IOWA

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2022 ANNUAL REPORT

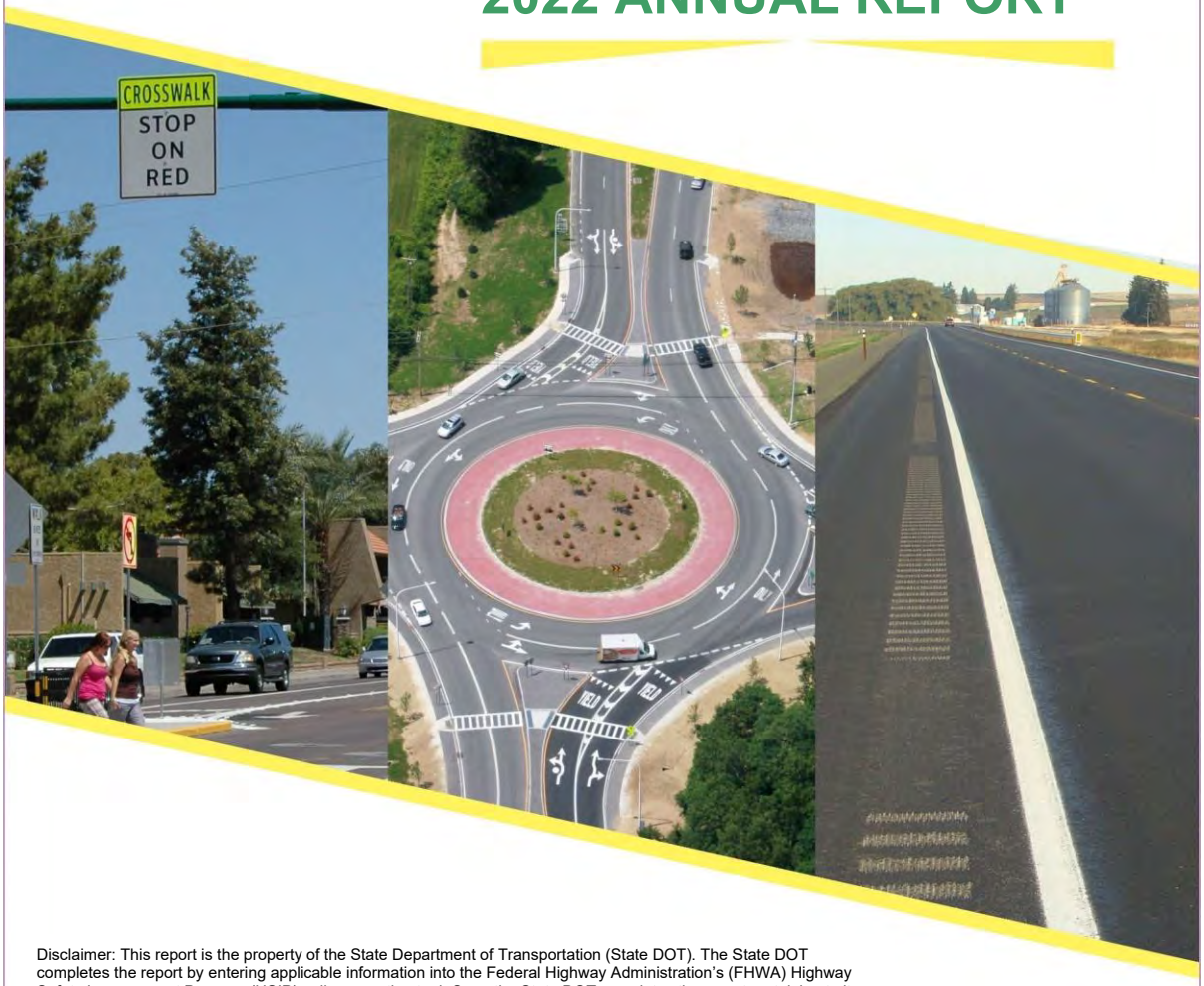

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Photo source: Federal Highway Administration

Table of Contents

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. 407 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 Iowa DOT Traffic and Safety Bureau has continued to develop and implement a data-informed safety program. The Bureau is back to full staff following the hiring of three new staff members. Significant milestones since the last report have included:

-updates and expansion of the SPF based Potential for Crash Reduction (PCR) tool for the 2016-2020 period to include statewide intersections as well as addition of the Primary system for segments,

-completion of a new Benefit/Cost tool,

-implementation of a completed ICE policy,

-delivery from consultant of Iowa calibrated Crash Prediction Tool spreadsheets to incorporate HSM Part C predictive methods for rural two lane, multilane, and urban and suburban arterials,

-development of a Safety Analysis Guide for internal and external users.

Statewide crash data continues to be improved with more automation for the weekly data download process, providing current crash data for the GIS-based Iowa Crash Analysis Tool.

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 state's HSIP funds are assigned to three different categories: District Initiatives, Statewide Initiatives, and Interstate High Contrast Pavement Markings (for 5-years). District Initiative projects are identified by the districts, based on their local knowledge or results of a safety study combined with data-driven methods such as their District Road Safety Plan or the SPF-based Potential for Crash Reduction (PCR) tool recently developed for Primary segments and statewide intersections. Statewide Initiative projects are identified by Traffic and Safety Bureau staff based on research/study results, and can involve a mixture of reactive/site-specific and risk-based systemic improvements, especially when they can be applied at multiple locations across various districts. All projects are selected for funding by central office staff. District projects are approved for funding based on whether they were identified by their respective District Road Safety Plan, if a benefit-cost ratio exceeds one, or based on the Potential for Crash Reduction level (High or Medium). District projects are typically designed in-house, but the majority of statewide projects are designed by an outside consultant. The 5-year Interstate High Contrast Pavement Markings plan is being incorporated with Traffic and Safety Bureau and Maintenance Bureau staff, and designed by relevant district staff. All projects are tracked by central office staff, including crashes, costs, and construction dates. Crashes for 3 to 5 years pre-construction are compared 3 to 5 years of post-construction crashes, and a benefit-cost analysis is conducted for all projects.

Where is HSIP staff located within the State DOT?

Operations

How are HSIP funds allocated in a State?

- Formula via Districts/Regions

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

Iowa utilizes state funds to address safety on local and tribal roads. HSIP-Secondary addresses safety issues on the Secondary (county-owned) roadway system, and is focused on funding projects incorporating systemic, low-cost safety improvements. Typical countermeasures include rumble strips, grooved-in pavement markings, paved shoulders, improved signage, and guardrail updates. This program is going to be renamed HSIP-Local, receive a funding increase from $2 million to $5 million, and expand to also include City/MPO applications. Some additional countermeasures may also be added, such as reflective sign strips and curve warning signs. The program is also expected to be used for local match for SS4A Safety Action Plan development.

Additional safety improvements on other local roads, including county, city, institutional, and tribal roads, are addressed via the state's Transportation Safety Improvement Program (TSIP). TSIP is a competitive, application-based program that awards approximately $7 million in state funds annually for safety projects on and off the state system. Funding is provided in three categories: studies and outreach, the purchase of traffic control devices, and the construction of larger infrastructure projects.

