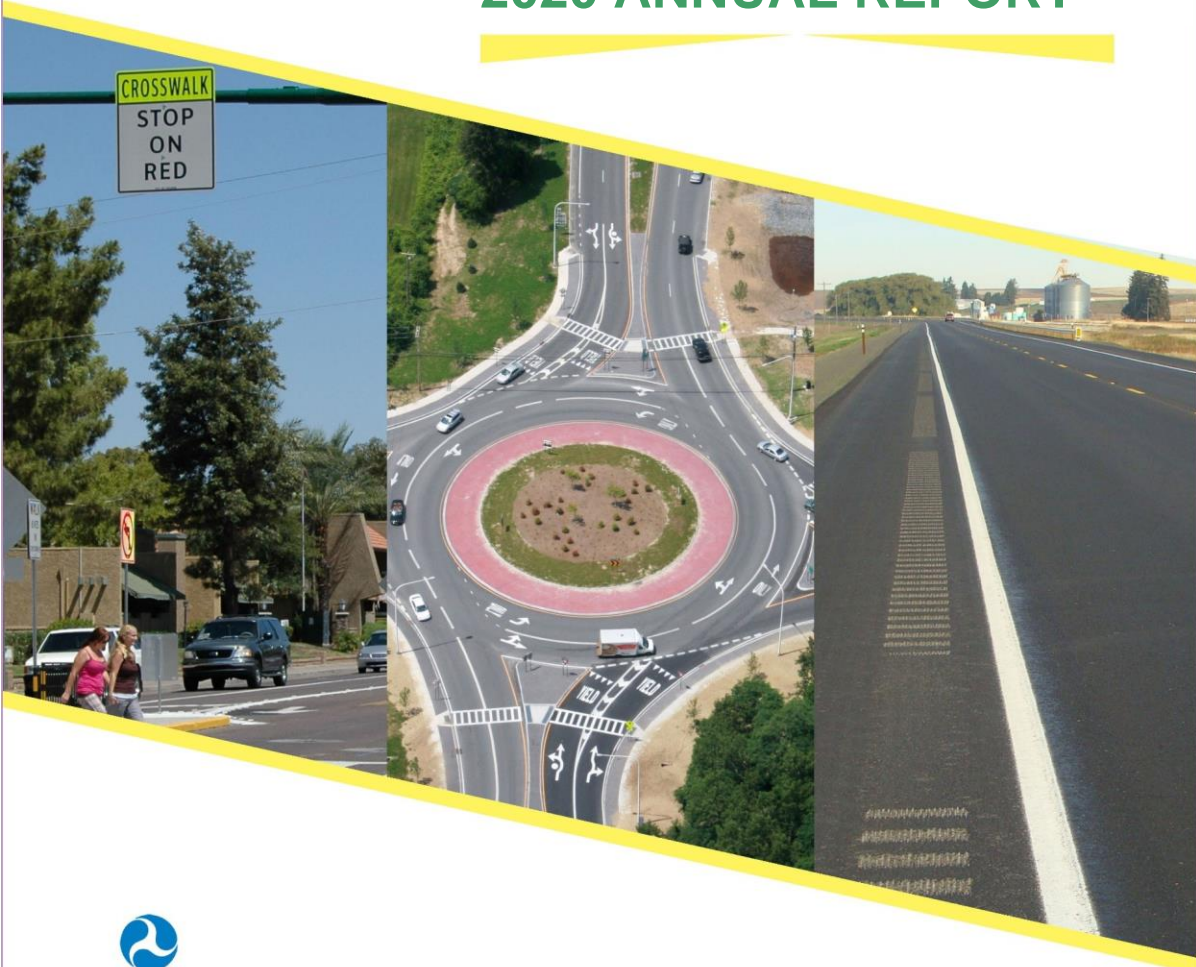




MINNESOTA

HIGHWAY SAFETY IMPROVEMENT PROGRAM 2020 ANNUAL REPORT



U.S. Department of Transportation
Federal Highway Administration

Photo source: Federal Highway Administration

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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

Minnesota has a consistent history of reductions in traffic fatalities and serious injuries through the Highway Safety Improvement Program. The program is structured to (1) encourage widespread deployment of safety countermeasures, (2) engage local and state agencies, and (3) emphasize effective treatments through countermeasure evaluation.

While Minnesota funds sustained high crash locations, the program emphasizes systemic projects. These systemic projects identify locations based on factors associated with fatal and serious injury crashes to treat locations with higher risk before these severe crash occurs.

Furthermore, fatal and serious injury crashes are widely distributed across public roads. Thus, Minnesota HSIP has emphasized low-cost, high-benefit safety countermeasures that can be deployed over many miles or sites.

Minnesota HSIP funding is divided between state and local agencies based on distribution of fatal and serious injury crashes. The Office of Traffic Engineering (OTE) at MnDOT solicits for applications annually to approve high quality safety projects. Furthermore, OTE and State Aid for Local Transportation (SALT) provide local traffic safety resources including systemic planning documents. These County Road Safety Plans identify high risk locations and provide project recommendations to streamline the local HSIP project development process. Currently, MnDOT is in the process of updating these safety plans with new data and projects beyond low-hanging fruit.

In recent years, Minnesota has demonstrated a commitment to proven, effective countermeasures by reemphasizing evaluation of projects. A statewide structure for project tracking, evaluation contracts, and report repository is in development to support these efforts.

Collaboration between internal and external, state and local partners has been key to current successes. Over the last 16 years, the Minnesota Toward Zero Deaths (TZD) program has been instrumental in coordinating engagement with partners and facilitating relationships. These regional partnerships help connect stakeholders to state agencies without derailing local grassroots safety organizing.

Minnesota has experienced consistent decreases in traffic fatalities and serious injuries since 2003. After a revision to the state crash reporting system in 2016, Minnesota experienced a 77 percent increase in serious injuries reported. As the years have passed, we have seen reductions of 8 to 9 percent annually; while the new levels are higher, Minnesota now sees continued successes in serious injury reduction.

Recently the consistent reductions in fatalities have been less than previous years. While decreasing, this may suggest a plateau. Minnesota will continue to emphasize these successful elements of HSIP while looking for new opportunity to bend the curve.

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.

After the new crash reporting system was implemented in 2016, Minnesota experienced an increase in

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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 targets by beginning of 2021 for future safety project solicitations.

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.

MnDOT recognizes the current HSIP process has a limited role for MPOs. Currently, MPOs review the

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priorities of the HSIP selection committees to ensure compliance with long range goals. The annual HSIP solicitation briefings provide an overview of the process; however OTE and State Aid have had limited success in outreach to the MPOs.

MnDOT planning staff and FHWA recently 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 funding guide will be updated to place greater emphasis on early coordination with MPOs. Process charts currently do not highlight these efforts and has been reflected in safety project solicitations.

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"

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

- Fatal and serious injury crashes only

Exposure

- Volume
- Lane miles

Roadway

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?

40

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

- Cable Median Barriers
- 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 be used outside the scope of HSIP. Corridor studies and larger MnDOT projects use the models to evaluate alternatives and predicted crash outcomes for each.

