MICHIGAN

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2017 ANNUAL REPORT

U.S. Department of Transportation
Federal Highway Administration

Photo source: Federal Highway Administration

Table of Contents

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

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

Executive Summary

The 2017 HSIP Annual Report for the Michigan Department of Transportation (MDOT) will be for the one year time period of FY 2016 which commenced on October 1, 2015 and ended on September 30, 2016. This report addresses safety improvements funded through MDOT on both trunkline and non-trunkline roadways.

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 general structure of the HSIP is to select cost effective safety improvements, as identified in Michigan's Strategic Highway Safety Plan (SHSP), to address locations with correctable fatality (K) and serious injury (A) crashes. Projects are selected and identified during the annual Call for Projects process for local and non-local roadways. The selected projects are designed and implemented via the Region offices and Local Agency Programs oversight. Before and After studies are conducted to evaluate the effectiveness of a particular countermeasure.

Where is HSIP staff located within the State DOT?

Design

Enter additional comments here to clarify your response for this question or add supporting information.

The HSIP program is managed out of the MDOT Central Office in the Bureau of Highway Development -->Design Division --> Design Programs Section--> Safety Programs, Pavement Markings and Bureau of Highway Development --> Development Services Division --> Local Agency Programs (Local Safety).

How are HSIP funds allocated in a State?

Other-Central Office via Statewide Formula via MDOT Regions
Other-Central Office via Statewide Competitive Application Process for Local Agencies
Other-Central Office via Funding Set Aside

Enter additional comments here to clarify your response for this question or add supporting information.

The Lansing Central Office manages a separate Call for Projects process for both the state owned and locally owned roadways. There is also a set aside amount directly for pavement markings.

The Local Agency Call for Projects is a competitive application process between all of the Local Agencies of Michigan, while the Statewide Trunkline Call for Projects has certain funding targets for each of the 7 Regions, calculated based on lane miles, volumes, and Fatality and Serious injuries.

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

For the local roadway network, HSIP funds ($15.1 M) are administered by the Local Agency Programs Safety Engineer located in the Central Office. Typically, only the construction phase is eligible for federal aid. Preliminary engineering costs were eligible for federal participation if it was for a project identified on the Transparency (5%) Report, by the Local Safety Initiative, in a Road Safety Audit (RSA) or in a traffic signal optimization project. Otherwise, preliminary engineering was not eligible for federal safety funds. Projects are federally funded at 80 or 90 percent up to an amount not to exceed $600,000 of Federal funding, with a 20 or 10 percent Local Agency match, respectively.

All Local Agencies within Metropolitan Planning Organizations (MPO) areas must coordinate with their MPO to ensure inclusion of their project in the area's Transportation Improvement Plan (TIP). Those agencies that are part of a rural task force are to notify their members that they applied for these funds. Rural task force approval is not necessary. MDOT Local Agency Programs (LAP) coordinates with MDOT Planning to ensure these projects are included in the Statewide Transportation Improvement Plan (STIP).

The planning and selection of projects for the local roadway system is very similar to that of the state trunkline. Local agencies were invited by a June 12, 2014 memorandum to submit proposed projects for consideration as part of an annual call for projects (CFP). All local agencies (counties, cities, and villages) are able to apply for the funds. Townships and tribal organizations are also eligible to receive the safety funds but must work with their respective county for submittal of the application. The emphasis of the local FY 2016 CFP was to address those locations with correctable fatality and injury crashes to support the department's efforts of reducing fatalities and serious injuries. Per the CFP, the Local Agency was to provide a Time of Return (TOR) analysis showing how the proposed improvement would address fatalities and injuries. In the TOR, all crash types and severity levels correctable by the proposed improvement can be included. A maximum of five years of available crash data is to be used in the TOR analysis. For FY 2016 projects, 2009 to 2013 (or the current availability) crash data was used.

Eligible projects must meet current standards and warrants. Project types may include replacement, installation or elimination of guardrail, removal of fixed objects from clear zones, traffic and pedestrian signal optimization, installation and upgrades, access management, horizontal and vertical curve modifications, sight distance and drainage improvements, bridge railing replacement or retrofit, roadway intersection improvements to improve

safety, mid-block pedestrian crossings, improvements to school zones, shoulder and centerline rumble strips, and improved permanent signing and pavement markings.

