

Policy 1: Traveler Safety



Summary

Reduce the number of fatalities and serious injuries for all travel modes.

Mn/DOT will continue to support the Toward Zero Deaths initiative and in cooperation with its partners pursue a comprehensive “Four E” approach to highway safety: Education, Enforcement, Engineering, and Emergency medical services. Engineering improvements will focus on system-wide, cost-effective safety investments on both the state and local roads. Mn/DOT will also continue to monitor air travel safety and will work with the Federal Railroad Administration to monitor and report rail safety.

1A. TZD and “The Four Es”: Mn/DOT will continue to support the Toward Zero Deaths (TZD) initiative and its comprehensive approach toward highway safety that targets “The Four Es”: Education, Enforcement, Engineering, and Emergency medical services.

1B. System-wide, Cost-Effective Safety Enhancements: Mn/DOT will pursue system-wide, cost-effective safety investments on the state highway system that addresses fatal and severe injury crashes. The types of investments will be data driven and incorporated into all applicable projects.

1C. Local Road Safety: State and local road authorities, police, and public health professionals will work together to address safety on the local roadway system.

1D. Air and Rail Safety: Mn/DOT will continue to monitor and report air safety. Mn/DOT will also continue to monitor, inspect, and report rail accidents, derailments, safety-related rail infrastructure conditions, and will begin issuing citations for rail safety violations.

Background and Context

Safety is inherent in all policies and is a primary consideration in all work activities.

Transportation users expect safe travel. Accordingly, safety is an objective inherent in all of the Minnesota Statewide Transportation Policy Plan policies and strategies, and it is a primary consideration in all activities transportation authorities undertake. Policy 1 focuses on one part of safe travel, reducing the number of traffic-related fatalities and serious injuries for all modes and users throughout Minnesota.

In the early 1970s, annual highway-related fatalities numbered 53,000 nationwide. Recognized as a public health crisis, efforts such as increased seatbelt use helped lower the number to 39,000 in the 1990s. But since then, an alarming trend emerged; fatalities have steadily increased, peaking at 43,500 in 2005.

The pattern in Minnesota closely matched the national trend until 2003. Since 2003, the number of traffic-related fatalities has dropped significantly in Minnesota. The reductions in Minnesota have been achieved in part through the TZD initiative¹, which began in 2001. The mission of TZD is “To move Minnesota toward zero deaths on our roads, using Education, Enforcement, Engineering, and Emergency Services.”

These are known as the “The Four Es”. As part of this initiative, Mn/DOT established the number of traffic-related fatalities as the key statewide safety performance measure, and it encouraged cooperation by reaching out to local road authorities, law enforcement, community leaders, and public health professionals as integral partners in statewide safety planning and implementation efforts.