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)	\$47,331,328	\$13,543,825	28.61%
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)	\$10,491,746	\$9,984,424	95.16%
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	\$57,823,074	\$23,528,249	40.69%

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

\$23,346,117

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

\$3,052,529

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

\$1,759,475

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

\$1,754,475

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

\$49,800,000

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

\$0

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 to cause obligation rates to rise. 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
(#0012317) US 12: FROM REARDON AVE SW TO 0.5 MI E (WRIGHT CO)- SHOULDERS, TURN LANES	Intersection geometry	Auxiliary lanes - add left-turn lane	1	Intersections	\$750000	\$833333	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Intersections	Reduce rear-ends
(#0023324) MN 23: 0.1 MI N OF CSAH 24 TO US 212 - BIT MILL, CONC & BIT PAVING, RWIS, SIGNAL, LIGHTING, TURN LN'S, TENSION CABLE GUARDRAIL	Intersection geometry	Auxiliary lanes - add left-turn lane	2	Intersections	\$1528058	\$1697842	HSIP (23 U.S.C. 148)			0		State Highway Agency	Systemic	Intersections	High tension cable median barrier
(#0052342) US 52: CANNON RIVER IN CANNON FALLS TO CSAH 86 - UNBONDED CONCRETE OVERLAY, HTCB	Roadside	Barrier - cable	1.9	Miles	\$286780	\$318644	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Lane Departure	High tension cable median barrier
(#0212325) TH5/CR131 - CONSTRUCT ROUNDABOUT	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	\$3217700	\$4493892	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Intersections	Reduce skew
(#0212325) TH5/CR131 - CONSTRUCT ROUNDABOUT	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	\$1850000	\$1850000	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Spot	Intersections	Roundabout
(#0221010) CSAH 8/OSBORNE RD NE: MN 47 TO MN 65 - ROAD DIET (4 TO 3 LN RDWY), TURN LN'S, MEDIANS, PEDESTRIAN ISLANDS & REPLC TRAIL	Roadway	Roadway narrowing (road diet, roadway reconfiguration)	1	Miles	\$1782290	\$2245000	HSIP (23 U.S.C. 148)			0		County Highway Agency	Spot	Pedestrians	Enhanced crossings
(#0221011) MN 65 AT MSAS 103/KLONDIKE DR - CONSTRUCT REDUCED CONFLICT INTERSECTION	Intersection traffic control	Intersection traffic control - other	1	Intersections	\$1354986	\$1505539	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Intersections	Reduced conflict intersection

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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
(#0420056) US 10 AT INTERSECTIONS OF CSAH 54/E SHORE DRIVE & KRIS ST - INTERSECTION & SIGNAL REVISIONS & ACCELERATION LANE	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	2	Intersections	\$2167156	\$2270547	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Systemic	Lane Departure	Signal revisions
(#0520072) MN 23: FROM 0.1 MI W OF CR 1 TO 0.12 MI E OF MN 95 - MILL & OVLY, SIGNALS, ADA, LIGHTING, CONSTRUCT RCI AT CSAH 8	Intersection traffic control	Intersection traffic control - other	1	Intersections	\$601245	\$668050	HSIP (23 U.S.C. 148)			0		State Highway Agency	Systemic	Intersections	Reduced conflict intersection
(#0520195) CSAH 8/CSAH 4: RUMBLE STRIPS, RECLAMATION	Roadway	Rumble strips - edge or shoulder	1.5	Miles	\$12906	\$14340	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
(#1120199) CASS COUNTYWIDE: INSTALL EDGELINE RUMBLE STRIPS	Roadway	Rumble strips - edge or shoulder	43.6	Miles	\$89173	\$99081	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Rumble stripEs
(#1120200) CASS COUNTYWIDE: INSTALL 6" WR GROUND IN EDGE LINE STRIPING	Roadway delineation	Longitudinal pavement markings - remarking	29.7	Miles	\$129085	\$143427	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
(#1320044) CSAH 26 AT US 8 - CONSTRUCT ROUNDABOUT	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	\$2000000	\$2928470	HSIP (23 U.S.C. 148)			0		County Highway Agency	Spot	Intersections	Roundabout
(#1420201) CSAH 14: FROM MN 336 TO CSAH 17 RUMBLE STRIPS & PAVEMENT MARKINGS, M&O AND SHOULDER PAVING	Roadway	Rumble strips - edge or shoulder	2.6	Miles	\$238214	\$629683	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
(#1720122) COTTONWOOD COUNTYWIDE: CONTINUOUS SINUSOIDAL RUMBLE STRIPS	Roadway	Rumble strips - edge or shoulder	74	Miles	\$532800	\$592000	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Rumble stripEs

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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
WITH GROUND-IN WR STRIPING															
(#1820160) CROW WING COUNTYWIDE: INSTALL 6-INCH GROUND-IN WET REFLECTIVE PAVEMENT MARKINGS	Roadway delineation	Longitudinal pavement markings - remarking	31.7	Miles	\$100875	\$112084	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
(#1820252) CROW WING COUNTYWIDE: INSTALL CENTERLINE SINUSOIDAL RUMBLE STRIPS	Roadway	Rumble strips - center	40.8	Miles	\$119925	\$133250	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Centerline rumble stripEs
(#1920099) MN 3: FROM CHESTERFIELD WAY TO 170TH ST - ACCESS CLOSURE, CONSTRUCT ROUNDABOUT & LEFT TURN LANES	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	\$2824057	\$3642841	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Intersections	Roundabout
(#1920183) CSAH 9 (DODD BLVD): FROM CSAH 50 TO IDEAL WAY & ICENIC TRL: FROM ICENIC WAY TO 0.06 MI E OF DODD BLVD - RECONSTRUCT INTERSECTION	Intersection traffic control	Intersection traffic control - other	1	Intersections	\$388800	\$505000	HSIP (23 U.S.C. 148)			0		County Highway Agency	Spot	Intersections	Reduced conflict intersection
(#2420143) CSAH 46: COUNTY LN TO CSAH 6 - 2' SHOULDER WIDENING WITH SAFETY WEDGE & RUMBLE STRIPS	Roadway	Rumble strips - edge or shoulder	3.5	Miles	\$172800	\$196185	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
(#2520121) MN 57 AT MN 60 - CONSTRUCT ROUNDABOUT, MILLING, BIT & CONCRETE SURFACING, ADA & LIGHTING	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	\$945000	\$1050000	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Intersections	Roundabout

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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
(#2520147) GOODHUE COUNTYWIDE: INSTALL INTERSECTION LIGHTING	Lighting	Intersection lighting	11	Intersections	\$79200	\$88000	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Intersections	Intersection lighting
(#2520167) GOODHUE COUNTYWIDE: INSTALLTION OF CHEVRONS, ARROW BOARDS, CURVE WARNINGS & DELINEATORS	Roadway signs and traffic control	Curve-related warning signs and flashers	27	Curves	\$86922	\$96580	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Delineate curves
(#2720090) HENNEPIN COUNTYWIDE: CONST DURABLE HIGH-VISIBILITY CROSSWALKS, CURB EXT, RAISED MEDIANS, ADA, FLASHING BEACONS	Pedestrians and bicyclists	Medians and pedestrian refuge areas	4	Intersections	\$1008000	\$1261000	HSIP (23 U.S.C. 148)			0		County Highway Agency	Spot	Pedestrians	Enhanced crossings
(#3020202) ISANTI COUNTYWIDE: INSTALL 6 " GROUND IN WET REFELCTIVE PAVEMENT MARKINGS	Roadway delineation	Longitudinal pavement markings - remarking	15.8	Miles	\$76572	\$85080	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
(#3120196) US 169 AT MN 65 - CONSTRUCT REDUCED CONFLICT INTERSECTION	Intersection traffic control	Intersection traffic control - other	1	Intersections	\$638820	\$709800	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Intersections	Reduced conflict intersection
(#3220124) JACKSON COUNTYWIDE: ENHANCED CURVE SIGNING AND IMPROVE RURAL STOP/THRU INTERSECTIONS	Roadway signs and traffic control	Curve-related warning signs and flashers	57	Curves	\$152053	\$168948	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Delineate curves
(#3220161) JACKSON COUNTYWIDE: REALIGNMENT & RECONSTRUCTION OF VARIOUS SKEWED/CURVE INTERSECTIONS	Intersection geometry	Intersection geometry - other	5	Intersections	\$451274	\$501416	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Intersections	Reduce skew

