
Rest Area Building Condition				C	C			P								
Bridge Condition				C				C	P							
Culvert Condition								C	P							
Pavement Condition				C				C	P							
ADA Compliance		C						P						C		
Road Salt Chloride Use							C									P
Sustainable Pavements							C			C						P
Native Seeding and Plantings								C		C						P
Zero Emission Vehicles Registered											P				C	
Zero Emission Vehicles Sold											P				C	
Transportation Sector GHG Emissions											C				P	C
MnDOT Construction GHG Emissions															P	C
LED Use										C					P	C
VMT Per Capita		C									C			C	P	
Interstate Travel Time Reliability			P	C												
Job Accessibility by Car			P	C												
Job Accessibility by Bicycle and Transit		C	P	C		C							C	C		
Twin Cities Freeway Congestion			P	C												
Truck Travel Time Reliability Index (TTTRI)			P	C												
Public Transit Ridership		C				P							C		C	
Transit On-Time Performance		C				P							C		C	
Air Transportation					C							P				
Transportation Costs		P														
Physical Activity														P		

## Performance Measure Development at MnDOT

MnDOT uses performance measures to evaluate how Minnesota's transportation system is performing. As data becomes available it is published on [Minnesota GO Performance Dashboard](#) and in the applicable modal or system investment plan. MnDOT uses performance targets to calculate needed investment levels, stimulate innovation and guide decision-making. These targets are set through public planning processes that incorporate numerous factors including engineering standards and other technical criteria, historical experience, and assessments of stakeholder expectations. MnDOT seeks to predict outcomes when adequate data is available and reasonable predictions can be made.

For MnDOT, a **performance measure** is an expression of how much or how well the policies, strategies, investments, or products or services are working towards a goal or desired outcome during a specified time period. A measure that provides meaningful information about the condition or performance of the transportation system but is not managed to, nor used to evaluate the effectiveness of policies, strategies, or investments is referred to as an **indicator**. Indicators are tracked in the same way as performance measures. Quantifiable descriptions of performance measures are historically, and up to the current time with respect to circumstances, referred to as **current conditions** or **results**. When developing performance measures, **targets** are often created. A target represents a specific performance level associated with a goal or **desired outcome**. The **desired outcome** is an end-state condition of well-being for people or the transportation system. MnDOT also establishes **expected outcomes**, which are projections of future performance based on predictive models or projections.

### Performance Management Terminology

The report uses several performance management terms used by MnDOT in performance management, which are defined below. Appendix B on page 69 has more detailed information about MnDOT's performance management process and performance measures development.

- **Performance measure:** An expression of how much or how well products or services are working towards a goal or desired outcome during a specified time period.
  - **Primary measure:** A term to explain a performance measure that is most directly evaluating progress towards a state transportation goal.
  - **Correlated measure:** A term to explain a performance measure that has multiple connections and dependencies to multiple state transportation goals.
- **Desired outcome (Goal):** An end-state condition of well-being for people or the transportation system.
- **Expected outcome (Projection):** An estimate of future performance based on a predictive model or projection.
- **Current condition (Result):** A quantifiable description of a performance measure historically and up to the current time with respect to circumstances.
- **Target:** A specific performance level associated with a goal or desired outcome.
- **Indicator:** A measure that provides meaningful information about the condition of the transportation system but is neither managed nor used to evaluate the effectiveness of policies, strategies, investments, products or services.



## Performance at a Glance

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Minnesota's transportation system made performance gains in several areas over the last year. However, growing needs and limited resources continue to pose significant challenges and force difficult trade-offs across competing priorities. These mixed performance results emphasize the fluid and complex nature of transportation system management.

### Performance Gains

#### Sustainable Construction and Winter Management

As key functions of MnDOT, construction practices and winter management present an opportunity to reduce environmental impacts. In 2021, sustainable pavements were used in three projects. While this is a decrease from recent years, it indicates a continued commitment. Additionally, both statewide and by district, there was an increased adoption of liquid chloride, which is key in winter road management. Statewide, the ratio of liquid to solid de-icing chemicals has increased (a higher ratio indicates lower environmental impact because of decreased total chloride use on roads). MnDOT is committed to pursuing sustainable construction and winter management practices.

#### Travel Time Reliability

Travel-time reliability, specifically on the National Highway System, reached nearly 100 percent in 2020 due to COVID-19 pandemic impacts. In late 2020 and 2021, even as more Minnesotans returned to the road as stay-at-home policies were lifted and vehicle miles traveled returned to nearly pre-pandemic levels, reliability remained high. The trend indicates that travel patterns have shifted, but it is not yet clear whether the patterns will settle into a new normal or continue to change.

#### Pavement Condition

Through engagement activities, the public expressed a desire to prioritize investment in existing pavement infrastructure above others. MnDOT has responded by increasing the relative amount of investment into pavements both from dedicated revenue that comes into the Trunk Highway Fund and other funding increases provided by the legislature. The result has been steady improvements in pavement condition over the last decade with all systems well exceeding performance targets.

## Challenges

### Transportation Safety

Fatalities and serious injuries increased in 2020 and 2021 to the highest numbers in five years. According to the Minnesota Department of Public Safety, increases in unsafe driving practices with the onset of the COVID-19 pandemic was a contributing factor. MnDOT and DPS will work continually to reduce traffic fatalities and serious injuries.

### Transportation Emissions

The transportation sector represents one of the largest emission sources across the country. In Minnesota, transportation emissions, specifically from tailpipe emissions, increased in 2021 and are not on pace to meet the 2025 target. MnDOT is working on a variety of strategies, including electric vehicle corridors and geometric design practices, to reduce transportation emissions.

### Transit Ridership

Transit ridership throughout the state saw a steep decline with the onset of the COVID-19 pandemic. In 2021, there was a small rebound in ridership in both the Twin Cities metropolitan area and Greater Minnesota. However, there is concern that travel patterns have shifted away from transit. Transit providers across the state are working to provide transit service that meets its riders ever-changing needs.

### Bridge Condition

Bridges across the state are vital to the success of the transportation network. However, bridge condition in Minnesota is projected to decline in the next 10 years at current levels of investment. Bridge inspections, routine maintenance, and preservation investments are key to combating condition declines.

## Scorecard

The scorecard and summary tables below in each goal section provide details for the performance measure included in this report. The tables display the performance measure, statewide target (if applicable), current condition, and the performance score (if applicable). Performance targets are depicted on the graphs and figures with an orange line. The performance scores describe how close a particular measure is meeting the desired outcome or target. The scores include: “good,” “needs improvement,” and “poor.”

Performance scores are developed using [MnDOT’s annual performance scorecard](#) methodology, with the methodology being specific to an individual measure. Scores for measures in this report that have not had scoring methodology established are listed as “Under Development”.

Finally, performance trends are shown with arrows indicating the desired direction MnDOT is aiming for based on strategic objectives (“Desired trend” shown in blue) and the direction they have been trending in the previous two to five years (“Observed trend” shown in green).

**Figure 3. Performance score icons**

● Good ▲ Needs Improvement ● Poor → Under Development → Desired Trend → Observed Trend

**Figure 4. Transportation Safety Scorecard**

Goal	Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
1. Transportation user safety	Roadway fatalities	≤225 by 2025; decreasing towards 0	488 traffic fatalities (2021)	→	→	●
	Roadway serious injuries	≤980 by 2025; decreasing towards 0	1,722 serious injuries (2021)	→	→	●
	Highway-rail grade fatalities/serious injuries	Decreasing towards 0	4 fatalities; 11 serious injuries (2021)	→	→	→
	Pedestrian fatalities/serious injuries	Decreasing towards 0	55 fatalities; 168 serious injuries (2021)	→	→	→
	Bicyclist fatalities/serious injuries	Decreasing towards 0	9 fatalities; 52 serious injuries	→	→	→
	Snow Fences	NA	Short-term: 41.9 Long-term: 92.5 miles (2021)	→	→	→
7. Tech advancements	No Primary Measures					

**Figure 5. System Stewardship scorecard**

Goal	Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
8. Maximizing long-term benefits	Bridge Inspection	100%	99.9% (2021)	→	→	●
	Rest Area Building Condition	<4%	8% (2021)	→	→	→
9. Infrastructure Maintenance	Bridge Condition	NHS Poor: ≤5% Non-NHS Poor: ≤8%	NHS: 6.3% Non-NHS: 4.4% (2021)	→	→	NHS: ▲ Non-NHS: ●
	Culvert Condition	≤10%	18% (2021)	→	→	→
	Pavement Condition	Interstate: ≤2% NHS: ≤4% Non-NHS: ≤8%	Interstate: 0.4% NHS: 0.5% Non-NHS: 2% (2021)	→	→	●
	ADA Compliance	100% by 2037	Curb Ramp: 61% Sidewalk: 66% Signals: 76% (2021)	→	→	→
16. Minimize environmental impacts	Road Salt Chloride Use	200 gallons of liquid per ton of solid by 2027	44 gallons of liquid per ton of salt (2021-2022)	→	→	▲
	Sustainable Pavements	NA	8 projects (2021)	→	→	→
	Native Seedings and Plantings	Native Seedings: 75% of project acres by 2025; Native Plantings: 80% of urban projects; 90% of rural projects	61% of acres planted with native seeds; 50% of projects planted with native plantings	→	→	▲

**Figure 6. Climate Action scorecard**

Goal	Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
11. Promote high-occupancy/low emission vehicles	Zero emission vehicles registered	5% by 2025 65% by 2040	23,897 EVs registered in Dec. 2021; 0.4% of total vehicles	→	→	→
15. Reduce GHG emissions	Transportation sector GHG emission	29.5 million metric tons CO2e (30%) by 2025; 8.0 million metric tons CO2e (80%) by 2040	40.3 million metric tons CO2e (2018) 28.2 million metric tons of CO2 (2021 Tailpipe CO2)	→	→	●
	MnDOT construction GHG emissions	30% reduction from 2018 levels by 2025	23% reduction (2019)	→	→	→
	LED use	Convert all lighting on MnDOT managed roadways by 2020	99% complete (2021)	→	→	●
	VMT per capita	20% reduction by 2050 (draft target)	9,957 miles (2021)	→	→	→

**Figure 7. Critical Connections scorecard**

Goal	Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
<b>3. Reasonable travel time</b>	NHS Travel Time Reliability	≥90%	95.4% (2021)			
	Job Accessibility by Car	NA	586,940 (2019)			
	Job Accessibility by Bicycle or Transit	NA	By bicycle: 40,967 By transit: 13,069 (2019)			
	Twin Cities Freeway Congestion	NA	5.8% (2021)			
<b>4. Enhance economic development</b>	Truck Travel Time Reliability Index	≤1.5	1.24 (2021)			
<b>5. Support tourism</b>	No primary measures					
<b>6. Transit in all counties</b>	Public Transit Ridership	Increasing transit ridership	MSP: 38.1 million Greater MN: 6.2 million (2021)			
	Transit on-time Performance	Metro Transit: ≥90% Greater MN: ≥90%	Metro Transit: 84.8% Greater MN: 95.2% (2021)			
<b>12. Air transportation</b>	Air Transportation	NA	MSP: 16.8 billion available seat miles Greater MN: 131,952 available seat miles (2021)			
<b>13. Transit mode shift</b>	No primary measures					

**Figure 8. Healthy Equitable Communities scorecard**

Goal	Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
<b>2. Multimodal/intermodal access</b>	Transportation Costs	In Development	In Development		NA	
<b>10. Environmental &amp; energy consistency</b>	No primary measures					
<b>14. Bike/walk mode shift</b>	Physical Activity	40% by 2025 60% by 2040	35% of Minnesotans bike or walk at least weekly (2019)			

**Figure 9. Open Decision Making scorecard**

Goal	Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
<b>No Associated Goal</b>	Public Trust: MnDOT Understands Customers' Needs	≥ 80% agreement overall and for each demographic group	72% agreement (2021)			
	Public Trust: MnDOT Acts in a Fiscally Responsible Manner	≥ 80% agreement overall and for each demographic group	59% agreement (2021)			
	Public Confidence: Communicating Accurate Information	≥ 80% agreement overall and for each demographic group	67% agreement (2021)			



## Transportation Safety

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Transportation safety applies to all users of the transportation system regardless of their mode of travel. Comprehensive traveler safety involves an integrated approach that includes the “4Es” of safety – education, enforcement, engineering, and emergency medical and trauma services – and more. Each of these areas is critical to improving overall safety and helping to grow a transportation safety culture in Minnesota.

The goals related to overall transportation safety and growing a transportation safety culture in part through technological advancements are highlighted in this section include:

- **Goal 1:** To minimize fatalities and injuries for transportation users throughout the state.
- **Goal 7:** To promote accountability through systematic management of system performance and productivity by using technological advancements.

### Goal 1

This section contains five key performance measures that help describe how MnDOT is working to achieve the goal: **to minimize fatalities and injuries for transportation users throughout the state.** The performance measures include:

- **Roadway fatalities:** The number of people killed in crashes involving motor vehicles on Minnesota roadways in a 12-month period.
- **Roadway serious injuries:** The number of people who were seriously injured resulting from crashes involving a motor vehicle in a 12-month period. The number of serious injuries is classified by first responders at the scene of the accident.
- **Highway-rail grade fatalities and serious injuries:** The number of people who were killed or seriously injured resulting from crashes at highway-rail grade crossings involving a motor vehicle in a 12-month period. This is a subset of total fatalities and serious injuries.
- **Pedestrian fatalities and serious injuries:** The number of people walking along Minnesota roadways who were killed or seriously injured resulting from crashes involving a motor vehicle in a 12-month period. This is a subset of total fatalities and serious injuries.
- **Bicyclist fatalities and serious injuries:** The number of people bicycling on Minnesota roadways who were





















killed or seriously injured resulting from crashes involving a motor vehicle in a 12-month period. This is a subset of total fatalities and serious injuries.

- **Snow fences:** The total number of miles of snow fences comprised of structural (e.g., composite rails snow fences), living (e.g., trees and shrubs), or vegetative (e.g., corn rows or hale bales) fences on Minnesota roadways. Snow fences trap snow by causing it to pile up before it reaches a road, which increases safety.

Table 2 summarizes the performance measures by statewide target (if applicable), the current condition, and the performance score (if applicable). The transportation safety measures are based on information from the annual [Minnesota Motor Vehicle Crash Facts report](#), which is produced by the Office of Traffic Safety at the Minnesota Department of Public Safety (DPS).

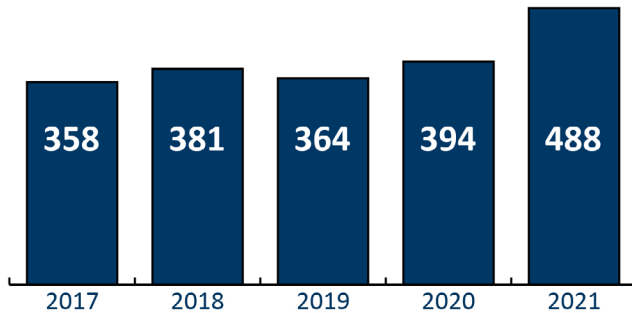
**Table 2. Goal 1 performance measures summary**

Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
Roadway fatalities	≤225 by 2025; decreasing towards 0	488 traffic fatalities (2021)			
Roadway serious injuries	≤980 by 2025; decreasing towards 0	1,722 serious injuries (2021)			
Highway-rail grade fatalities/serious injuries	Decreasing towards 0	4 fatalities; 11 serious injuries (2021)			
Pedestrian fatalities/serious injuries	Decreasing towards 0	55 fatalities; 168 serious injuries (2021)			
Bicyclist fatalities/serious injuries	Decreasing towards 0	9 fatalities; 52 serious injuries			
Snow Fences	NA	Short-term: 41.9 Long-term: 92.5 miles (2021)			

## Fatalities and Serious Injuries

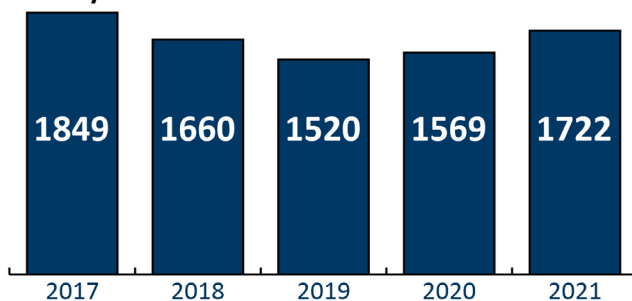
The 2020-2024 [Minnesota Strategic Highway Safety Plan](#) set a target of no more than 225 roadway fatalities by 2025. The plan is updated every five years to reflect current and emerging crash trends and incorporate new safety strategies. Minnesota is committed to Toward Zero Deaths, the key program aimed to reduce traffic related crashes in the state of Minnesota. However, in 2021, 488 people were killed in motor vehicle crashes on Minnesota roads, which is the highest total in the previous five years (Figure 10). This was the highest number of fatalities since 2007 (when there were 510).

**Figure 10. Annual fatalities on Minnesota Roadways**



Additionally, 1,722 people were seriously injured on Minnesota roadways in 2021, which is the highest since 2017 (Figure 11). The 2020-2024 SHSP set an aggressive target of no more than 980 serious injuries by 2025.

