



MINNESOTA

HIGHWAY SAFETY IMPROVEMENT PROGRAM 2021 ANNUAL REPORT



U.S. Department of Transportation
Federal Highway Administration

Photo Source:

Photo by Rich Kemp, Minnesota Department of Transportation.
(<https://www.newsline.dot.state.mn.us/images/20/April/01/Message%20Monday-COVID19-March302020-001.jpg>)

Table of Contents

Disclaimer 3
 Protection of Data from Discovery Admission into Evidence 3
Executive Summary 4
Introduction 5
Program Structure..... 5
 Program Administration 5
 Program Methodology 7
Project Implementation 10
 Funds Programmed..... 10
 General Listing of Projects 12
Safety Performance 20
 General Highway Safety Trends..... 20
 Safety Performance Targets..... 25
 Applicability of Special Rules..... 27
Evaluation 28
 Program Effectiveness 28
 Effectiveness of Groupings or Similar Types of Improvements 28
 Project Effectiveness 34
Compliance Assessment 35
Optional Attachments..... 38
Glossary..... 39

Disclaimer

Protection of Data from Discovery Admission into Evidence

23 U.S.C. 148(h)(4) states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section[HSIP], shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location identified or addressed in the reports, surveys, schedules, lists, or other data.

23 U.S.C. 148(h)(4) states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section[HSIP], shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location identified or addressed in the reports, surveys, schedules, lists, or other data.23 U.S.C. 409 states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.”

Executive Summary

The many challenges of 2020 are reflected in changes to transportation behavior and ultimately into traffic safety. Over the preceding five years, fatalities and serious injuries have decreased approximately 9% annually; this year, there was a 3% increase in serious injuries and 8% increase in fatalities.

These increases in deadly outcomes were coupled with a 15% reduction in vehicle miles traveled. Further analysis shows that the COVID-19 pandemic may have resulted in poorer traffic safety culture. Increases in high risk behavior may be fueling the increases in strategic focus areas (e.g. rises in speed, motorcycle, unbelted, and impaired fatal and serious injury crashes). Single vehicle run-off-road crashes--more prevalent in rural areas and correlated to these high risk behaviors--in turn rose in 2020.

Changing travel patterns impacted these severe crashes. Vehicle traffic shifted from the state system to the county and city roads--with a similar pattern in fatal and serious injury crashes. Based on statewide continuous monitoring sites, walking and bicycling nearly doubled. This resulted in an increase in vehicle-bicycle severe crashes but not in pedestrian crashes.

Many of these patterns confirm that Minnesota should continue to support our HSIP initiatives while exploring new strategies to ensure there is not a plateau in traffic safety. Minnesota uses a Toward Zero Deaths initiative to coordinate regional, grassroots safety efforts. This inter-agency, inter-disciplinary approach has consistently focused on improving traffic safety culture and driver behaviors including impairment, speeding, distraction, and seat belt use.

The Department of Transportation distributes HSIP funds geographically across all regions, setting aside funds for local agencies. Proactive safety and local planning have allowed wide-deployment of traffic safety countermeasures across all public roads, particularly the state and county systems.

New Strategic Highway Safety Plan action teams and evaluation of the existing TZD organizational structure will help direct further statewide strategies to ensure Minnesota can return to mitigating these severe outcomes.

Introduction

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. As per 23 U.S.C. 148(h) and 23 CFR 924.15, States are required to report annually on the progress being made to advance HSIP implementation and evaluation efforts. The format of this report is consistent with the HSIP Reporting Guidance dated December 29, 2016 and consists of five sections: program structure, progress in implementing highway safety improvement projects, progress in achieving safety outcomes and performance targets, effectiveness of the improvements and compliance assessment.

Program Structure

Program Administration

Describe the general structure of the HSIP in the State.

The Minnesota HSIP program is split between Local and State projects. MnDOT Office of Traffic Engineering (OTE)--formerly Office of Traffic, Safety and Technology (OTST)--solicits projects from local governing units for the next four years; a parallel solicitation for State projects is issued to the districts. These solicitations aim to fully program safety projects in the next two years, but projects three to four years out are awarded to ensure planning. A parallel process is conducted within the Minneapolis-St Paul Metro that is coordinated through the MPO. Funding is distributed between Local and State based on fatal and serious injury crashes; distribution between each district or Area Transportation Partnership is based on the location of these fatal and serious injury crashes.

OTE approves all State and Local HSIP projects before they are entered in the STIP: the award memo received is the basis for being allowed to enter the STIP.

Where is HSIP staff located within the State DOT?

Operations

How are HSIP funds allocated in a State?

- Central Office via Statewide Competitive Application Process
- Formula via Districts/Regions

Describe how local and tribal roads are addressed as part of HSIP.

MnDOT distributes funds to local roads through the Greater Minnesota Combined Solicitation. OTE with representatives from State-Aid and MnDOT District Traffic Engineers, prioritize the local HSIP projects for each Area Transportation Partnership (ATP). Districts are given the opportunity to comment on the prioritization of projects.

The allocation of HSIP funds is based on the distribution of fatal and A-injury crashes. Funds are distributed as follows:

Step 1: Funds are split based on % of K and A crashes in each District.

Step 2: Funds are split again based on % of K and A crashes occurring on State vs. local system.

2021 Minnesota Highway Safety Improvement Program

After the new crash reporting system was implemented in 2016, Minnesota experienced an increase in Suspected Serious Injury (A) crashes. This change was not uniform across all roadway jurisdictions. MnDOT is in the process of updating the HSIP targets based on the updated crash data. Current HSIP targets are approximately 40% state agency, 60% local agencies; revised targets would change the HSIP targets to approximately 30% state agency, 70% local agencies. While the methodology has been outlined, MnDOT is working to finalize the programming targets anticipated for 2026 or 2027.

MnDOT has worked to develop a County Road Safety Plan for all 87 counties within the state based on systemic risk assessment. These plans are given priority in the selection process. Stand-alone safety projects rather than countermeasures within larger projects are given priority.

A subset of counties has opted to join OTE in updating the County Road Safety Plan. This phased update is continuing.

Identify which internal partners (e.g., State departments of transportation (DOTs) Bureaus, Divisions) are involved with HSIP planning.

- Districts/Regions
- Local Aid Programs Office/Division
- Planning
- Traffic Engineering/Safety

Describe coordination with internal partners.

MnDOT's Office of Traffic Engineering (OTE) works closely with the State Aid for Local Transportation (SALT) office as well as district traffic engineers in the distribution of HSIP funds.

A representative from the State Aid office sits on the both the steering and selection committees for HSIP. The offices work together to educate local agencies and district personnel on the HSIP program. Once projects are selected the state aid office coordinates with the local agencies and provides support as necessary.

The HSIP project selection committee asks for input from the district traffic engineers during the selection and award processes. District traffic engineers provide vital background information on proposed projects as well as adding the local perspective. Additionally, local partners are asked to provide some documentation that the district traffic engineer is aware of and supportive of their prospective project if it impacts MnDOT roadways.

MnDOT also holds quarterly TEO (Traffic Engineering Organization) Safety Subcommittee meetings, at which additional HSIP coordination occurs.

Identify which external partners are involved with HSIP planning.

- FHWA
- Governors Highway Safety Office
- Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
- Other-City Engineer Safety Committee
- Other-County Engineer Safety Committee

Describe coordination with external partners.

Districts and Counties collaborate extensively to develop and implement safety plans as funded by HSIP; a subset of Minnesota's 87 counties have opted in to updating these plans.

2021 Minnesota Highway Safety Improvement Program

MPOs review the priorities of the HSIP selection committees to ensure compliance with long range goals. The annual HSIP solicitation briefings provide an overview of the process.

MnDOT planning staff and FHWA completed a review of coordination with MPOs across all programs. The report highlighted HSIP coordination in Greater Minnesota (i.e. outside Twin Cities metro) needs improvement. The HSIP solicitation guidance has been updated to place greater emphasis on early coordination with MPOs.

Minnesota's Toward Zero Deaths program is the primary way local partners can integrate and become involved in Statewide safety programming. TZD regional coordinators build coalitions through outreach and workshops helping to direct action among local partners.

Program Methodology

Does the State have an HSIP manual or similar that clearly describes HSIP planning, implementation and evaluation processes?

Yes
See attachment "HSIP funding guide FINAL.pdf" for current guidance. Minnesota anticipates updating the HSIP manual to better reflect the process for how applicants will coordinate and solicit approval from our eight Metropolitan Planning Organizations. This document is anticipated in late 2021 or early 2022.

Select the programs that are administered under the HSIP.