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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
(#3420216) KANDIYOHI COUNTYWIDE: INSTALL 6" GROUND IN WET-REFLECTIVE SOLID LINE EDGELINE STRIPES	Roadway delineation	Longitudinal pavement markings - remarking	56.1	Miles	\$221483	\$246092	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
(#3720231) CSAH 20: FROM MN 40 TO 0.24 MI E OF CSAH 31 - 2' SHOULDERS, RUMBLE STRIPS, 6" EDGELINES, MILL & OVERLAY	Roadway	Rumble strips - edge or shoulder	7.9	Miles	\$307800	\$2237055	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
(#4320210) MN 7: FROM E JCT OF MN 22 TO CSAH 33 - CORRIDOR STUDY SAFETY ASSESSMENT	Non-infrastructure	Road safety audits	1	Locations	\$92000	\$97000	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Spot	Data	Safety studies
(#4320212) CSAHS 3/CSAH 15: INSTALL GROUND-IN WET REFLECTIVE PAVEMENT MARKINGS & RUMBLE STRIPS	Roadway delineation	Longitudinal pavement markings - remarking	19.6	Miles	\$250624	\$278471	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
(#4320213) CSAH 7: FROM US 212 IN STEWART TO SOUTH GRADE ROAD/MSAS 130 - BIT SHOULDER PAVING, RUMBLE STRIPS & GROUND IN WET-REFLECTIVE STRIPING	Roadway	Rumble strips - edge or shoulder	13.5	Miles	\$521470	\$579411	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
(#4720224) MEEKER COUNTYWIDE: INSTALL 6" EDGELINE PAVEMENT MARKINGS	Roadway delineation	Longitudinal pavement markings - remarking	169.6	Miles	\$221080	\$245645	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
(#4720225) MEEKER COUNTYWIDE: INSTALL GROUND IN WET-REFLECTIVE	Roadway delineation	Longitudinal pavement markings - remarking	127.2	Miles	\$0	\$0	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Enhanced edgelines

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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
PAVEMENT MARKINGS															
(#4820008) US 169: IN MILLE LACS COUNTY AT JCT OF CSAH 11, CSAH 12, & CSAH 13 - CONSTRUCT RCIS	Intersection traffic control	Intersection traffic control - other	1	Intersections	\$75609	\$84010	HSIP (23 U.S.C. 148)			0		State Highway Agency	Systemic	Lane Departure	Reduced conflict intersection
(#4820008) US 169: IN MILLE LACS COUNTY AT JCT OF CSAH 11, CSAH 12, & CSAH 13 - CONSTRUCT RCIS	Intersection traffic control	Intersection traffic control - other	1	Intersections	\$75609	\$84010	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Systemic	Lane Departure	Reduced conflict intersection
(#4820008) US 169: IN MILLE LACS COUNTY AT JCT OF CSAH 11, CSAH 12, & CSAH 13 - CONSTRUCT RCIS	Intersection traffic control	Intersection traffic control - other	3	Intersections	\$3007595	\$3380361	HSIP (23 U.S.C. 148)			0		State Highway Agency	Systemic	Intersections	Reduced conflict intersection
(#4821027) MN 23: CORRIDOR STUDY IN MILACA- PROVIDE ANALYSIS OF EXISTING & FUTURE CONDITIONS, GUIDANCE FOR ACCESS CONTROL RECOMMENDATIONS & PROPOSED	Non-infrastructure	Road safety audits	1	Locations	\$140000	\$140000	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Spot	Data	Safety studies
(#4920154) CSAH 34: FROM US 10 TO MN 25 (EAST OF BUCKMAN) - MILL & OVERLAY, SHOULDER PAVING, MUMBLE STRIPS, AND SAFETY WEDGES	Roadway	Rumble strips - edge or shoulder	11	Miles	\$372458	\$413843	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Shoulder paving & rumble stripEs
(#4920197) MORRISON COUNTYWIDE: INSTALL SINUSOIDAL EDGELINE RUMBLE STRIPS, 4" MULTI-COMP CENTERLINE MARKINGS & GROUND IN	Roadway	Rumble strips - edge or shoulder	36.5	Miles	\$124764	\$138626	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Rumble stripEs

2020 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
PAVEMENT MARKINGS															
(#4920198) MORRISON COUNTYWIDE: INSTALL 6" LATEX PAVEMENT MARKINGS	Roadway delineation	Longitudinal pavement markings - remarking	45.2	Miles	\$155519	\$211853	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
(#5720146) MN 1 AT WJCT US 59/CSAH 16, AT BROOKS AVE & AT BARZEN AVE- CONSTRUCT ROUNDABOUTS	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	\$1356198	\$1506886	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Intersections	Roundabout
(#6220228) I-35E: AT CR J/ASH STREET: EAST & WEST RAMPS - INSTALL TEMPORARY TRAFFIC CONTROL SIGNAL SYSTEMS & LIGHTING	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	2	Intersections	\$131276	\$131276	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Spot	Intersections	Clarify turning maneuvers
(#6620133) CSAH 48: CONSTRUCT 3/4 INTERSECTION- CURB & GUTTER, ADA IMP, STORM SEWER & LIGHTING	Intersection traffic control	Intersection traffic control - other	1	Intersections	\$279000	\$503703	HSIP (23 U.S.C. 148)			0		County Highway Agency	Spot	Intersections	Reduced conflict intersection
(#6920052) US 53: AT THE INTERSECTIONS OF 12TH AVE W & 2ND AVE W - SIGNAL SYSTEM, OFFSET LEFT TURN LANES	Intersection geometry	Auxiliary lanes - add left-turn lane	2	Intersections	\$2696637	\$2697167	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Systemic	Lane Departure	Clarify turning maneuvers
(#6920176) ST. LOUIS COUNTYWIDE: INSTALL HIGH SURFACE FRICTION TREATMENT ON CURVES (CSAHS 15, 16, AND 23)	Roadway	Pavement surface - high friction surface	19	Curves	\$431556	\$479506	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Research surface treatments
(#6920177) ST. LOUIS COUNTYWIDE: INSTALL HIGH SURFACE FRICTION	Roadway	Pavement surface - high friction surface	15	Curves	\$494864	\$549849	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Research surface treatments

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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
TREATMENT ON CURVES (CSAHS 5, 26, 65 AND 94)															
(#6920190) ST. LOUIS COUNTYWIDE: INSTALL 6" SOLID PAINT EDGELINES	Roadway delineation	Longitudinal pavement markings - remarking	58	Miles	\$37270	\$41411	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
(#7020120) CSAH 2 AT CSAH 91 - CONSTRUCT ROUNDABOUT	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	\$1792800	\$2839000	HSIP (23 U.S.C. 148)			0		County Highway Agency	Spot	Intersections	Roundabout
(#7720159) TODD COUNTYWIDE: INSTALL GROUND IN WET-REFLECTIVE MULTI-COMPONENT EDGELINES & LATEX EDGELINE PAVEMENT MARKINGS	Roadway delineation	Longitudinal pavement markings - remarking	215.9	Miles	\$294744	\$327494	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
(#7920142) CSAH 4/CSAH 27: AT INTERSECTION WITH MN 42 - INTERSECTION GEOMETRICS	Intersection geometry	Intersection geometrics - modify skew angle	1	Intersections	\$450000	\$1850000	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Intersections	Reduce skew
(#7920144) WABASHA COUNTYWIDE: INSTALL ENHANCED EDGELINE PAVEMENT MARKINGS	Roadway delineation	Longitudinal pavement markings - remarking	208.8	Miles	\$265204	\$294671	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
(#8020219) WADENA COUNTYWIDE: CHEVRON SIGN REPLACEMENT & INSTALLATION	Roadway signs and traffic control	Curve-related warning signs and flashers	36	Curves	\$38880	\$43200	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Delineate curves
(#8220097) TH 97 AT NORTH SHORE TRAIL/KESWICH AVE - LEFT TURN LANES, LIGHTING	Intersection geometry	Auxiliary lanes - add left-turn lane	1	Intersections	\$1182688	\$1314097	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Intersections	Reduce rear-ends