**Figure 11. Annual serious injuries on Minnesota roadways**



1 The fatalities are tracked and reported by Area Transportation Region.

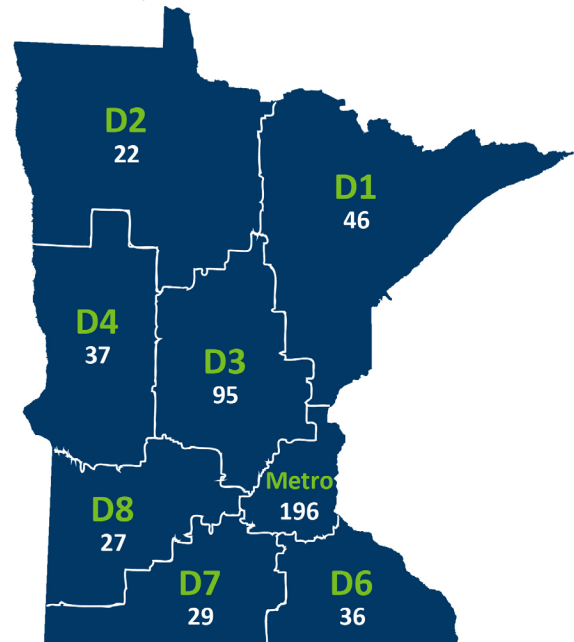
2 The serious injuries are tracked and reported by ATP.

## Regional Discussion

The figures below display fatalities and serious injury data available at the MnDOT district level. Due to regional differences such as population, geography, roadway types, and frequency of use, the statistics differ across districts. Because performance measure targets are set at a statewide level, district-level data should not be compared to those targets or across districts. Traffic safety strategies also vary by district and region of the state depending on the local conditions such as the number of high-risk rural intersections.

At a district level, the number of people killed in motor vehicles crashes in 2021 varied by region<sup>1</sup>. Fatalities ranged from 22 in District 2 to 196 in the Metro District (Figure 12)<sup>2</sup>.

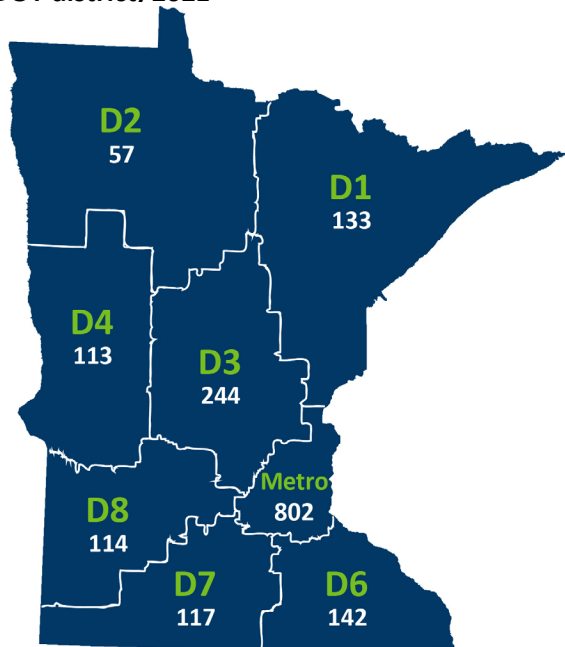
**Figure 12. Fatalities on Minnesota roadways by MnDOT district, 2021**



The number of people seriously injured in motor vehicles crashes in 2021 also varied by region ranging

from 57 in District 2 to 802 in the Metro District (Figure 13).

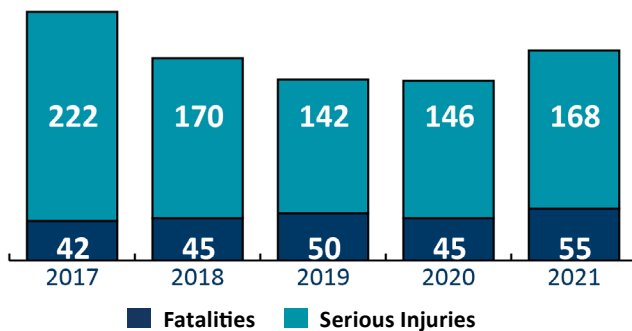
**Figure 13. Serious injuries on Minnesota roadways by MnDOT district, 2021**



## Pedestrian, Bicyclist, and Highway Rail-Grade Crossings Fatalities and Serious Injuries

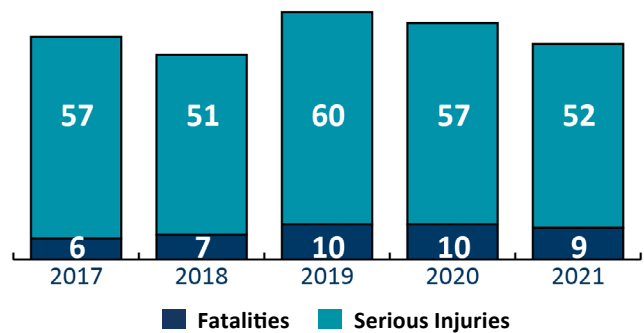
In 2021, 55 pedestrians were killed in crashes with motor vehicles and 168 were seriously injured. After a downward trend, there have been slight increases in serious injuries since 2019 (Figure 14).

**Figure 14. Pedestrian fatalities and serious injuries, 2017 to 2021**



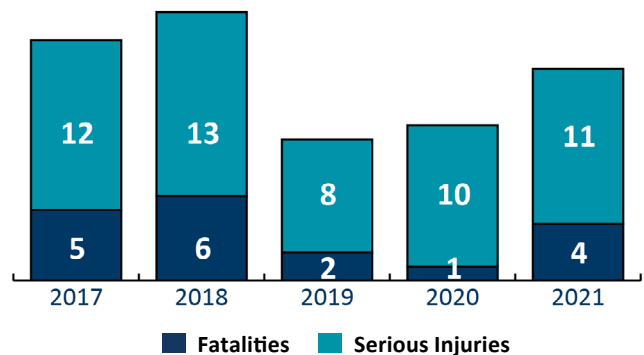
In 2021, nine bicyclists were killed in crashes with motor vehicles and 52 were seriously injured (Figure 15). While the totals remained relatively stable over the previous five-year period, the 2021 total is slightly lower than the high point in 2019.

**Figure 15. Bicycle fatalities and serious injuries, 2017 to 2021**



In 2021, four people were killed and 11 people were injured at highway rail grade crossings (Figure 16). The numbers have varied over the past five years with fatalities ranging from a low of eight in 2019 to a high of 13 in 2018.

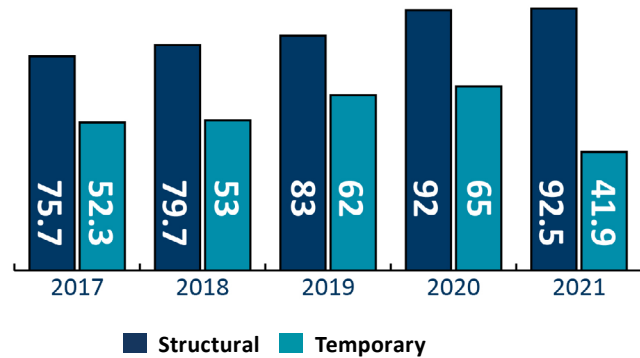
**Figure 16. Highway-rail grade crossing fatalities and serious injuries, 2017 to 2021**



## Snow Fences

Snow fences play a key role in winter maintenance productivity by helping to limit blowing snow across Minnesota roads. This is particularly helpful where high winds make chloride use ineffective. In 2021, there were 92.5 miles of structural snow fences and 41.9 miles of temporary (i.e., living or vegetative) snow fences across Minnesota (Figure 17). Miles of structural snow fences have increased each year since 2017 while temporary snow fence totals have fluctuated year-to-year.

**Figure 17. Miles of structural and temporary snow fences on Minnesota roadways, 2017 to 2021**



## What is MnDOT Doing to Move Towards Goal 1?

MnDOT is seeking ways to minimize fatalities and injuries for transportation users on Minnesota roads by better addressing the contributing factors and move Minnesota back towards the State Highways Safety Plan 2025 goals. According to the crash data collected by DPS, the top four contributing factors in traffic fatalities are speeding, unbuckled motorists, drunk driving, and distracted driving with frequency of speeding and unbuckled motorists increasing in recent years. MnDOT works with DPS and the Minnesota Department of Health through the [Towards Zero Deaths partnership](#) to identify and improve locations at risk for the types of crashes most likely to result in death or serious injury, ensure compliance with traffic laws, educate drivers about the risks of behaviors like not wearing seat belts and drinking alcohol and driving, and respond to crashes quickly with emergency medical and trauma services. Additionally, people walking or bicycling who have suffered a serious injury or fatality in a crash with a motor vehicle are tracked to continually improve the safety for all on the transportation network.

Minnesota's Highway Grade Crossing Safety Improvement Program provides funding for installation of new highway-rail grade crossing signal systems, interconnection of highway-rail grade crossing signals with roadway traffic signals and replacement of existing antiquated warning devices. Activities include installation of improved or additional warning devices, crossing consolidations, crossing closures and sign changes. All these investments in safety improvements are efforts to prevent train-motor vehicle collisions at crossings, which can cause fatalities and injurious and lead to derailments.

Snow fences provide a variety of environmental, safety, and economic benefits by keeping roads clear of snow. To improve safety and mobility for people traveling on roadways, [MnDOT's snow fence program](#) partners with landowners to install snow fences in open areas along state highways. Ultimately, the long-term goal for MnDOT and its partners is to move the annual number of fatalities and serious injuries on Minnesota roadways towards zero.

## Other Measures Correlated to Goal 1

There are no correlated measures identified.

## Goal 7

MnDOT does not track performance measures directly related to goal 7: **to promote accountability through systematic management of system performance and productivity through the utilization of technological advancements**. However, there are three measures that do correlate. They are listed in Table 3 along with their primary state transportation goal and the page number where more information is available.

**Table 3. Other measures correlated goal 7**

Performance Measure	Primary Goal	Report Page Number
Bridge inspection	8	23
Road salt chloride use	16	33
Sustainable pavements	16	33



## System Stewardship

After several decades of building new transportation corridors and amenities, MnDOT and its state and local partners are increasingly shifting their focus to maintaining the existing transportation system. System stewardship addresses three concepts: asset management, system management, and system resiliency. Targets are set during the planning process, with input from stakeholders and the public, at levels that prioritize higher volume roads and bridges.

The goals related to system stewardship and highlighted in this section include:

- **Goal 8:** To maximize the long-term benefits received for each state transportation investment.
- **Goal 9:** To provide for and prioritize funding of transportation investments that ensures the state’s transportation infrastructure is maintained in a state of good repair.
- **Goal 16:** To accomplish these goals with minimal impact to the environments.

### Goal 8

This section contains two key performance measures that help describe how MnDOT is working **to maximize the long-term benefits received for each state transportation investment**. The performance measures include:

- **Bridge inspection:** The percent of routine bridge inspections completed within 30 days of the calendar due date in a 12-month period.
- **Rest area buildings condition:** The percent of MnDOT-owned rest area buildings that were rated as being in poor condition based on an assessment of the infrastructure.

Table 4 lists each performance measures, statewide target, and current condition.

**Table 4. Goal 8 performance measures summary**

Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
Bridge Inspection	100%	99.9% (2021)	➡	➡	●
Rest Area Building Condition	<4%	8% (2021)	➡	➡	—

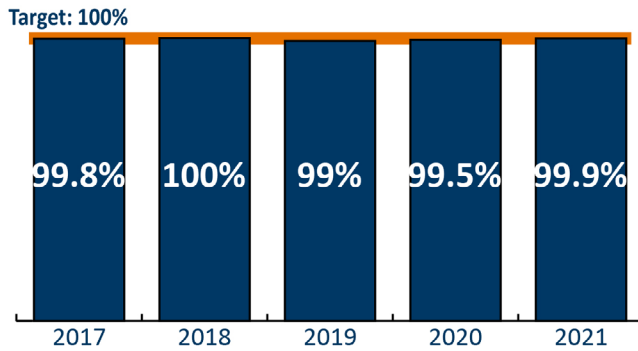
## GOAL 8

# Maximizing Long-term Benefits

## Bridge Inspections

In 2021, nearly all (99.9 percent) inspections of MnDOT-owned bridges were completed on-time, which has been consistent over the last five-year period (Figure 18). A bridge inspection is considered on-time if it is completed within 30 days of its calendar due date. All bridges receive their required safety inspections, but sometimes a small number are delayed past their due date because of weather or a scheduling issue. Since 2013, MnDOT has completed bridge inspections on time over 99 percent of the time.

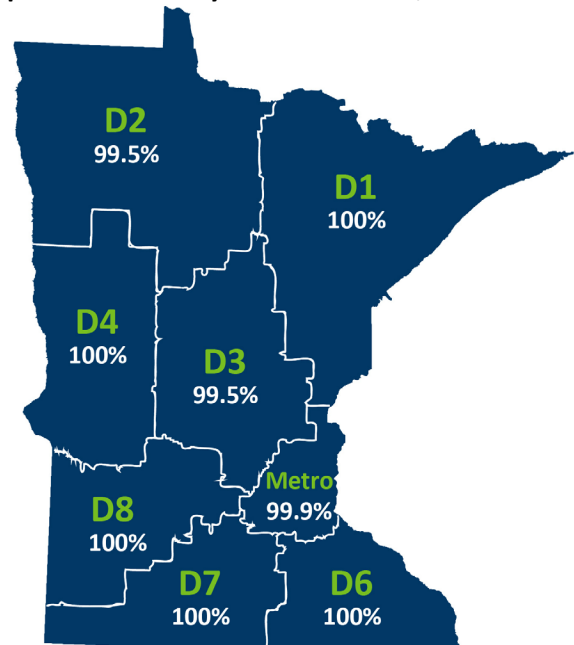
**Figure 18. Percent of routine bridge inspections completed on time, 2017 to 2021**



## Regional Discussion

Figure 19 displays the percent of bridge inspections completed on time at the MnDOT district level. These routine bridge inspections were completed on time 99 percent of the time in all districts. Districts 2, 3, and Metro each had one bridge which was not inspected on time. Because performance measure targets are set at a statewide level, district-level data should not be compared to those targets or across districts.

**Figure 19. Percent of routine bridge inspections completed on time by MnDOT district, 2021**

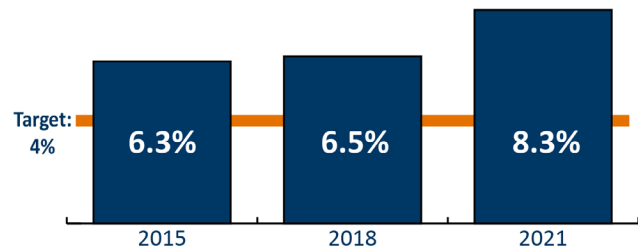


## Rest Area Condition

It is MnDOT's goal to have less than 4 percent of rest area buildings in poor condition. In 2021, 8.3 percent of buildings in MnDOT rest areas were categorized as being in poor condition (Figure 20). Rest area building conditions are assessed on a three-year cycle in which one-third of buildings are assessed each year. A building is in poor condition when the total value of deferred maintenance on all the systems in the

building is between one quarter up to half of the replacement value of the building. Note that rest areas where more than half of the property is owned by the Minnesota Department of Natural Resources are excluded from these assessments as they are assessed separately by the DNR.

**Figure 20. Percent of rest area buildings in poor condition, 2015 to 2021**



## What is MnDOT Doing to Move Towards Goal 8?

Continuing to strive for 100 percent of on-time bridge inspections provides accurate data that allows MnDOT and its transportation partners to better plan for bridge improvements, maintenance, and operations throughout the state. All of Minnesota's MnDOT-owned bridges receive scheduled safety inspections as required by state and federal rules and regulations. In general, bridge inspections typically occur on two-year cycles. Some structures are on shorter or longer inspection cycles. However, delays can occur due to weather, conflicting construction activities, or high priority reactive maintenance activities.

Rest areas provide strategic locations to support the economy including tourism. They eliminate unsafe stops on shoulders, provide information to travelers, reduce driver fatigue, and promote transportation safety. The facilities play a key role in the long-term management and operation of the transportation system. As part of the assessments, MnDOT inspects detailed components of a rest area building's infrastructure including walls, doors, HVAC systems, and more. This helps identify specific areas in need of the most improvement and target project investments accordingly. Because all systems in a building are assessed individually, targeted investment in replacing systems can have a large impact on the overall condition of a building. In the 2021 assessment cycle, three new rest area buildings were constructed. More information on safety rest areas and waysides is available on the [MnDOT Rest Areas webpage](#).

## Other Measures Correlated to Goal 8

In addition to the primary performance measures summarized in this section, there are five other measures that correlate to goal 8. They are listed in Table 5 along with their primary legislative goal and the page number where more information is available.



**Table 5. Other measures correlated to goal 8**

<b>Performance Measure</b>	<b>Primary Goal</b>	<b>Report Page Number</b>
Snow fences	7	33
Bridge Condition	9	27
Culvert Condition	9	27
Pavement Condition	9	29
Native Seedings and plantings	16	33

## GOAL 9

## Infrastructure Maintenance














### Goal 9

This section contains four key performance measures that help describe how MnDOT is working to **achieve the goal to provide for and prioritize funding of transportation investments that ensures that the state's transportation infrastructure is maintained in a state of good repair**. The performance measures include:

- **Bridge condition:** The annual percentage of total state bridges rated as being in poor condition based on evaluations of the bridge deck, substructure, and superstructure.
- **Culvert condition:** The annual percentage of total culverts under state highway lanes rated as being in poor or severe condition.
- **Pavement condition:** The annual percentage of total interstate, other NHS, and non-NHS roadways rated as having poor ride quality.
- **ADA compliance:** The percentage of total state-owned sidewalks, signals, curbs, and driveways substantially compliant with Americans with Disabilities Act (ADA) standards.