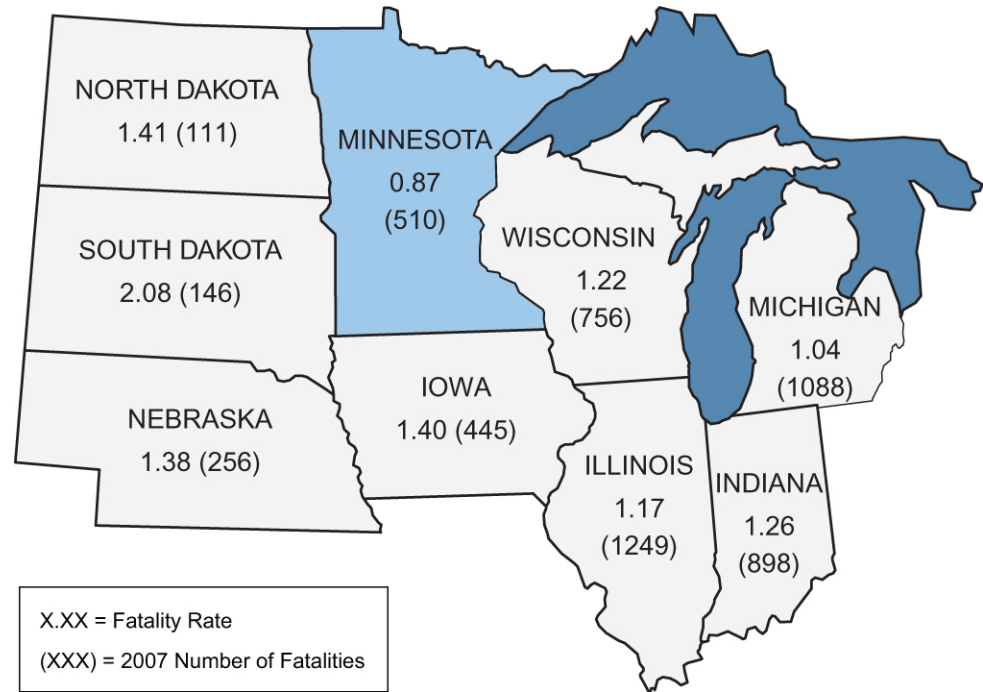


Figure 7.1.1 Minnesota Highway Fatality Rate as Compared to Neighboring States

Source: National Highway Traffic Safety Administration, 2007

The safety of Minnesota’s highway system has improved in recent years, yet there were 510 fatalities and over 1,700 serious injuries that still occurred in 2007. To continue progress Toward Zero Deaths and to reduce the number of serious injuries, Minnesota developed a Strategic Highway Safety Plan (SHSP) in 2007. This plan encourages coordination and collaboration amongst stakeholders, identifies areas for targeted safety improvements based on highway crash data, and presents updated safety strategies that reflect new initiatives.

Traffic-related fatalities and serious injuries are also concerns on Minnesota’s rail and air transport systems. This policy addresses safe travel on these systems as well as on streets and highways.

Strategies

This section describes the strategies that Mn/DOT will use in partnership with other agencies, transportation authorities and companies to support safe travel in Minnesota.

1A. TZD and “The Four Es”

Mn/DOT will continue to support the TZD initiative and its comprehensive approach toward highway safety that targets “The Four Es”: Education, Enforcement, Engineering, and Emergency medical services.

While the recent safety trend is encouraging, data shows that driver behavior continues to be a major factor in crashes.

The number of annual fatalities on Minnesota highways has dropped, in part because of TZD initiatives, even as the number of vehicle miles traveled increased for many years. Key changes leading to this result have included improvements in emergency response and medical care, strategic enforcement efforts, and engineering improvements. Engineering changes have included infrastructure improvements targeted to high crash locations and applied systematically on the highway network; continued improvement in vehicle safety including front and side airbags, anti-lock brake systems (ABS), automatic stability control (ASC), improved passenger compartment cages, and roadside assistance; and improvements in monitoring services incorporating global positions system (GPS) and other smart technology.

While the recent safety trend is encouraging, data shows that driver behavior continues to be a major factor in crashes resulting in fatalities and severe injuries. Alcohol consumption, speeding, and failure to wear seatbelts are some of the most harmful and preventable behaviors contributing to fatal and severe injury crashes today. At the same time, driver inattentiveness or distraction is becoming a major factor that corresponds to rises in the proliferation of cell phones and other electronic devices in vehicles. For teens, driver inexperience and inattentiveness are major contributing factors.

Crash data also shows that adult drivers over 65 and teen drivers are over-represented in fatal and severe injury crashes. For example, 15 to 18 year olds make up only seven percent of Minnesota’s total population, yet they represent nearly 15 percent of traffic-related fatalities and serious injuries. Similarly, adults over 65 make up 12 percent of the general population, but account for 20 percent of persons killed in crashes.

Mn/DOT will work with its transportation partners and other stakeholders to address these and other trends by continuing to support actions aimed at preventing crashes altogether and also actions aimed at improving outcomes for those involved in crashes including the following:

- a. Incorporate safety enhancements systematically into state highway and local road projects programmed for construction.
- b. Target law enforcement initiatives toward key areas that are problematic including:
 - Campaigns to reduce impaired driving, aggressive driving, and speeding on all roads like Safe and Sober, and Highway Enforcement of Aggressive Traffic (HEAT).
 - Red-light running and violations of pedestrian crosswalk rules.
 - Enforcement support for commercial vehicle inspections.
- c. Support private health care investments in the emergency trauma care system.