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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
(#8220113) MN 97 AT GOODVIEW AVE/8TH ST - CONSTRUCT ROUNDABOUT, INCLUDES RECTANGULAR RAPID FLASH BEACON (RRFB), LIGHTING, TRAIL & ADA	Intersection traffic control	Modify control - traffic signal to roundabout	1	Intersections	\$1485000	\$2992420	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Intersections	Roundabout
(#8220113) MN 97 AT GOODVIEW AVE/8TH ST IN FOREST LAKE- CONSTRUCT ROUNDABOUT, INCLUDES RECTANGULAR RAPID FLASH BEACON (RRFB), LIGHTING, TRAIL & ADA	Intersection traffic control	Modify control - traffic signal to roundabout	1	Intersections	\$390000	\$390000	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Spot	Intersections	Roundabout
(#8220187) I-694: FROM US 61 TO CSAH 10 - INSTALL CONTINUOUS FREEWAY LIGHTING	Lighting	Continuous roadway lighting	8.6	Miles	\$1583100	\$1759000	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Older Drivers	Improve visibility
(#8319189) CSAH 21: FROM W CO LINE TO CSAH 5 - SAFETY IMPROVEMENTS	Lighting	Intersection lighting	1	Intersections	\$20095	\$22328	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Intersections	Intersection lighting
(#8621039) MN 25: CORRIDOR STUDY FROM BUFFALO TO MONTICELLO	Non-infrastructure	Road safety audits	1	Locations	\$182938	\$182938	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Spot	Data	Safety studies
(#8820014) D-1 DISTRICTWIDE: INSTALL COUNTDOWN TIMER PEDESTRIAN SIGNAL HEADS	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	20	Intersections	\$76708	\$85231	HSIP (23 U.S.C. 148)			0		State Highway Agency	Systemic	Pedestrians	Signal revisions
(#8820101) STATEWIDE: MNGEO & MNIT SERVICES TO PROVIDE COMPUTER & SOFTWARE ENHANCEMENTS TO	Non-infrastructure	Data/traffic records	1	Crash data system	\$200000	\$200000	Penalty Funds (23 U.S.C. 164)			0		Other State Agency	Systemic	Data	Crash data usability

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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
THE ESRI INSIGHTS MAPPING & DATA SYSTEM & CrashMART TOOL															
(#8820101) STATEWIDE: MNGEO & MNIT SERVICES TO PROVIDE COMPUTER & SOFTWARE ENHANCEMENTS TO THE ESRI INSIGHTS MAPPING & DATA SYSTEM & CrashMART TOOL	Non-infrastructure	Data/traffic records	1	Crash data system	\$0	\$0	HSIP (23 U.S.C. 148)			0		Other State Agency	Systemic	Data	Crash data usability
(#8820105) STATEWIDE: DESIGN & DEVELOPMENT OF CAV-X ICE SENSORS & ACTIVE WARNING SYSTEM (AWS) FOR THE US 61 CORRIDOR BETWEEN CSAH 9 & CSAH 7	Advanced technology and ITS	Advanced technology and ITS - other	1	System	\$99736	\$99736	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Systemic	Connected Autonomous Vehicles	ITS
(#8820191) DISTRICTWIDE - INSTALL 6" EDGELINE AND CENTERLINE STRIPING ON VARIOUS CSAH'S	Roadway delineation	Longitudinal pavement markings - remarking	374.6	Miles	\$163360	\$187678	HSIP (23 U.S.C. 148)			0		County Highway Agency	Systemic	Lane Departure	Enhanced edgelines
(#8820214) INTERSECTION CONTROL EVALUATION (ICE) STUDIES IN ATP 3 AT VARIOUS INTERSECTIONS ON US 169 & US 10	Non-infrastructure	Road safety audits	4	Locations	\$100000	\$100000	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Spot	Data	Safety studies
(#8820227) MN 55 FROM S JCT OF US 52 TO THE HASTINGS CITY LIMITS - ROAD SAFETY AUDIT	Non-infrastructure	Road safety audits	1	Locations	\$40000	\$40000	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Spot	Data	Safety studies

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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
(#8820229) METRO DISTRICTWIDE: ENHANCED PAVEMENT MARKINGS AND CAT-TRACKS	Intersection traffic control	Pavement markings - add dashed edge line along mainline	30	Intersections	\$1129272	\$1129272	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Systemic	Intersections	Clarify turning maneuvers
(#8820237) D-2 DISTRICTWIDE: UPGRADE PEDESTRIAN COUNTDOWN INDICATORS	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	15	Intersections	\$180000	\$180000	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Systemic	Pedestrians	Signal revisions
(#8820239) STATEWIDE: PEDESTRIAN CRASH STUDY, DATA-BASED APPROACH TO SYSTEMIC SAFETY AND FATALITIES/INJURIES	Non-infrastructure	Transportation safety planning	1	Safety plan	\$99801	\$99801	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Systemic	Pedestrians	Safety studies
(#8821043) STATEWIDE: SFY 2021 TZD REGIONAL COORDINATORS-SALARIES & EXPENSES FROM 7/1/2020 - 6/30/2021	Non-infrastructure	Transportation safety planning	9	Regional coordinators	\$800000	\$800000	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Systemic	Traffic Safety Culture & Awareness	Improve traffic safety culture