Table 6 lists each performance measures by statewide target (if applicable), the current condition, and the performance score (if applicable).

**Table 6. Goal 9 performance measures summary**

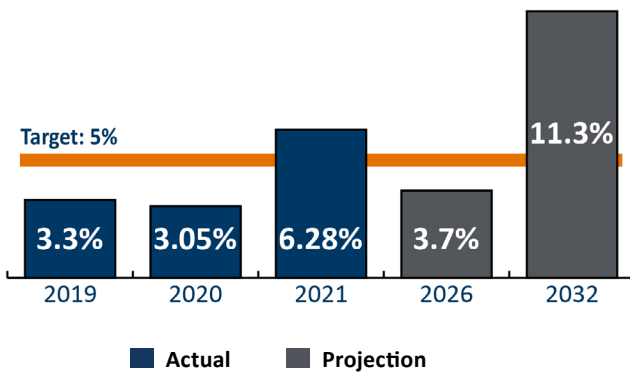
Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
Bridge Condition	NHS Poor: ≤5% Non-NHS Poor: ≤8%	NHS: 6.3% Non-NHS: 4.4% (2021)			NHS:  Non NHS: 
Culvert Condition	≤10%	18% (2021)			
Pavement Condition	Interstate: ≤2% NHS: ≤4% Non-NHS: ≤8%	Interstate: 0.4% NHS: 0.5% Non-NHS: 2% (2021)			
ADA Compliance	100% by 2037	Curb Ramp: 61% Sidewalk: 66% Signals: 76% (2021)			

## Bridge and Culvert Conditions

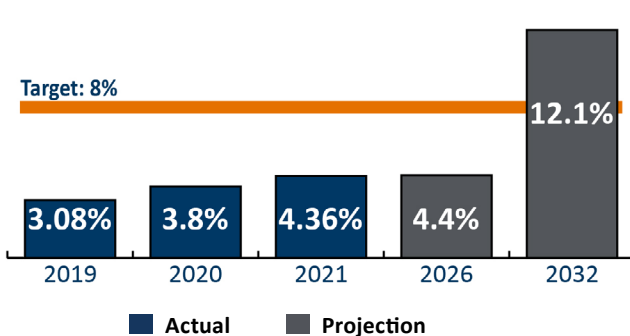
### Bridges

In 2021, 6.3 percent of NHS bridges were rated as being in poor condition, which exceeds the statewide target of 5 percent (Figure 21). This increase from 2020 is due in large part to the Blatnik Bridge in Duluth falling into poor condition. For non-NHS bridges, 4.4 percent of non-NHS bridges were in poor condition, which is in line with previous years and better than the statewide target (Figure 22). However, MnDOT also projects the proportions of NHS and non-NHS bridges in poor condition to increase and exceed the statewide targets by 2032.

**Figure 21. NHS bridges in poor condition, 2019 to 2032 (projected)**



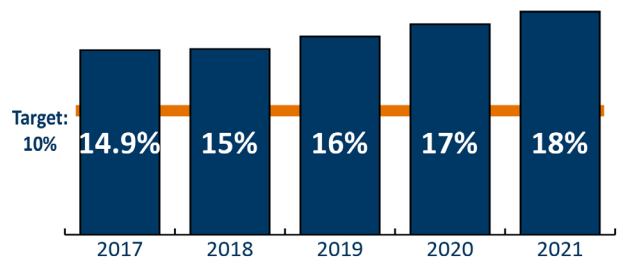
**Figure 22. Non-NHS bridges in poor condition, 2019 to 2032 (projected)**



### Culverts

Highway culverts include culverts smaller than a 10-foot span that are under state highway traffic lanes and function to move surface water through a roadway embankment and away from the highway. MnDOT’s statewide target for culvert in poor or severe condition is less than or equal to 10 percent. In 2021, 18 percent of culverts were in poor or severe condition (Figure 23). In prior years, the annual percentages were also above the statewide goal, ranging from 15 percent to 17 percent.

**Figure 23. Culvert in poor or severe conditions, 2017 to 2021**



### Regional Discussion

The following figures display state bridge and culvert data available at the MnDOT district level. Due to differences in climate conditions, the age and number of the bridges and culverts in a district, and the frequency of use, infrastructure conditions vary across districts. Because performance measure targets are set at a statewide level, district-level data should not be compared to those targets or across districts.

The number of bridges and the total square feet of bridge deck varies by district so a change in the condition of one bridge in one district can significantly impact the percentage in poor condition. Table 7 lists the 2021 totals for NHS and non-NHS bridges as well as the total bridge deck area by district (in thousands of square feet). The Metro District has the most NHS and non-NHS bridges and most square feet of bridge deck area. While District 6 has the second highest bridge counts, District 1 has the second most square feet of NHS bridge deck.

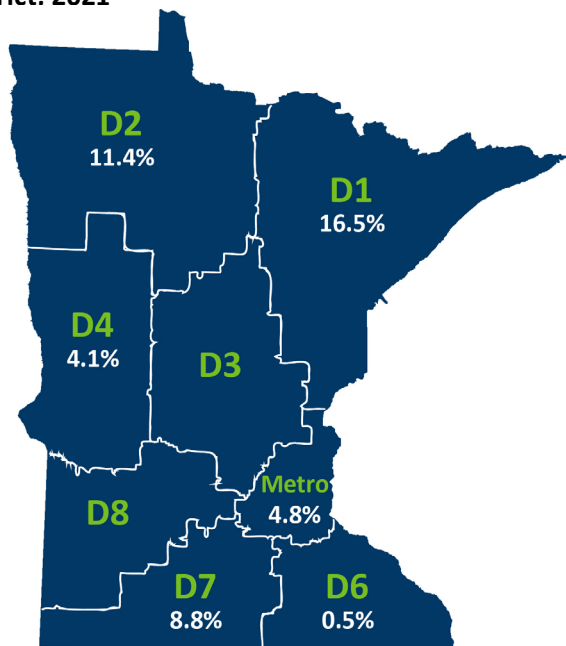
**Table 7. Number of bridges and bridge deck area by district, 2021<sup>3</sup>**

District:	Number of NHS Bridges:	NHS Bridge Deck Area*:	Number of Non-NHS Bridges:	Non-NHS Bridge Deck Area*:
1	183	4,464	152	1,775
2	41	738	75	814
3	146	1,981	87	1,051
4	76	837	71	634
6	204	2,649	230	2,627
7	130	1,769	110	1,305
8	66	687	63	383
<b>Metro</b>	529	14,507	643	11,934

\*Units: sq. ft. (thousands)

In 2021, the percentage of NHS bridges in poor condition ranged by district from 0 percent in Districts 3 and 8 to nearly 17 percent in District 1 (Figure 24). The relatively high percentage in District 1 is due to the Blatnik Bridge falling into poor condition in 2021.

**Figure 24. NHS bridges in poor condition by MnDOT district, 2021<sup>4</sup>**



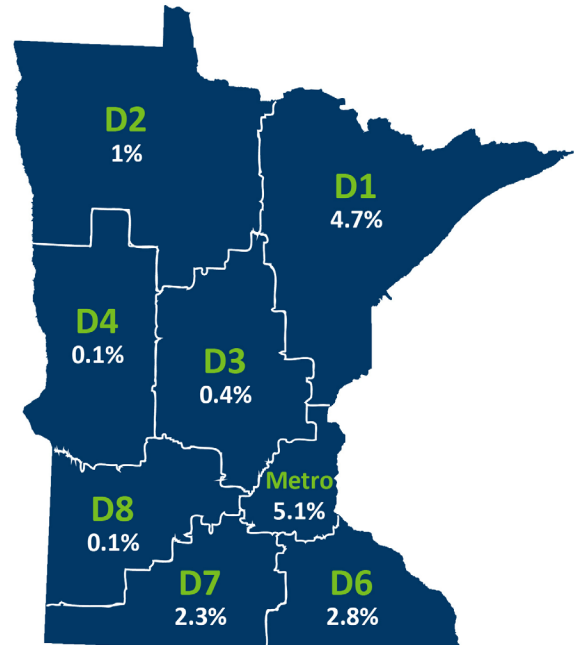
Non-NHS bridges in poor condition in 2021 ranged from nearly 2 percent in District 3 to over 8 percent in

3 Bridge conditions are tracked and reported by ATP.

4 Bridge conditions are tracked and reported by Area Transportation Region (ATP).

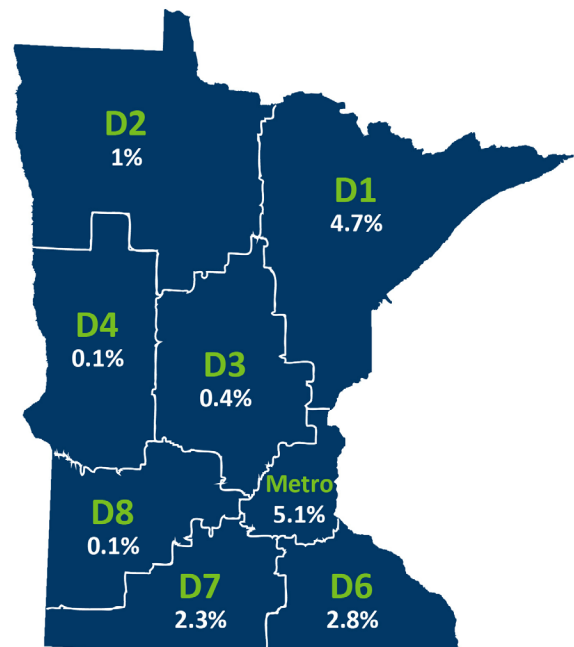
District 4 (Figure 25).

**Figure 25. Non-NHS bridges in poor condition by MnDOT district, 2021**



At the district level, culverts in poor or severe condition in 2021 ranged from 12 percent in District 4 to 27 percent in District 8 (Figure 26).

**Figure 26. Culverts in poor or severe condition by MnDOT district, 2021**



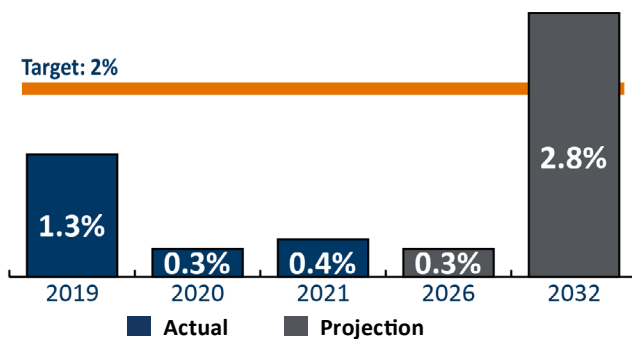
## Pavement Condition

MnDOT measures pavement condition annually on its roadways. The statewide targets for poor ride quality in the travel lane is less than or equal to 2 percent for the Interstate system; 4 percent for other NHS roadways; and 8 percent for the non-NHS. In 2021, the percent of roadways with poor ride quality for each system were:

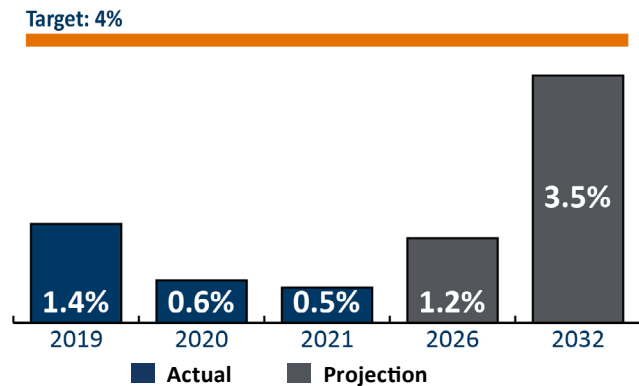
- NHS Interstate: 0.4% (Figure 27)
- NHS non-Interstate: 0.5% (Figure 28)
- Non-NHS: 2% (Figure 29)

The share of roadways with poor ride quality were better than the statewide targets and continued an improving trend from recent years. However, MnDOT projects the share of Interstate and other NHS pavement with poor ride quality to increase and exceed the statewide targets by 2032. Pavement rated poor can still be driven on, but the ride is sufficiently rough that most people would find it uncomfortable and may reduce their speed.

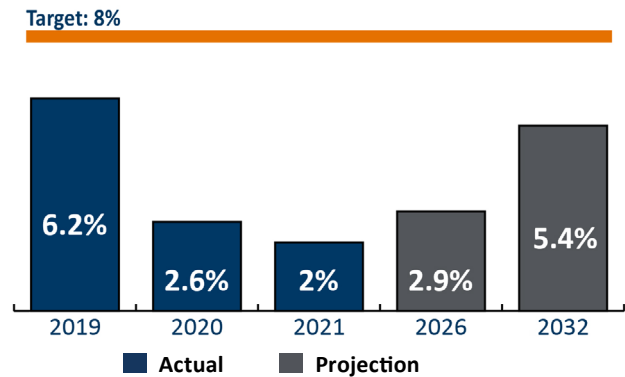
**Figure 27. NHS Interstate system with poor ride quality in the travel lane, 2019 to 2032 (projected)**



**Figure 28. NHS Non-Interstate with poor ride quality in the travel lane, 2019 to 2032 (projected)**



**Figure 29. Non-NHS state highways with poor ride quality in the travel lane, 2019 to 2032 (projected)**

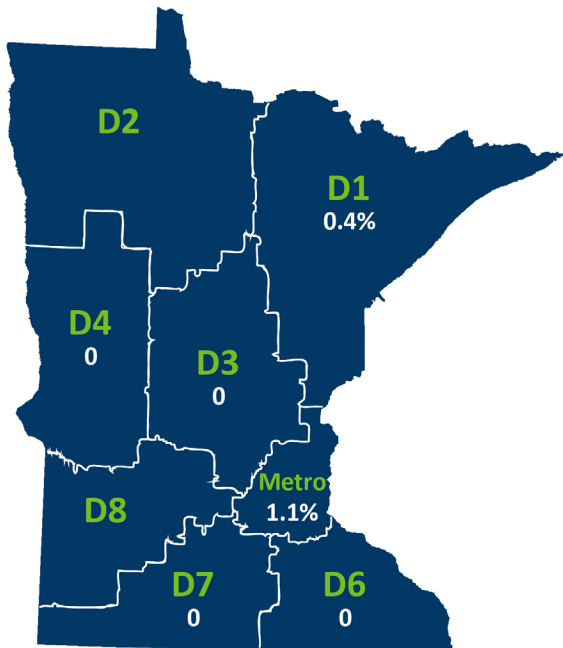


## Regional Discussion

The following figures display NHS Interstate, NHS Non-Interstate, and non-NHS ride quality data available at the MnDOT district level. Due to differences in climate conditions, the age and number highway road miles in a district, and the frequency of use, pavement conditions vary across districts. Because performance measure targets are set at a statewide level, district-level data should not be compared to those targets or across districts.

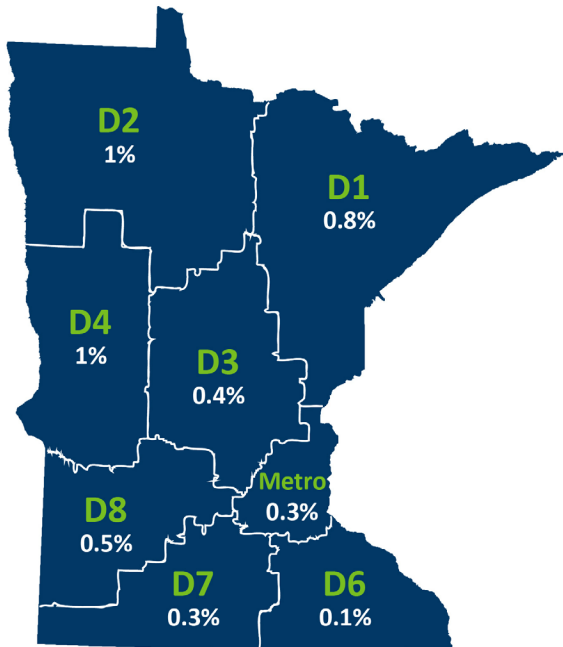
The percentage of NHS Interstate roadways with poor ride quality in 2021 range from 0 percent to 1.1 percent. District 2 and District 8 do not have NHS Interstate roadways (Figure 30).

**Figure 30. Pavement condition of NHS Interstate roadways with poor ride quality by MnDOT district, 2021**



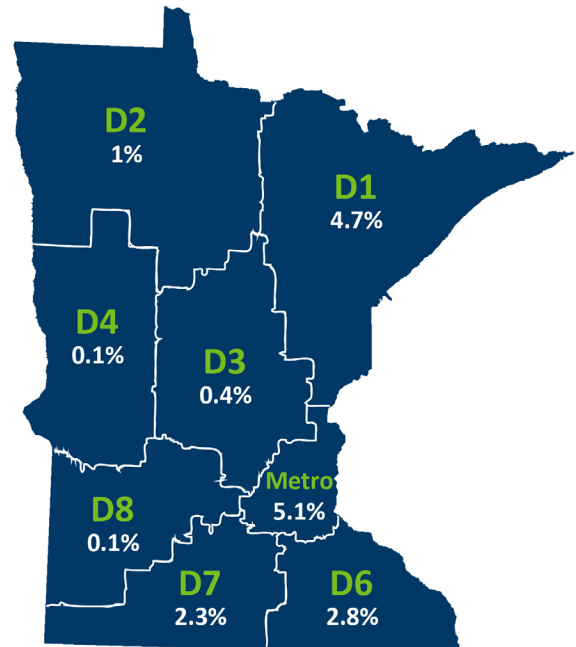
The percentage of other NHS Non-Interstate roadways with poor ride quality in 2021 ranged from 0.1 percent in District 6 to 1 in District 2 and 4 (Figure 31).