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

- Districts/Regions
- Maintenance
- Traffic Engineering/Safety

Describe coordination with internal partners.

Most HSIP projects are designed and administered by staff in the six Iowa DOT Districts. Therefore, the Districts are consulted early and often in the HSIP planning process. As described above, approximately 80% of the HSIP project funding is designated to "District Initiatives" (between 12-16% per district) which are submitted as candidates and selected based on funding availability and alignment with SHSP emphasis areas and strategies, most frequently intersections and lane departures. A large majority of funding goes toward addressing lane departure crashes through shoulder improvements and associated shoulder and centerline rumble strips, most commonly paving existing shoulders. Districts identify projects based on local knowledge combined with data-driven methods such as recommendations from the risk-factor based District Road Safety Plans and the SPF based Potential for Crash Reduction tool, especially with the recent completion of PCR for Primary segments.

Interstate High Contrast pavement marking projects are coordinated with the DOT Maintenance Bureau, as are potential rumble strip shoulder and centerline retrofit projects. DOT Program Management Bureau also reviews the HSIP before submittal to FHWA.

Identify which external partners are involved with HSIP planning.

- FHWA

Describe coordination with external partners.

The State Safety Engineer and HSIP manager meet annually with FHWA Iowa Division personnel to review the state's HSIP approval process and update it, if necessary. FHWA Division staff and DOT Traffic and Safety Bureau staff also communicate through emails and phone calls throughout the year.

Program Methodology

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

Yes

The state HSIP Manual (2019) will will receive minor updates in calendar year 2023. These will address the additional tools that have been developed at Iowa DOT such as the Safety Performance Function (SPF) based Potential for Crash Reduction (PCR) tool that is being further integrated into the project development process (discussed in Question 19), as well as the draft Safety Analysis Guide (December 2021) that will be finalized

this Winter 2022/23, and other updates such as new Access Management Guidelines. Further revisions will likely follow the updated SHSP in 2023 and the release of AASHTO HSM 2.

Select the programs that are administered under the HSIP.

- HSIP (no subprograms)

Program: HSIP (no subprograms)

Date of Program Methodology:5/1/2017

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Funding set-aside

What data types were used in the program methodology?

Crashes	Exposure	Roadway
• All crashes • Other-with consideration of fatal and serious injury crashes	• Volume	• Roadside features

What project identification methodology was used for this program?

- Crash frequency
- Excess expected crash frequency using SPFs
- Expected crash frequency with EB adjustment
- Other-Risk Factors
- Probability of specific crash types

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

No

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

How are projects under this program advanced for implementation?

- 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

Available funding:2
Cost Effectiveness:1

What percentage of HSIP funds address systemic improvements?

80

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

- Cable Median Barriers
- Install/Improve Lighting
- Install/Improve Pavement Marking and/or Delineation
- Pavement/Shoulder Widening

What process is used to identify potential countermeasures?

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

Does the State HSIP consider connected vehicles and ITS technologies?

No

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.

Iowa is making steady progress for increasing incorporation of the Highway Safety Manual (HSM) in project development and design.

With respect to safety project candidate identification and development, safety performance functions (SPF) have been developed by category (and calibrated) for**Primary road segments** and for **All intersections statewide** (that have AADT traffic data and at least one paved approach). The next phase will add all**Secondary road segments**, and is nearly complete. This SPF values are then compared with 5-year intersection/segment crash data (corrected using empirical bayes methodology) 'corrected' to develop Potential for Safety Improvement, referred to for Iowa DOT as "Potential for Crash Reduction" (PCR). This PCR tool is incorporated into a GIS webpage and has been updated for 2014-2018 and 2016-2020, with continuous 2-year updates anticipated. This is being used by various DOT bureaus as well as local agencies and project consultants for data driven network screening and safety project prioritization.

Once project candidates are identified, intersection and segment crash distribution dashboards are being generated to compare individual intersection and segment crash distributions to similar locations within the same category, identify crash types that are over-represented, and thus identify potential countermeasures.

Although the state has been using crash modification factors (CMFs) for years, the number of CMFs available on the CMF clearinghouse has grown exponentially, and there remain many countermeasures for which a good CMF does not exist, or the most appropriate is difficult to select. Therefore, the need for state-specific CMFs was identified, and a list of approximately 70 commonly used CMFs was published in August 2019. This list will be updated as needed with refined values or new countermeasures, likely on a 2-4 year basis.

Finally, a consultant has developed a state-specific framework for conducting safety evaluations consistent with HSM Part C methods, via a spreadsheet tool. The rural two-lane, rural multilane, and urban/suburban arterial versions of the tool have been delivered to the state, and some Districts are current "pilot-testing" this tool for Concepts and Alternatives, including for planned Super-2 corridors.

Project Implementation

Funds Programmed

Reporting period for HSIP funding.

State Fiscal Year

The State of Iowa fiscal year is between July 1 through June 30.

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	$38,317,000	$35,702,506	93.18%
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)	$0	$0	0%
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	$38,317,000	$35,702,506	93.18%

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

0%

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

0%

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

0%

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

0%

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?

$31,500,000

On July 22, 2022, $17.5 million from FY 2022 and $14 million from FY 2021 (Total $31,500,000) was transferred from HSIP to NHP per FMISL11A report.

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

There is an adequate supply of HSIP project candidates identified by the Districts and the Traffic and Safety Bureau. However, impediments to fully obligating programmed HSIP funds include proper estimating and long development timelines between HSIP project identification and ultimate project design and bidding.

Initial cost estimates tend to be high in order to account for project uncertainties and to avoid having to ask for more money at a later time. Rapid changes in material availability have affected estimates differently depending on when in the year the project was bit. In addition, the high visibility interstate pavement marking estimates appear to have been have been overly conservative for this year, but this may not be the case in future years with additional material shortages.

Project development timelines can be affected by multiple external forces including coordination, clearances, and unforeseen circumstances. Our goal is to work with project sponsors and project managers to improve the accuracy of cost estimates and to minimize time delays in order to obligate HSIP funds to the fullest extent.