- HSIP (no subprograms)

Program: HSIP (no subprograms)

Date of Program Methodology: 8/1/2015

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes	Exposure	Roadway
<ul style="list-style-type: none">• Fatal and serious injury crashes only	<ul style="list-style-type: none">• Volume• Lane miles	

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Critical rate
- Excess proportions of specific crash types
- Probability of specific crash types

Are local roads (non-state owned and operated) included or addressed in this program?

Yes

Are local road projects identified using the same methodology as state roads?

Yes

How are projects under this program advanced for implementation?

- Competitive application process
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Ranking based on B/C:5

Available funding:5

Cost Effectiveness:5

Other-Treatment Effectiveness:5

Other-Site Selection: planning or spot location:5

What percentage of HSIP funds address systemic improvements?

67

HSIP funds are used to address which of the following systemic improvements?

- Add/Upgrade/Modify/Remove Traffic Signal
- Cable Median Barriers
- Clear Zone Improvements
- Horizontal curve signs
- Install/Improve Lighting
- Install/Improve Pavement Marking and/or Delineation
- Install/Improve Signing
- Pavement/Shoulder Widening
- Rumble Strips
- Safety Edge

What process is used to identify potential countermeasures?

- Crash data analysis
- Data-driven safety analysis tools (HSM, CMF Clearinghouse, SafetyAnalyst, usRAP)
- Road Safety Assessment
- SHSP/Local road safety plan

Does the State HSIP consider connected vehicles and ITS technologies?

Yes

Describe how the State HSIP considers connected vehicles and ITS technologies.

Connected vehicle and ITS projects are considered for HSIP funding in Minnesota. Funds for these initiatives are available from multiple sources, so while the projects are competitive in HSIP solicitation, investments and investigations in Minnesota have been funded outside of HSIP. MnDOT has created a standalone Connected Autonomous Vehicle (CAV-X) office to advance connected and automated vehicle and other advanced ITS technologies in Minnesota; a minimal amount of Section 164 funds will help support safety investigations in these areas. www.mndot.gov/automated/index.html

The Minnesota CAV-X office is funded separate from HSIP with state money set aside by the Legislature. ITS projects will continue to be competitive in HSIP solicitation rather than program support.

Does the State use the Highway Safety Manual to support HSIP efforts?

Yes

Please describe how the State uses the HSM to support HSIP efforts.

Minnesota does not use the more advanced, predictive methods in the HSM. However, CMFs are used to rank and select reactive safety projects.

Central Office performs a limited form of Highway Safety Manual analysis at the request of District Traffic Engineering staff. Reactive projects use a simplified form of HSM methods. Spot location projects are evaluated based on prior crash history weighted by the appropriate crash modification factor for the crash type and countermeasure proposed; the resulting benefit-cost ratio is used to prioritize which of these reactive projects receive funding. While training on the HSM predictive analysis continues, widespread use for proactive projects has not been adopted: Minnesota has developed risk factors for proactive projects rather than a prediction of total crashes.

Currently the full HSM predictive models and IHSDM software are used for corridor studies and larger MnDOT projects to evaluate alternatives.

Project Implementation

Funds Programmed

Reporting period for HSIP funding.

State Fiscal Year

Enter the programmed and obligated funding for each applicable funding category.

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	\$28,804,603	\$13,189,169	45.79%
HRRR Special Rule (23 U.S.C. 148(g)(1))	\$0	\$0	0%
Penalty Funds (23 U.S.C. 154)	\$0	\$0	0%
Penalty Funds (23 U.S.C. 164)	\$12,509,823	\$8,823,129	70.53%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	\$0	\$0	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	\$0	\$0	0%
State and Local Funds	\$0	\$0	0%
Totals	\$41,314,426	\$22,012,298	53.28%

How much funding is programmed to local (non-state owned and operated) or tribal safety projects?

\$14,770,986

How much funding is obligated to local or tribal safety projects?

\$460,851

Minnesota distributes HSIP funds to local partners: 36% of the safety funds were programmed to local projects.

How much funding is programmed to non-infrastructure safety projects?

\$2,252,000

How much funding is obligated to non-infrastructure safety projects?

\$1,252,000

How much funding was transferred in to the HSIP from other core program areas during the reporting period under 23 U.S.C. 126?

\$0

How much funding was transferred out of the HSIP to other core program areas during the reporting period under 23 U.S.C. 126?

\$36,865,819

Due to uncertainties in 2020, Minnesota sought to smooth apportionment across programs. Currently, Minnesota programs to 100 percent of apportionment; while this change is relatively new yet, we expect to see improvements in HSIP over time relative to other programs.

Discuss impediments to obligating HSIP funds and plans to overcome this challenge in the future.

MnDOT now programs HSIP funds to 100% apportionment and will monitor for effects on obligation rate. We expect this over-programming of safety will continue to raise the obligation rate. OTE continues to have on-going discussions with MnDOT Districts on creating shelf ready safety projects to better capitalize on any cost-savings in the HSIP projects.

General Listing of Projects

List the projects obligated using HSIP funds for the reporting period.

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
#0122016 (SP 0104-06) DISTRICT-1	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	16.7	Miles	\$99723	\$110803	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
#0221122 (SP 0283-34) METRO DISTRICT	Roadside	Barrier – cable	2	Miles	\$261000	\$290000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	High tension cable median barrier
#0321018 (SP 0306-31S) DISTRICT-4	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	29.4	Miles	\$896397	\$995997	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	Widen shoulders
#0321018 (SP 0306-31S) DISTRICT-4	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	1	Duplicate project	\$207460	\$207460	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	Widen shoulders
#0002342 (SP 0406-67S) DISTRICT-2	Intersection geometry	Innovative Intersection (e.g. MUT, RCUT, QR)	5	Intersections	\$604352	\$671502	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Intersections	Reduced conflict intersection
#0521133 (SP 0502-116) DISTRICT-3	Roadside	Barrier – cable	10	Miles	\$1176815	\$1307572	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	High tension cable median barrier
#1121155 (SP 1110-15) DISTRICT-3	Roadway	Rumble strips – edge or shoulder	27	Miles	\$359293	\$359293	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	Rumble stripEs
#1321086 (SP 1301-118) METRO DISTRICT	Intersection geometry	Add/modify auxiliary lanes	1	Intersections	\$744429	\$827144	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Spot	Intersections	Reduce rear-ends; intersection lighting
#8120251 (SP 172-010-004) DISTRICT-7	Pedestrians and bicyclists	Rapid Rectangular Flashing Beacons (RRFB)	0.4	Miles	\$353698	\$353698	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Spot	Pedestrians	Improve midblock crossings
#0316302 (SP 1926-22S) METRO DISTRICT	Intersection traffic control	Modify control – Modern Roundabout	3	Intersections	\$1800000	\$1800000	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Spot	Intersections	Roundabout

2021 Minnesota Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
#2121026 (SP 2180-127) DISTRICT-4	Roadside	Roadside - other	1.98	Miles	\$676697	\$751885	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	Reduce winter weather crashes
#2421006 (SP 2481-60) DISTRICT-6	Roadside	Barrier – cable	5	Miles	\$644694	\$644694	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	High tension cable median barrier
#0012319 (SP 2713-123) METRO DISTRICT	Intersection traffic control	Modify control – Modern Roundabout	1.1	Miles	\$4204800	\$4672000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Spot	Intersections	Roundabout
#2721229 (SP 2713-124S) METRO DISTRICT	Intersection traffic control	Modify control – Modern Roundabout	1	Intersections	\$2000000	\$2000000	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Spot	Intersections	Roundabout
#2721066 (SP 2713-134) METRO DISTRICT	Miscellaneous	Road safety audits	1	Study	\$1000000	\$1000000	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Spot	Data	Safety studies
#2722013 (SP 2763-62) METRO DISTRICT	Lighting	Continuous roadway lighting	1.8	Miles	\$450000	\$500000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Intersections	Intersection lighting
#1940039 (SP 2786-132S) METRO DISTRICT	Lighting	Interchange lighting	0.5	Miles	\$107415	\$119350	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Spot	Intersections	Intersection lighting
#3421069 (SP 3412-73S) DISTRICT-8	Lighting	Interchange lighting	1	Intersections	\$1608184	\$1786871	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Intersections	Intersection lighting
#4021071 (SP 4006-35S) DISTRICT-7	Roadside	Slope Flattening	16.7	Miles	\$1157794	\$1387132	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Intersections	Improve sight distances
#5522014 (SP 5501-40) DISTRICT-6	Roadside	Barrier – cable	7.2	Miles	\$897300	\$997000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	High tension cable median barrier
#5521007 (SP 5580-98) DISTRICT-6	Roadside	Barrier – cable	5.8	Miles	\$862640	\$862640	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	High tension cable median barrier