**Figure 31. Pavement condition of NHS Non-Interstate roadways with poor ride quality by MnDOT district, 2021**



Non-NHS roadways with poor ride quality in 2021 ranged from 0.1 percent in Districts 4 and 8 to 5.1 percent in the Metro (Figure 32).

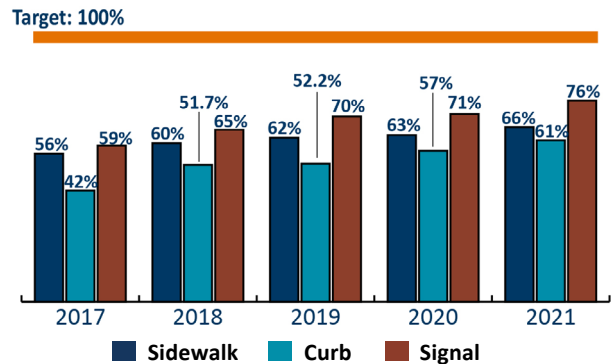
**Figure 32. Pavement condition of non-NHS roadways with poor ride quality by MnDOT district, 2021**



## ADA Compliance

MnDOT's goal is for 100 percent of sidewalk-miles, curbs, signals, and driveways along state highways substantially compliant with American with Disability Act standards. In 2021, MnDOT identified 66 percent of sidewalk-miles, 61 percent of curbs, and 76 percent of signals along state highways as ADA compliant (Figure 33). While below the statewide target, the percentages in all three categories have steadily increased year-to-year since 2017.

Figure 33. ADA Compliance: Sidewalks, Curbs, and Signals, 2017 to 2021



## What is MnDOT Doing to Move Towards Goal 9?

MnDOT monitors the physical conditions of bridges, culverts, and roadways on an ongoing basis. Measuring conditions of this infrastructure helps MnDOT and its partners strategically build, manage, maintain, operate, and adapt the transportation system. For state highway bridges, conditions are assessed through inspections performed at least every two years. Ratings combine evaluations of the bridge deck, substructure, and superstructure. Bridges rated as poor are still safe to drive on, but they are near the point where significant investment in repair or replacement is necessary. MnDOT has updated its strategies in recent years to increase the quality and standards of bridge inspection efforts, resulting in more accurate assessments of condition.

Measuring pavement and culvert quality on roadways also helps the agency plan for areas that need the most improvement. For example, pavement quality on the NHS and non-NHS roadways is measured every year using a van with specialized equipment. The roadways are given a ride quality score based on those measurements.

Further information about infrastructure investment planning is available in the [Transportation Asset Management Plan](#) and the [Minnesota State Highway Investment Plan](#). MnDOT also tracks the percent of NHS and Non-NHS bridges in good condition as well as good ride quality for pavement. More information on these measures is available on the [Minnesota Go Performance Dashboard](#).

MnDOT's [Americans with Disabilities Act Transition Plan](#) details how the department ensures that its facilities, services, programs, and activities are accessible to all individuals. As part of this regularly updated plan, MnDOT adopted the national Public Right-of-Way Accessibility Guidelines as a basis for updates to facility design standards and policies. MnDOT also dedicated additional staff to evaluate the accessibility of construction projects, respond to complaints, and manage an ADA investment program. In 2021, MnDOT adopted its first [Statewide Pedestrian System Plan](#). This plan directs MnDOT's efforts to increase the safety and mobility of people walking along the state highway network. It also establishes performance measures that track progress toward pedestrian-related goals, including ADA compliance.

## Other Measures Correlated to Goal 9

There are no correlated measures identified.

## GOAL 16

# Minimize Environmental Impacts

## Goal 16

This section contains three key performance measures that help describe how MnDOT is working to **accomplish these goals with minimal impact to the environment**. The performance measures include:

- **Road salt chloride use:** The ratio of liquid to solid de-icing chemicals applied to reduce overall chlorides used on the roadway for snow and ice control in a winter season.
- **Sustainable pavements:** Annual number of MnDOT projects using sustainable pavement practices.
- **Native seedings and plantings:** The percent of acres planted with native seeds and native plants as part of large projects in a 12-month period.

Table 8 summarizes the performance measures by statewide target (if applicable), the current condition, and the performance score (if applicable).

**Table 8. Goal 16 performance measure summary**

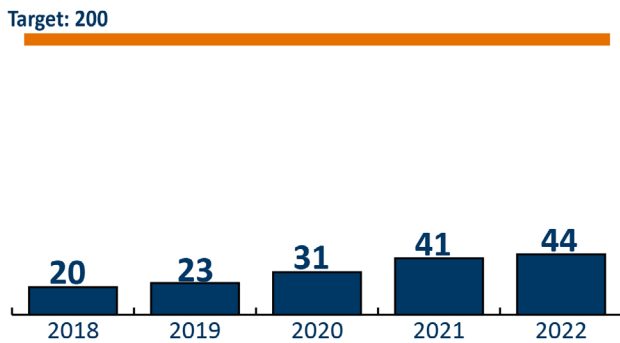
Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
Road Salt Chloride Use	200 gallons of liquid per ton of solid by 2027	44 gallons of liquid per ton of salt (2021-2022)			
Sustainable Pavements	NA	8 projects (2021)			
Native Seedings and Plantings	Native Seedings: 75% of project acres by 2025; Native Plantings: 80% of urban projects; 90% of rural projects	61% of acres planted with native seeds; 50% of projects planted with native plantings			



## De-icing Roadways

MnDOT’s target is to increase the frequency of using liquids to de-ice roads to 200 gallons per ton of solid by 2027. In the 2021-22 winter season, 44 gallons of liquid were used for every ton of salt (Figure 34). Compared to 2018, over two times as many gallons of liquid per ton of salt were used.

**Figure 34. Gallons of liquid chloride used per ton of solid, 2018 to 2022**

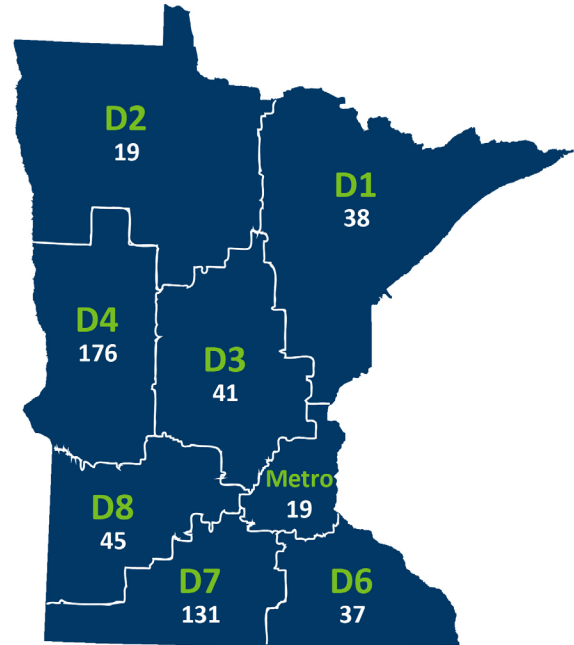


### Regional Discussion

The following figure displays the road salt chloride use measure at the MnDOT district level. Because the transition from dry chlorides to liquid chlorides requires multiple investment areas, including equipment and staff education, usage varies across districts. Because performance measure targets are set at a statewide level, district-level data should not be compared to those targets or across districts.

The rate of liquid to solid deicing chemicals ranged from 19 gallons in District 2 to 176 in District 4 (Figure 35).

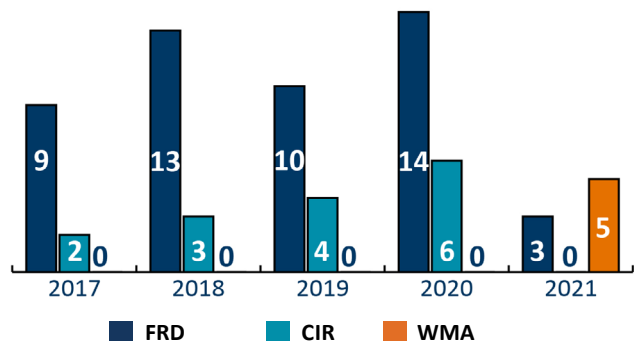
**Figure 35. Gallons of liquid chloride used per ton of solid by MnDOT district, 2021-2022 winter season**



## Sustainable Practices

MnDOT used sustainable pavement practices in eight projects in 2021 (Figure 36). Of those projects, three were full depth reclamation and five were warm mix asphalt. Up until 2020, MnDOT also had cold in-place recycling sustainable pavement in an increasing number of projects. These sustainable pavement methods reduce the carbon emissions associated with paving roads, and in certain cases, provide a way to recycle paving materials. All the methods extend the life span of the pavement.

**Figure 36. Projects with sustainable pavements, 2017 to 2021**



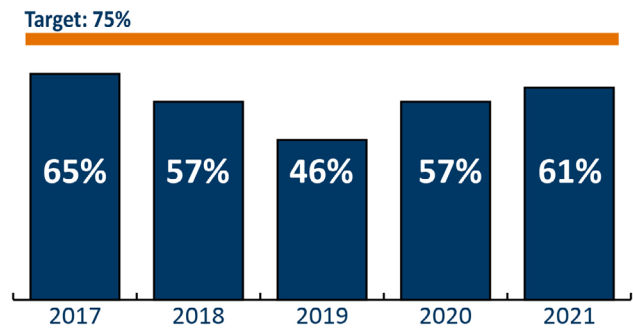
## GOAL 16 • Minimize Environmental Impacts

MnDOT's statewide target is for 75 percent of project acres planted with native seedings by 2025. The percent of project acres of native seedings have fluctuated between 46 percent and 65 percent since 2017. Overall, the percent of native seeding acres have decreased during the five-year period. (Figure 37).

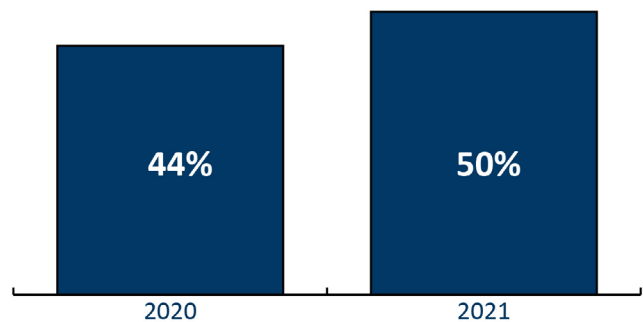
MnDOT's statewide target is for 80 percent of projects in urban areas and 90 percent of projects in rural areas to be planted with native plantings. However, in 2021, only 50 percent of projects statewide were planted with native plantings (Figure 38). MnDOT does not aim for 100 percent of plantings to be native because non-invasive, non-native species and cultivars are also used where they are needed to withstand site specific functions. Please note the results represent plants specified by MnDOT Environmental Planning and Design Unit in the Office of Environmental Stewardship for contract, partnership, and maintenance projects.

The results do not include State Aid or consultant designs, nor MnDOT site development or snow control designs.

**Figure 37. Percent of project acres with native seedings**



**Figure 38. Percent of projects with native plantings**



## What is MnDOT Doing to Move Towards Goal 16?

To help minimize environmental impacts, MnDOT pilots and deploys sustainable practices in its maintenance and project operations. Salt chlorides play a key role in keeping roads safe during winter months by lowering the freezing point of water. MnDOT is working to better manage pollutants by increasing the use of liquid chlorides compared to dry during snow and ice operations. MnDOT research has shown that at rates greater than 100 gallons per ton a 25 percent reduction in total chlorides can be realized.

For pavement practices, full depth reclamation and cold in-place recycling can lower construction greenhouse gas emissions by reducing the amount of material that needs to be extracted and produced, as well as transported to the site. Warm mix asphalt uses less fuel to produce, increases durability, and extends paving season as it can be placed at lower temperatures. Another technique explored by MnDOT but not yet used is stabilized full depth reclamation, which produces a stronger roadway base and requires less new asphalt.

MnDOT projects using native seedings decreases construction impacts to the surrounding environment by providing structure to the soil which minimizes erosion and impacts of harsh seasonal weather. It is also an opportunity to re-introduce native species to Minnesota's landscape. Roadside vegetation serves many critical functions in operating the transportation system including safety, drainage, erosion control, storm water treatment, and invasive species control. Because of underlying ecological principles, these objectives are often accomplished more effectively with diverse, locally adapted native species. Using native vegetation on roadsides

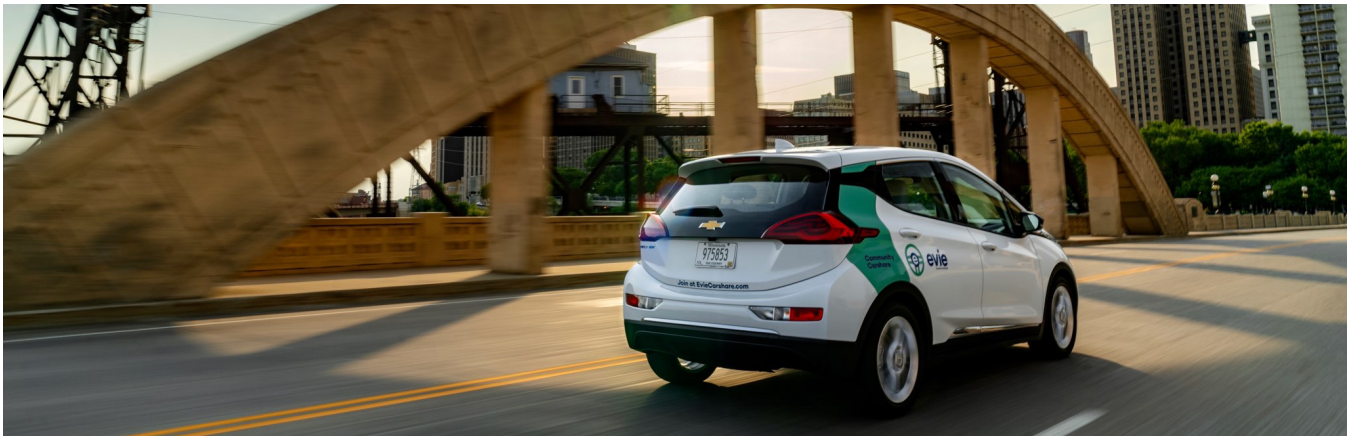
can also provide several additional benefits such as improved aesthetics, wildlife habitat, carbon sequestration, and protection of biodiversity.

## Other Measures Correlated to Goal 16

In addition to the primary performance measure summarized in this section, there are three other measures that correlate to goal 16. They are listed in Table 9 along with their primary legislative goal and the page number where more information is available.

**Table 9. Other measures correlated to legislative goal 16**

Performance Measure	Primary Goal	Report Page Number
Transportation sector greenhouse gas emissions	15	39
MnDOT construction greenhouse gas emission	15	39
LED use	15	39



## Climate Action

Climate change will impact the way transportation infrastructure is used, built, operated, and maintained. Change is needed to ensure the transportation system can be sustained and adapt. Key commitments include reducing emissions, coordinating with communities, and building resiliency. Enhancing transportation options to provide a variety of choices for people to access goods, services, and destinations is key. Innovative solutions are needed to make our transportation system more resilient to climate change and extreme weather. A more resilient system can reduce adverse health impacts and minimize disruptions to the movement of people and goods.

The legislative goals related to climate action and highlighted in this section include:

- **Goal 11:** To promote and increase the use of high occupancy vehicles and low emission vehicles.
- **Goal 15:** To reduce greenhouse gas emissions from the state transportation sector.

### Goal 11

This section contains two key performance measures that help describe how MnDOT is working to achieve the goal **to promote and increase the use of high occupancy vehicles and low emission vehicles**. The performance measures include:

- **Zero emission vehicles registered:** Total percentage of electric vehicle or other zero emission vehicles registered in Minnesota.

Table 10 summarizes the performance measures by statewide target and the current condition.