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
HSIPX-001-1(36)--3L-89	Shoulder treatments	Pave existing shoulders	8.5	Miles	$2152964	$2683360	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	2,830	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-009-6(67)--3L-98	Shoulder treatments	Pave existing shoulders	9.96	Miles	$1344935	$2133443	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	2,700	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-014-5(74)--3L-64	Shoulder treatments	Pave existing shoulders	19.8	Miles	$998302	$1109224	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	4,900	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-018-2(129)--3L-71	Roadway	Roadway narrowing (road diet, roadway reconfiguration)	1	Miles	$596639	$662932	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	4,700	35	State Highway Agency	Systemic	Intersections	Signing and geometric design strategies
HSIPX-030-7(215)--3L-57	Roadside	Barrier – cable	3.2	Miles	$864143	$960159	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	31,800	65	State Highway Agency	Systemic	Lane Departure	Initiate median cable barrier installations on multi-lane divided highways.
HSIPX-031-1(50)--3L-97	Shoulder treatments	Pave existing shoulders	14.22	Miles	$3405153	$3783503	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	1,300	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-034-1(121)--3L-65	Intersection geometry	Add/modify auxiliary lanes	2	Approaches	$841029	$934477	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	6,700	55	State Highway Agency	Systemic	Intersections	Change Intersection Geometry
HSIPX-044-4(48)--3L-39	Shoulder treatments	Pave existing shoulders	5.66	Miles	$960813	$1067570	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	3,270	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-052-3(39)--3L-22	Shoulder treatments	Pave existing shoulders	5.15	Miles	$736086	$817873	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	3,700	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-059-7(53)--3L-18	Shoulder treatments	Pave existing shoulders	12.36	Miles	$2244941	$2494379	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	2,380	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-063-8(69)--3L-19	Lighting	Intersection lighting	1	Intersections	$31152	$34613	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	3,660	55	State Highway Agency	Systemic	Intersections	Use systemic approaches to improve visibility and awareness of intersections

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
HSIPX-069-5(126)--3L-85	Intersection geometry	Add/modify auxiliary lanes	3	Approaches	$410551	$456168	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	7,100	55	State Highway Agency	Systemic	Intersections	Change Intersection Geometry
HSIPX-076-2(64)--3L-03	Shoulder treatments	Pave existing shoulders	12.26	Miles	$2792960	$3103289	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	2,400	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-078-5(10)--3L-58	Shoulder treatments	Pave existing shoulders	3.05	Miles	$452042	$502269	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	2,700	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-136-2(41)--3L-53	Shoulder treatments	Pave existing shoulders	7.37	Miles	$755870	$839855	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	1,000	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-149-1(91)--3L-90	Shoulder treatments	Pave existing shoulders	5	Miles	$809431	$899368	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	6,140	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-149-2(63)--3L-48	Shoulder treatments	Pave existing shoulders	0.93	Miles	$369911	$416632	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	6,400	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-169-4(70)--3L-25	Shoulder treatments	Pave existing shoulders	4.75	Miles	$797990	$886655	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	4,820	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-330-2(94)--3L-64	Shoulder treatments	Pave existing shoulders	6.46	Miles	$1065800	$1198122	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	3,480	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-057-1(38)--3L-12	Shoulder treatments	Pave existing shoulders	4.09	Miles	$1178348	$1309276	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	3,000	55	State Highway Agency	Systemic	Lane Departure	Install or widen paved shoulders
HSIPX-150-2(18)--3L-06	Intersection traffic control	Modify control – Modern Roundabout	1	Intersections	$2583184	$2870204	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	3,900	55	State Highway Agency	Systemic	Intersections	Implement alternative intersection designs that reduce conflct points and enhance safety and mobility
IHSIPX-080-1(530)6--08-78	Roadside	Barrier – cable	10.7	Miles	$2324325	$2582583	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	31,200	70	State Highway Agency	Systemic	Lane Departure	Continue median cable barrier installations on the Interstate system

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
HSIPX-018-6(96)--3L-34	Interchange design	Convert at-grade intersection to interchange	1	Interchanges	$2559966	$2844407	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	18,700	65	State Highway Agency	Systemic	Intersections	Intersecton Designs that reduce conflict points and enhance safety and mobility.
IHSIPX-380-6(459)27--08-57	Roadside	Barrier – cable	9.1	Miles	$902354	$1002615	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	30,000	70	State Highway Agency	Systemic	Lane Departure	Continue median cable barrier installations on the Interstate system
IHSIPX-029-4(137)58--08-78	Roadside	Barrier – cable	4.26	Miles	$651030	$723367	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	18,000	70	State Highway Agency	Systemic	Lane Departure	Continue median cable barrier installations on the Interstate system
IHSIPX-380-7(135)66--08-07	Roadside	Barrier – cable	5.5	Miles	$641451	$712723	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	30,000	65	State Highway Agency	Systemic	Lane Departure	Continue median cable barrier installations on the Interstate system
IHSIPX-035-2(486)52--08-91	Roadside	Barrier – cable	1.5	Miles	$325300	$361444	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	25,000	70	State Highway Agency	Systemic	Lane Departure	Continue median cable barrier installations on the Interstate system
IHSIPX-080-4(95)138--08-77	Roadway delineation	Improve retroreflectivity	13	Miles	$256741	$285268	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	31,000	70	State Highway Agency	Systemic	Lane Departure	Systemic approaches to improve visibility
IHSIPX-080-6(526)205--08-48	Roadway delineation	Improve retroreflectivity	24.13	Miles	$548816	$609796	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	31,600	70	State Highway Agency	Systemic	Lane Departure	Systemic approaches to improve visibility
IHSIPX-080-6(525)229--08-52	Roadway delineation	Improve retroreflectivity	19	Miles	$478436	$531595	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	63,700	70	State Highway Agency	Systemic	Lane Departure	Systemic approaches to improve visibility

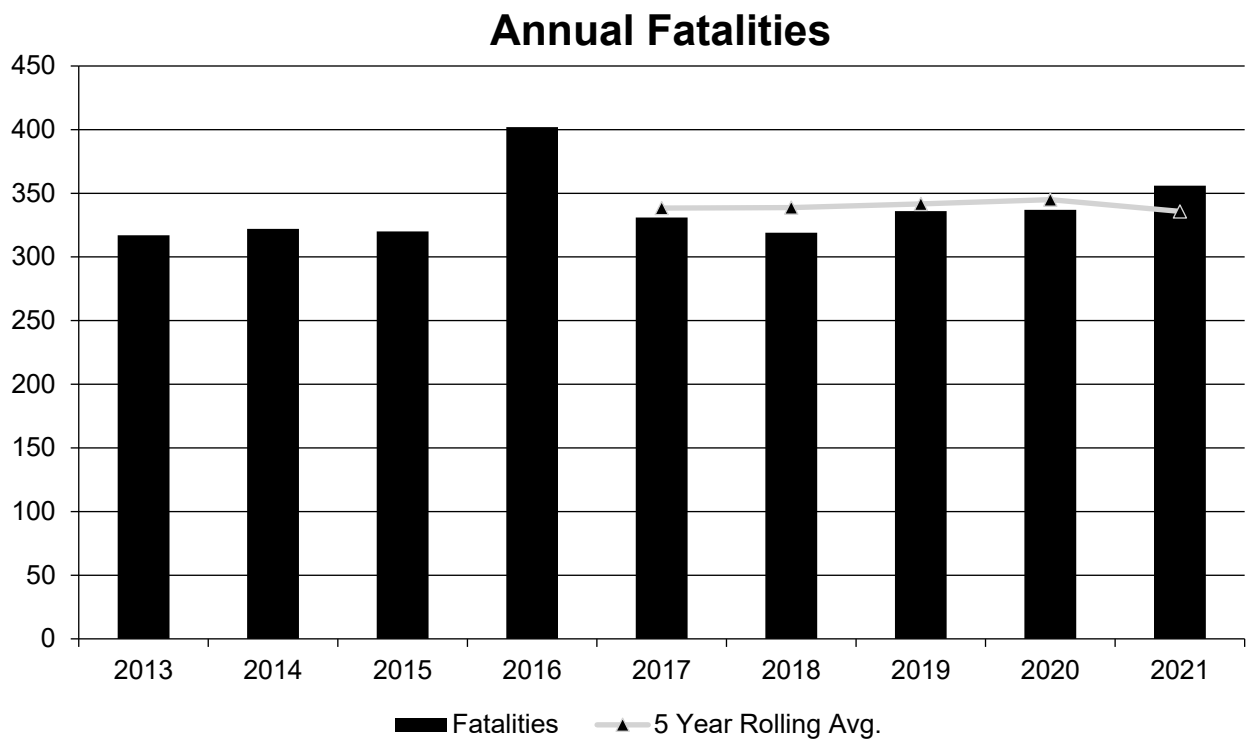
PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
IHSIPX-080-7(177)255--08-16	Roadway delineation	Improve retroreflectivity	22.8	Miles	$696429	$773810	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	37,800	70	State Highway Agency	Systemic	Lane Departure	Systemic approaches to improve visibility
IHSIPX-080-8(348)278--08-82	Roadway delineation	Improve retroreflectivity	28.3	Miles	$925417	$1028241	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	43,900	70	State Highway Agency	Systemic	Lane Departure	Systemic approaches to improve visibility