2021 Minnesota Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
#5821130 (SP 5880-198) DISTRICT-1	Roadside	Barrier – cable	8.8	Miles	\$1886905	\$1886905	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	High tension cable median barrier
#6921062 (SP 6918-95) DISTRICT-1	Roadside	Barrier – cable	3.3	Miles	\$532950	\$592167	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	High tension cable median barrier
#7421117 (SP 7408-53) DISTRICT-6	Roadside	Barrier – cable	5.6	Miles	\$556090	\$617878	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	High tension cable median barrier
#8521123 (SP 8504-83) DISTRICT-6	Advanced technology and ITS	Dynamic message signs	1	Intersections	\$250000	\$398587	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Spot	Intersections	Improve visibility
#8821207 (SP 880C-SPE-21) STATEWIDE	Miscellaneous	Transportation safety planning	1	Manual	\$99000	\$99000	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	Non-infrasture	Systemic	Data	Safety studies
#8822035 (SP 880C-TZD-21) STATEWIDE	Miscellaneous	Transportation safety planning	8	Regional coordinators	\$48606	\$48606	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	Non-infrasture	Systemic	Traffic Safety Culture & Awareness	Improve traffic safety culture
#8822035 (SP 880C-TZD-21) STATEWIDE	Miscellaneous	Transportation safety planning	1	Duplicate project	\$751394	\$751394	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	Non-infrasture	Systemic	Traffic Safety Culture & Awareness	Improve traffic safety culture
#8821084 (SP 8816-3142) STATEWIDE	Miscellaneous	Transportation safety planning	1	Study	\$250000	\$250000	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	Non-infrasture	Systemic	Traffic Safety Culture & Awareness	Improve traffic safety culture
#8821056 (SP 8816-3151) STATEWIDE	Pedestrians and bicyclists	Pedestrian signal - other	150	Intersections	\$102770	\$102770	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Pedestrians	Improve signal operations
#8821054 (SP 8822-234) DISTRICT-2	Lighting	Intersection lighting	20	Intersections	\$448188	\$448188	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Intersections	Intersection lighting
#8821047 (SP 8824-183) DISTRICT-4	Lighting	Intersection lighting	12	Intersections	\$304332	\$338147	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Intersections	Intersection lighting
#8821118 (SP 8826-	Roadway	Rumble strips – edge or shoulder	100	Miles	\$474197	\$526885	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	Rumble stripEs

2021 Minnesota Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
216) DISTRICT-6															
#8821028 (SP 8827-339) DISTRICT-7	Lighting	Intersection lighting	5	Intersections	\$269421	\$269421	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Intersections	Intersection lighting
#8821031 (SP 8827-340) DISTRICT-7	Lighting	Intersection lighting	3	Intersections	\$51944	\$51944	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Intersections	Intersection lighting
#8821044 (SP 8828-247) DISTRICT-8	Advanced technology and ITS	Dynamic message signs	3	Signs	\$134213	\$134213	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Spot	Intersections	Improve visibility
#8821045 (SP 8828-248) DISTRICT-8	Intersection traffic control	Pavement markings	78	Intersections	\$73560	\$73560	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Intersections	Delineate intersection maneuvers
#8821046 (SP 8828-249) DISTRICT-8	Roadway delineation	Delineators post-mounted or on barrier	40	Miles	\$94340	\$94340	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Systemic	Lane Departure	Delinate roadway
#8821073 (SP 8828-259) DISTRICT-8	Miscellaneous	Transportation safety planning	1	Study	\$90000	\$90000	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	State Highway Agency	Spot	Data	Safety studies
#6921055 (SP 069-070-040; 6917-147) DISTRICT-1	Intersection geometry	Innovative Intersection (e.g. MUT, RCUT, QR)	1	Intersections	\$460690	\$514850	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Intersections	Reduced conflict intersection
#0121202 (SP 001-070-008) DISTRICT-1	Roadway signs and traffic control	Curve-related warning signs and flashers	101	Curves	\$90900	\$101000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Delineate curves
#0421186 (SP 004-070-032) DISTRICT-2	Roadway	Rumble strips – edge or shoulder	12.7	Miles	\$33802	\$37558	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Rumble stripEs
#0521195 (SP 005-070-008) DISTRICT-3	Roadway delineation	Wider Edge Lines (6 inch markings)	5.5	Miles	\$34098	\$37887	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines

2021 Minnesota Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
#0821022 (SP 008-070-006) DISTRICT-7	Roadway	Rumble strips – edge or shoulder	9	Miles	\$495000	\$632936	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
#0921165 (SP 009-070-009; 009-070-010) DISTRICT-1	Roadway	Rumble strips – edge or shoulder	15.3	Miles	\$640968	\$712186	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
#1021206 (SP 010-030-008) METRO DISTRICT	Lighting	Intersection lighting	35	Intersections	\$310050	\$344500	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Intersections	Intersection lighting
#1121213 (SP 011-070-009) DISTRICT-3	Roadway delineation	Wider Edge Lines (6 inch markings)	130	Intersections	\$135000	\$150000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Intersections	Delineate intersection maneuvers
#1721109 (SP 017-070-004) DISTRICT-7	Roadway	Rumble strips – edge or shoulder	6.3	Miles	\$251250	\$279167	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
#1821182 (SP 018-070-015) DISTRICT-3	Roadway delineation	Wider Edge Lines (6 inch markings)	41	Miles	\$107152	\$119058	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
#2721068 (SP 027-605-030) METRO DISTRICT	Intersection traffic control	Modify traffic signal timing – left-turn phasing	1	Intersections	\$534600	\$594000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Spot	Pedestrians	Improve signal operations
#2721100 (SP 027-681-037) METRO DISTRICT	Intersection traffic control	Modify traffic signal timing – left-turn phasing	1	Intersections	\$636300	\$707000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Spot	Pedestrians	Improve signal operations
#3021178 (SP 030-070-013) DISTRICT-3	Roadway delineation	Wider Edge Lines (6 inch markings)	17.4	Miles	\$88865	\$98739	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
#3421201 (SP 034-070-012) DISTRICT-8	Roadway delineation	Wider Edge Lines (6 inch markings)	49.7	Miles	\$155616	\$172907	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
#4221231 (SP 042-070-012) DISTRICT-8	Roadway delineation	Longitudinal pavement markings remarking	91.8	Miles	\$350000	\$408623	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines

2021 Minnesota Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
#4321216 (SP 043-070-015) DISTRICT-8	Roadway delineation	Wider Edge Lines (6 inch markings)	90	Miles	\$54629	\$60699	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
#4721135 (SP 047-070-013) DISTRICT-8	Lighting	Intersection lighting	15	Intersections	\$161979	\$179977	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Intersections	Intersection lighting
#4921176 (SP 049-070-024) DISTRICT-3	Roadway	Rumble strips – edge or shoulder	13.5	Miles	\$472148	\$2114595	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
#4921175 (SP 049-070-025) DISTRICT-3	Roadway	Rumble strips – edge or shoulder	11.2	Miles	\$383651	\$1719634	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
#5621214 (SP 056-070-027) DISTRICT-4	Roadway delineation	Longitudinal pavement markings remarking -	279.2	Miles	\$182178	\$202420	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
#6521199 (SP 065-070-011) DISTRICT-8	Roadway delineation	Longitudinal pavement markings remarking -	128.2	Miles	\$76726	\$193889	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
#6621146 (SP 066-070-023) DISTRICT-6	Roadway	Rumble strips – edge or shoulder	8.9	Miles	\$333340	\$2523696	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
#7020119 (SP 070-602-023) METRO DISTRICT	Intersection traffic control	Modify control – Modern Roundabout	1	Intersections	\$1906409	\$2391232	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Spot	Intersections	Roundabout
#7121064 (SP 071-070-041) DISTRICT-3	Lighting	Intersection lighting	8	Intersections	\$372600	\$414000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Intersections	Intersection lighting
#7221067 (SP 072-070-009) DISTRICT-7	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	3	Miles	\$502800	\$1998057	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Widen shoulders
#7721187 (SP 077-070-015) DISTRICT-3	Roadway delineation	Longitudinal pavement markings remarking -	30.9	Miles	\$143081	\$158978	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines

2021 Minnesota Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
#7921090 (SP 079-070-017) DISTRICT-6	Roadway	Rumble strips – edge or shoulder	8.5	Miles	\$525116	\$2907800	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
#7922010 (SP 079-070-019) DISTRICT-6	Lighting	Intersection lighting	38	Intersections	\$252225	\$280250	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Intersections	Intersection lighting
#7921230 (SP 079-070-020) DISTRICT-6	Roadway delineation	Longitudinal pavement markings remarking	4.6	Miles	\$400000	\$2588494	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Rumble stripEs
#8021232 (SP 080-070-010) DISTRICT-3	Roadway signs and traffic control	Curve-related warning signs and flashers	36	Curves	\$50760	\$56400	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Delineate curves
#8121032 (SP 081-070-002) DISTRICT-7	Lighting	Intersection lighting	2	Intersections	\$42000	\$42000	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	County Highway Agency	Systemic	Intersections	Intersection lighting
#8321149 (SP 083-070-014) DISTRICT-7	Roadway	Rumble strips – edge or shoulder	6.9	Miles	\$90000	\$1425000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
#8321150 (SP 083-070-015) DISTRICT-7	Roadway	Rumble strips – edge or shoulder	8.7	Miles	\$64800	\$1680000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
#8721227 (SP 087-070-018) DISTRICT-8	Roadway delineation	Wider Edge Lines (6 inch markings)	82.9	Miles	\$48496	\$53884	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
#8821219 (SP 088-070-059) DISTRICT-2	Roadway delineation	Longitudinal pavement markings remarking	374.6	Miles	\$425635	\$472928	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
#8821156 (SP 088-070-067) DISTRICT-1	Roadway delineation	Wider Edge Lines (6 inch markings)	190.9	Miles	\$818000	\$966486	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
#8821203 (SP 088-070-071) DISTRICT-4	Roadway delineation	Wider Edge Lines (6 inch markings)	1421.6	Miles	\$969341	\$1077046	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Enhanced edgelines

2021 Minnesota Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
#8821173 (SP 088-070-074) DISTRICT-2	Lighting	Intersection lighting	25	Intersections	\$314820	\$349800	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Intersections	Intersection lighting
#8821183 (SP 088-070-075; 074-070-006; 081-070-001) DISTRICT-7	Roadway	Rumble strips – edge or shoulder	10.3	Miles	\$370800	\$1222800	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
#2720174 (SP 141-030-047) METRO DISTRICT	Intersection traffic control	Modify traffic signal timing – left-turn phasing	5	Intersections	\$1485000	\$2196876	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	City or Municipal Highway Agency	Systemic	Pedestrians	Improve intersection crossings
#8821233 METRO DISTRICT	Miscellaneous	Transportation safety planning	1	Peer exchange	\$13000	\$13000	Penalty Funds (23 U.S.C. 164)	N/A	N/A	0	0	Non-infrasture	Systemic	Traffic Safety Culture & Awareness	Improve outreach and coordination with safety partners

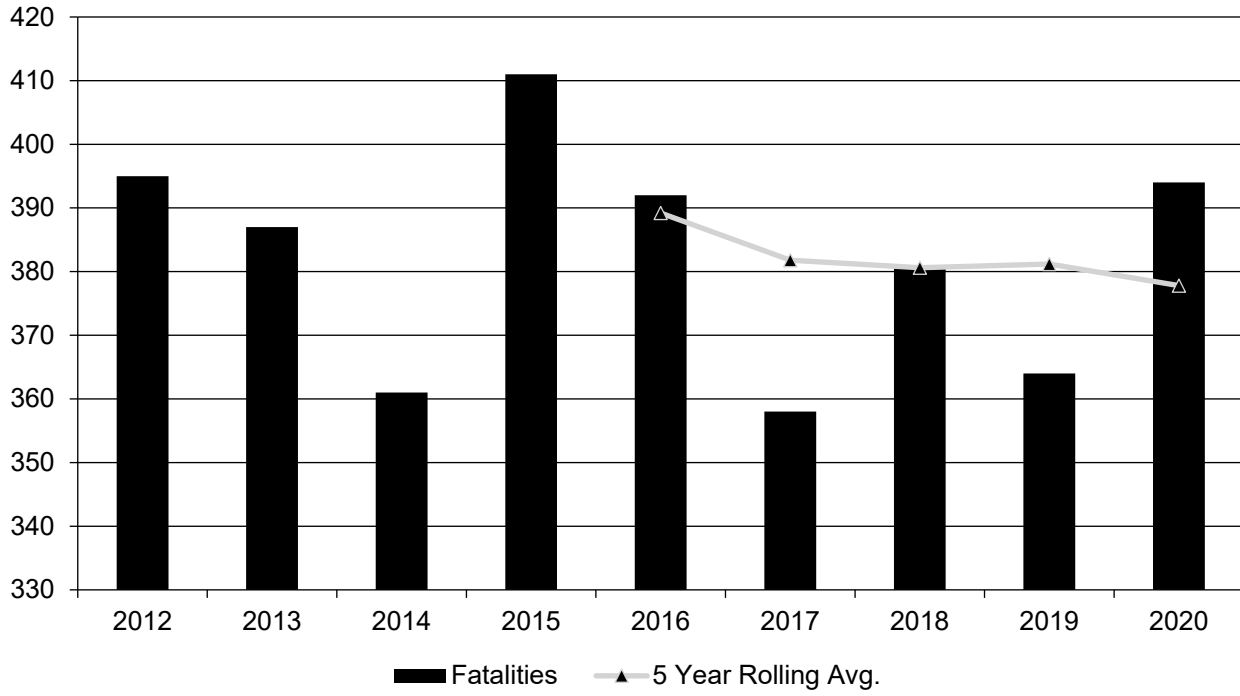
Safety Performance

General Highway Safety Trends

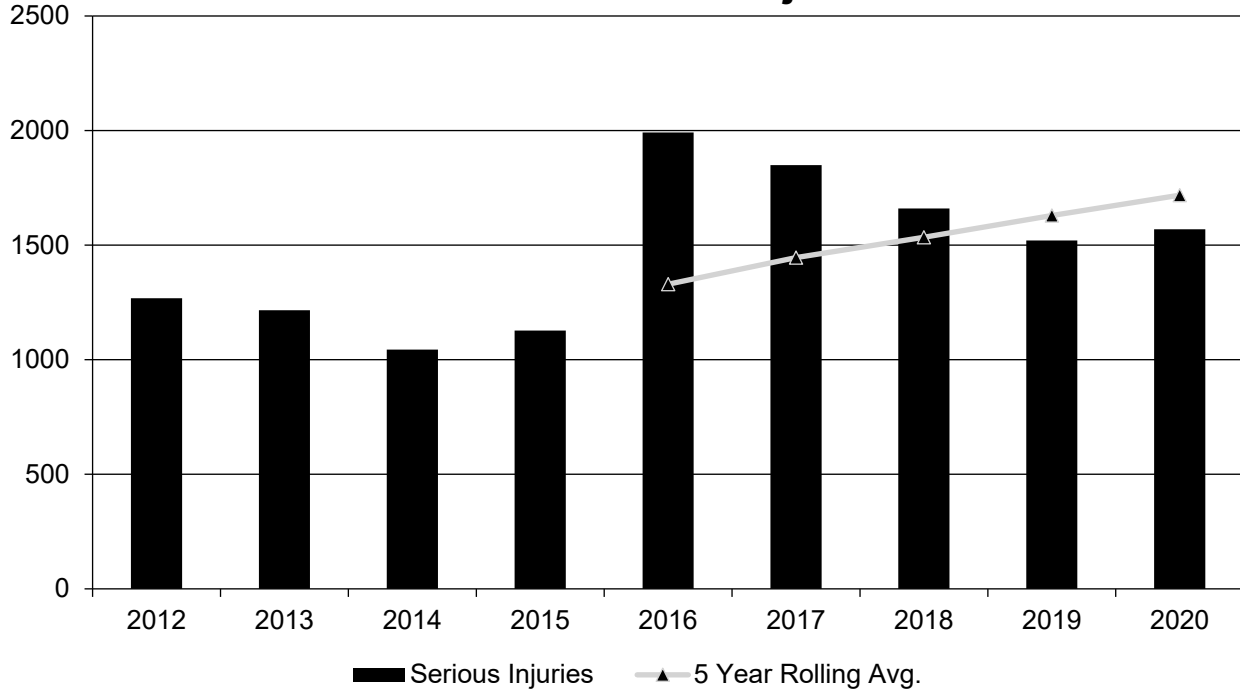
Present data showing the general highway safety trends in the State for the past five years.