**Table 10. Goal 11 performance measure summary**

Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
Zero emission vehicles registered	5% by 2025 65% by 2040	23,897 EVs registered in Dec. 2021; 0.4% of total vehicles	➔	➔	—

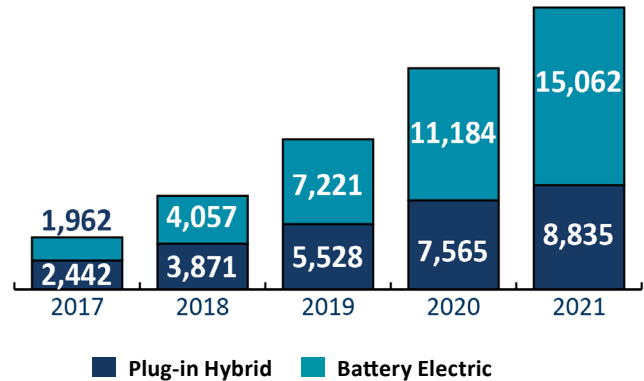
## GOAL 11

# Promote High-occupancy and Low-emission Vehicles

## Electric Vehicles

MnDOT’s goal is for 5 percent of light-duty vehicles registered in Minnesota to be EVs by 2025 and 65 percent by 2040. The number of EVs registered in Minnesota has increased each year from 2017 to 2021, with growth in battery electric vehicles outpacing plug-in hybrid electric vehicles (Figure 39). However, with 23,897 EVs registered as of December 2021 (or 0.4 percent of total vehicles<sup>5</sup>), Minnesota is not currently on track to meet the 2025 or 2040 statewide goals. Additionally, over 80 percent of the EVs are registered in the seven-county metro area.

Figure 39. Electric vehicles or zero emission vehicles registered in Minnesota



## What is MnDOT Doing to Move Towards Goal 11?

Light-duty vehicles are the largest portion of transportation greenhouse gases in the state. While federal fuel economy standards will lower emissions in the future, electrifying and having zero emission light duty vehicles are important strategies to meet the goal. While not yet on track to meet the statewide targets, ZEVs registrations continue to increase in Minnesota. ZEVs include electric vehicles, hydrogen fuel cell powered vehicles and other non-carbon-based fueled vehicles. Transitioning away from gasoline and diesel vehicles and toward EVs and other clean fuels will play an important role in reaching state goals.

## Other Measures Correlated to Goal 11

In addition to the primary performance measure summarized in this section, there are three other measures that correlate to goal 11. They are listed in Table 11 along with their primary legislative goal and the page number where more information is available.

Table 11. Other measures correlated to goal 11

Performance Measure	Primary Goal	Report Page Number
Vehicle miles traveled per capita	15	40
Transportation sector greenhouse gas emissions	15	39

<sup>5</sup> Note: The current condition is reported at the percent of all vehicles registered in Minnesota. MnDOT is in the process of gathering the necessary data to calculate EVs registered in Minnesota as a percent of light-duty vehicles. Vehicle registration data is provided by the Minnesota Department of Public Safety and organized and prepared for analysis by the Minnesota Pollution Control Agency.

## GOAL 15

# Reduce GHG Emissions













## Goal 15

This section contains five key performance measures that help describe how MnDOT is working to achieve the goal to **reduce greenhouse gas emissions from the state transportation sector**. The performance measures include:

- **Transportation sector greenhouse gas emissions:** Amount of GHG emissions, measured in metric tons of carbon dioxide equivalent (CO<sub>2</sub>e)<sup>6</sup>, from the transportation sector in a 12-month period. The transportation sector emissions include tail pipe emissions from motor vehicles (cars and trucks) on the road as well as emissions from aviation, rail, and marine vehicles.
- **MnDOT construction greenhouse gas emission:** Total GHG emissions, measured in metric tons of CO<sub>2</sub>e, from MnDOT construction projects in a 12-month period.
- **LED use:** Total percent of light fixtures using Light Emitting Diodes luminaries, more commonly called LED, on MnDOT- managed roadways.
- **Vehicle miles traveled per capita:** The total annual vehicle miles traveled divided by the population. In simple terms, it's the number of vehicle miles that a typical person in Minnesota travels per year.

Table 12 summarizes the performance measures by statewide target (if applicable) and the current condition.

**Table 12. Goal 15 performance measure summary**

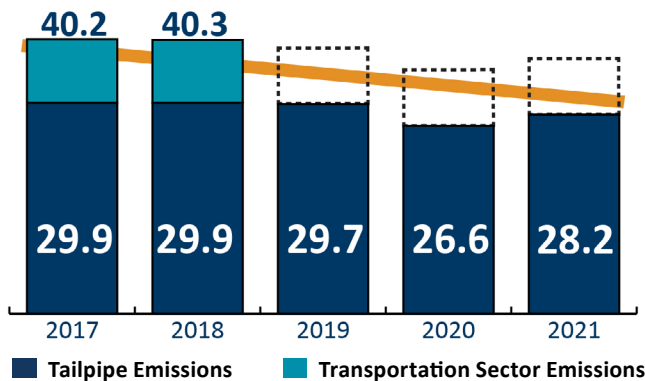
Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
Transportation sector GHG emission	29.5 million metric tons CO <sub>2</sub> e (30%) by 2025; 8.0 million metric tons CO <sub>2</sub> e (80%) by 2040	40.3 million metric tons CO <sub>2</sub> e (2018) 28.2 million metric tons of CO <sub>2</sub> (2021 Tailpipe CO <sub>2</sub> )			
MnDOT construction GHG emissions	30% reduction from 2018 levels by 2025	23% reduction (2019)			
LED use	Convert all lighting on MnDOT managed roadways by 2020	99% complete (2021)			
VMT per capita	20% reduction by 2050 (draft target)	9,957 miles (2021)			

<sup>6</sup> Greenhouse gases for both construction and maintenance are expressed in terms of carbon dioxide equivalent (CO<sub>2</sub>e). CO<sub>2</sub>e combines the climate effects of various GHGs as if they were all carbon dioxides. More information for how MnDOT analyzes GHG emissions is available at: <http://www.dot.state.mn.us/project-development/subject-guidance/greenhouse-gas-analysis/process.html>.

## Emissions Reductions

Transportation is the largest greenhouse gas emissions contributor in Minnesota. Emissions from the transportation sector include tail pipe emissions from motor vehicles (cars and trucks) on the road as well as emissions from aviation, rail, and marine vehicles. At the state level, the [Next Generation Energy Act](#) set the state’s goal to reduce GHG emissions across all sectors from 2005 levels by 30 percent by 2025 and 80 percent by 2050. At the federal level, the United States government, through the international [Paris Agreement](#), committed to reducing GHG by 26 to 28 percent by 2025 from 2005 levels and 50 to 52 percent by 2030. Minnesota’s Climate Action Framework includes a Clean Transportation goal with a target to reduce GHG emissions from the transportation sector by 80% by 2040. In 2018, the most recent year data are available, there were 40.3 million metric tons of CO<sub>2</sub>e emitted by the transportation sector. Tailpipe emissions comprised 29.9 million metric tons of that total. In 2021, tailpipe emissions totaled 28.2 million metric tons of CO<sub>2</sub>e (Figure 40).

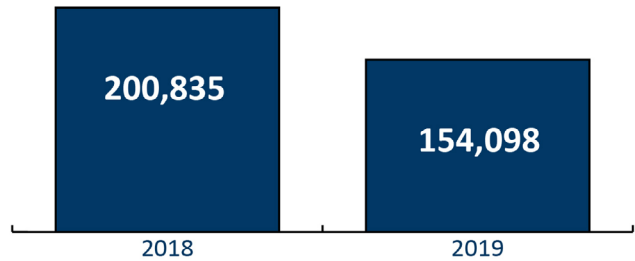
**Figure 40. Transportation sector greenhouse gas emissions, 2017 to 2020**



The total estimated greenhouse gas emissions from MnDOT construction projects let in 2019 was 154,098 metric tons of CO<sub>2</sub>e, which was a decrease from the 2018 total (Figure 41). The estimated amounts are based on available information and assumptions built into the emissions calculations. While there are mitigation techniques in limited use, the reduction is also driven by the relative intensity of the yearly construction plan. For example, the difference

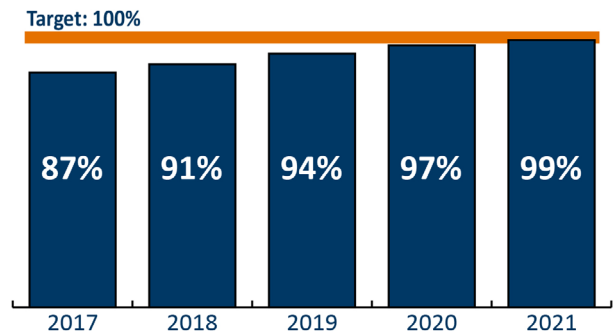
between 2018 and 2019 is affected by fewer and smaller bridge reconstruction projects and fewer miles of roadway projects.

**Figure 41. MnDOT construction emissions, 2018 and 2019**



MnDOT’s statewide goal for LED luminaries in light fixtures was 100 percent of all MnDOT-managed roadways by 2020. In 2021, 99 percent of light fixtures used LED luminaries on MnDOT roadways (Figure 42). The percentage of light fixtures using LED luminaries has been steadily climbing since setting the statewide goal.

**Figure 42. Percent of MnDOT-managed roadways using LEDs, 2017 to 2021**

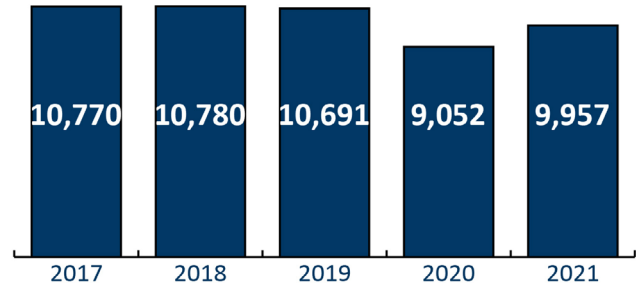


## Vehicle Miles Per Capita

MnDOT has a draft target to reduce vehicle miles traveled per capita by 20 percent from the 2019 baseline by 2050. VMT per capita was 9,957 in 2021 (Figure 43). While still below 2019 pre-pandemic levels,

this was an increase from 2020.

**Figure 43. Vehicle miles traveled per capita in Minnesota, 2017 to 2021**



## What is MnDOT Doing to Move Towards Goal 15?

To support both the state and federal GHG emission reduction goals in transportation sector, MnDOT has set targets to reduce emissions to:

- 29.5 million metric tons CO<sub>2</sub>e (30 percent) by 2025
- 8.0 million metric tons CO<sub>2</sub>e (80 percent) by 2040

MnDOT is looking at various strategies on how to achieve these goals. Strategies include increasing the number of electric vehicles and zero emission vehicles on the road, implementing a clean fuels standard, and decreasing per VMT per capita by increasing the use of public transportation and non-motorized transportation.

By using more LED luminaries in roadways light fixtures, energy consumption and environmental impacts associated with consumption are reduced. At 100 percent LED use, MnDOT estimates GHG emission reductions of 16,811 metric tons. Additionally, labor associated with LED luminaries is lower than traditional luminaries because the lifespan is nearly 7 times longer. More information about how and why MnDOT uses LED luminaries is available at: [Lighting Facts](#).

VMT is a key measure to understand travel behavior and impacts on the environment at a state level, and whether MnDOT strategic changes are impacting behavior year over year. Lower VMT signals fewer transportation related emissions. VMT per capita helps understand how much the average Minnesotan travels in a year. Reducing VMT per capita is beneficial to Minnesota because, among other things, it represents increased use of multimodal options, decreased congestion on roadways, and decreased emissions from the transportation sector.

## Other Measures Correlated to Goal 15

In addition to the primary performance measure summarized in this section, there are four other measures that correlate to goal 15. They are listed in Table 13 along with their primary legislative goal and the page number where more information is available



**Table 13. Other measures correlated to goal 15**

<b>Performance Measure</b>	<b>Primary Goal</b>	<b>Report Page Number</b>
Zero emission vehicles registered	11	37
Public transit ridership	6	51
Transit on-time performance	6	51



## Critical Connections

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The transportation system is a vital part of keeping Minnesotans connected to jobs, family, shopping, health care, school, places of worship, recreation, and entertainment. Each person identifies different connections as critical based on where they live and their individual needs. MnDOT is committed to maintain and improve multimodal transportation connections essential for Minnesotans' prosperity and quality of life and will strategically consider new connections that help meet performance targets and maximize social, economic, and environmental benefits.

The legislative goals related to critical connections highlighted in this section include:

- **Goal 3:** To provide a reasonable travel time for commuters.
- **Goal 4:** To enhance economic development and provide for the economical, efficient, and safe movement of goods to and from markets by rail, highway, and waterway.
- **Goal 5:** To encourage tourism by providing appropriate transportation to Minnesota facilities designed to attract tourists and to enhance the appeal, through transportation investments, of tourist destinations across the state.
- **Goal 6:** To provide transit services to all counties in the state to meet the needs of transit users.
- **Goal 12:** To provide an air transportation system sufficient to encourage economic growth and allow all regions of the state the ability to participate in the global economy.
- **Goal 13:** To increase use of transit as a percentage of all trips statewide by giving highest priority to the transportation modes with the greatest people-moving capacity and lowest long-term economic and environmental cost.

### Goal 3

This section contains four key performance measure that help describe how MnDOT is working **to achieve the state transportation goal to provide a reasonable travel time for commuters**. For individual travelers, reliability may be an important consideration when choosing a mode or route of travel. The performance measures include:

- **NHS travel time reliability:** The percent of NHS (combining NHS Interstate and NHS Non-Interstate)

person-miles traveled that are considered consistent or reliable in travel times (also known as travel time reliability), as measured from day-to-day or across different times of the day.

- **Job accessibility by car:** The average annual number of jobs accessible within a 30-minute drive by personal motor vehicle.
- **Job accessibility by bicycle and transit:** The average annual number of jobs accessible within a 30-minute ride by bicycle or transit.
- **Twin Cities freeway congestion:** The percent of Twin Cities metropolitan-area freeway miles with an average traffic speed less than 45 miles per hour during morning and afternoon peak times.

Table 14 summarizes the performance measures by statewide target (if applicable), the current condition, and the performance score (if applicable).

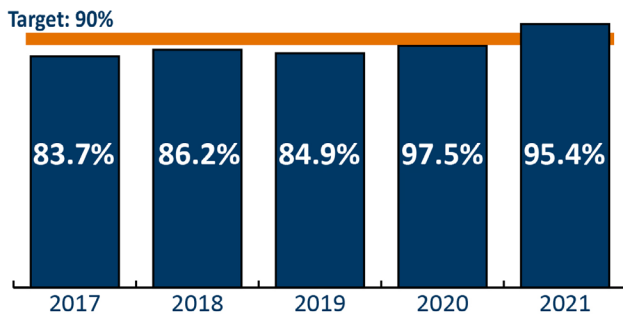
**Table 14. Goal 3 performance measures summary**

Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
NHS Travel Time Reliability	≥90%	95.4%			
Job Accessibility by Car	NA	586,940 (2019)			
Job Accessibility by Bicycle or Transit	NA	By bicycle: 40,967 By transit: 13,069 (2019)			
Twin Cities Freeway Congestion	NA	5.8% (2021)			

### Travel Time Reliability

The statewide target for the percent of person-miles traveled that are considered reliable (i.e., travel time reliability) is greater than or equal to 90 percent. Travel time reliability, as calculated by the [Federal Highway Administration](#), measures the consistency of time it takes to go a specific distance on the NHS (NHS Interstate and NHS Non-Interstate). The reliability of travel is an important consideration for individuals and freight. Lower percentages of reliability mean increased delays and inconsistent travel times for people and goods. In 2021, statewide travel time reliability on the NHS was 95.4 percent (Figure 44). Prior to 2020, reliability was consistently around 80 percent but increased during the COVID-19 pandemic.

Figure 44. NHS travel time reliability, 2017 to 2021

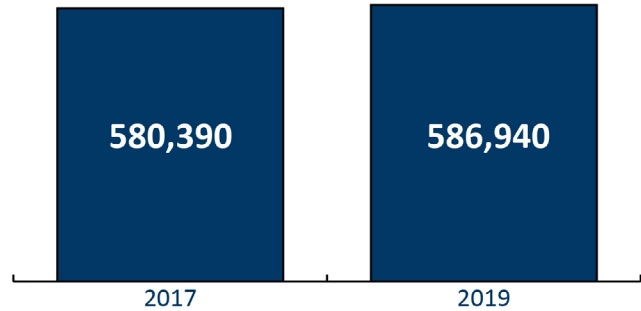


### Job Access

Job accessibility can be an important consideration for people when choosing where to live and their mode or route of travel. Accessibility measures evaluate how easily people can reach destinations by car, transit, and bicycle.

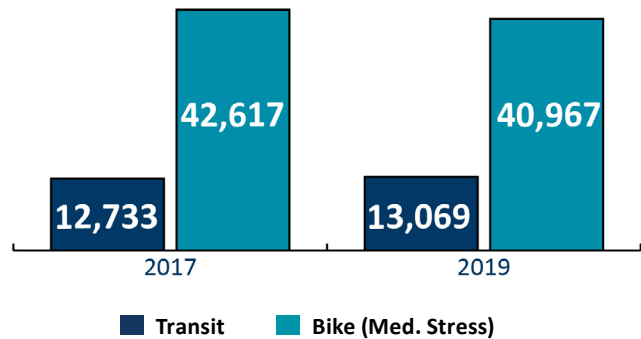
Between 2017 and 2019 (the most recent data available), the average number of jobs accessible for Minnesotans within 30-minute drive by personal motor vehicle increased from 580,390 to 586,940 (Figure 45).

Figure 45. Job accessibility by car, 2017 and 2019



The average number of jobs accessible within 30-minutes by a transit ride increased from 12,733 in 2017 to 13,069 in 2019 (Figure 46). However, the average number of jobs accessible by bicycle (low and medium stress routes) decreased from 42,617 (2017) to 40,967 (2019).