- d. Support educational initiatives including:
- Safe Communities Coalitions and TZD regional efforts.
 - Programs targeted toward high-risk groups that are over represented in fatal and severe injury crashes such as teen and elderly drivers.
 - Work with trucking and agricultural organizations to educate drivers on truck safety regulations and best driving practices.
 - Continue support for education programs to promote rail safety and rail crossing safety, including continued support for national programs, such as Operation Lifesaver.
 - Promote good safety practices in construction and maintenance work zones through Mn/DOT's Work Zone Safety awards program.
 - Work with other transportation agencies and organizations to improve understanding of bicycling and pedestrian crossing rules and compliance.
 - License and train bus drivers including administering the safety, drug and alcohol program through the Rural Transit Assistance Program (RTAP).
- e. Work with railroads to identify and implement railroad crossing safety enhancements such as low-cost improvements to signs and striping, signal upgrades, medians, and quiet zones.



Enhancements are being made to rail crossings to improve safety.

- f. Administer the Safe Routes to School program and provide statewide coordination for local transportation agencies.
- g. Continue to improve decision-support systems like crash records, TIS, and vehicle licensing systems as well as the regional transportation management center (RTMC) where state patrol, state highway maintenance, and traffic operations dispatch are collocated. The goal of these improvements will be to provide more timely and accurate information for analyzing crashes as well as targeting highway improvements and enforcement activities.

1B. System-Wide, Cost-Effective Safety Enhancements

Mn/DOT will pursue system-wide, cost-effective safety investments on the state highway system that addresses fatal and severe injury crashes. The types of investments will be data driven and incorporated into all applicable projects.

Seventy percent of fatal crashes occur on rural highways in Greater Minnesota.

System-wide investments will be targeted toward the types of crashes that most often result in fatalities and/or severe injuries. Based on analysis and conclusions in the 2007 Minnesota Strategic Highway Safety Plan, Mn/DOT will target its state highway safety investments in Greater Minnesota toward improvements that address run-off-the-road; head-on, cross median and sideswipe crashes; and intersection-related crashes.² These types of crashes are typical of those happening on rural highways in Greater Minnesota where 70 percent of Minnesota's fatal crashes occur.

Improvements that address these types of crashes include lower cost safety enhancements like edge-line and centerline rumble strips, cable median barrier, intersection lighting, improved signing and striping, passing lanes, and intersection turn lanes. The implementation of these improvements and others will be discussed and evaluated in detail in forthcoming District Safety Plans that Mn/DOT will prepare for its Greater Minnesota districts.

In the Twin Cities Metropolitan Area, safety investments will be targeted toward intersections and areas that have congestion-related safety problems.

Mn/DOT also tracks high crash intersections and highway segments throughout the state. These lists are used to help identify problem areas as well as potential solutions. When deemed appropriate and cost effective, design modifications are made to the roadway. In the Twin Cities Metropolitan Area, safety investments will be targeted toward intersections and areas that have congestion-related safety problems.

Mn/DOT will work to systematically identify and cost-effectively implement appropriate safety enhancements on the state highway system through normal maintenance as well as other rehabilitation, replacement, and capacity expansion projects. Mn/DOT will also strive to document the location, date, and the kind of safety enhancement(s) implemented as well as quantify the benefit of the improvements through before-and-after studies.

1C. Local Road Safety

State and local road authorities, police, and public health professionals will work together to address safety on the local road system.

Approximately 50 percent of Minnesota's annual traffic-related fatalities occur on the local roadway system. If fatalities and serious injuries are to be reduced statewide, the state recognizes that a significant effort needs to be put toward safety on the local roadway system. To continue to work toward more safe local roads, Mn/DOT through its State Aid Office, Office of Traffic, Safety and Technology (OTST), and district offices will continue to partner with local road authorities, police, community leaders, and public health professionals to reduce the number of fatalities and serious injuries on the local road network. These efforts may include, but are not limited to the following:

- a. Work with city and county engineers to identify system-wide, cost-effective strategies and investment options for targeted safety improvements on the local roadway system.