PERFORMANCE MEASURES	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fatalities	395	387	361	411	392	358	381	364	394
Serious Injuries	1,268	1,216	1,044	1,127	1,992	1,849	1,660	1,520	1,569
Fatality rate (per HMVMT)	0.693	0.679	0.629	0.707	0.666	0.597	0.630	0.601	0.765
Serious injury rate (per HMVMT)	2.224	2.134	1.819	1.939	3.385	3.083	2.747	2.503	3.047
Number non-motorized fatalities	47	41	22	51	67	48	52	60	55
Number of non-motorized serious injuries	155	146	126	158	291	279	221	202	203

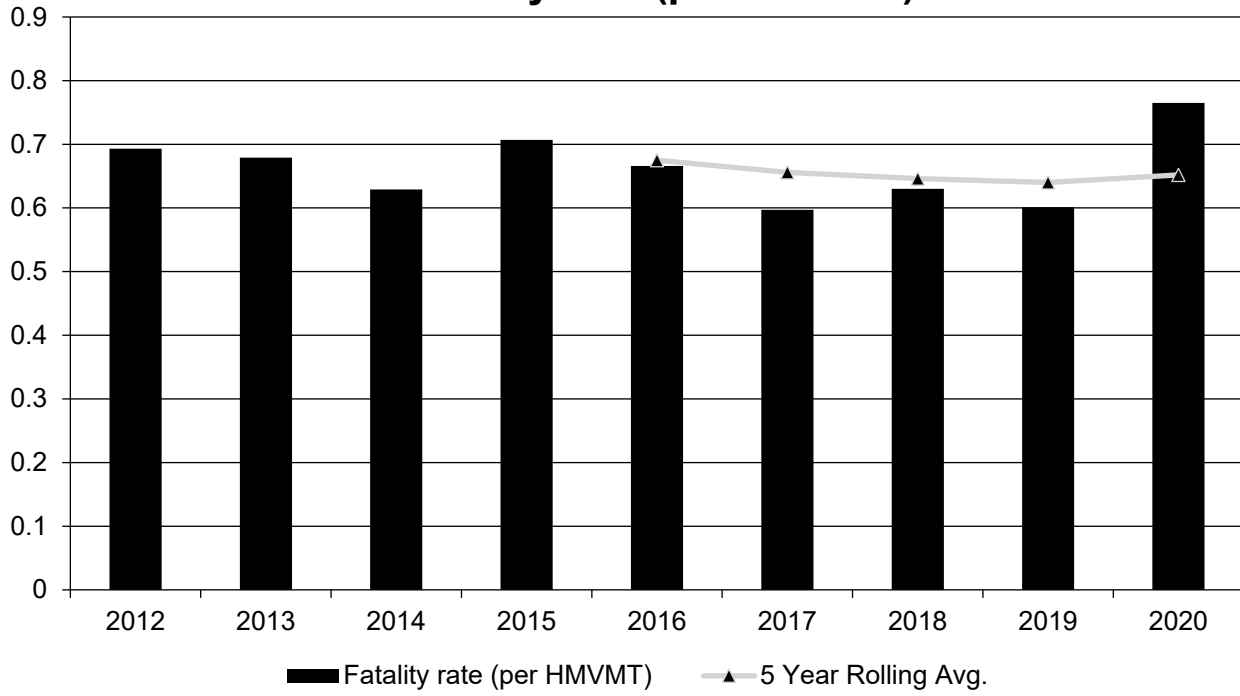
Annual Fatalities



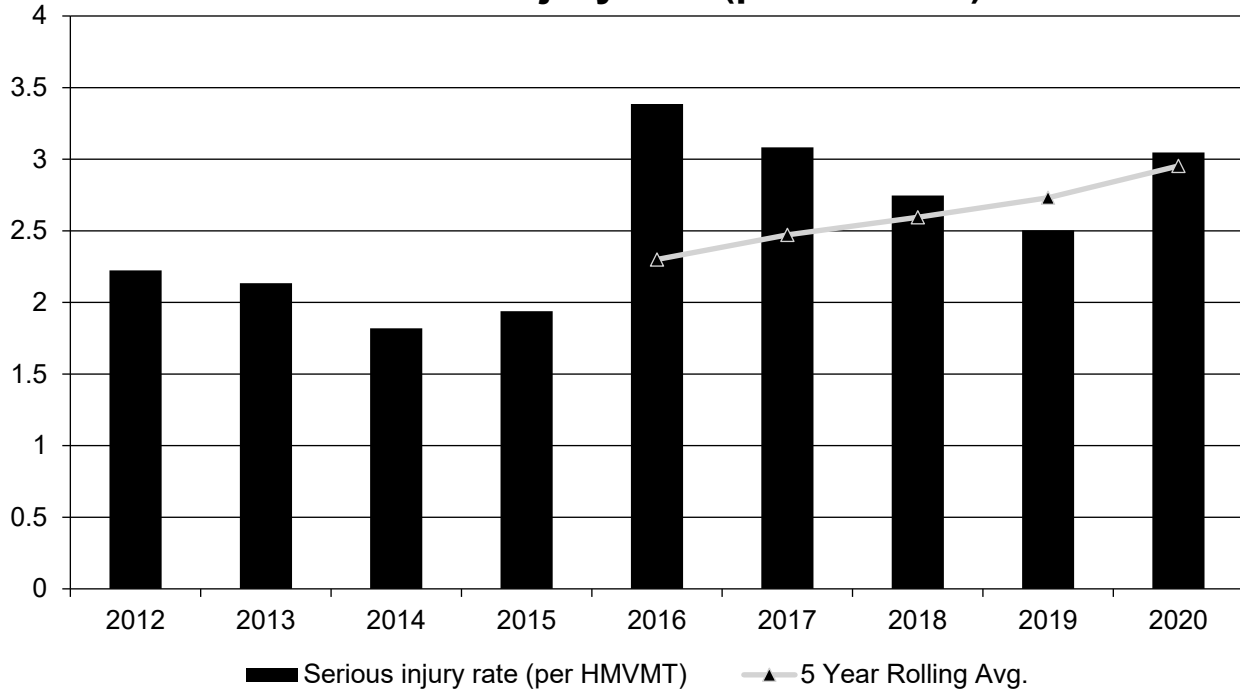
Annual Serious Injuries



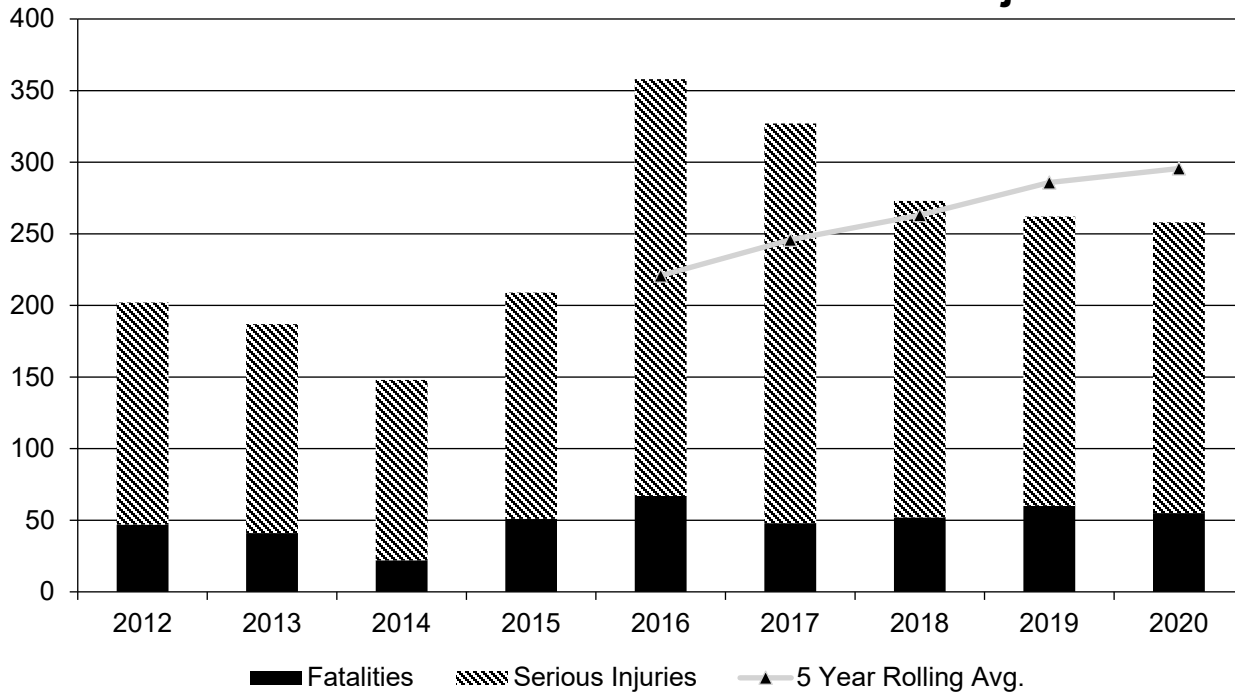
Fatality rate (per HMVMT)



Serious injury rate (per HMVMT)



Non Motorized Fatalities and Serious Injuries



Describe fatality data source.