For the FY 2016 CFP, a greater emphasis is placed on the identification of correctable fatalities and serious injuries, both in the selection and prioritization of safety projects. In addition, in FY 2016, a small portion of the local safety funds were allocated to five subprograms: Centerline and Shoulder Rumble Strips ($200 K), Guardrail Upgrades and Clear Zone Improvements ($1.5 M), High Friction Surface Treatment ($100 K), Road Safety Audits ($50 K) and Non-motorized Facility/Pedestrian Improvements ($100 K). Local agencies were informed that this money is reserved for the listed strategic improvements, and encouraged to submit conforming projects.

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

Traffic Engineering/Safety
Design
Planning
Maintenance
Operations
Other-Local Agency Programs

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

Describe coordination with internal partners.

MDOT's Safety Programs Unit provides support and coordination to internal partners within the Department. Each of the seven Regions is comprised of a Traffic Safety and Operations Engineer as well as Traffic and Safety Engineers located in the Transportation Service Center (TSC) offices. Employees within the Safety Programs Unit distribute the High Crash List, Transparency (5%) Report, and Pavement Friction Analysis to the Region and TSC staff for their use in project selection. Road Safety Audits and 3R/4R Safety Reviews are conducted with various internal partners located with the Central, Region, and TSC offices. In addition, the Safety Programs Unit supports the Regions and TSC's with special data requests in the development of their safety program.

HSIP funding partnering is also coordinated between the Traffic and Safety Unit and Local Agency Programs.

Identify which external partners are involved with HSIP planning.

Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
Local Government Agency
Academia/University
FHWA
Other-County Road Association of Michigan
Other-Office of Highway Safety Planning

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

Describe coordination with external partners.

MDOT coordinates with various Colleges and Universities to provide research opportunities on existing and up and coming safety countermeasures. MDOT coordinates with FHWA on existing and proposed federal legislation and standards. MDOT also coordinates with the County Road Association, Regional Planning Organizations, and Local Government Agencies to help communicate safety initiatives and safety countermeasures. Overall, MDOT is vigilant about coordination with external partners.

Have any program administration practices used to implement the HSIP changed since the last reporting period?

No

Are there any other aspects of HSIP Administration on which the State would like to elaborate?

Yes

Describe other aspects of HSIP Administration on which the State would like to elaborate.
For the State Trunkline Program, safety funds are administered by the Safety Template Program Manager in Traffic and Safety (Central Office). For FY 2016, $19M in safety funding was available, of which $15.6M was allocated to the seven MDOT Regions as funding targets. The allocations were based on the percentage of fatalities and serious injuries, lane miles and Vehicle Miles Traveled in each Region. The goal is that all Regions receive a minimum of 5 percent of the Safety Target.

Beyond the allocated $15.6 M, an additional $2M of the safety funds was reserved by the Traffic and Safety area to apply to projects in any Region at their discretion. The Regions were permitted to submit candidate projects with total costs exceeding their funding targets; the central office review team then selected the projects to be funded in each Region, taking into account priorities expressed by the Regional staffs, and use their discretionary funds to apply to worthy projects that exceeded a particular Region's funding target. All project phases; preliminary engineering, construction engineering, right of way and construction are eligible for safety funding.

In addition to the $17.6 M of project funding described above, in which project selection was by central office staff, each Region was given $200K for low-cost safety improvement to be chosen at the discretion of the Region staff. The Regions use this pot of money for a variety of minor roadside safety improvements which can be performed in a timely manner by state forces or contract agencies. Individual Safety Work Authorizations (SWA) are the most cost effective method of funding these types of improvements and can be initiated quickly throughout the fiscal year in response to safety needs. Federal funds are used for those improvements meeting funding criteria.

Once the FY 2016 program was developed, it was reviewed and approved by the Project Screening Committee (PSC). The PSC consists of Region and Central Office Program Managers and Planning staff who help develop the MDOT's Five Year Plan for approval by the Transportation Commission. The PSC ensures coordination between Regions on various corridors and between the programs.