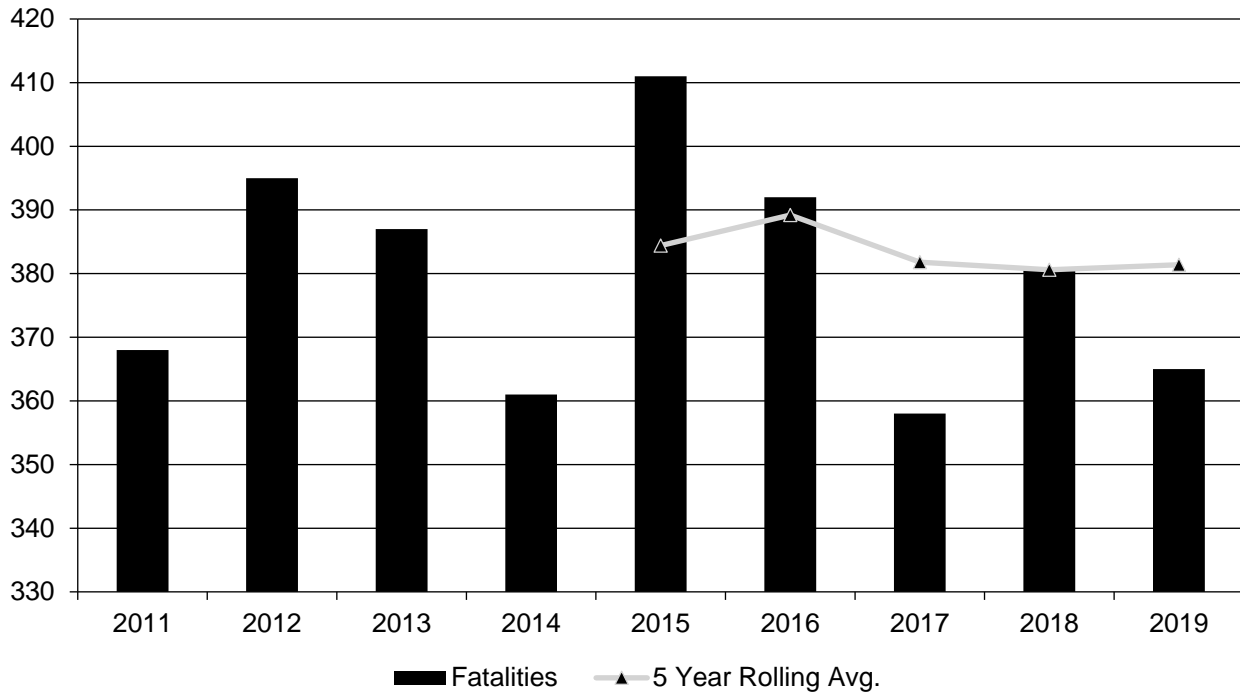
Safety Performance

General Highway Safety Trends

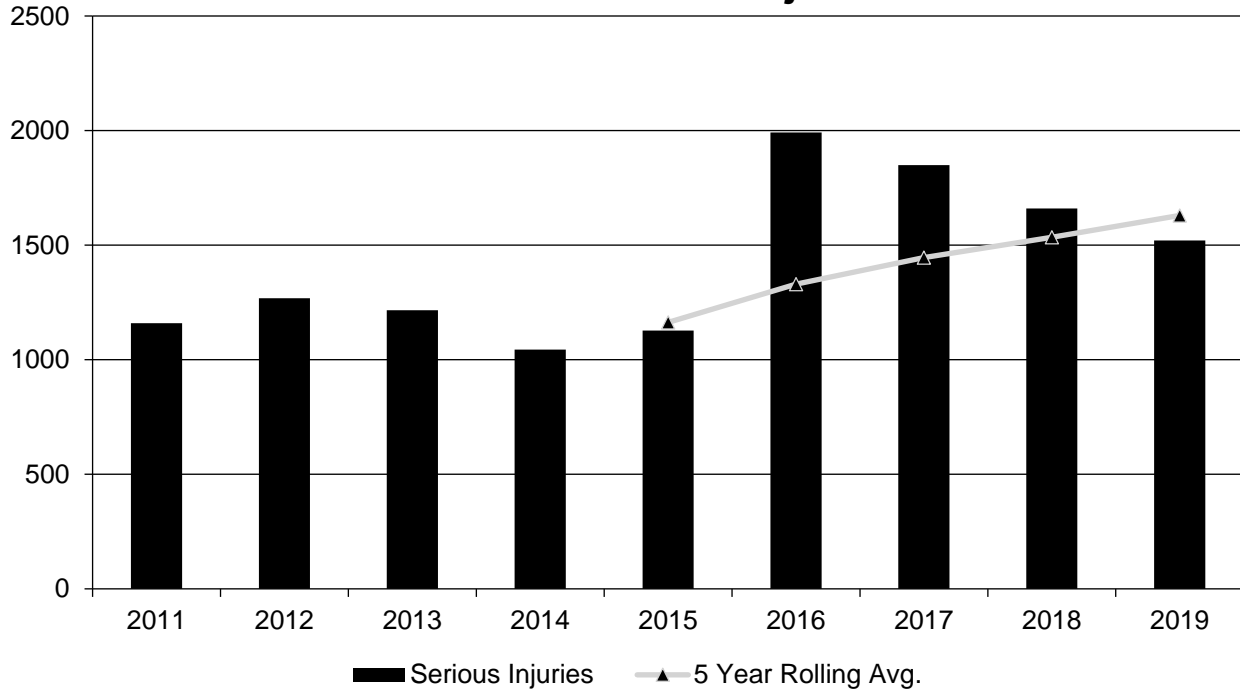
Present data showing the general highway safety trends in the State for the past five years.

PERFORMANCE MEASURES	2011	2012	2013	2014	2015	2016	2017	2018	2019
Fatalities	368	395	387	361	411	392	358	381	365
Serious Injuries	1,159	1,268	1,216	1,044	1,127	1,992	1,849	1,660	1,520
Fatality rate (per HMVMT)	0.649	0.693	0.679	0.629	0.707	0.666	0.597	0.630	0.601
Serious injury rate (per HMVMT)	2.045	2.224	2.134	1.819	1.939	3.385	3.083	2.747	2.503
Number non-motorized fatalities	45	47	41	22	51	67	48	52	60
Number of non-motorized serious injuries	153	155	146	126	158	291	279	221	202