State Motor Vehicle Crash Database

To the maximum extent possible, present this data by functional classification and ownership.

Year 2020

Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial (RPA) - Interstate				
Rural Principal Arterial (RPA) - Other Freeways and Expressways				
Rural Principal Arterial (RPA) - Other				
Rural Minor Arterial				
Rural Minor Collector				
Rural Major Collector				

2021 Minnesota Highway Safety Improvement Program

Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Local Road or Street				
Urban Principal Arterial (UPA) - Interstate				
Urban Principal Arterial (UPA) - Other Freeways and Expressways				
Urban Principal Arterial (UPA) - Other				
Urban Minor Arterial				
Urban Minor Collector				
Urban Major Collector				
Urban Local Road or Street				

2021 Minnesota Highway Safety Improvement Program

Year 2020

Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency	178.4	466.8	0.53	1.39
County Highway Agency	132.4	672.6	0.95	4.81
Town or Township Highway Agency	20	112.6	1.69	9.44
City or Municipal Highway Agency	45.8	457	0.48	4.8
State Park, Forest, or Reservation Agency				
Local Park, Forest or Reservation Agency				
Other State Agency				
Other Local Agency				
Private (Other than Railroad)				
Railroad				
State Toll Authority				
Local Toll Authority				
Other Public Instrumentality (e.g. Airport, School, University)				
Indian Tribe Nation				

Safety Performance Targets

Safety Performance Targets

Calendar Year 2022 Targets *

Number of Fatalities:352.4

Describe the basis for established target, including how it supports SHSP goals.

Target equal to 2021.

Number of Serious Injuries:1463.4

Describe the basis for established target, including how it supports SHSP goals.

Target equal to 2021.

Fatality Rate:0.582

Describe the basis for established target, including how it supports SHSP goals.

Progression from 2019 to SHSP goal.

Serious Injury Rate:2.470

Describe the basis for established target, including how it supports SHSP goals.

Progression from 2019 to SHSP goal.

Total Number of Non-Motorized Fatalities and Serious Injuries:258.4

Describe the basis for established target, including how it supports SHSP goals.

Progression from 2019 to SHSP goal.

Describe efforts to coordinate with other stakeholders (e.g. MPOs, SHSO) to establish safety performance targets.

Methodologies were coordinated between MnDOT and Department of Public Safety based on input from respective stakeholders. Given the challenges of 2020, it was recognized the 2022 targets should (1) take into account the pandemic spike in fatalities; (2) measure progress toward Strategic Highway Safety Plan goal rather than prior trends alone; and (3) not be set higher than prior years. This last point was particularly important to our MPO partners.

Does the State want to report additional optional targets?

No

Describe progress toward meeting the State’s 2020 Safety Performance Targets (based on data available at the time of reporting). For each target, include a discussion of any reasons for differences in the actual outcomes and targets.

PERFORMANCE MEASURES	TARGETS	ACTUALS
Number of Fatalities	375.4	377.8
Number of Serious Injuries	1714.2	1718.0
Fatality Rate	0.626	0.652
Serious Injury Rate	2.854	2.953
Non-Motorized Fatalities and Serious Injuries	317.0	295.6

Traffic safety in Minnesota was a significant challenge in 2020. Unexpected changes in behaviors (i.e. increases in higher risk strategic focus areas) coupled with unintuitive increases in fatalities while decreases in vehicle miles traveled significantly impacted safety performance metrics. Historically, Minnesota has seen

2021 Minnesota Highway Safety Improvement Program

approximately 10% annual reductions in fatalities and 9% annual reductions in serious injuries; in 2020, fatalities increased 8% while serious injuries increased 3%.

In addition to forming statewide Strategic Highway Safety Plan action committees--particularly in areas with rising trends during the prior year--Minnesota has invested in a programmatic evaluation of the Toward Zero Deaths program. After 18 years of regional grassroots safety efforts, our stakeholders are looking for what may be the next organizational change lest we plateau after achieving low-cost/high-impact strategies. In implementing this new TZD 2.0 strategy, we hope to educate and engage more partners and to open flexibility within the interagency, statewide traffic safety programs.

Applicability of Special Rules

Does the HRRR special rule apply to the State for this reporting period?

No

Provide the number of older driver and pedestrian fatalities and serious injuries 65 years of age and older for the past seven years.

PERFORMANCE MEASURES	2014	2015	2016	2017	2018	2019	2020
Number of Older Driver and Pedestrian Fatalities	53	79	77	68	59	68	61
Number of Older Driver and Pedestrian Serious Injuries	105	88	160	164	150	174	130

Minnesota has monitored the changes in fatalities and serious injuries over the course of the COVID-19 pandemic. Over this period, we have seen reduced numbers of older drivers involved in any crash. In 2020, there were reductions in older driver fatalities and serious injuries while pedestrian involvement remained relatively flat. We hypothesize this may be more a factor of exposure and Stay At Home/quarantine protocols rather than changes in traffic safety culture.

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

- Change in fatalities and serious injuries
- Other-Change in fatal and serious injury crashes

Based on the measures of effectiveness selected previously, describe the results of the State's program level evaluations.

Based on the current trends, fatal and serious injury crashes have been trending downward across all systems. Last year (2020) was a particular challenge in Minnesota and across the country: fatalities rose on the local systems (e.g. county and municipal). However serious injuries continue to be down over the last five years. This suggests there may be some mitigation of the rise in unsafe behavior and severe crashes.

What other indicators of success does the State use to demonstrate effectiveness and success of the Highway Safety Improvement Program?

- Other-Under consideration

Minnesota has developed Action Teams around key SHSP focus areas: these teams hope to develop leading indicators on how to measure progress toward implementing SHSP strategies.

Effectiveness of Groupings or Similar Types of Improvements

Present and describe trends in SHSP emphasis area performance measures.

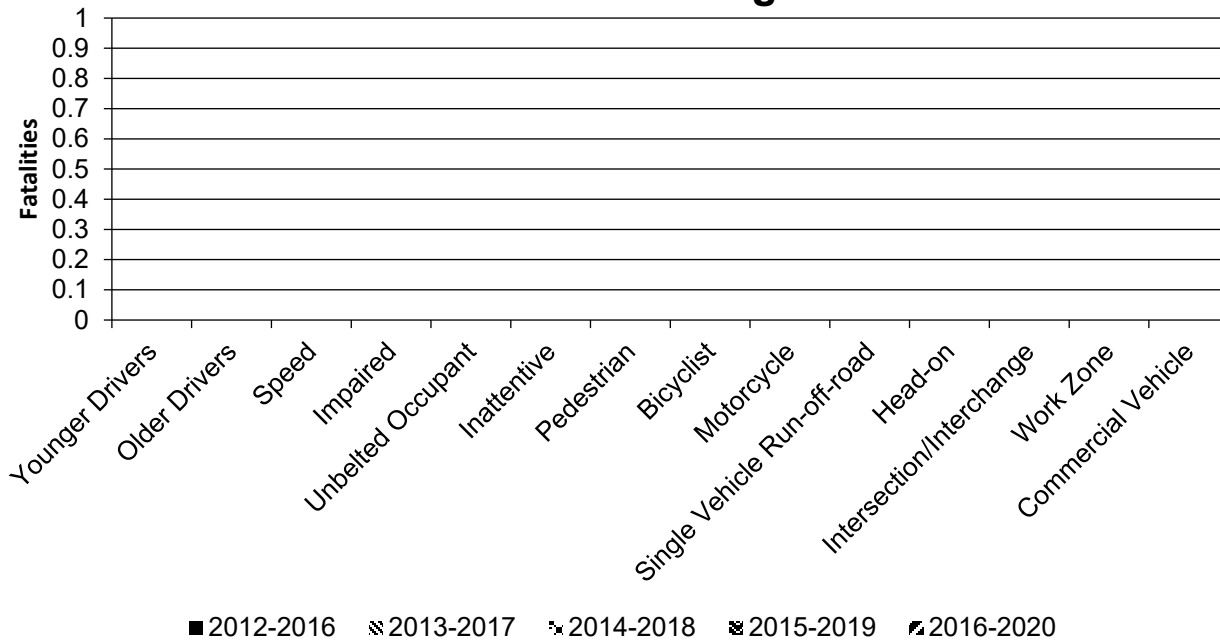
Year 2020

SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)	NUMBER OF K+A CRASHES	Other 2	Other 3
Younger Drivers	Crash involving driver age 14-20					284.2		
Older Drivers	Crash involving driver age 65+					321.6		
Speed	Speed-related					403.2		
Impaired	Crash involving alcohol/drug impaired driver or non-motorist					488		

