

# Transportation Safety

MnDOT estimates \$30-33 billion in available funding for the state highway system over the next 20 years. A minimum of \$23.5 billion is needed to manage highest risks and meet legal requirements. This folio provides information on potential Transportation Safety investment strategies, funding levels, and outcomes for the estimated \$7-9 billion of remaining investment.

## 1 | WHAT IS TRANSPORTATION SAFETY?

MnDOT and its partners have made reducing fatalities and serious injuries a top priority through the Toward Zero Deaths initiative (TZD). Through its “Four Es” approach – education, engineering, enforcement, and emergency medical and trauma services - the TZD program has helped reduce the number of fatalities and serious injuries in Minnesota for over a decade. However, the reversal of this trend over the previous year makes it clear more is needed to be done. Transportation Safety investment in MnSHIP is primarily focused on MnDOT’s ability to implement engineering safety strategies. Investment adds new safety improvements for drivers, bicyclists, and walkers to help reach the goal of reducing fatalities and serious injuries.

### GOAL AND OBJECTIVES OF INVESTMENT

The goal of Transportation Safety investment is to safeguard users of the transportation system, applying proven and innovative strategies to reduce fatalities and serious injuries for all transportation users.

To reach this goal, MnDOT has several objectives including:

- Implement strategic and sustainable engineering solutions to improve safety.
- Pursue proactive system-wide, cost-effective and proven safety strategies.
- Explore new opportunities to holistically improve safety for all modes, including bicyclists & pedestrians.
- Continue participation in the comprehensive, collaborative safety initiative Toward Zero Deaths to meet TZD fatality and serious injury goals.

### TYPES OF IMPROVEMENTS

Transportation safety improvements in MnSHIP are focused on engineering solutions to make systemic proactive

improvements throughout the trunk highway system and targeted improvements at locations with a serious/fatal crash history.

Safety improvements are implemented proactively along roadways as part of standard pavement or bridge projects or as standalone investments. These improvements include edge treatments (such as rumble stripes and rumble strips), guardrail and cable median barrier, and pavement markings.

Safety improvements are also made at specific locations with a crash history including higher cost intersection improvements such as roundabouts, reduced-conflict intersections, shared-use paths, and curb extensions.

Pedestrian and bicycle safety improvements are also made on and across the state highway system. These improvements include new and improved crossings, curb extensions at intersections, median refuges, or shared paved shoulders.

### HOW DOES MNDOT CURRENTLY SELECT SAFETY IMPROVEMENTS?

MnDOT currently includes safety improvements as a part of pavement and bridge projects. As these projects are developed, safety improvements are identified which could be made in conjunction with the project. MnDOT also funds safety investments on state highways through the Highway Safety Improvement Program, a federal program. HSIP was established to reduce fatalities and serious injuries on all roads. These funds are distributed among MnDOT Districts and local agencies.





## 2 | WHY IS INVESTING IN TRANSPORTATION SAFETY IMPORTANT?

Transportation Safety investments directly support meeting the state transportation goal to minimize fatalities and injuries for transportation users throughout the state. Vehicle crashes are the leading cause of death for people under the age of 35, and the second leading cause of accidental death in the nation. Crash-related deaths and serious injuries create significant costs for individuals, families, and society. While human life is incalculable for those loved ones of those who have died in traffic crashes, in 2019 traffic crashes resulted in a \$1.8 billion economic loss to the state. The last two years saw a rise in deaths on Minnesota roadways, upending a years long trend of decreasing fatalities. Unlike motor vehicle fatalities, which saw a spike in 2020 and 2021, pedestrian and bicyclist deaths have seen a steady increase in Minnesota and nationwide over the previous decade.

Historically, transportation safety investments have worked to make Minnesota's roads safer for all users of the system. Over the previous 40 years, vehicle crash fatalities have decreased 56% and injuries have decreased 38%, while the fatality rate (deaths per one hundred million miles traveled) has fallen even further, at a 79% decrease. These major improvements have been achieved through a variety of means; education and enforcement has led to decreases in driving under the influence, and advances in vehicle safety technology have made personal vehicles safer than ever, but engineering improvements on the system have also played a key role in fostering a safer environment on Minnesota's roads.

### HOW DOES TRANSPORTATION SAFETY SUPPORT EQUITABLE OUTCOMES?

Transportation safety is a key investment for equitable outcomes for the transportation system. This is especially the case for investing in pedestrian and bicycle safety improvements. Many Minnesotans rely on walking or bicycling and cannot drive due to age, disability, immigration status, poverty, and other factors. Making safety improvements for walkers and bicyclists, not just drivers, helps to improve safety for the most vulnerable users.

### HOW DOES MNDOT MEASURE PERFORMANCE, CONDITION, OR OUTCOMES?

MnDOT measures transportation safety improvements in the number of projects implemented, and in the reduction of fatal and serious injury crashes across the entire roadway system.

Preliminary data show that more than one person died every day in 2020 on Minnesota roads (394) and more than four were seriously injured. Of those traffic deaths, 46 were pedestrians and 10 were bicyclists. The Strategic Highway Safety Plan has set a target for no more than 225 fatalities and 980 injuries by 2025.