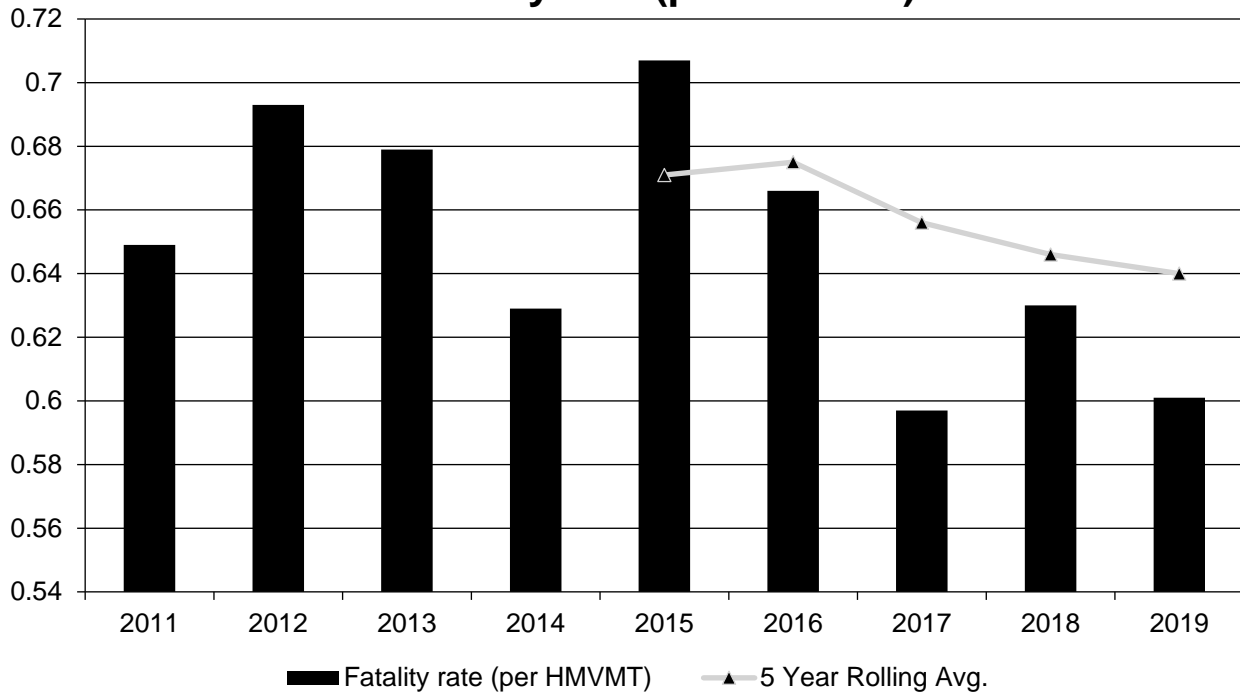
Annual Fatalities



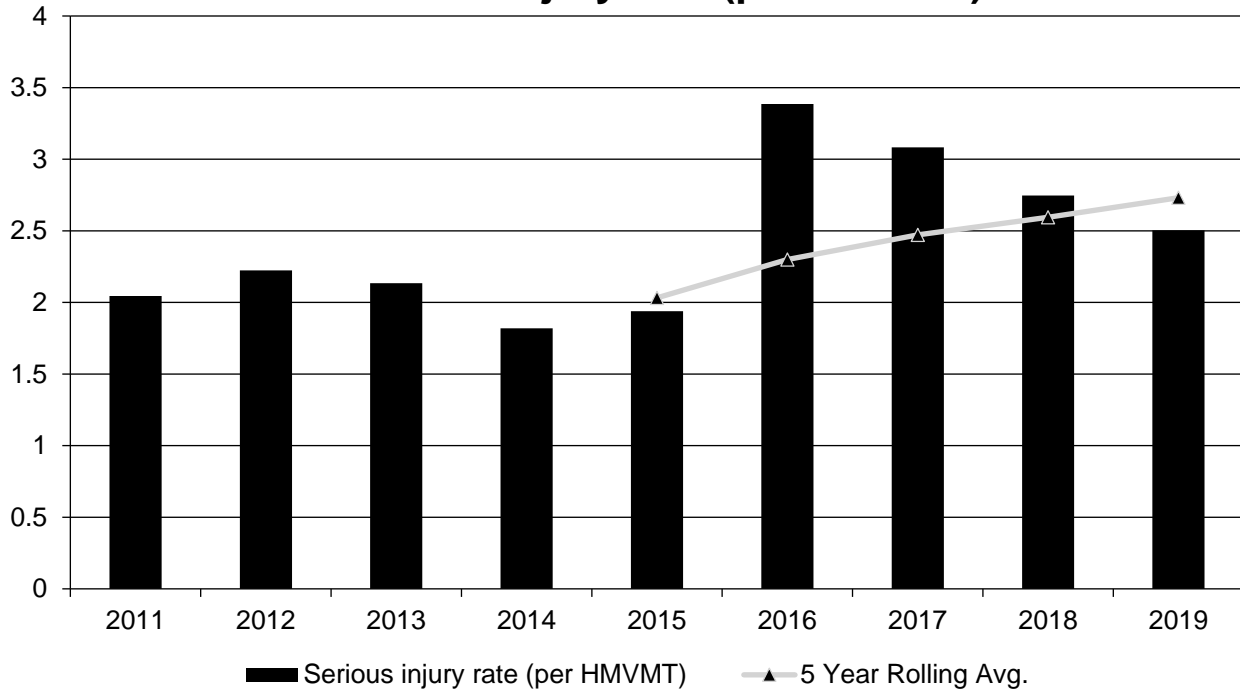
Annual Serious Injuries



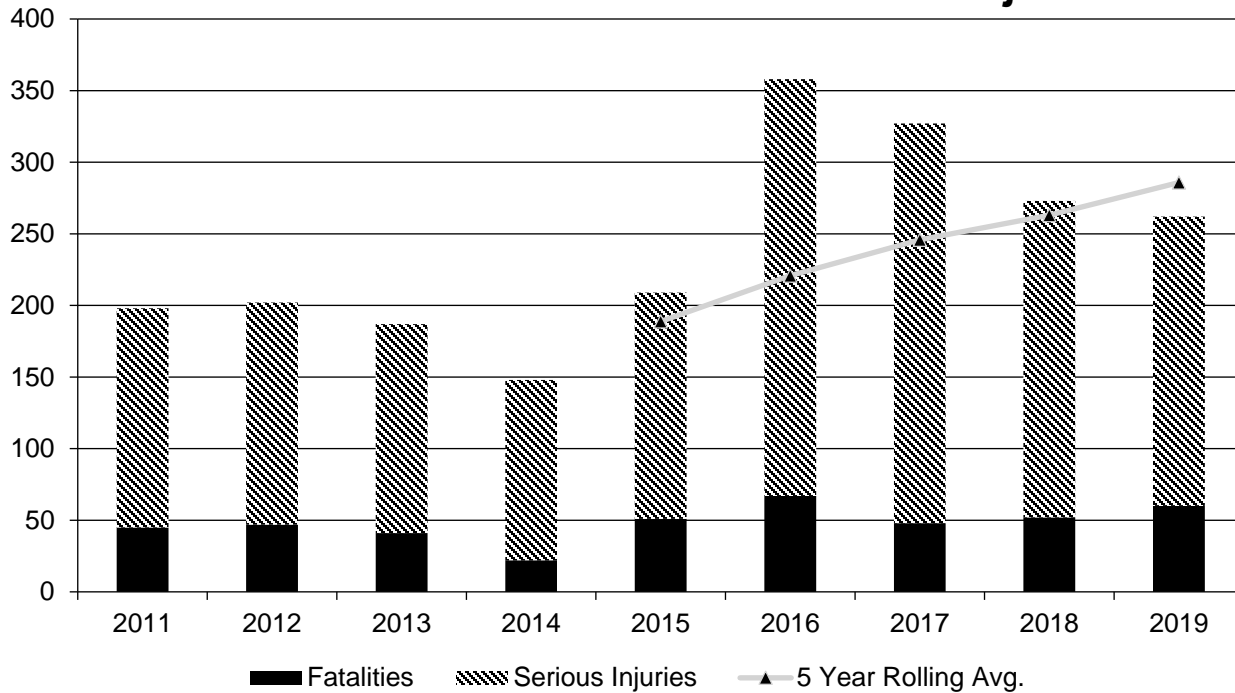
Fatality rate (per HMVMT)



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 2015

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	12.4	28.4		
Rural Principal Arterial (RPA) - Other Freeways and Expressways				
Rural Principal Arterial (RPA) - Other	64.4	116.4		
Rural Minor Arterial	64.6	124.2		
Rural Minor Collector	21.6	52.6		
Rural Major Collector	63	149.6		

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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	31.4	84.2		
Urban Principal Arterial (UPA) - Interstate	15	51.2		
Urban Principal Arterial (UPA) - Other Freeways and Expressways	6	20.4		
Urban Principal Arterial (UPA) - Other	23.4	84.8		
Urban Minor Arterial	49.6	253.6		
Urban Minor Collector				
Urban Major Collector	12.4	83.4		
Urban Local Road or Street	15.6	98		

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Year 2019

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	184.8	462.4	0.54	1.35
County Highway Agency	134.2	626	0.93	4.34
Town or Township Highway Agency	21.2	105	1.79	8.83
City or Municipal Highway Agency	41	436.2	0.42	4.52
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				

Provide additional discussion related to general highway safety trends.

Minnesota released a new crash report in 2016. While the definition of a serious injury did not change, the text displayed to the officer added "Suspected," i.e. "Suspected Serious Injury (A)". With the revised phrasing, we have seen A injuries reported at higher numbers than previously seen (2,299 serious injuries reported in 2016 versus an average of 955 over the prior five years). Part of this may be due to the new definition but part also concerns training of officers: Minnesota plans to review training material for crash data collection.

Modeling serious injuries provides estimates of annual reductions in serious injuries. In the 10 years prior to the definition change (2005-2015), serious injuries were reduced 6% annually; since the definition change, serious injuries were reduced 9% annually. The definition change appears to have increased the number of serious injuries reported, but the trends appear consistent.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2021 Targets *

Number of Fatalities:352.4

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

The forthcoming SHSP has established a mid-term goal of no more than 225 fatalities by 2025. A linear trend was derived from 2019 fatalities to the 2025 goal. The 2021 target was established by averaging the outcomes from 2017 through 2019 with the computed trend for 2020-2021. As a result, the target measures Minnesota's progress toward the SHSP goal.

Number of Serious Injuries:1579.8

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

The forthcoming SHSP has established a mid-term goal of no more than 980 serious injuries by 2025. A linear trend was derived from 2019 serious injuries to the 2025 goal. The 2021 target was established by averaging the outcomes from 2017 through 2019 with the computed trend for 2020-2021. As a result, the target measures Minnesota's progress toward the SHSP goal.

Fatality Rate:0.582

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

The number of fatalities used the outcomes from 2017-2019 and the computed 2020-2021 trend; a conservative estimate of +0.5% vehicle miles traveled was used for the annual rates.

Serious Injury Rate:2.606

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

The number of serious injuries used the outcomes from 2017-2019 and the computed 2020-2021 trend; a conservative estimate of +0.5% vehicle miles traveled was used for the annual rates.

Total Number of Non-Motorized Fatalities and Serious Injuries:281.2

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

The derived fatality linear trends for 2020-2021 were scaled by the percent of fatalities involving a non-motorist for the prior five years (i.e. 2014-2018). Similarly, the serious injury trends for 2020-2021 were scaled by the percent of serious injuries involving a non-motorist. The target measures Minnesota's progress toward the SHSP goal if the prevalence of non-motorists in traffic fatalities and serious injuries remains unchanged. Minnesota recognized that by using simple projections from prior years, the targets may increase: this was not acceptable. A new methodology for establishing safety targets was necessary to track progress towards our SHSP goals. This method utilizes quality data from the State Crash Database and current outcomes from 2019 to establish meaningful targets.

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

Minnesota's 2025 goals in the SHSP were developed through extensive input from regional stakeholders, Toward Zero Deaths (TZD) statewide conference, and TZD leadership. The TZD program is co-chaired by

2020 Minnesota Highway Safety Improvement Program

Department of Health, MnDOT, and Department of Public Safety Office of Traffic Safety (OTS).

In discussion with MPO analysts and leadership, MnDOT identified issues with celebrating meeting a target that is set higher than prior years. Our safety plans do not support stagnation in traffic safety. The new process of trending toward our 2025 goals coupled with current crash trends achieved this end.

Does the State want to report additional optional targets?

No

Describe progress toward meeting the State’s 2019 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	372.0	381.4
Number of Serious Injuries	1711.0	1629.6
Fatality Rate	0.620	0.640
Serious Injury Rate	2.850	2.731
Non-Motorized Fatalities and Serious Injuries	267.5	285.8

Based on preliminary analysis, Minnesota anticipates meeting two of the five 2019 targets:

- Number of serious injuries
- Serious injury rate

The number of traffic fatalities in Minnesota has flattened in recent years; despite missing two targets, the state anticipates significant progress when compared to prior baselines:

- Number of fatalities
- Fatality rate

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	2013	2014	2015	2016	2017	2018	2019
Number of Older Driver and Pedestrian Fatalities	64	53	79	77	68	59	68

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PERFORMANCE MEASURES	2013	2014	2015	2016	2017	2018	2019
Number of Older Driver and Pedestrian Serious Injuries	89	105	88	160	164	150	174

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.