- b. Apply technology, where appropriate, to aid in local enforcement efforts.
- c. Encourage and support interagency cooperation and safety awareness through safety conferences and pilot projects. This should encourage broader participation and involvement from local law enforcement, emergency response, and health care providers.
- d. Encourage local jurisdictions to set, monitor, and report safety performance measures and targets for their own communities.
- e. Encourage local agencies to enhance safety of pedestrian and bicycle systems through Safe Routes to School programs and other enhancement programs.

1D. Air and Rail Safety

Mn/DOT will continue to monitor and report air safety. Mn/DOT will also continue to monitor, inspect, and report rail accidents, derailments, safety-related rail infrastructure conditions, and will begin issuing citations for rail safety violations.

Data shows the number of fatalities in Minnesota related to plane crashes has been decreasing, even as flight hours have increased. Mn/DOT will continue to monitor air safety issues and will continue to work with local airports to provide and maintain the Minnesota Weather Access System (MnWAS) and Automated Weather Station Systems (AWOS). Mn/DOT will also continue to operate and maintain electronic air navigation aids to augment the federal electronic air navigation system in Minnesota.

Mn/DOT also began issuing citations in early 2009 for rail safety violations.

With respect to rail safety, Mn/DOT will continue to monitor, inspect, and report rail accidents, derailments, and safety-related rail infrastructure conditions. Mn/DOT also began issuing citations in early 2009 for rail safety violations. To support this work, Mn/DOT will begin tracking and reporting train derailments as derailments can be an indicator of quality in railroad maintenance and operations, and can be a public health risk. For example, derailments involving chemical spills may threaten public health. Coinciding with these efforts, Mn/DOT will develop a rail safety plan as a way to target public rail safety efforts.

Performance Measures and Indicators

Performance measures, indicators, and targets provide quantitative information to transportation authorities and decision makers. This information is tracked over time to monitor safety and investment levels as well as the changes in safety given changes in investment levels. Numerous performance measures and indicators have been either developed or identified for this policy area. Measures in **bold** have been selected as prime examples and are presented in this section. A full description of all performance measures and indicators associated with this plan is provided in Appendix D.

- **Fatalities on All Roads**
- Severe or Incapacitating Injuries on All Roads
- Share of Fatal and Severe or Incapacitating Injuries on Urban and Rural Roads
- Motorcycle-Related Fatalities and Severe or Incapacitating Injuries on All Roads
- Heavy Commercial Vehicle-Related Fatalities and Severe or Incapacitating Injuries on All Roads
- Bicycle- and Pedestrian-Related Fatalities and Injuries
- Railroad Crossing-Related Fatalities and Crashes on all Roads
- Dollars Spent on Highway Safety Improvement Program (HSIP) Stand Alone Safety Projects
- Transit Incidents in the Twin Cities Metropolitan Area
- **General Aviation Fatalities**
- General Aviation Accidents
- Passenger Carrier Safety

Developmental Measures

- Miles of Highway with Edge Treatments
- Greater Minnesota Public Transit Safety
- Train Derailments

Fatalities on All Roads

This measure was developed as part of the 2003 Statewide Transportation Plan. It tracks the annual number of vehicle-related fatalities on all state and local roads.³ The number of fatalities on Minnesota roadways between 1995 and 2003 showed an increasing trend. However, since 2003 significant progress has been made in reducing the total fatalities from a high of 655 to 455 in 2008. Figure 7.1.2 shows the fatality trend for all roadways in Minnesota.