In FY 2016, the use of HSIP funding continued in the administration of the pavement marking program. Under 23 U.S.C. 148(e)(1)(c), HSIP funds may be obligated for any project to maintain minimum levels of retroreflectivity of traffic signs and pavement markings, without regard to whether that project is included in an applicable State SHSP. Prior to FY 2013 Surface Transportation Safety funding was used in the placement of pavement markings in the Annual Pavement Marking Program.

Program Methodology

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

No

Enter additional comments here to clarify your response for this question or add supporting information.

Michigan currently does not have an up to date HSIP manual. Attached you will find the FY 2016 Call for Projects Letter for both the Trunkline and non-Trunkline roadways that outlines our Call for Projects process and submittal requirements.

Select the programs that are administered under the HSIP.

Other-Pavement Markings
Other-Highway Safety Call for Projects
Other-Local Safety Call for Projects

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

Program: Other-Pavement Markings

Date of Program Methodology: 9/1/2015

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Funding set-aside

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
	Lane miles	Functional classification

What project identification methodology was used for this program? [Check all that apply]

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?

Describe the methodology used to identify local road projects as part of this program.

How are projects under this program advanced for implementation?

Other-funding set aside per each Region

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).

Enter additional comments here to clarify your response for this question or add supporting information.
N/A

Program:	Other-Highway Safety Call for Projects
Date of Program Methodology:	9/15/2011

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area
FHWA focused approach to safety

What is the funding approach for this program? [Check one]

Competes with all projects

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
Other-Focus on fatal and serious injury crashes along with fixes based on crash types and patterns	Volume Lane miles	Median width Horizontal curvature Functional classification Roadside features

What project identification methodology was used for this program? [Check all that apply]

Expected crash frequency with EB adjustment
Relative severity index
Level of service of safety (LOSS)
Excess expected crash frequency using SPFs
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?

Describe the methodology used to identify local road projects as part of this program.

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).

Ranking based on B/C : 3
Available funding : 1
Cost Effectiveness : 2

Enter additional comments here to clarify your response for this question or add supporting information.
See the attached FY 2016 Highway Safety Call for Projects letter that outlines the project selection process and requirements.

Program: Other-Local Safety Call for Projects

Date of Program Methodology: 6/12/2014

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area
FHWA focused approach to safety

What is the funding approach for this program? [Check one]

Competes with all projects

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
All crashes		Median width Horizontal curvature Functional classification Roadside features

What project identification methodology was used for this program? [Check all that apply]

Expected crash frequency with EB adjustment
Relative severity index
Excess expected crash frequency using SPFs
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

Describe the methodology used to identify local road projects as part of this program.

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 : 3
Available funding : 1
Cost Effectiveness : 2

Enter additional comments here to clarify your response for this question or add supporting information.

What percentage of HSIP funds address systemic improvements?

10

HSIP funds are used to address which of the following systemic improvements? Please check all that apply.

Cable Median Barriers
Rumble Strips
Traffic Control Device Rehabilitation
Pavement/Shoulder Widening
Install/Improve Signing
Install/Improve Pavement Marking and/or Delineation
Upgrade Guard Rails
Clear Zone Improvements
Safety Edge
Add/Upgrade/Modify/Remove Traffic Signal
Horizontal curve signs
High friction surface treatment
Wrong way driving treatments

Enter additional comments here to clarify your response for this question or add supporting information.

Continuing in the Call for FY 2016 was the opportunity for each Region to allocate up to 10 percent of their funding target for low cost systemic safety improvements. The focus was on system wide safety improvements done by work authorization or through the letting process. A Time of Return justification was not required if the proposed improvement is selected from the list of approved safety system wide fixes (see attached).

What process is used to identify potential countermeasures? [Check all that apply]

Engineering Study
Road Safety Assessment
Other-High Crash List
Other-Transparency Report
Other-Fatality and Serious Injury Region-wide Maps

Other-3R/4R Safety Reviews
Other-Pavement Friction Analysis
Other-Customer Concerns
Other-Local Safety Initiative

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

Does the State HSIP consider connected vehicles and ITS technologies?