Over the prior five years, Minnesota has seen reductions in both fatalities and fatal crashes; modeling results in a 3% annual reduction from 2015 to 2019. In 2019, there was a 4.5% reduction in fatalities: this is consistent with prior trends.

Over the prior four years (i.e. after the implementation of the revised "Suspected Serious Injury (A)" definition), Minnesota has seen reductions in both serious injuries and A injury crashes; modeling results in a 9% annual reduction from 2016 to 2019. In 2019, there was a 8.4% annual reduction in serious injuries.

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

- Other-Under consideration

At this time MnDOT assess effectiveness based on crash data analysis. However, there have been discussions as to "leading indicators," i.e. metrics associated with reductions in fatal and serious injury crashes, to document progress. While no metrics have been agreed upon, these measures will be discussed further in future SHSP working groups.

Effectiveness of Groupings or Similar Types of Improvements

Present and describe trends in SHSP emphasis area performance measures.

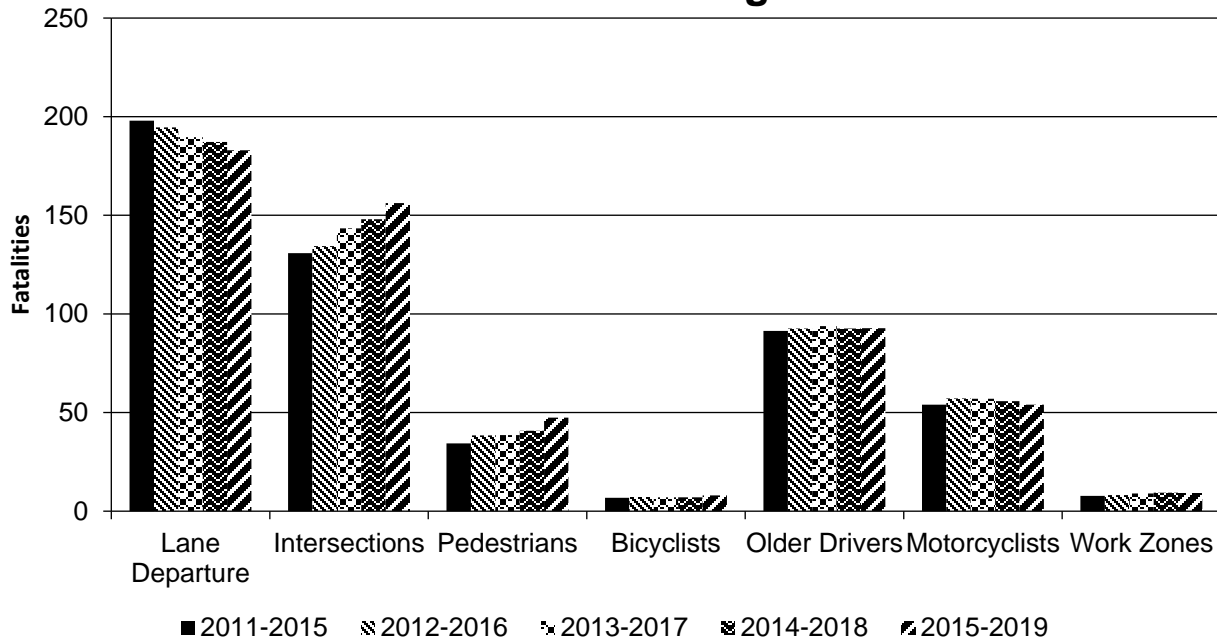
Year 2019

SHSP Emphasis Area	Targeted Crash Type	Number Fatalities (5-yr avg)	of	Number Serious Injuries (5-yr avg)	of	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Lane Departure	Single Vehicle Run Off Road + Head On Crashes	183		687.4			
Intersections	Intersections	156.2		811.8			
Pedestrians	Vehicle/pedestrian	47.4		169.4			
Bicyclists	Vehicle/bicycle	8		59.8			

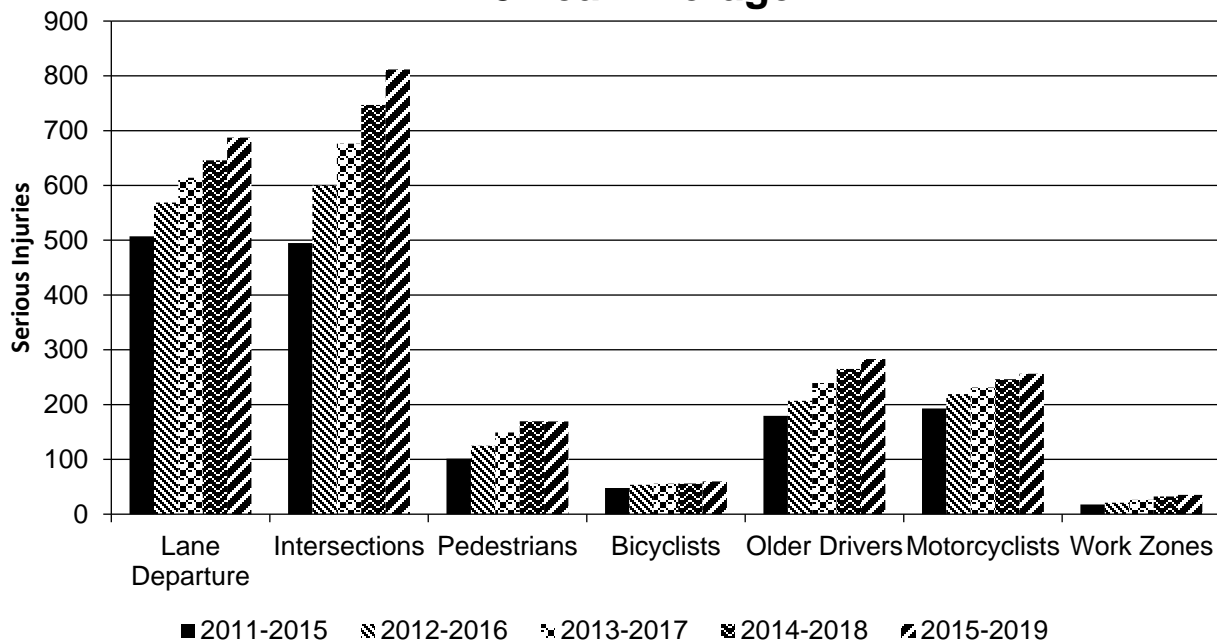
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SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Older Drivers	Crashes with at least one driver involved age 65+	92.8	283.2		
Motorcyclists	Crashes with at least one motorcycle involved	54	256.4		
Work Zones	Crashes occurring within a work zone	9.2	35.2		