Figure 46. Job accessibility by transit or bicycle, 2017 and 2019

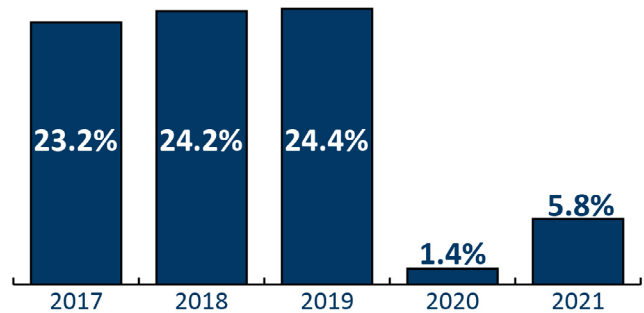


### Twin Cities Freeway Congestion

The COVID-19 pandemic significantly impacted traffic levels in the Twin Cities metropolitan freeway system. According to [MnDOT's 2021 Congestion Report](#), highway volume decreased by as much as 50 percent in some corridors. In 2020, 1.4 percent of the freeway system was congested, which was nearly a 25-percentage point decrease from 2019. While freeway congestion increased to 5.8 percent in 2021,

it was still well below pre-COVID-19 trends (Figure 47). The 2021 Congestion Report also notes that, while traffic volumes have increased slowly, 2021 continued to show unusual traffic patterns because of the pandemic and a large shift to remote work.

**Figure 47. Twin Cities metropolitan area freeway congestion, 2017 to 2021**



### What is MnDOT Doing to Move Towards Goal 3?

Job accessibility is a key measure to understand the multimodal transportation network in Minnesota and changes due to a variety of factors including land use, job location, transportation networks, and scheduling. Access to other key destination such as grocery stores, hospitals, and schools can also be used to understand the multimodal network impacts.

Increasing traffic congestion creates a higher risk for crashes, increases shipping costs, and reduces the time available to spend on other activities. Factors that affect congestion include economic conditions and population growth. To ensure reasonable travel time for commuters and travelers and reduce congestion on the interstate highway system, MnDOT currently relies on several strategies including active traffic management (e.g., an advanced system of cameras, loop detectors, ramp meters, and other traveler information systems, spot mobility improvements (e.g., low-cost, high-benefit projects that improve traffic flow), E-ZPass lanes, and strategic capacity enhancements (e.g., bus-only shoulders and unpriced dynamic shoulder lanes). MnDOT also has a goal to manage the growth of congestion through transportation alternatives.

### Other Measures Correlated to Goal 3

In addition to the primary performance measures summarized in this section, there is another measure that correlates to goal 3. Table 15 lists the correlated measure along with its primary legislative goal and the page number where more information is available.

**Table 15. Other measures correlated to goal 3**

Performance Measure	Primary Goal	Report Page Number
Truck Travel Time Reliability Index (TTTRI)	4	47




**GOAL 4****Enhance Economic Development****Goal 4**

This section contains a key performance measure that helps describe how MnDOT is working **to enhance economic development and provide for the economical, efficient, and safe movement of goods to and from markets by rail, highway, and waterway**. The performance measure includes:

- **Truck Travel Time Reliability Index:** An index measuring the consistency of commercial truck travel times on the Interstate system in a 12-month period. An index value of 1.0 is the lowest possible score and indicates the highest level of travel time reliability.

Table 16 summarizes the performance measures by statewide target (if applicable), the current condition, and the performance score (if applicable).

**Table 16. Goal 4 performance measure summary**

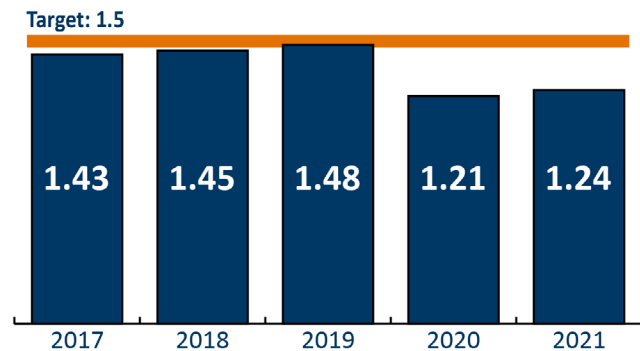
Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
Truck Travel Time Reliability Index (TTTRI)	≤1.5	1.24 (2021)			

## Truck Travel Time Reliability

TTTRI measures the consistency of commercial truck (e.g., freight trucks, semi-trucks, or tractor trailers) travel times on the Interstate system. TTTRI fluctuates by season but has historically settled around 1.45 annually. The statewide TTTRI goal is less than or equal to 1.5. In 2019, TTTRI increased to 1.48 which continued the slight upward trend from 2017 to 2018. However, due to the COVID-19 pandemic and

fewer vehicles on roadways, TTTRI decreased to 1.21, meaning the consistency of commercial truck travel times improved. In 2021, reliability degraded slightly to 1.24, in part caused by increasing passenger car traffic (Figure 48).

**Figure 48. Truck travel time reliability index, 2017 to 2021**



## What is MnDOT Doing to Move Towards Goal 4?

Consistent and reliable movement of goods is essential to Minnesotan's and the Minnesotan economy. Tracking and understanding truck travel time reliability is vital to enhance economic development and movement of goods throughout Minnesota. To ensure reasonable travel time for commercial trucks and reduce congestion on the highway system, MnDOT currently relies on several strategies MnDOT uses National Highway Freight Program federal funds to address truck freight mobility on locations selected on a competitive basis through the Minnesota Highway Freight Program. MnDOT is currently working to balance freight movement needs with environmental sustainability efforts including applying a VMT reduction target as well as continuing to implement the Minnesota State Highway Investment Plan that focuses on maintenance over expansion or continued roadway building. Strategies that benefit all vehicles/travelers include active traffic management (e.g., an advanced system of cameras, loop detectors, ramp meters, and other traveler information systems, spot mobility improvements (e.g., low-cost, high-benefit projects that improve traffic flow), E-ZPass lanes, and strategic capacity enhancements (e.g., bus-only shoulders and unpriced dynamic shoulder lanes).

Travel patterns shifted due to the COVID-19 pandemic. Although VMT has largely returned to pre-pandemic levels, traffic and congestion patterns are different. It is unknown how these patterns will develop over time, and how that will impact truck travel time reliability.

## Other Measures Correlated to Goal 4

In addition to the primary performance measure summarized in this section, there are seven other measures that correlate to goal 4. They are listed in Table 17 along with their primary legislative goal and the page number where more information is available.

**Table 17. Other measures correlated to goal 4**

<b>Performance Measure</b>	<b>Primary Goal</b>	<b>Report page number</b>
Highway-rail grade fatalities and serious injuries	1	19
Rest area building condition	8	24
Bridge condition	9	27
Pavement condition	9	29
Job accessibility by car	3	44
Job accessibility by bicycle and transit	3	44
Twin Cities freeway congestion	3	44
NHS travel time reliability	3	44



## Goal 5

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MnDOT does not track performance measures primarily related to goal 5: **to encourage tourism by providing appropriate transportation to Minnesota facilities designed to attract tourists and to enhance the appeal, through transportation investments, of tourist destinations across the state.** However, there are two measures that correlate: available seat miles offered from commercial service airports in Minnesota and rest area building condition. Table 18 lists the performance measures, their primary goal, and the pages where they are discussed in detail. Available seat miles offered from commercial service airports measures available tourism capacity through scheduled flights in Minnesota. Rest areas buildings are a key part of the roadway network by providing safe stopping areas for passenger and commercial travelers.

**Table 18. Measures correlated to goal 5**

Performance Measure	Primary Goal	Report Page Number
Rest area building condition	8	24
Air transportation	12	54

## GOAL 6

## Transit in all Communities







### Goal 6

This section contains two key performance measures that help describe how MnDOT is working **to achieve the goal to provide transit services to all counties in the state to meet the needs of transit users**. The performance measures include:

- **Public transit ridership:** The total number of boardings in a 12-month period recorded by Metro Transit and in Greater Minnesota.
- **Transit on-time performance:** Percent of annual public transit trips with Metro Transit and the Greater Minnesota transit system considered on-time annually.

Table 19 summarizes the performance measures by statewide target (if applicable), the current condition, and the performance score (if applicable).

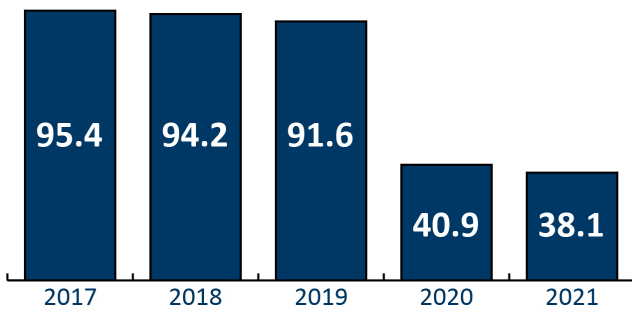
**Table 19. Goal 6 performance measure summary**

Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
Public Transit Ridership	Increasing transit ridership	MSP: 38.1 million Greater MN: 6.2 million (2021)			
Transit on-time Performance	Metro Transit: ≥90% Greater MN: ≥90%	Metro Transit: 84.8% Greater MN: 95.2% (2021)			

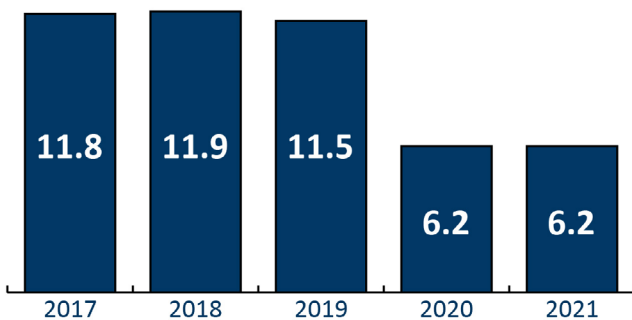
## Public Transit

MnDOT’s public transit ridership targets for the Twin Cities metropolitan area and Greater Minnesota are to increase public transit ridership throughout the state. In 2021, public transit ridership was 38.1 million in the Twin Cities area and 6.2 million in Greater Minnesota (Figure 49 and Figure 50). Transit ridership slowly declined from 2017 to 2019 before a rapidly declining due to the COVID-19 pandemic in 2020. In 2021, the governor-issued stay-at-home orders and other COVID related policies were lifted which allowed for increased transit ridership. However, changing travel behavior, as well as the continuing pandemic have contributed to the slow rebound ridership.

**Figure 49. Twin Cities metro area public transit ridership (in millions), 2017 to 2021**



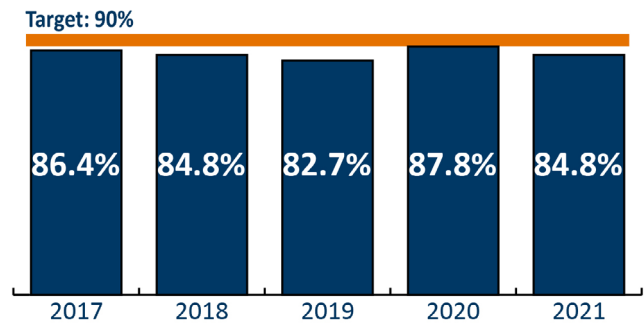
**Figure 50. Greater Minnesota public transit ridership (in millions), 2017 to 2021**



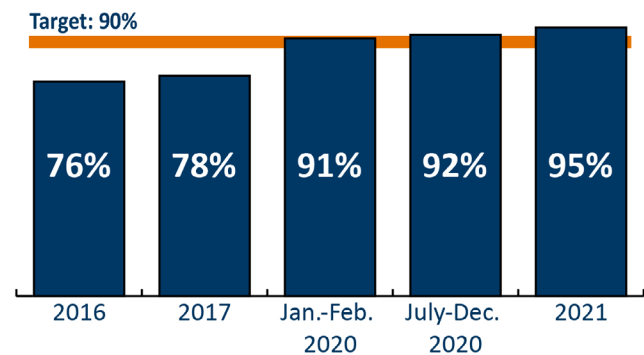
## Transit On-Time Performance

Metro Transit's and MnDOT's on-time performance target is for 90 percent of trips to be within one minute early to four minutes late of scheduled times. MnDOT’s on-time performance target for Greater Minnesota’s transit system is 90 percent to be within 45-minutes of scheduled times. In 2021, 84.8 percent of Metro Transit’s trips were considered on-time and it was 95 percent on-time trips for the Greater Minnesota’s transit system (Figure 51 and Figure 52). Note: In Greater Minnesota, information on on-time performance was not collected for 2018 and 2019 as a transition to a new reporting methodology was completed.

**Figure 51. Metro Transit on-time performance, 2017 to 2021**



**Figure 52. Greater Minnesota transit system on-time performance, 2016 to 2021<sup>7</sup>**



<sup>7</sup> Greater Minnesota data on on-time performance was not collected for 2018 and 2019 as a transition to a new reporting methodology was completed.

## What is MnDOT Doing to Move Towards Goal 6?

Through its public transit providers, MnDOT is committed to providing multimodal transportation options. Access to safe and timely transit is a key piece of the multimodal transportation network. The Metropolitan Council operates Metro Transit and projects overall ridership to continue to increase. Some routes and services, like Metro Mobility, Metro Transit’s on-demand ride service for those with disabilities or health concerns, are already operating at 70 to 75 percent of their pre-pandemic capacity. While changes in travel patterns and shortages of drivers continued to affect services throughout 2021, the Metropolitan Council is anticipating increased ridership in 2022<sup>8</sup>.

The Metropolitan Council conducts the [Travel Behavior Inventory](#), a household travel survey that includes a survey of on-board transit riders. The transit on-board survey helps to better understand how, when, where, and why people travel on the region’s buses and trains. The results will guide route changes and shifts towards more equitable transit investments.

The Greater Minnesota rural and small urban transit systems continue to experience low ridership demand in most areas of the state due to the ongoing pandemic impacts as well as other factors including a shortage in available licensed transit drivers. In many locations, rural systems shifted service from deviated fixed routes with low ridership to entirely curb-to-curb demand response service to meet the change in ridership needs and expectations. Additionally, transit vehicle replacement and delivery continue to lag because of worldwide supply chain issues.

Despite the ridership declines, rural transit systems provide customers access to basic needs across Minnesota. These include access to food, medical and health care facilities, employment, and educational facilities. Future transit trends will depend on populations shifts and proximity to basic needs such as healthcare in regional centers across the state.

## Other Measures Correlated to Goal 6

In addition to the primary performance measure summarized in this section, there is one other measure that correlate to goal 6. It is listed in Table 20 along with its primary legislative goal and the page number where more information is available.

**Table 20. Other measures correlated to goal 6**

Performance Measure	Primary Goal	Report Page Number
Job accessibility by bicycle and transit	3	44

<sup>8</sup> [“Transit Ridership Begins to Recover in 2021,”](#) Metropolitan Council, February 23, 2022.

**GOAL 12**

**Air Transportation**




**Goal 12**

This section contains a key performance measure that help describe how MnDOT is working to achieve the goal **to provide an air transportation system sufficient to encourage economic growth and allow all regions of the state the ability to participate in the global economy.**

- **Air transportation:** The total number of available seat miles offered on scheduled service nonstop flights from airports in the Twin Cities metropolitan area and in Greater Minnesota in a 12-month period. As defined by the United States Bureau of Transportation Statistics, one available seat is one aircraft seat flown one mile.

Table 21 summarizes the current condition of the performance measure. MnDOT does not have a statewide target for the measure.