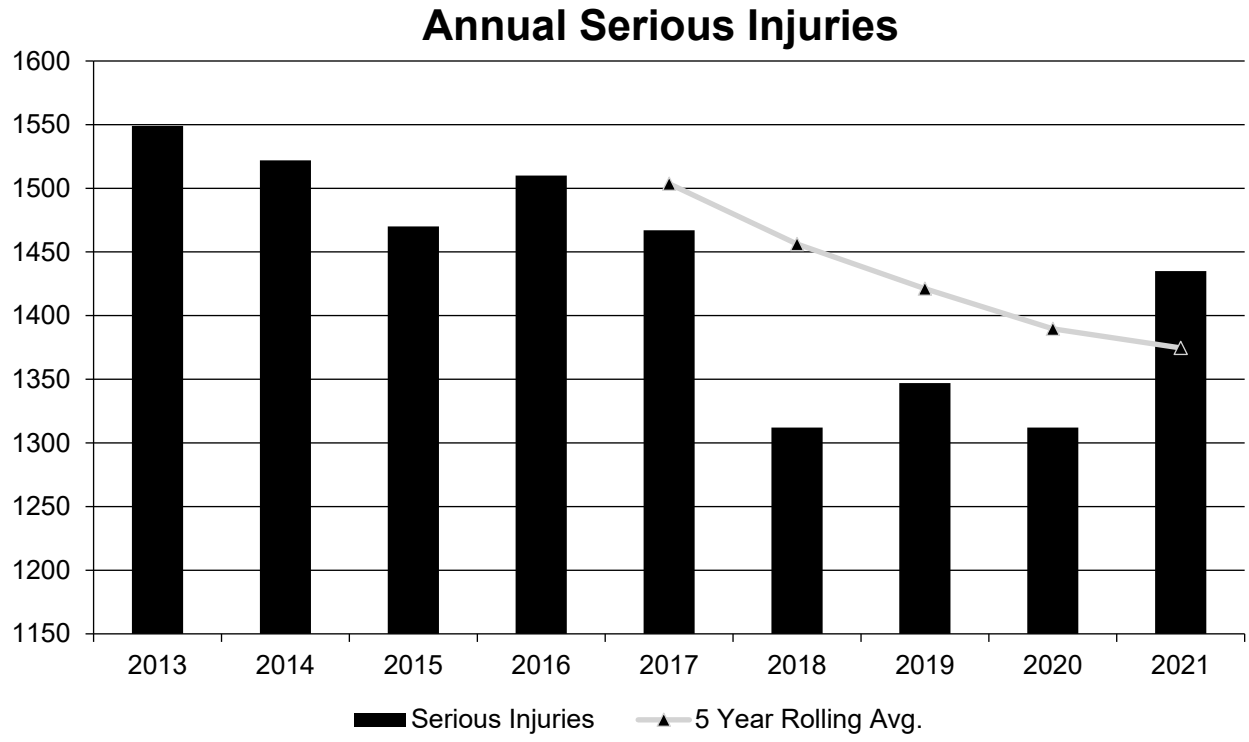
Safety Performance

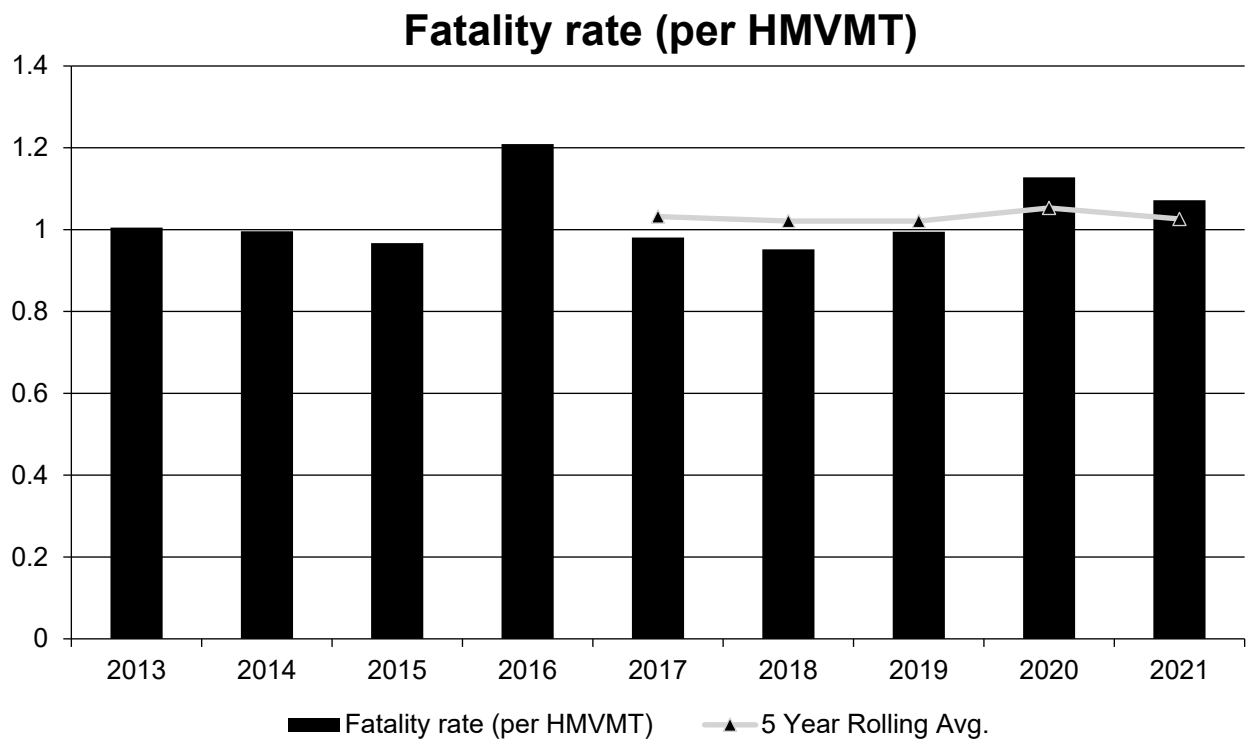
General Highway Safety Trends

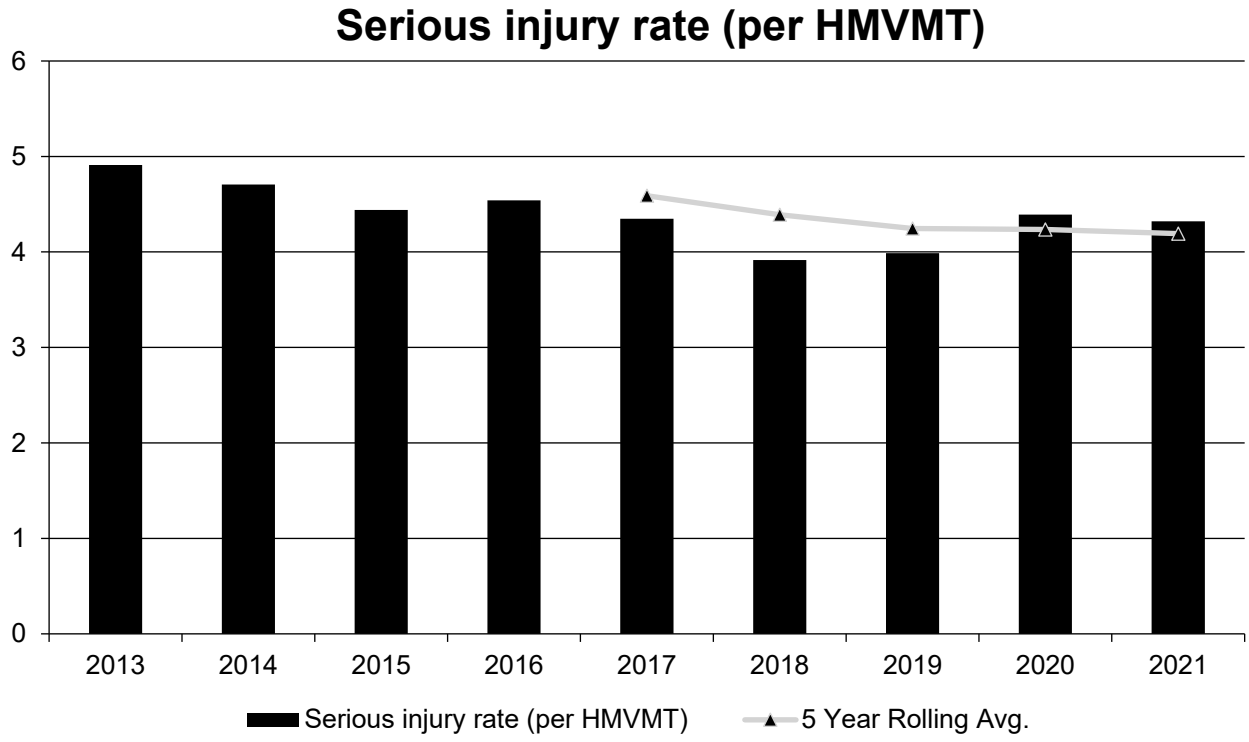
Present data showing the general highway safety trends in the State for the past five years.

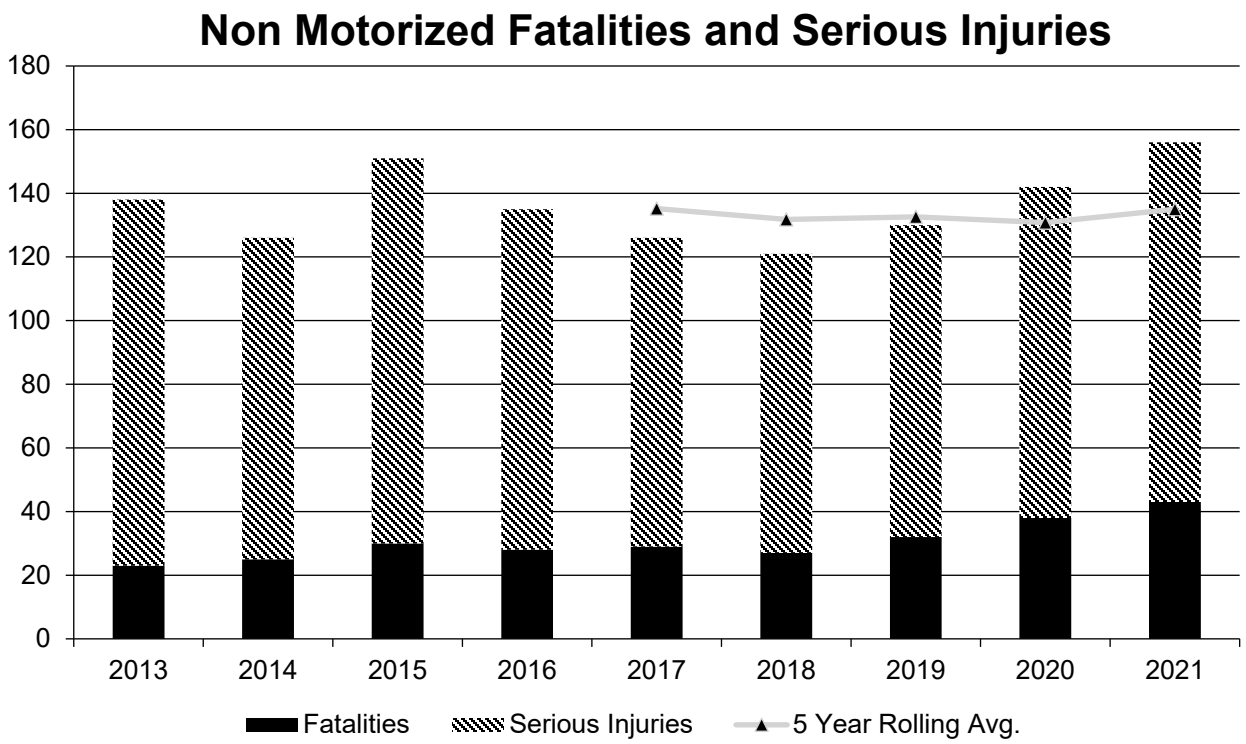
PERFORMANCE MEASURES	2013	2014	2015	2016	2017	2018	2019	2020	2021
Fatalities	317	322	320	402	331	319	336	337	356
Serious Injuries	1,549	1,522	1,470	1,510	1,467	1,312	1,347	1,312	1,435
Fatality rate (per HMVMT)	1.005	0.996	0.967	1.209	0.981	0.952	0.995	1.128	1.072
Serious injury rate (per HMVMT)	4.911	4.707	4.440	4.540	4.347	3.916	3.988	4.391	4.320
Number non-motorized fatalities	23	25	30	28	29	27	32	38	43
Number of non-motorized serious injuries	115	101	121	107	97	94	98	104	113