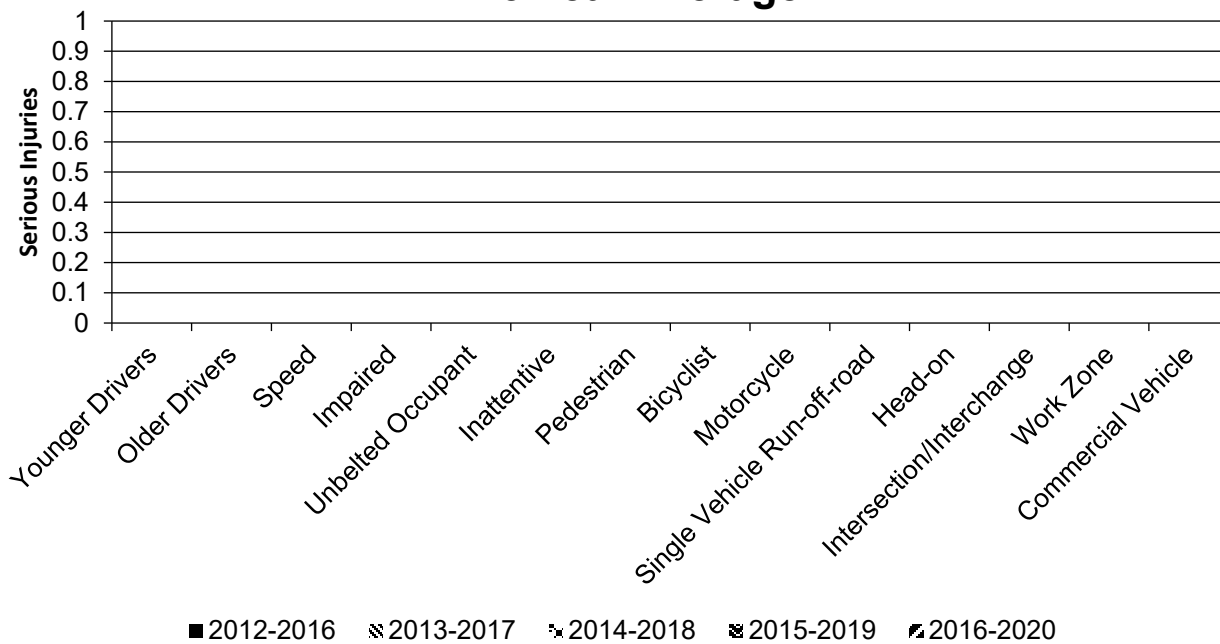
2021 Minnesota Highway Safety Improvement Program

SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)	NUMBER OF K+A CRASHES	Other 2	Other 3
Unbelted Occupant	Crash involving an unbelted occupant killed or seriously injured					269		
Inattentive	Crash involving inattentive/distracted driver					183.6		
Pedestrian	Vehicle/pedestrian					221		
Bicyclist	Vehicle/bicycle					69.4		
Motorcycle	Crash involving motorcycle					300.2		
Single Vehicle Run-off-road	Run-off-road					571.6		
Head-on	Head on					200.4		
Intersection/Interchange	Intersections					872.2		
Work Zone	Crash in work zone					40.4		
Commercial Vehicle	Truck-related					155.2		

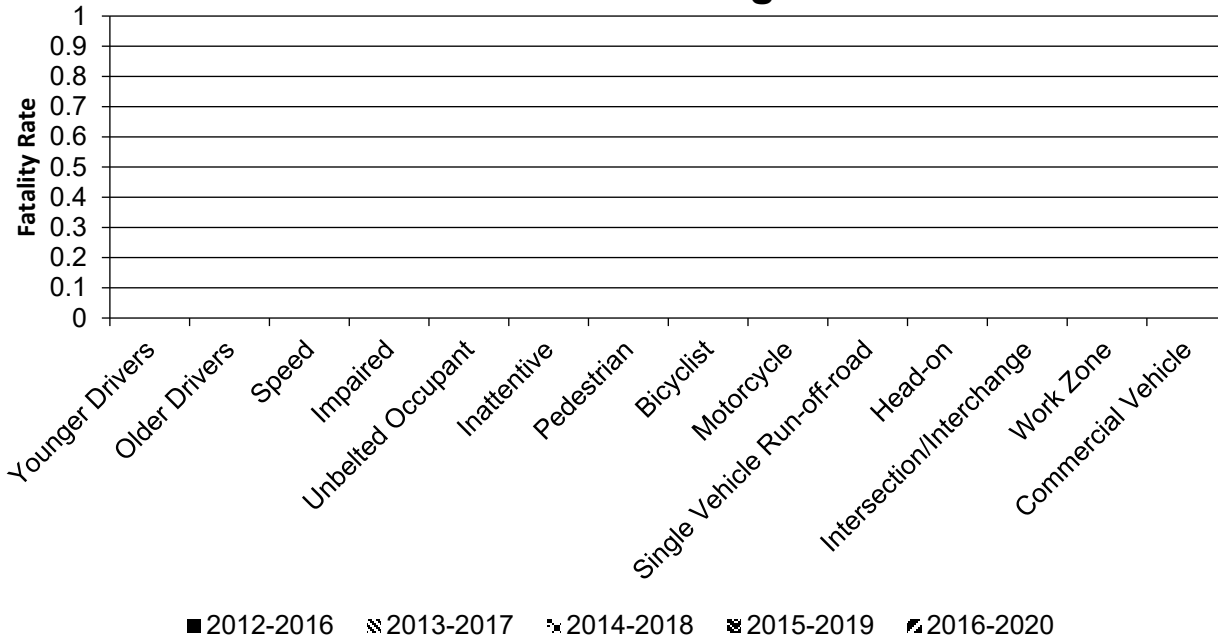
Number of Fatalities 5 Year Average



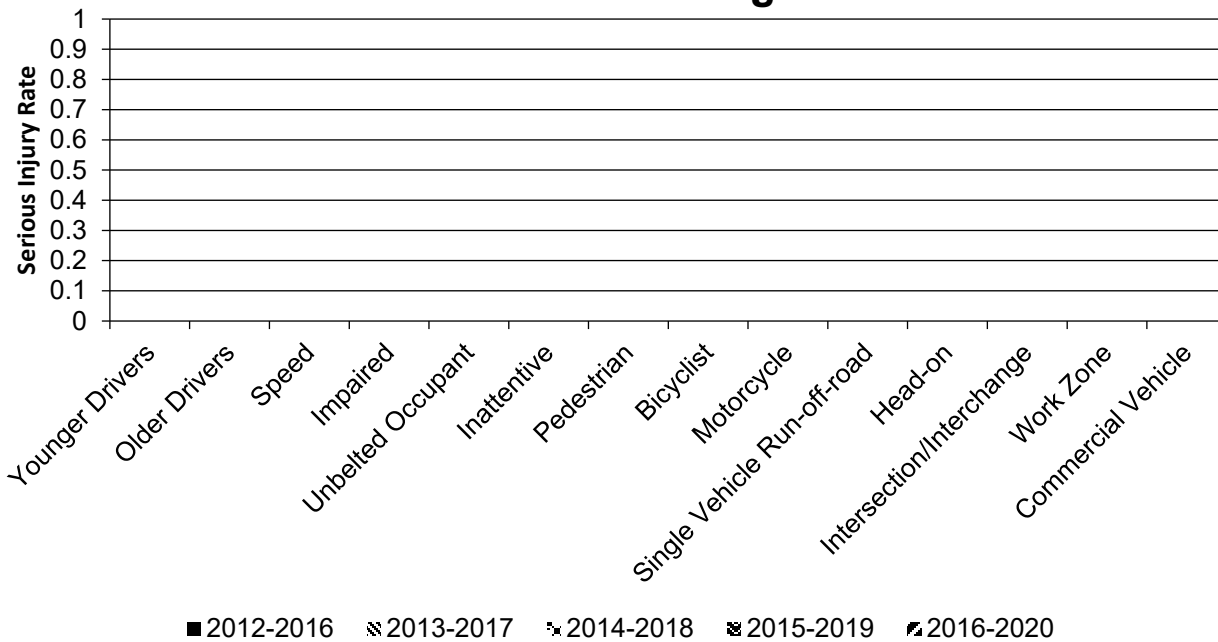
Number of Serious Injuries 5 Year Average



Fatality Rate (per HMVMT) 5 Year Average



Serious Injury Rate (per HMVMT) 5 Year Average



Has the State completed any countermeasure effectiveness evaluations during the reporting period?