No

Enter additional comments here to clarify your response for this question or add supporting information.
Currently, MDOT does not consider ITS technologies as part of the HSIP program. Connected vehicles and ITS technologies is funded via a separate funding source out of the MDOT ITS Programs Office. the ITS program promotes advanced technologies, electronic and telecommunication to improve safety and travel time on the multi-modal transportation system. Michigan's Connected Vehicles program is intended as a complementary program to efforts in California, Minnesota and Florida, along with international efforts in Ontario, Canada and Wales, United Kingdom, aimed at providing an incubator for testing of a variety of on board and road side elements and applications.

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.

Michigan DOT utilizes Part B of the HSM through continued development and use of AASHTOWare Safety Analyst for the trunkline roadways. The locations that are determined from Safety Analyst are then provided to Region and Transportation Service Center offices. As they evaluate the locations on the list, Michigan's own HSM spreadsheet is utilized to develop a substantive perspective. The quantitative performance of alternatives allowed in the spreadsheet have come from what will soon been three separate research efforts to better understand safety performance in Michigan. Regionally, it was found that there are differences resulting in the latest version of our HSM spreadsheet to account for this in the analysis. Road Safety Audits have been performed both informally and formally that utilize the Michigan HSM spreadsheet based on suggested improvements. Training on the Interactive Highway Safety Design Model (IHSDM) was completed in 2016. Since then, a build of the software has been provided throughout MDOT and is available for use. The latest version of the software is being evaluated to incorporate the research outputs for non-freeway urban and rural site types. In Safety Analyst, the emphasis areas of Bicycle, Pedestrian, Run-off-Road, Alcohol, Commercial Vehicle, Work Zone and light condition have been built in to provide additional functionality. Safety Analyst was also used as one of the deciding factors in the determination of the locations for increasing speed limits.

Have any program methodology practices used to implement the HSIP changed since the last reporting period?

No

Are there any other aspects of the HSIP methodology on which the State would like to elaborate?

Yes

Describe other aspects of the HSIP methodology on which the State would like to elaborate.

The annual process for submitting safety projects starts with a Call for Projects (CFP) issued to the seven MDOT Regions from the Safety Template Program Manager. The FY 2016 Safety Call request was made to the Regions on September 15, 2011. In response to the CFP, the Regions identify locations where safety improvements (i.e. add a center left turn lane, right turn lane, geometric improvements to accommodate signalization, median protection, etc.) could be made. These locations are to be identified through the current Transparency Report, Fatality and Serious Injury Regionwide Maps, High Crash List, 3R/4R Safety Reviews, customer concerns, and Pavement Friction Analyses. Upon location identification an engineering study is conducted by the Region to determine the appropriate safety improvement. The emphasis of the Safety Call was to address those locations with correctable fatality and serious injury crashes to support the department's efforts of reducing fatalities and serious injuries and support the vision of Toward Zero Deaths (TZD). Emphasis was directed toward implementation of countermeasures to deter wrong way movements onto freeways. If the TOR criteria could not be met as outlined below for the WWM countermeasures, the Regions were allowed to use the 10 percent allocation for systemic treatments.

All safety projects and proposed candidates must address a focus area of the Michigan Strategic Highway Safety Plan (SHSP). Submitted concepts must meet a maximum Time-of-Return (TOR) to qualify for safety funding. The TOR is a cost benefit analysis of proposed safety improvement which considers all crash types and severity levels that are correctable by the proposed improvement. A minimum of the latest three years of available crash data is to be used in the TOR analysis. For FY 2016 project, in which 2009 to 2011 (or most current data available) crash data was used, the following three TOR criteria were established:

Stand alone safety improvement - TOR of 7 years or less
Stand alone safety improvement for location on the current Transparency Report - TOR of 10 years or less.
Safety improvement in conjunction with a Construction project - TOR of 10 years or less.