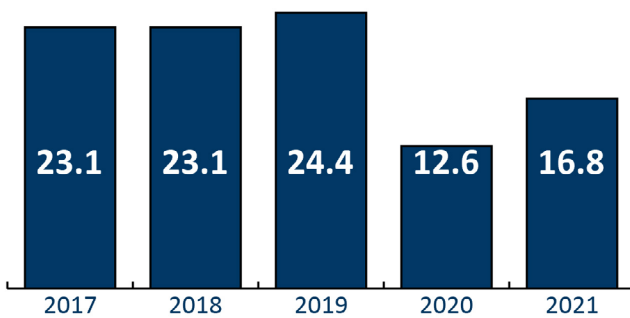
**Table 21. Goal 12 performance measure summary**

Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
Air Transportation	NA	MSP: 16.8 billion available seat miles Greater MN: 131,952 available seat miles (2021)			

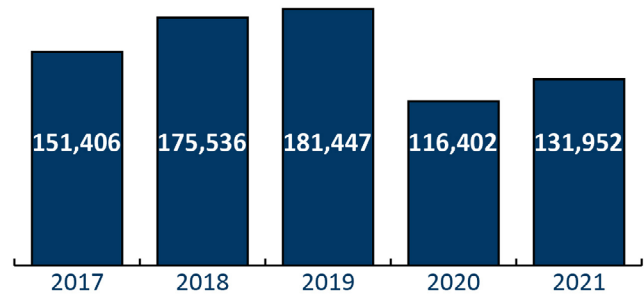
## Available Seat Miles

In 2021, there were 16.8 billion available seat miles flown from the Minneapolis-St. Paul International Airport (MSP) and 131,952 available seat meals flown from airports in Greater Minnesota (Figure 53 and Figure 54). These figures show increases in available seat miles following the decrease in 2020 due to the COVID-19 pandemic

**Figure 53. Number of available seat miles offered from MSP (in billions of miles), 2017 to 2021**



**Figure 54. Annual number of available seat miles offered from Greater Minnesota airports, 2017 to 2021**



## What is MnDOT Doing to Move Towards Goal 12?

Air transportation is one of the many modes in Minnesota that connects people within and beyond the state boundaries. While MnDOT does not have direct influence on available seat miles, ensuring seat availability on scheduled service nonstop flights from Minneapolis-St. Paul airport and Greater Minnesota airports is an important indicator of how economically competitive the state is nationally and globally. This measure is primarily driven by the activities of individual air carriers and Federal Aviation Administration regulations. The Metropolitan Airports Commission (MAC) operations staff works with the airlines to safely respond to changing conditions (e.g., congestion, weather, operations incidents) that may impact available seat miles

## Other Measure Correlated to Goal 12

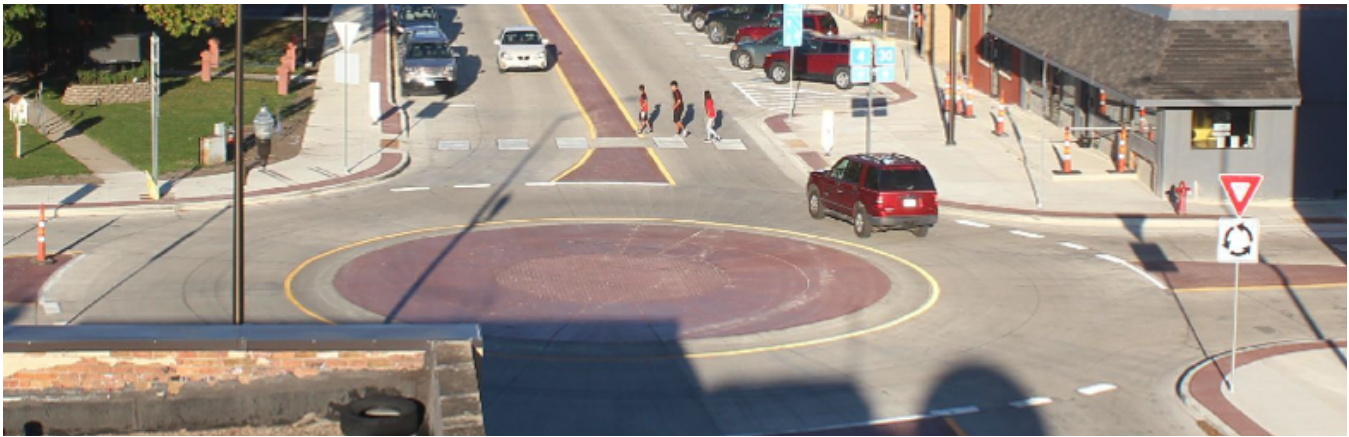
There are no correlated measures identified.

**GOAL 13****Minimize fatalities and injuries for transportation users throughout the state****Goal 13**

MnDOT does not track performance measures primarily related to goal 13: **to increase use of transit as a percentage of all trips statewide by giving highest priority to the transportation modes with the greatest people-moving capacity and lowest long-term economic and environmental cost.** However, there are three measures that correlate, which include job accessibility by bicycle and transit, transit on-time performance, and public transit ridership. Table 22 lists the performance measures, their primary goal, and the pages where they are discussed in detail. Job accessibility by bicycle and transit tracks the average annual number of jobs accessible within a 30-minute ride by bicycle or transit. Transit on-time performance is important for measuring the reliability of the transit system. Public transit ridership measures how many Minnesotans are using transit as a mode of transportation.

**Table 22. Measures correlated to goal 13**

<b>Performance Measure</b>	<b>Primary Goal</b>	<b>Report Page Number</b>
Job accessibility by bicycle and transit	3	44
Transit on-time performance	6	51
Public transit ridership	6	51



## Healthy Equitable Communities

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Healthy equitable communities provide opportunities for everyone to reach their fullest potential. They connect people to employment, education, recreation, goods, services, and more. The places we live, work, and play have considerable impact on health and wellbeing. Investments preserve and promote community identity and should be considered a part of the community. Not all places are the same and there is no one-size-fits-all transportation solution.

Advancing the health of people and communities means expanding opportunities, access, and mobility choices for people. Transportation can be a barrier, especially for underserved communities. Tailoring solutions to specific places lead to projects that respect and complement people, the environment, and our economy. This also helps ensure that Minnesota is advancing equitable access to opportunities, preserving the natural and cultural heritage for future generations, and maintaining an environmentally and economically viable transportation system for all to use in the future.

The goals related to healthy equitable communities and highlighted in this section include:

- **Goal 2:** To provide multimodal and intermodal transportation facilities and services to increase access for all persons and businesses and to ensure economic well-being and quality of life without undue burden placed on any community
- **Goal 10:** To ensure that the planning and implementation of all modes of transportation are consistent with the environmental and energy goals of the state
- **Goal 14:** To promote and increase bicycling and walking as a percentage of all trips as energy-efficient, nonpolluting, and healthy forms of transportation; energy-efficient, nonpolluting, and healthy forms of transportation

### Goal 2

This section contains a key performance measure that helps describe how MnDOT is working to **provide multimodal and intermodal transportation facilities and services to increase access for all persons and businesses and to ensure economic well-being and quality of life without undue burden placed on any community.**



- **Transportation costs:** The percent of median household income spent on housing and transportation in Minnesota.

Transportation costs is a new performance measure that MnDOT is working to fully develop. MnDOT’s goal is to create a measure that helps understand the proportion of a Minnesotan’s income that is spent on the necessities of housing and transportation.

Using Minnesota Department of Employment and Economic Development Cost of Living data and American Community Survey data on median household income in Minnesota, MnDOT could calculate percentage of median household income necessary to meet basic housing and transportation needs. Through the proposed [SMTP work plan](#), MnDOT will explore formalizing a measure and target(s) focusing on how much of the median household income goes towards transportation.

## Other Measures Correlated to Goal 2

In addition to the primary performance measure summarized in this section, there are five other measures that correlate to goal 2. They are listed in Table 23 along with their primary legislative goal and the page number where more information is available.

**Table 23. Other measures correlated to goal 2**

Performance Measure	Primary Goal	Report Page Number
Highway-Rail grade Fatalities and Serious Injuries	1	19
ADA compliance	8	30
Vehicle miles traveled per capita	15	40
Job accessibility by bicycle and transit	3	44
Transit on-time performance	6	51

## Goal 10

MnDOT does not track performance measures primarily related to goal 10: **to ensure that the planning and implementation of all modes of transportation are consistent with the environmental and energy goals of the state.** However, there are four measures that correlate. Table 24 lists the performance measures, their primary goal, and the pages where they are discussed in detail. Sustainability strategies such as native seedings and plantings, LED luminary use, and sustainable pavement practices help minimize environmental impacts. Snow fences play a key role in winter maintenance productivity by helping to limit blowing snow across Minnesota roads.

**Table 24. Measures correlated to goal 10**

Performance Measure	Primary Goal	Report Page Number
Snow fences	7	20
Native seedings and plantings	16	33
Sustainable pavements	16	33
LED use	15	33




**GOAL 14****Bike and Walk Mode Shift****Goal 14**

This section contains a key performance measure that helps describe how MnDOT is working **to promote and increase bicycling and walking as a percentage of all trips as energy-efficient, nonpolluting, and healthy forms of transportation; energy-efficient, nonpolluting, and healthy forms of transportation.**

- **Physical Activity:** The percent of Minnesotans who say they bicycle or walk at least weekly.

Table 25 summarizes the statewide target and the current condition of the performance measure.

**Table 25. Goal 14 performance measure summary**

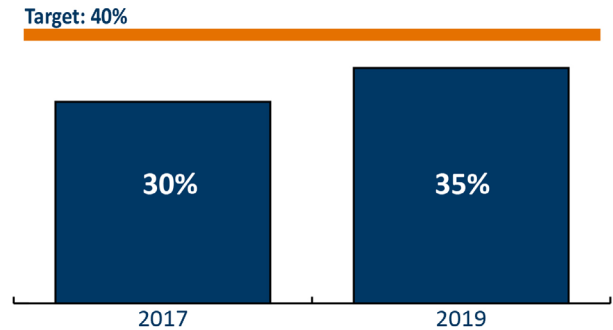
Measure	Statewide Target	Current Condition	Trend Desired	Trend Observed	Score
Physical Activity	40% by 2025 60% by 2040	35% of Minnesotans bike or walk at least weekly (2019)			

## Physical Activity

MnDOT’s statewide target is to increase the percent of people who bicycle or walk at least weekly by 5 percent every five years beginning in 2025. In 2019, 35 percent of Minnesotan’s walked or bicycled at least weekly, which is an increase from 30 percent in 2017 (Figure 55). MnDOT is moving closer to its 2025 target. MnDOT calculates the measure by using results from the public opinion survey question “How frequently

did you use the following modes of transportation for traveling to and from places (for example, to work, school, the grocery store, other places you travel for errands and entertainment as well as vacation?” This is a new measure that will continue to be tracked in the future to help understand the trend.

**Figure 55. The percent of Minnesotans who say they bicycle and walk at least weekly, 2017 and 2019**



## What is MnDOT Doing to Move Towards Goal 14?

MnDOT is using the work plan in the proposed [SMTP](#) and the [Statewide Pedestrian System Plan](#) to help increase the percent of people walking, bicycling, or both. The [Centers for Disease Control](#) recommends that adults get 150 minutes of moderate-intensity physical activity weekly. MnDOT aims to increase the percent of Minnesotan’s meeting physical activity guidelines by creating access and opportunities for Minnesotans to bicycle and walk.

## Other Measures Correlated to Goal 14

In addition to the primary performance measure summarized in this section, there are five other measures that correlate to goal 13. They are listed in Table 26 along with their primary legislative goal and the page number where more information is available.

**Table 26. Other measures correlated to goal 14**

Performance Measure	Primary Goal	Report Page Number
Pedestrian fatalities and serious injuries	1	19
Bicycle fatalities and serious injuries	1	19
ADA compliance	8	30
Vehicle miles traveled per capita	15	40
Job accessibility by bicycle and transit	3	44

# Next Steps

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## Priority Areas for Ongoing Measure Development

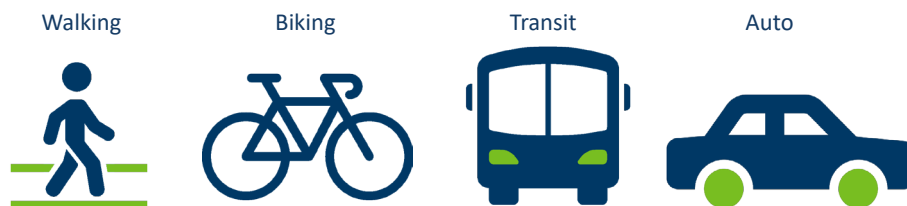
MnDOT is continually revisiting current performance measures for improvement, and evaluating where new performance measures are needed. There are three key areas where MnDOT sees a need for new performance measurement – multimodal access, transportation equity, and resilience. Although these measures are in different stages of development, MnDOT has made a commitment to fully develop and continually track performance for each.

### Multimodal Access

Multimodal access, sometimes referred to as destination access or accessibility, measures a person’s ability to reach a destination through different modal systems. Early accessibility work has measured how easily workers can reach jobs by different transportation modes including motor vehicle, bicycling, walking, and transit modes. Accessibility by mode is detailed in this report as the average number of jobs accessible within a 30-minute commute. For future accessibility measurement, MnDOT hopes to expand to new destination types such as education and health care. Additionally, a relative accessibility improvement measure is currently under development to compare improvements in auto accessibility to non-auto modes.

MnDOT is also developing a multimodal accessibility workflow for individual construction projects. This process will use a geographic analysis software, which allows users to analyze real world and hypothetical transportation network changes to understand how many destinations a person can reach on a specified network. This work is important because it provides an opportunity to further integrate multimodal accessibility and considerations into MnDOT’s planning processes.

**Figure 56. Multimodal accessibility types**



### Transportation Equity

Through the SMTP, MnDOT’s recently adopted transportation equity definition states, “Transportation equity means the benefits and burdens of transportation systems, services, and spending are fair and just, which historically has not been the case. Transportation equity requires ensuring underserved communities, especially Black, Indigenous, and People of Color, share in the power of decision making.”<sup>9</sup> This definition is important because it represents a unified understanding of and action towards transportation equity across MnDOT. In addition, MnDOT is working towards improving equity in performance measurements and a variety of other equity focused projects. As this work continues, MnDOT will adopt additional transportation equity performance measures to ensure accountability and continue forward progress.

<sup>9</sup> More information about transportation equity and MnDOT’s [Advancing Transportation Equity Initiative](#).

## Resilience

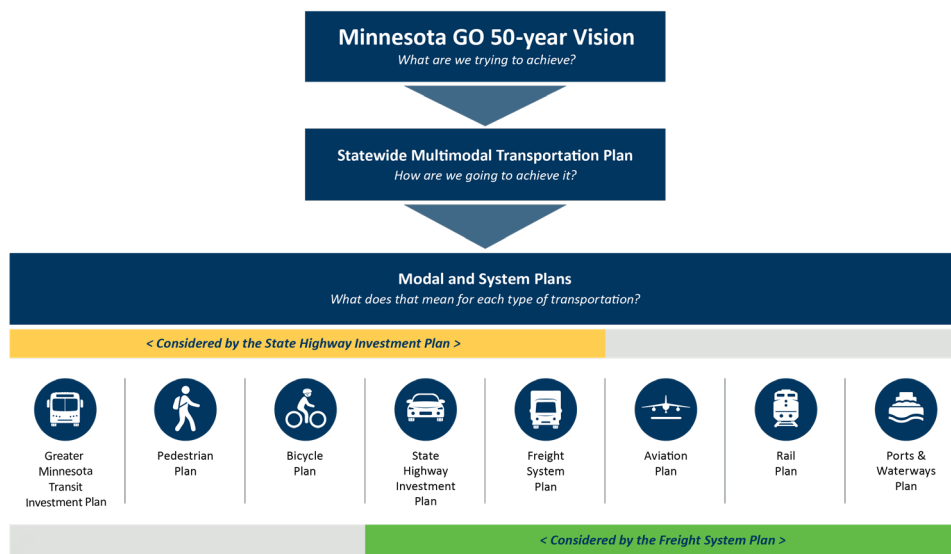
MnDOT is developing climate resiliency performance measures to respond to state legislation and the new [federal Bipartisan Infrastructure Law](#) from 2021. Some measures of resilience are already established with further measures in development. Resilience measures will be used in performance reporting to describe how the MnDOT multi-modal system is becoming more resilient to climate change. The primary focus of these initial measures will be on the trunk highway system.

# Appendix A: Minnesota Go Vision

The transportation system is built to move people and goods, ensure a high quality of life for Minnesotans, and support our economy. In 2011, MnDOT created the [50-year Minnesota GO Vision](#) to set guiding principles for everyone with a role in making the transportation system work for Minnesotans. According to the vision, “Minnesota’s multimodal transportation system maximizes the health of people, the environment and our economy.” Furthermore, the vision helps answer the question, “What are we trying to achieve with transportation over the next 50 years?”

Based on the Minnesota GO vision, the 20-year Statewide Multimodal Transportation Plan sets the policy direction, priorities, and the framework for MnDOT’s modal and system investment plans (i.e., Family of Plans). The Family of Plans offer mode-specific strategies and guidance and include aviation, bicycle, freight, highway, pedestrian, ports and waterways, rail, and transit. Together, the Family of Plans direct investments, maintenance, operations, modal programs, and services for all types of transportation throughout the state. Other plans such as for safety, accessibility, operations, and technology can also inform strategic decision but are not required to follow the SMTP’s policy direction.

**Figure 57. Family of plans hierarchy**



The state requires the SMTP to be updated every five years. The SMTP and the other plans in the Family of Plans combine to meet state and federal transportation planning requirements. These plans must support national, state, and local goals.

The objectives and their associated strategies for MnDOT and transportation partners support the Minnesota GO Vision.

**Figure 58. Minnesota’s multimodal transportation system overview**

## 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 our economy.



- 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 socioeconomic status or individual ability



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



- 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

## Capital Planning and Asset Management

### Capital Highway Investment Plan

The [10-year Capital Highway Investment Plan](#) details MnDOT’s capital highway investments for the next ten years on the state highway network. The CHIP is updated yearly to remove projects that are currently being constructed, adjust timing of existing planned projects, and add new planned projects. The primary purpose of the document is to communicate programmed and planned capital highway projects over the next 10 years. The document also serves as a check to ensure that MnDOT is meeting the investment levels and performance outcomes identified in MnDOT’s 20-year State Highway Investment Plan and explains any change in strategy or outcomes from the investment direction.

The first four years of the CHIP represent state highway projects in the State Transportation Improvement Program, which is MnDOT’s committed construction project program. The CHIP also identifies projects in the six years after the current STIP, which are the agency’s planned investments. While projects are not commitments until they reach the STIP, listing potential projects five to ten years into the future allows for advanced coordination and ultimately better projects for all those served.



## Life Cycle Planning

Life Cycle Planning, as defined by the Federal Highway Administration, is “a process to estimate the cost of managing an asset class, or asset sub-group, over its whole life with consideration for minimizing cost while preserving or improving the condition.” LCP is used to compare alternate strategies that fulfill the same performance requirements but differ with respect to construction, maintenance, and operational costs. These can be compared in terms of the total costs over the entire life cycle of the asset. LCP helps answer: Which investments, made today, are most cost-effective in the long-term to keep the infrastructure in service for as long as feasibly possible?