Annual Fatalities
450
400
350
300
250
200
150
100
50
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
1600
1550
1500
1450
1400
1350
1300
1250
1200
1150
2013
2014
2015
2016
2017
2018
2019
2020
2021
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
6
5
4
3
2
1
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



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)
State Highway Agency	175.4	607.6	0.86	2.97
Rural Principal Arterial (RPA) - Interstate				
Rural Principal Arterial (RPA) - Other Freeways and Expressways				
County Highway Agency	116	453	2.13	8.31
Town or Township Highway Agency				

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) - Other				
Rural Minor Arterial				
City or Municipal Highway Agency	52	321.6	0.75	4.65
Rural Minor Collector				
State Park, Forest, or Reservation Agency				
Local Park, Forest or Reservation Agency				
Rural Major Collector				
Rural Local Road or Street				
Other State Agency				
Other Local Agency				
Urban Principal Arterial (UPA) - Interstate				
Urban Principal Arterial (UPA) - Other Freeways and Expressways				
Private (Other than Railroad)				
Urban Principal Arterial (UPA) - Other				
Railroad				
Urban Minor Arterial				
State Toll Authority				
Local Toll Authority				
Urban Minor Collector				
Urban Major Collector				

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)**
Other Public Instrumentality (e.g. Airport, School, University)				
Urban Local Road or Street				
Indian Tribe Nation				

Year 2021

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	157.6	554.8	0.77	2.71
County Highway Agency	108	415	1.98	7.61
Town or Township Highway Agency				
City or Municipal Highway Agency	50.6	311.2	0.74	4.54
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 2023 Targets *

Number of Fatalities:351.4

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

A simple trend analysis of historical fatality data was performed. An integrated moving average model was run to estimate how much risk would be associated with each set of predictions. Our working group settled on using a 75% confidence level. This means we are at least 75% confident the actual 5-year rolling average will be less than the target.

Number of Serious Injuries:1398.2

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

A simple trend analysis of historical serious injury data was performed. An integrated moving average model was run to estimate how much risk would be associated with each set of predictions. Our working group settled on using a 75% confidence level. This means we are at least 75% confident the actual 5-year rolling average will be less than the target.

Fatality Rate:1.073

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

A simple trend analysis of historical fatality data was performed. An integrated moving average model was run to estimate how much risk would be associated with each set of predictions. Our working group settled on using a 75% confidence level. This means we are at least 75% confident the actual 5-year rolling average will be less than the target. **This target supports the SHSP goal of continuing to reduce the fatality rate to 1.000 per HMVMT.**

Serious Injury Rate:4.264

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

A simple trend analysis of historical serious injury data was performed. An integrated moving average model was run to estimate how much risk would be associated with each set of predictions. Our working group settled on using a 75% confidence level. This means we are at least 75% confident the actual 5-year rolling average will be less than the target. **This target supports the SHSP goal of continuing to reduce the serious injury rate below 4.300 per HMVMT.**

Total Number of Non-Motorized Fatalities and Serious Injuries:134.4

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

A simple trend analysis of historical non-motorized fatality and serious injury data was performed. An integrated moving average model was run to estimate how much risk would be associated with each set of predictions. Our working group settled on using a 75% confidence level. This means we are at least 75% confident the actual 5-year rolling average will be less than the target.

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

The DOT's safety target working group established the methodology for setting the performance targets, using the same process as last year and the year before. The chosen targets and a description of the methodology were shared with representatives from the Governor's Traffic Safety Bureau for discussion. DOT and DPS leadership discussed aspirational targets and resolved to continue with statistically driven target setting.

A draft safety memo outlining the chosen targets and methodology was sent to all MPOs in the state with a request for comments. No substantive comments regarding the targets or the methodology were received during the comment period.

Iowa DOT and DPS have continued to promote institutional changes in service of an aspirational goal less to reduce fatalities to less than 300 fatalities per year.

Does the State want to report additional optional targets?

No

Describe progress toward meeting the State's 2021 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	336.8	335.8
Number of Serious Injuries	1370.8	1374.6
Fatality Rate	0.983	1.026
Serious Injury Rate	4.002	4.192
Non-Motorized Fatalities and Serious Injuries	131.0	135.0

The state met its target for the 5-year average number of fatalities. The state did not meet its target for the 5-year average number of serious injuries (0.28% above), the 5-year average fatality rate (4.37% above), the 5-year average serious injury rate (4.78% above), or the 5-year average number of non-motorized fatalities and serious injuries (3.05% above).

Comparing this 2017-2021 5-year Target and Actual data with the 2015-2019 Baseline data for the forthcoming Performance Target assessment, Iowa will have met or made significant progress in 3 of 5 performance measures - "Meeting the Target" in Number of Fatalities, and "Better than Baseline" in Number of Fatalities, Fatality Rate, and Serious Injury Rate, and slightly worse than Baseline in Fatality Rate (1.024 Baseline vs 1.026 Actual) and Non-Motorized Fatalities and Serious Injuries (133.4 Target vs 135 Actual).

Two variables that are believed to contribute to this variation between the Target and Actual performance measures are reductions in vehicle miles traveled (VMT) during 2020-2021 during the Covid-19 pandemic, and the simultaneous increase in risky driver behaviors observed nationwide - such as more drivers speeding over the posted speed limit and speeding at higher rates of speed, more distracted and impaired driving, lower rates of enforcement, etc. These behaviors result in more fatal and serious injury crashes, and the VMT reductions result in higher rates.

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	2015	2016	2017	2018	2019	2020	2021
Number of Older Driver and Pedestrian Fatalities	51	56	52	51	51	51	70
Number of Older Driver and Pedestrian Serious Injuries	123	125	155	127	144	119	191

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

- Benefit/Cost Ratio

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

As a summary since fiscal year 2001, the state's HSIP expenditures have resulted in a benefit-cost ratio of approximately 6 to 1. Some of the highest B-C ratios resulted from extremely low-cost improvements such as supplemental roadway signs, lighting, or roadside clearing.