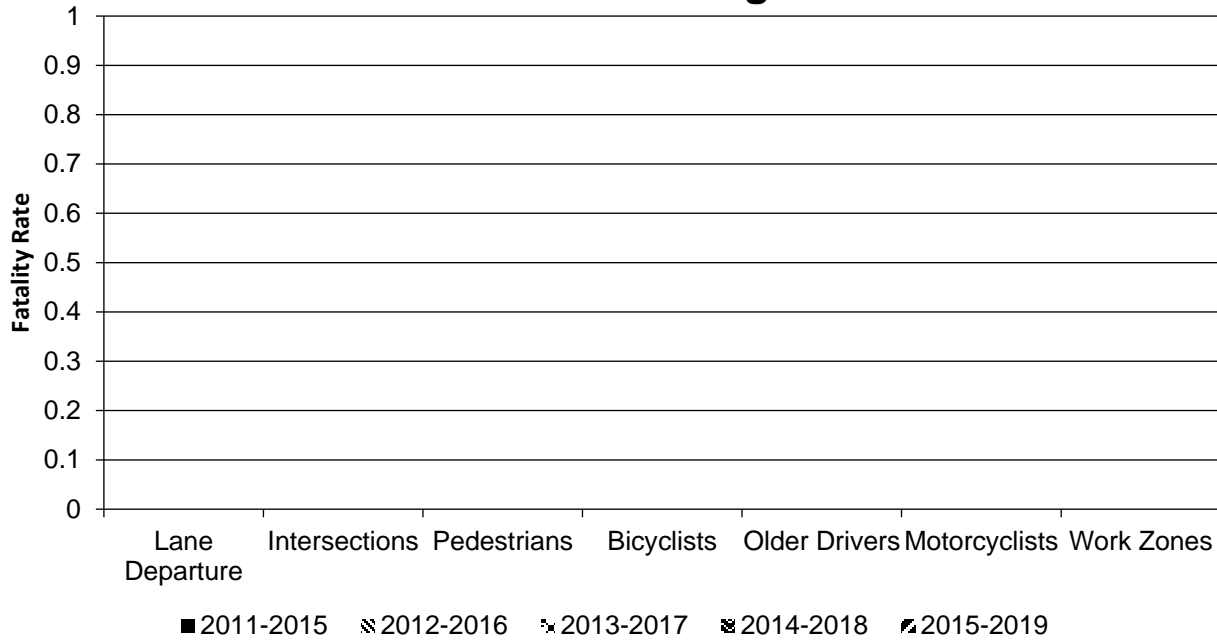
Number of Fatalities 5 Year Average



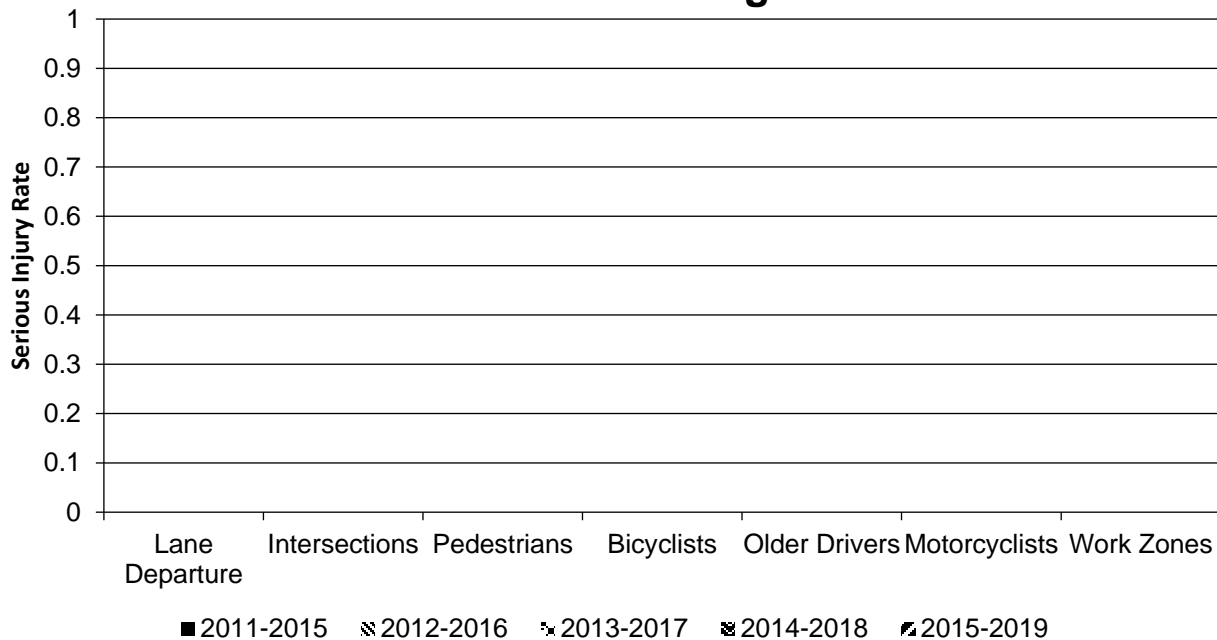
Number of Serious Injuries 5 Year Average



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: Rumble Strips
Safety effect of rumble strips: centerline ONLY, shoulder ONLY, and centerline + shoulder on Total and K+A crashes. Insufficient data for evaluation of non-motorist crashes.

Description:

Target Crash Type: Run-off-road

Number of Installations:

Number of Installations:

Miles Treated: 1200

Years Before:

Years After:

Methodology: Before/after using empirical Bayes or Full Bayes

Results: Rural 2-lane roads with shoulder rumble strips on average have 32% fewer total crashes; average 24% fewer single-vehicle run-off-road crashes (SVROR). Rural 2-lane roads with centerline AND shoulder rumble strips on average have 27% fewer total crashes; average 32% fewer SVROR and 36% fewer head-on crashes. Rural 4-lane divided roads with shoulder rumble strips have on average 34% fewer total crashes; average 60% fewer SVROR crashes.

File Name: 2020_Rectangular-Rumble-Strip.pdf

CounterMeasures: Posted Speed Limit on Rural 2-lane Highways

Description: Safety effect of increasing posted speed limit from 55 MPH to 60 MPH on 2-lane, rural trunk highways

Target Crash Type: All

Number of Installations:

Number of Installations:

Miles Treated: 1909.1

Years Before:

Years After:

Methodology: Before/after using empirical Bayes or Full Bayes

Results: Increasing the speeds from 55mph to 60mph had minor impacts on segment crashes. Aggregate CMFs on both segment and intersection crash outcomes were 3% increase in total crashes, 3% increase in injury crashes (not significant at 95% confidence). The total crashes show

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a statistically significant increase of 7%; there was a 5% increase in injury crashes, 4% increase in run-off-road crashes, and 3% decrease in head-on crashes (none significant). At intersections, there was a significant impacts to angle crashes depending on lighting and geometrics.

File Name: 2020_PSL-Change.pdf

CounterMeasures: Sinusoidal Rumble Strips

Description: Safety effect of changes in sinusoidal rumble strip design.

Target Crash Type: All

Number of Installations:

Number of Installations:

Miles Treated: 118.2

Years Before:

Years After:

Methodology: Regression cross-section
Sinusoidal centerline with rectangular shoulder rumble strips on rural 2-lane highways, average CMF for total crashes = 0.48

Results:

File Name: SinusoidaRumbleStripEval_TechMemo_FINAL.pdf

Project Effectiveness

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

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
None at this time.														

Compliance Assessment

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

12/01/2014

What are the years being covered by the current SHSP?

From: 2014 To: 2019

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

2020

Due to competing crises, the current 2020-2024 SHSP is awaiting signature from the Governor at this time. The final, approved document is anticipated the end of Summer 2020.

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	

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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				

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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]

MnDOT OTE completed a database project identifying the locations and characteristics of intersections on all public roadways. All state highway intersections were manually reviewed for consistency; select counties have opted to edit characteristics of intersections in their respective jurisdictions. This internal database is designed to regularly update based on changes in the linear referencing system.

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.

MnDOT Office of Transportation System Management (OTSM) collects and maintains MIRE fundamental element data and quality. Minnesota has highly reliable data elements on state highways in compliance with MIRE; on the local systems, work is on going to update default "legacy values" with more accurate data. A source accuracy field denotes these default values at this time to cull data which has not been verified through another method. Currently local roadway data comes to OTSM in various formats where it is translated by linear referencing system (LRS) editors into the required formatting. OTSM estimates that all characteristics are updated at least annually.

All route data and MIRE elements maintained by MnDOT OTSM are published weekly to the State of Minnesota GeoCommons website for consumption by partners and the general public.

Non-local Paved Roads are defined here as trunk highways: in Minnesota, all of these roads are owned by the State. MnDOT has maintained an inventory of intersections and interchanges with trunk highways. OTSM will continue to maintain reasonable estimates and make avenues available for local agencies to enter and maintain additional fields.

Optional Attachments

Program Structure:

HSIP funding guide FINAL.pdf

Project Implementation:

Safety Performance:

Evaluation:

2020_Rectangular-Rumble-Strip.pdf

2020_PSL-Change.pdf

SinusoidalRumbleStripEval_TechMemo_FINAL.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.