Minnesota’s transportation infrastructure is constantly experiencing physical and chemical processes of deterioration, damaging impacts of floods and other hazards, and wear from normal use. MnDOT and its partners work to offset these effects and keep the state’s valuable assets in service for as long as possible at minimum costs. Strong asset management practices help to minimize the total cost of managing transportation assets by focusing on all phases of an asset’s life cycle.

MnDOT minimizes life cycle costs by consistently reviewing asset treatments, adopting new actions suggested by management systems, and considering both capital and maintenance costs. MnDOT has significantly improved its ability to model treatment costs as they relate to asset condition. This improvement has helped MnDOT shift to a network-level analysis of system performance that not only considers current and predicted condition distribution of assets over the long term, but also includes an evaluation of the level of performance expected to be achieved based on several life cycle treatment approaches (e.g., worst-first strategy, MnDOT’s current treatment strategy, and MnDOT’s desired treatment strategy). [Chapter 6 of the Transportation Asset Management Plan](#) describes the approach and results of life cycle planning.

In addition to the TAMP, a data visualization platform was created that pulls information from detailed life cycle analysis spreadsheets and provides the following high-level results:

- Investment needs by district for all assets included in the statute:
  - Annual need
  - 10-year consolidated needs
  - Long-term needs (e.g., 20 years)
- Recommended investments and resulting performance by asset type within each district for each LCP strategy:
  - Current performance
  - 10-year performance
  - Long-term performance
- Maintenance versus capital need by asset type for each district.

## Corridor Risk Assessments

It is vital to assess risk when making trade off decisions within the transportation planning process. Risk management is integrated into most agency planning and management practices. MnDOT has adopted risk management principles throughout the agency, from high-level investments, management, operations plans, individual asset management, programming systems and research projects. MnDOT uses several tools to track and manage risks including risk registers, risk reports, and risk mitigation plans.

Since 2014, MnDOT has incorporated risk in the [Transportation Asset Management Plan](#) and planning process. The TAMP includes a risk register by asset class that identifies risk categories, risk description, ideal risk

mitigation strategy, and current and post-mitigation risk rating. The TAMP and TAMP process also developed a comprehensive prioritization strategy across all asset risks. The prioritization will guide workgroups and the agency in action prioritization.

Another way to manage risk is from a higher-level perspective that incorporates risk across several asset classes and can be assessed at the statewide, district, and corridor levels. A geographic information system (GIS) map tool was created as a framework to capture and present critical risk-based information to key decision makers.

The map layers contained in the tool come from various sources throughout the agency and focus on risk-based analysis and data. The following are a sample of the map layers included in the tool:

- Bridge Planning Index is a risk score which factors both the consequence of a service interruption and the probability of a service interruption. It is calculated within the Bridge Replacement and Information Management tool. The resilience module within BRIM has probability scaling tables for individual bridge deck deterioration, over height truck hit, damage of flooding (scour), and fatigue. The module also designates individual bridge importance factors for traffic volume, route and classification, detour length, and bridge length.
- Pavement blow-up potential is based on historical maintenance activities and pavement types, condition, and defects.
- Culvert and Overhead Sign Structure are condition ratings.
- Noise Wall Risk Rating is a risk score that factors in both the consequence of a service interruption and the probability of a service interruptions.
- Geotechnical Earth Retaining Structure Risk Rating is a risk score which factors both the consequence of a service interruption and the probability of a service interruptions.
- Slope Vulnerability is a statewide high-level evaluation of locations of risk of slope failure.

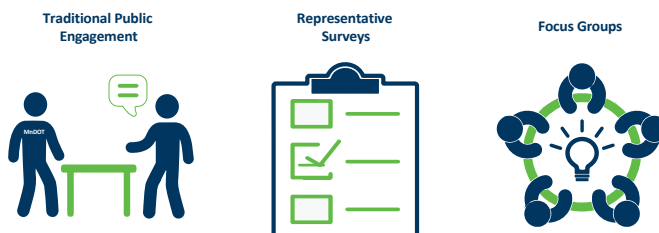
MnDOT will continue to enhance the agency corridor risk assessment program, tools, and processes.

## Public Collaboration

Public outreach is a critical component of planning activities. Federal and state legislation, guidance, and executive orders describe specific public outreach requirements and expectations. A detailed explanation of public engagement and collaboration requirements for all of MnDOT’s publicly developed plans is outlined in the [Plan Development Guidance](#). Similarly, MnDOT has specific public engagement expectations. Through the department’s [public engagement policy](#), MnDOT has pledged on-going engagement and relationship building with the public to earn trust and mutual understanding.

The Statewide Multimodal Transportation Plan incorporates a series of strategies to improve collaboration including focus groups and a representative public survey of Minnesotan’s that sought to identify strategic priorities and performance outcomes (Figure 59). MnDOT will incorporate these approaches for future updates of the performance measure report.

**Figure 59. Public collaboration strategies**



## Open Decision Making

Accountability, transparency, and communication are essential to open decision making. Transportation decision-makers are stewards of the transportation system and have the responsibility to make informed choices and be open about how and why decisions are made.

Open decision-making performance measures do not align directly with the state transportation goals. However, the measures provide an important opportunity to understand how the public feels towards MnDOT in two key areas: public trust and public confidence. Public trust and public confidence data come from a public opinion survey of a representative sample of Minnesota’s population conducted every two years<sup>10</sup>. It is important to note that in 2020 MnDOT completed a survey to assess the effects of the COVID-19 pandemic on transportation in Minnesota. While the 2020 survey results are displayed in the bar charts in this section, the trend analysis is based on the ongoing public opinion surveys from 2015, 2017, 2019, and 2021.

- **Public Trust:** The percentage of survey respondents who agree with the following statement –
  - o MnDOT understands my needs (and the needs of others like me) and has developed a transportation system that works well for me.
  - o MnDOT acts in a fiscally responsible manner
- **Public Confidence:** The percentage of survey respondents indicating they are confident in MnDOT –
  - o Communicating accurate information to Minnesota residents about their transportation plans and projects.

**Table 27. Open decision-making performance measures summary**

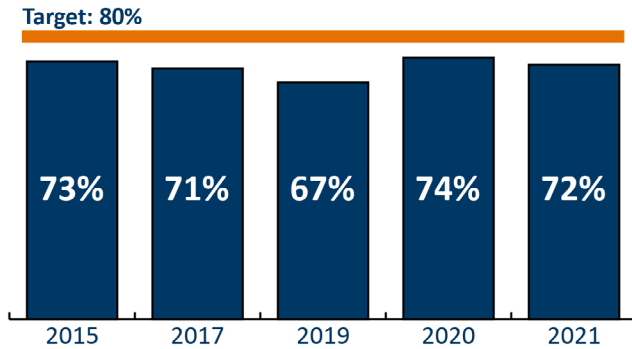
Performance measure	Statewide target	Current condition (Result)	Score
Public trust: MnDOT understands customers’ needs	≥ 80% agreement overall and for each demographic group	72% agreement (2021)	NA
Public trust: MnDOT acts in a fiscally responsible manner	≥ 80% agreement overall and for each demographic group	59% agreement (2021)	NA
Public confidence: Communicating accurate information	≥ 80% agreement overall and for each demographic group	67% agreement (2021)	NA

<sup>10</sup> More detailed information about open decision making and public trust and confidence performance measures is available at: <https://performance.minnesotago.org/open-decision-making/public-trust>.

## Public Trust

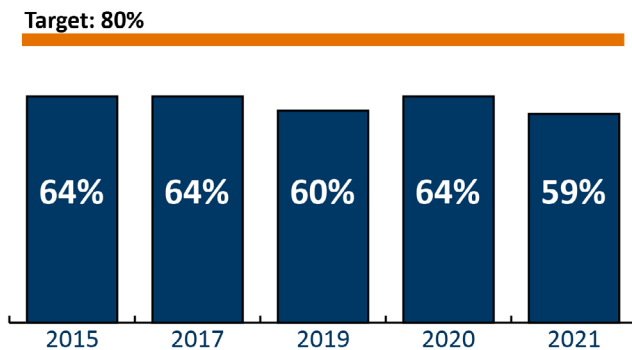
In 2021, 72 percent of respondents agreed that MnDOT understands their needs, which is in line with the trend through the previous survey years (Figure 60).

**Figure 60. Public trust - Percent of Minnesotans who agree that MnDOT understands their needs, 2015 to 2021**



The percent of respondents who agreed MnDOT acts in a fiscally responsible manner was 59 percent in 2021 (Figure 61). The result is the lowest point among the most recent survey years.

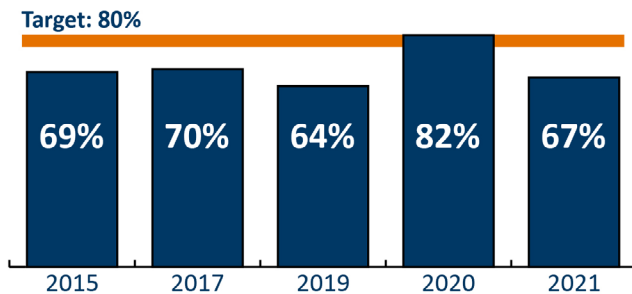
**Figure 61. Public Trust – Percent of Minnesota’s who agree that MnDOT acts in a fiscally responsible manner, 2015 to 2021**



## Public Confidence

In 2021, 67 percent of respondents agreed they have confidence in MnDOT’s ability to communicate accurate information about transportation plans and projects (Figure 62). The 2021 result is below the 80 percent statewide goal but was a small increase from the 2019 survey.

**Figure 62. Public Confidence – Communicating accurate information about MnDOT transportation plans and projects, 2015 to 2021**



# Appendix B: Performance Management at MnDOT

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## Performance Management at MnDOT

MnDOT has a performance management system that encompasses its major products, services, and priorities. To guide investments and operational decisions, MnDOT uses the modal and system investment plans developed with the public, clear policies, performance trend data, and performance forecasts. The performance management strives to:

- Address public and stakeholders' desire for accountability and transparency
- Provide more informed decision-making and solutions to increasing challenges
- Enhance responsiveness to members of the public
- Ensure compliance with legislative requirements
- Improve internal management
- Facilitate refinement of programs and services
- Set benchmarks for comparison of results

MnDOT uses performance criteria to guide capital investments and annual operational budgets. Transportation system and agency performance reports are regularly reviewed by MnDOT management and available to everyone through [MnDOT's Performance Dashboard](#). The ongoing measurement and review process assists MnDOT in evaluating the efficiency of service delivery and assessing the effectiveness of program activities. This objective based approach increases transparency and encourages innovation by keeping the focus on outcomes.

## Performance Measure Development at MnDOT

MnDOT uses performance measures to evaluate how Minnesota's multimodal transportation system is performing. As data becomes available it is published on Minnesota GO Performance Dashboard and in the applicable Family of Plans. MnDOT uses performance targets to calculate needed investment levels, stimulate innovation and guide decision-making. These targets are set through public planning processes that incorporate numerous factors, including engineering standards and other technical criteria, historical experience, and assessments of stakeholder expectations. MnDOT seeks to predict outcomes when adequate data is available and reasonable predictions can be made. Measures are included when outcomes can be predicted and well-founded assumptions about factors such as deterioration and usage are available.

For MnDOT, a **performance measure** is an expression of how much or how well the policies, strategies, investments, or products or services are working towards a goal or desired outcome during a specified time period. A measure that provides meaningful information about the condition or performance of the transportation system but is not managed to nor used to evaluate the effectiveness of policies, strategies, investments, or products or services is referred to as an **indicator**. Indicators are tracked in the same way as performance measures. Quantifiable descriptions of performance measures are historically, and up to the current time with respect to circumstances, referred to as **current conditions** or **results**. When developing performance measures, **targets** are often created. A target represents a specific performance level associated with a **goal** or **desired outcome**. The **desired outcome** is an end-state condition of well-being for people or the transportation system. MnDOT also establishes **expected outcomes**, which are projections of future performance based on predictive models or projections.

# Appendix C: Full Performance Measure List

The table lists all the performance measures analyzed for the report, their definition, the related legislative goal, and the associated SMPT objective.

**Table 28. Full performance measure list**

Name	Definition	Leg. Goal	SMTP Objective
Roadway fatalities	The number of people killed in crashes involving motor vehicles on Minnesota roadways in a 12-month period.	1	Transportation safety
Roadway serious injuries	The number of people who were seriously injured resulting from crashes involving a motor vehicle in a 12-month period. The number of serious injuries is classified by first responders at the scene of the accident.	1	Transportation Safety
Highway-rail grade fatalities and serious injuries	The number of people who were killed or seriously injured resulting from crashes at highway-rail grade crossings involving a motor vehicle in a 12-month period.	1	Transportation Safety
Pedestrian fatalities and serious injuries	The number of people walking along Minnesota roadways who were killed or seriously injured resulting from crashes involving a motor vehicle in a 12-month period.	1	Transportation Safety
Bicyclist fatalities and serious injuries	The number of people bicycling on Minnesota roadways who were killed or seriously injured resulting from crashes involving a motor vehicle in a 12-month period.	1	Transportation Safety
Snow fences	The total number of miles of snow fences comprised of structural (e.g., composite rails snow fences), living (e.g., trees and shrubs), or vegetative (e.g., corn rows or hale bales) fences on Minnesota roadways.	1	Transportation Safety
Bridge inspection	The percent of routine bridge inspections completed within 30 days of the calendar due date in a 12-month period.	8	System Stewardship
Rest area building condition	The percent of MnDOT-owned rest area buildings that were rated as being in poor condition based on an assessment of the infrastructure.	8	System Stewardship
Bridge condition	The annual percentage of total state bridges rated as being in poor condition based on evaluations of the bridge deck, substructure, and superstructure.	9	System Stewardship

Name	Definition	Leg. Goal	SMTP Objective
Culvert condition	The annual percentage of total culverts under state highway lanes rated as being in poor or severe condition.	9	System Stewardship
Pavement condition	The annual percentage of total interstate, NHS, and non-NHS roadways rated as having poor ride quality.	9	System Stewardship
ADA compliance	The percentage of total state-owned sidewalks, signals, curbs, and driveways substantially compliant with Americans with Disabilities Act (ADA) standards.	9	System Stewardship
Road salt chloride use	The amount of liquid to solid de-icing chemicals applied to reduce overall chlorides used on the roadway for snow and ice control in a winter season.	16	System Stewardship
Sustainable pavements	Annual number of MnDOT projects using sustainable pavement practices.	16	System Stewardship
Native seeding and plantings	The percent of acres planted with native seeds and native plants as part of large projects in a 12-month period.	16	System Stewardship
Zero emission vehicles registered	Total percentage of light duty electric vehicle (EV) or other zero emission vehicles (ZEV) registered in Minnesota.	11	Climate Action
Transportation sector greenhouse gas emissions	Amount of GHG emissions, measured in metric tons of carbon dioxide equivalent (CO <sub>2</sub> e), from the transportation sector in a 12-month period. The transportation sector emissions include tail pipe emissions from motor vehicles (cars and trucks) on the road as well as emissions from aviation, rail, and marine vehicles.	15	Climate Action
MnDOT construction greenhouse gas emissions	Total GHG emissions, measured in metric tons of CO <sub>2</sub> e, from MnDOT construction projects in a 12-month period.	15	Climate Action
LED use	Total percent of light fixtures using Light Emitting Diodes (LED) luminaries on MnDOT- managed roadways.	15	Climate Action
Vehicle miles traveled per capita	The total annual miles of vehicle travel divided by the total population of Minnesota.	15	Climate Action

Name	Definition	Leg. Goal	SMTP Objective
NHS Travel time reliability	The percent of NHS person-miles traveled that are considered consistent or reliable in travel times (also known as travel time reliability), as measured from day-to-day or across different times of the day.	3	Critical Connections
Job accessibility by car	The average annual number of jobs accessible within a 30-minute drive by personal motor vehicle.	3	Critical Connections
Job accessibility by bicycle and transit	The average annual number of jobs accessible within a 30-minute ride by bicycle or transit.	3	Critical Connections
Twin Cities freeway congestion	The percent of Twin Cities metropolitan-area freeway miles with an average traffic speed less than 45 miles per hour during morning and afternoon peak times.	3	Critical Connections
Truck Travel Time Reliability Index	An index measuring the consistency of commercial truck travel times on the Interstate system in a 12-month period. An index value of 1.0 is the lowest possible score and indicates the highest level of travel reliability.	4	Critical Connections
Public transit ridership	The total number of boardings in a 12-month period recorded by Metro Transit and in Greater Minnesota.	6	Critical Connections
Transit on-time performance	Percent of public transit trips with Metro Transit and the Greater Minnesota transit system considered on-time annually.	6	Critical Connections
Air transportation	The total number of available seat miles offered on scheduled service nonstop flights from airports in the Twin Cities metropolitan area and in Greater Minnesota in a 12-month period. As defined by the United States Bureau of Transportation Statistics, one available seat is one aircraft seat flown one mile.	12	Critical Connections
Transportation costs	The percent of median household income spent on housing and transportation in Minnesota.	2	Healthy Equitable Communities
Physical activity	The percent of Minnesotans who say they bicycle or walk at least weekly.	14	Healthy Equitable Communities