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

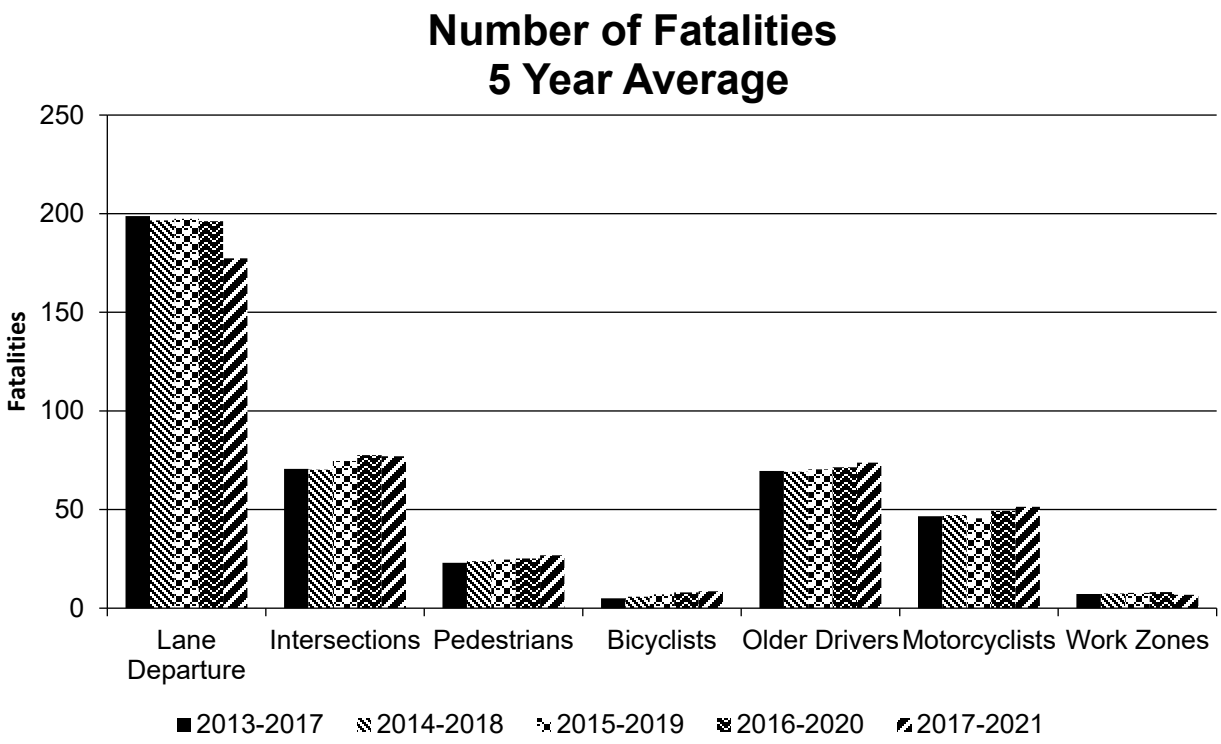
- HSIP Obligations
- Increased awareness of safety and data-driven process
- Increased focus on local road safety
- Organizational change
- Policy change

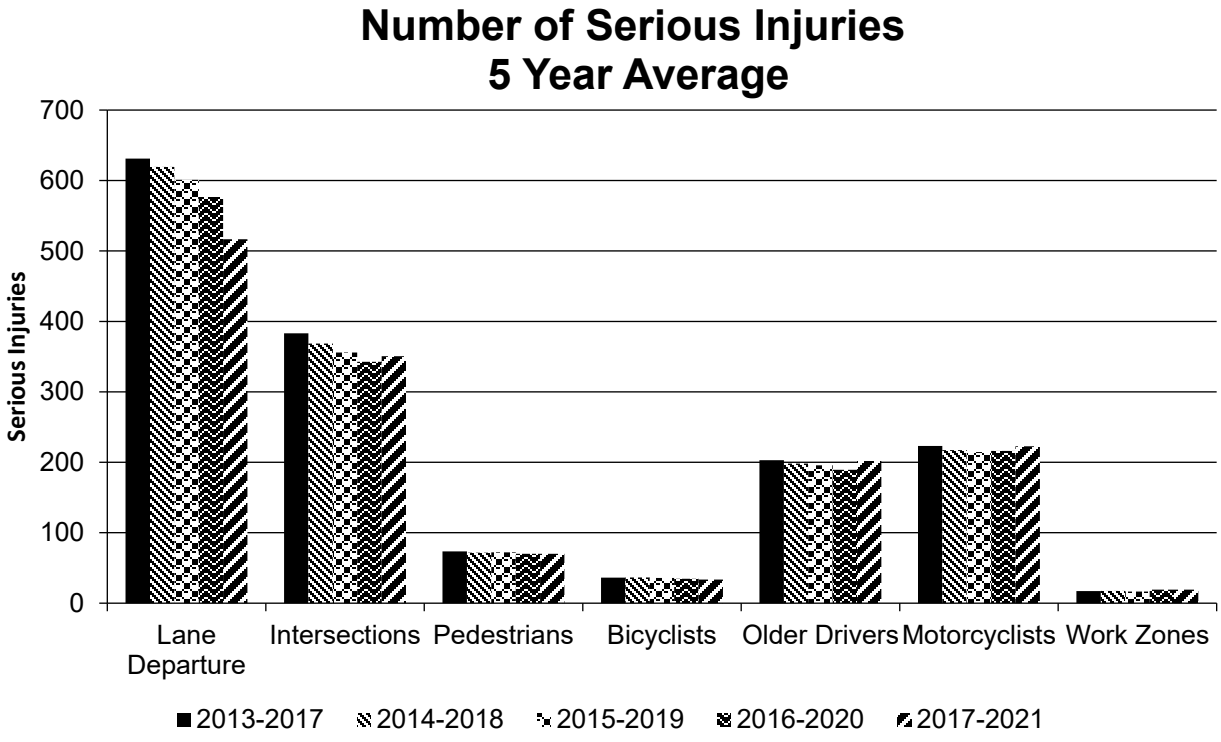
Effectiveness of Groupings or Similar Types of Improvements