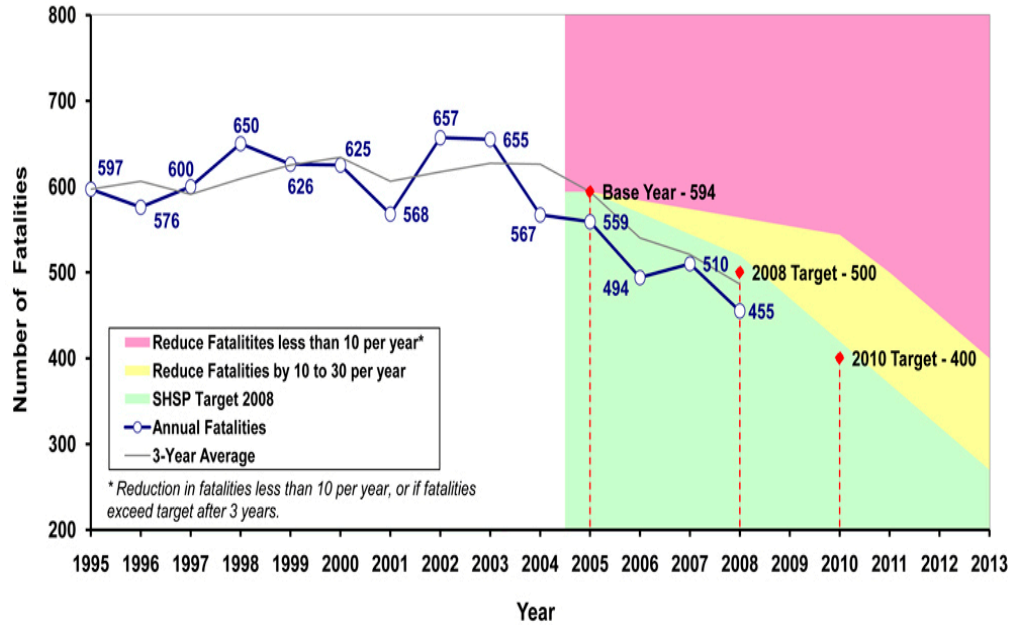


Figure 7.1.2 Minnesota Roadway Fatalities on All State and Local Roads

Source: Mn/DOT Office of Traffic, Safety, and Technology

General Aviation Fatalities

This indicator tracks the annual number of general aviation fatalities as reported and defined by the Federal Aviation Administration (FAA). The National Transportation Safety Board (NTSB) has the responsibility to investigate each aviation crash and determine the cause and corrective actions. The indicator is shown in Figure 7.1.3.

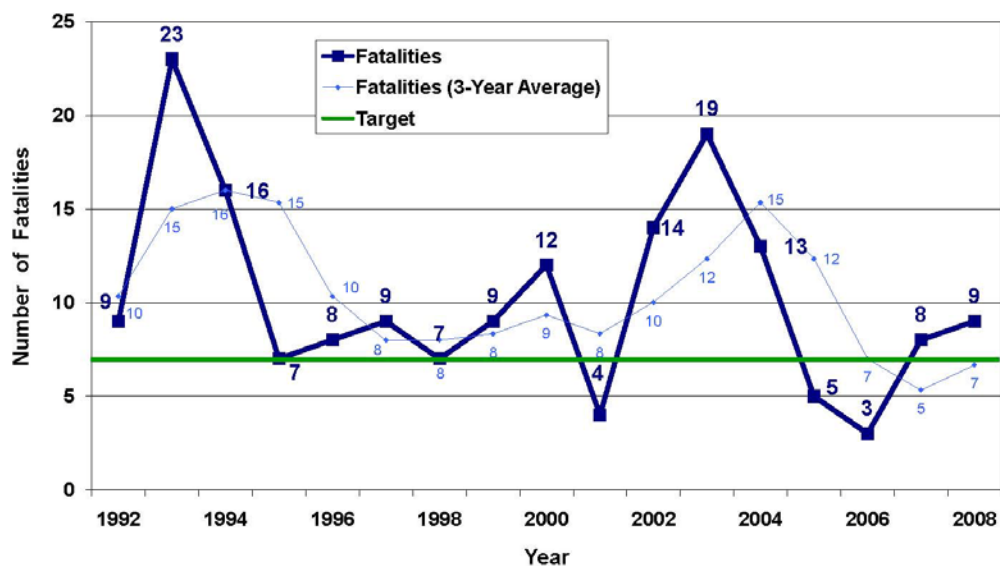


Figure 7.1.3 Fatalities in General Aviation in Minnesota

Source: Mn/DOT Office of Aeronautics

- ¹ TZD began as a partnership between Mn/DOT, the Minnesota Department of Public Safety (DPS), State Patrol, Federal Highway Administration (FHWA), and the Center for Transportation Studies at the University of Minnesota, but has since grown to include many additional stakeholders.
- ² Crash types identified through data analysis that showed an over-representation of fatalities and severe injuries. The focus on these crash types may change over time as crash data changes.
- ³ A fatality is defined as a traffic-related injury that results in an unintentional death within 30 days of a crash.