### 3 | OPTIONS FOR INVESTING OVER THE NEXT 20 YEARS

#### Federal Highway Safety Improvement Program

The existing federal Highway Safety Improvement Program (HSIP) provides funding for safety improvements on roadways throughout the state. Funding from the program is split between local roadways (70%) and state highways (30%). MnDOT anticipates **\$387 million** to be spent for safety improvements on the state system. This would result in 110 projects being implemented on the state system which could lead to 75 to 125 lives saved and 175 to 225 serious injuries prevented.

Below are additional strategies MnDOT could implement to investment in additional safety improvements on the state highway system.

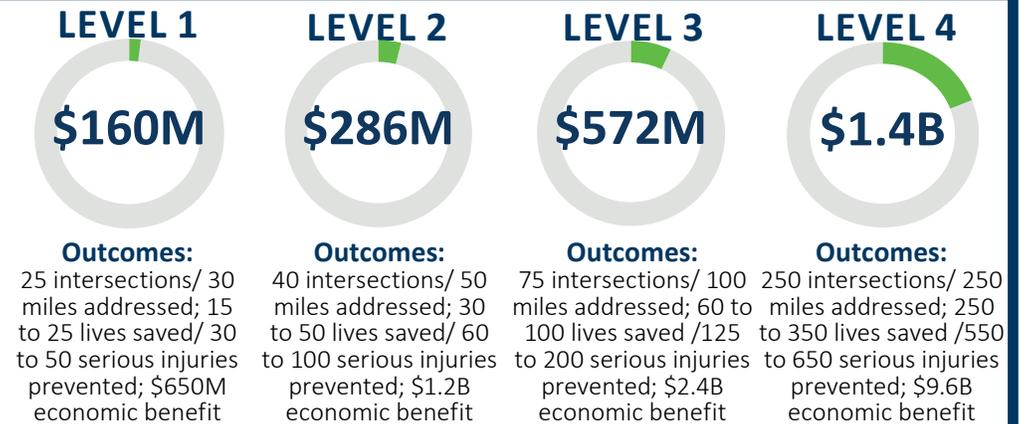
#### Safety Improvements as part of Pavement Projects

The **minimum level** MnDOT would invest in safety improvements done as a standard practice with pavement projects is **\$327 million** which would reduce the ability to invest in safety improvements



#### State Safety Program

The **minimum level** MnDOT would invest in a state funded standalone safety program is **\$0**.



#### Pedestrian and Bicycle Safety Program

The **minimum level** MnDOT would invest in bicycle and pedestrian related safety improvements is **\$24 million**. This would result in 2,000 intersection or segment improvements implemented through the STIP which could lead to 16 to 32 serious or fatal pedestrian/bicycle crashes prevented. These investments are typically made as part of existing projects. At higher levels, MnDOT would fund a dedicated safety program for pedestrian and bicycle safety improvements.



**\$X.X** Total cost of investment level

- Portion of remaining \$7-9 billion investment for level
- Remaining investment available for other priorities

## 4 | TRANSPORTATION SAFETY RISKS

### WHAT ARE THE RISKS OF UNDERINVESTING?

As a part of developing performance levels for various programs and strategies, MnDOT also identified the risk to underinvesting in Transportation Safety. Five risks were identified as low to high risks based on investment at the minimum investment level for Transportation Safety. The five risks and their impacts are identified below.

#### MEDIUM RISKS

**Risk:** Inability to implement new proactive safety treatments

**Impact:** Fatal and serious injury crashes could increase and public trust in the agency could be reduced

**Risk:** Reduced educational or enforcement programs like MnDOT's TZD program

**Impact:** Risky driving behaviors like inattentive driving and driving under the influence could increase leading to serious injury and fatal crashes increasing as well

**Risk:** Limited ability to invest in pedestrian and bicycle infrastructure

**Impact:** Fatal and serious injury crashes could increase for pedestrians and bicyclists

There are an additional two risks which grow with added investments for Transportation Safety.

#### LOW RISKS

**Risk:** New and existing safety infrastructure may not be able to be maintained due to limited maintenance budgets

**Impact:** Reduced effectiveness of safety infrastructure could result in a less safe transportation system for all vehicle classes

**Risk:** An increase in safety investments and infrastructure requiring additional staff time and agency resources

**Impact:** Staffing costs could increase due to increased need for planning and engagement. Fewer or less impactful projects could be implemented.



### WHAT LEVELS OF INVESTMENT REDUCES THE RISKS' SEVERITY?

The table below provides a summary of how risk levels changed with increased investment in Transportation Safety.

RISK STATEMENT	SHIFT FROM MEDIUM TO LOW RISK	SHIFT FROM LOW TO MEDIUM RISK
Inability to implement new proactive safety treatments	Investment level 1	N/A
Reduced educational or enforcement programs like MnDOT's TZD program	Investment level 2	N/A
Limited ability to invest in pedestrian and bicycle infrastructure	Investment level 2	N/A
New and existing safety infrastructure may not be able to be maintained due to limited maintenance budgets	N/A	Investment level 2
An increase in safety investments and infrastructure requiring additional staff time and agency resources	N/A	Investment level 2

To find out more details about Transportation Safety planning and projects, go to:

**Project Selection:**

[www.dot.state.mn.us/projectselection/](http://www.dot.state.mn.us/projectselection/)

**Toward Zero Deaths:** [www.minnesotatzd.org/](http://www.minnesotatzd.org/)

**Strategic Highway Safety Plan:** [www.dot.state.mn.us/trafficeng/safety/shsp/index.html](http://www.dot.state.mn.us/trafficeng/safety/shsp/index.html)

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