Yes

Please provide the following summary information for each countermeasure effectiveness evaluation.

CounterMeasures: Raise Posted Speed Limit
Description: Raise posted speed limit on two-lane, two-way state highways
Target Crash Type: All
Number of Installations:
Number of Installations:
Miles Treated: 4511
Years Before: 3
Years After: 3
Methodology: Before/after using empirical Bayes or Full Bayes
Results: The segments analysis showed a 7% statistically significant increase in total crashes. There were insignificant increases/decreases in injury, run-off-road, and head-on crashes with most segment CMFs hovering close to 1. This aggregate result along with before and after operating speed data from another MnDOT study concludes that the speed limit increase from 55 mph to 60 mph had a very minor to no effect on total and injury crashes or operating speeds.

File Name: 202006.pdf

CounterMeasures: Longitudinal Rectangular Rumble Strips
Description:
Target Crash Type: All
Number of Installations:
Number of Installations:
Miles Treated: 1200
Years Before:
Years After:
Methodology: Regression cross-section
Results: On rural two-lane undivided roads, the CMF for centerline + shoulder rumble strips was: 0.73 for all crashes; 0.68 for single vehicle run-off-road crashes; 0.64 for head-on or sideswipe opposite direction crashes. On rural two-lane undivided roads, the CMF for shoulder ONLY rumble strips was: 0.68 for all crashes; 0.76 for single vehicle run-off-road crashes. On rural four-lane divided roads, the CMF for shoulder ONLY rumble strips was: 0.66 for all crashes; 0.40 for single vehicle run-off-road crashes.

File Name: 202007.pdf

2021 Minnesota Highway Safety Improvement Program

CounterMeasures: Flashing Yellow Arrow Signal Head

Description:

Target Crash Type: All

Number of Installations:

Number of Installations:

Miles Treated:

Years Before:

Years After:

Methodology: Regression cross-section

On rural two-lane undivided roads, the CMF for centerline + shoulder rumble strips was: 0.73 for all crashes; 0.68 for single vehicle run-off-road crashes; 0.64 for head-on or sideswipe opposite direction crashes. On rural two-lane undivided roads, the CMF for shoulder ONLY rumble strips was: 0.68 for all crashes; 0.76 for single vehicle run-off-road crashes. On rural four-lane divided roads, the CMF for shoulder ONLY rumble strips was: 0.66 for all crashes; 0.40 for single vehicle run-off-road crashes.

Results:

File Name: tse-fya-report.pdf

Project Effectiveness

Provide the following information for previously implemented projects that the State evaluated this reporting period.

Compliance Assessment

What date was the State’s current SHSP approved by the Governor or designated State representative?

07/01/2020

What are the years being covered by the current SHSP?

From: 2020 To: 2024

When does the State anticipate completing it’s next SHSP update?

2024

Provide the current status (percent complete) of MIRE fundamental data elements collection efforts using the table below.

*Based on Functional Classification (MIRE 1.0 Element Number) [MIRE 2.0 Element Number]

ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
ROADWAY SEGMENT	Segment Identifier (12) [12]	100	100					100	100	100	90
	Route Number (8) [8]	100	100								
	Route/Street Name (9) [9]	100	100								
	Federal Aid/Route Type (21) [21]	100	100								
	Rural/Urban Designation (20) [20]	100	100					100	100		
	Surface Type (23) [24]	100	100					100	80		
	Begin Point Segment Descriptor (10) [10]	100	100					100	100	100	90
	End Point Segment Descriptor (11) [11]	100	100					100	100	100	90
	Segment Length (13) [13]	100	100								
	Direction of Inventory (18) [18]	100	100								
Functional Class (19) [19]	100	100					100	100	100	90	

2021 Minnesota Highway Safety Improvement Program

ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
	Median Type (54) [55]	100	100								
	Access Control (22) [23]	100	100								
	One/Two Way Operations (91) [93]	100	100								
	Number of Through Lanes (31) [32]	100	100					100	100		
	Average Annual Daily Traffic (79) [81]	100	100					100	100		
	AADT Year (80) [82]	100	100								
	Type of Governmental Ownership (4) [4]	100	100					100	100	100	90
INTERSECTION	Unique Junction Identifier (120) [110]			95	100						
	Location Identifier for Road 1 Crossing Point (122) [112]			95	100						
	Location Identifier for Road 2 Crossing Point (123) [113]			95	100						
	Intersection/Junction Geometry (126) [116]			95	100						
	Intersection/Junction Traffic Control (131) [131]			95	100						
	AADT for Each Intersecting Road (79) [81]			95	100						
	AADT Year (80) [82]			95	100						
	Unique Approach Identifier (139) [129]			95	100						
INTERCHANGE/RAMP	Unique Interchange Identifier (178) [168]					95	100				
	Location Identifier for Roadway at					100	100				

2021 Minnesota Highway Safety Improvement Program

ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
	Beginning of Ramp Terminal (197) [187]										
	Location Identifier for Roadway at Ending Ramp Terminal (201) [191]					100	100				
	Ramp Length (187) [177]					100	100				
	Roadway Type at Beginning of Ramp Terminal (195) [185]					100	100				
	Roadway Type at End Ramp Terminal (199) [189]					100	100				
	Interchange Type (182) [172]					95	100				
	Ramp AADT (191) [181]					100	100				
	Year of Ramp AADT (192) [182]					100	100				
	Functional Class (19) [19]					100	100				
	Type of Governmental Ownership (4) [4]					70	100				
Totals (Average Percent Complete):		100.00	100.00	95.00	100.00	96.36	100.00	100.00	97.78	100.00	90.00

*Based on Functional Classification (MIRE 1.0 Element Number) [MIRE 2.0 Element Number]

Based on a recent FHWA review, Minnesota is collecting 84.5% of the MIRE FDEs. Going forward, a process for cataloging metadata and documenting in a data dictionary is the priority.

Describe actions the State will take moving forward to meet the requirement to have complete access to the MIRE fundamental data elements on all public roads by September 30, 2026.

Minnesota has made great strides in achieving complete MIRE FDE access. While the fields are available, the Office of Transportation System Management is reviewing to ensure that every element has a corresponding source that is reliably updated. This will improve clarity and data quality for further safety analysis and to meet the requirement of full access by September 30, 2026.

Optional Attachments

Program Structure:

HSIP funding guide FINAL.pdf

Project Implementation:

Safety Performance:

Evaluation:

202006.pdf

202007.pdf

tse-fya-report.pdf

Compliance Assessment:

Glossary

5 year rolling average: means the average of five individuals, consecutive annual points of data (e.g. annual fatality rate).

Emphasis area: means a highway safety priority in a State's SHSP, identified through a data-driven, collaborative process.

Highway safety improvement project: means strategies, activities and projects on a public road that are consistent with a State strategic highway safety plan and corrects or improves a hazardous road location or feature or addresses a highway safety problem.

HMVMT: means hundred million vehicle miles traveled.

Non-infrastructure projects: are projects that do not result in construction. Examples of non-infrastructure projects include road safety audits, transportation safety planning activities, improvements in the collection and analysis of data, education and outreach, and enforcement activities.

Older driver special rule: applies if traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65 in a State increases during the most recent 2-year period for which data are available, as defined in the Older Driver and Pedestrian Special Rule Interim Guidance dated February 13, 2013.

Performance measure: means indicators that enable decision-makers and other stakeholders to monitor changes in system condition and performance against established visions, goals, and objectives.

Programmed funds: mean those funds that have been programmed in the Statewide Transportation Improvement Program (STIP) to be expended on highway safety improvement projects.

Roadway Functional Classification: means the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide.

Strategic Highway Safety Plan (SHSP): means a comprehensive, multi-disciplinary plan, based on safety data developed by a State Department of Transportation in accordance with 23 U.S.C. 148.

Systematic: refers to an approach where an agency deploys countermeasures at all locations across a system.

Systemic safety improvement: means an improvement that is widely implemented based on high risk roadway features that are correlated with specific severe crash types.

Transfer: means, in accordance with provisions of 23 U.S.C. 126, a State may transfer from an apportionment under section 104(b) not to exceed 50 percent of the amount apportioned for the fiscal year to any other apportionment of the State under that section.