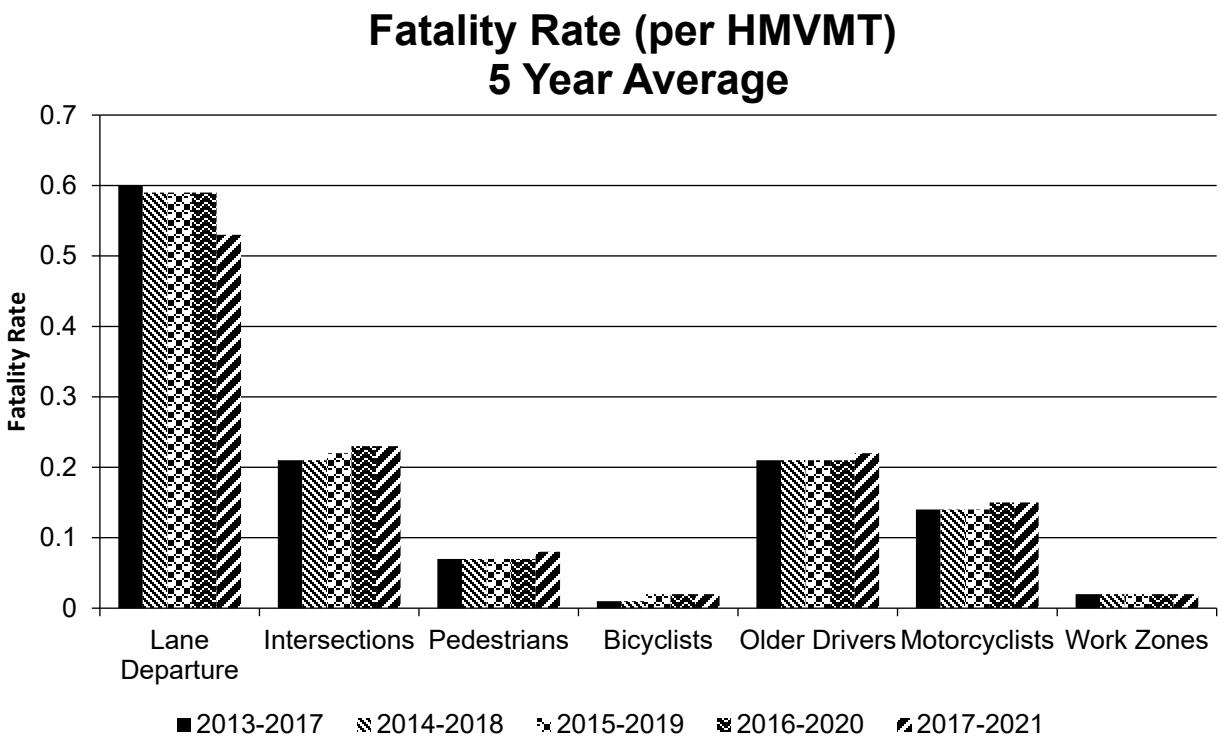
Present and describe trends in SHSP emphasis area performance measures.

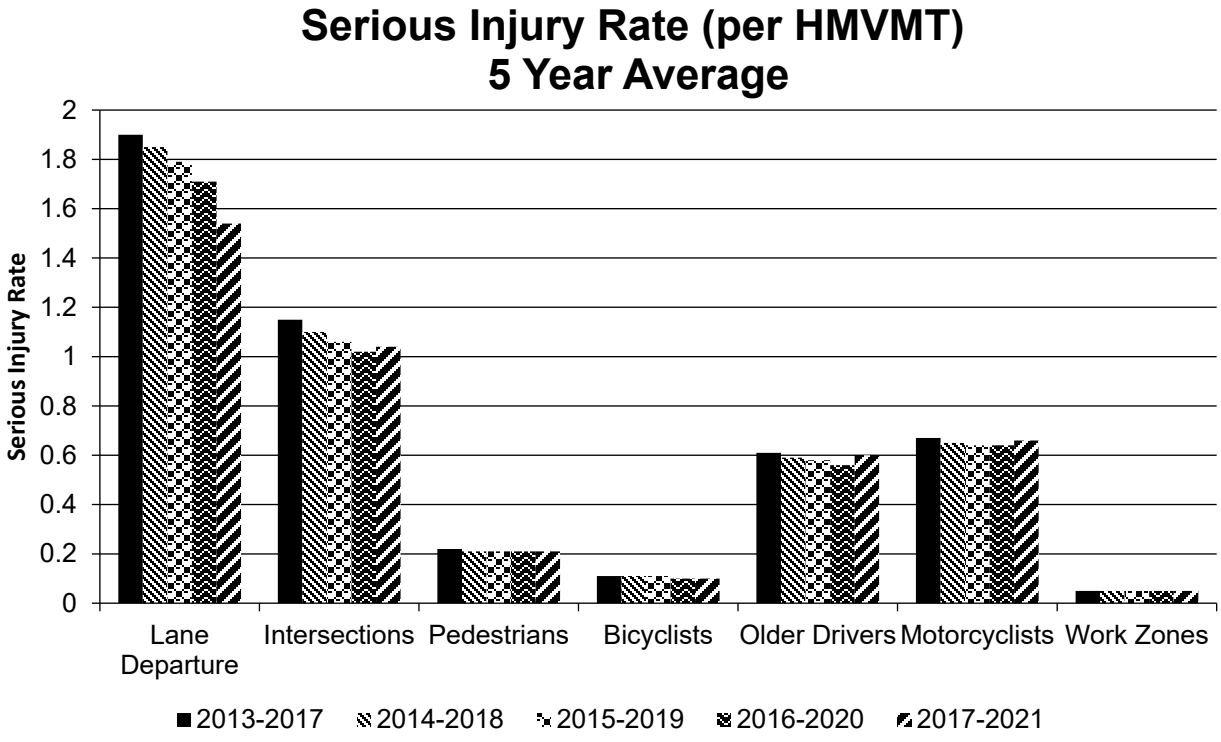
Year 2021

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)
Lane Departure		177.4	516.6	0.53	1.54
Intersections		77	350.6	0.23	1.04
Pedestrians		26.8	70.2	0.08	0.21
Bicyclists		8.6	33.6	0.02	0.1
Older Drivers		73.8	201.8	0.22	0.6
Motorcyclists		51.4	222.8	0.15	0.66
Work Zones		6.8	19.2	0.02	0.05


Number of Fatalities
5 Year Average
Fatalities
250
200
150
100
50
0
Lane Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Number of Serious Injuries
5 Year Average
Serious Injuries
700
600
500
400
300
200
100
0
Lane Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Fatality Rate (per HMVMT)
5 Year Average
Fatality Rate
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Lane Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Serious Injury Rate (per HMVMT)
5 Year Average
Serious Injury Rate
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Lane Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021

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?

12/20/2018

What are the years being covered by the current SHSP?

From: 2019 To: 2023

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

2023

The Iowa DOT Traffic and Safety Bureau - Safety Engineering Section recently hired a new Transportation Planner (Summer 2022). This employee will manage the SHSP update to be completed in 2023, and the planning and stakeholder outreach process is underway

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	100
	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	100		
	Begin Point Segment Descriptor (10) [10]	100	100					100	100	100	100
	End Point Segment Descriptor (11) [11]	100	100					100	100	100	100
	Segment Length (13) [13]	100	100								
	Direction of Inventory (18) [18]	100	100								

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
	Functional Class (19) [19]	100	100					100	100	100	100
	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	100
INTERSECTION	Unique Junction Identifier (120) [110]			100	100						
	Location Identifier for Road 1 Crossing Point (122) [112]			100	100						
	Location Identifier for Road 2 Crossing Point (123) [113]			100	100						
	Intersection/Junction Geometry (126) [116]			100	100						
	Intersection/Junction Traffic Control (131) [131]			100	100						
	AADT for Each Intersecting Road (79) [81]			100	100						
	AADT Year (80) [82]			100	100						
	Unique Approach Identifier (139) [129]			100	100						
INTERCHANGE/RAMP	Unique Interchange Identifier (178) [168]					100	100				

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
	Location Identifier for Roadway at Beginning of Ramp Terminal (197) [187]					100	100				
	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]					100	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]					100	100				
Totals (Average Percent Complete):		**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

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

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.

No actions are required at this time. The State of Iowa is already compliant.

Optional Attachments

Program Structure:

HSIP Manual FINAL FY 19.pdf
Project Implementation:

Safety Performance:

Evaluation:

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.