Each Region's submittal was reviewed by the Central office review team to ensure all criteria were met. The Regions were permitted to submit candidate projects with total costs exceeding their funding targets. The review team, taking into account priorities expressed by the Regions, used the TOR values as a means to develop project rankings (lowest to highest TOR value) within each Region and the TOR values for projects beyond funding targets to allocate the $2 M funds statewide. For FY 2016, funding was included in programmed preliminary engineering for outer year safety projects to conduct a road safety audit (RSA). For guidance, a RSA should be conducted for all proposals exceeding $750,000 in programmed construction costs. Each Region was required to conduct at least one RSA for a FY 2016 improvement projects. The RSA should be done prior to 30 percent completion of the plans.The purpose of the audit is to ensure the appropriate safety fixes are incorporated into the overall design based on crash patterns within the project limits. Continuing in FY 2016 each Region was required to allocate up to a certain percent of their funding target for low cost safety improvements. This amount is in addition to the Safety Work Authorizations (SWA funding). The focus is to be on systemwide safety improvements done by work authorization or through the letting process. A TOR justification is not required if the proposed improvement is selected from the list of approved and proven safety systemwide fixes (Eligibility Guidelines for Low Cost Safety Improvement Projects-see attachment). For FY 2014 through FY 2017, the percentage is 10 percent. For FY 2018 through 2020 this percentage was increased to 25 percent. New for FY 2020 is the allocation of $1 million toward additional low cost safety improvements for regions meeting or exceeding their target amount in project proposals. To accommodate this change, the $2

million of discretionary funding as described above has been reduced from $2 million to $1 million. For FY 2021, FY 2022, and FY 2023 the percentage submitted shall be a minimum of 25 percent up to a maximum of 50 percent.

In an effort to incorporate the Highway Safety Manual (HSM) into MDOT's business process all safety projects submitted for FY 2019 to present, except for freeway improvements, shall have the HSM predictive analysis performed on them. A comparison of future conditions with and without the proposed improvement shall be provided. Starting for FY 2020 and continuing for FY 2021, FY 2022, and FY 2023 all submitted concepts must address two or more fatal and/or serious injury crashes.

Project Implementation

Funds Programmed

Reporting period for HSIP funding.

State Fiscal Year

Enter additional comments here to clarify your response for this question or add supporting information.

October 1, 2015 to September 30, 2016

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	$50,486,815	$48,970,167	97%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$837,425	$763,756	91.2%
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)	$3,197,690	$3,191,531	99.81%
State and Local Funds	$3,516,332	$2,728,313	77.59%
Totals	$58,038,262	$55,653,767	95.89%

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

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

$15,535,004

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

$14,954,373

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

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

2017 Michigan Highway Safety Improvement Program
$1,379,127

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

$1,379,127

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

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?

$0

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

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

None to discuss.

Does the State want to elaborate on any other aspects of it's progress in implementing HSIP projects?

Yes

Describe any other aspects of the State's progress in implementing HSIP projects on which the State would like to elaborate.

During the reporting period 2 percent of the programmed and 2 percent of the obligated funds for the State trunkline system were directed to non-infrastructure safety items such as Road Safety Audits, SHSP activities, community safety outreach, educational efforts, and data collection.

On the Local Agency side no HSIP funds were directed toward tribal safety projects. Overall, 36 percent of the total programmed and 36 percent of the total obligated funds were directed to local safety projects.

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

													RELATIONSHIP TO SHSP	
PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
Nicholson Hill Road and Spruce Road	Roadside	Barrier- metal	0.3	Miles	$144000	$167324.05	HSIP (23 U.S.C. 148)	Rural Major Collector	850	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Ely Road at Fewins Road	Intersection traffic control	Intersection flashers - add advance intersection warning sign-mounted	1	Intersections	$17188.86	$21486.07	HSIP (23 U.S.C. 148)	Rural Major Collector	500	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
Various routes	Roadside	Removal of roadside objects (trees, poles, etc.)	25.6	Miles	$490500	$524784	HSIP (23 U.S.C. 148)	Rural Major Collector	1,000	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Jenne Street	Roadway	Roadway widening - add lane(s) along segment	0.25	Miles	$403916	$697102	HSIP (23 U.S.C. 148)	Urban Minor Arterial	3,713	25	City of Municipal Highway Agency	Spot	Lane Departure	Reduce Fs and As
Linden Road	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	8	Intersections	$333080	$516489	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	19,320	45	County Highway Agency	Systemic	Intersections	Reduce Fs and As
Miller Road	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	9	Intersections	$351500	$480052	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	27,637	45	County Highway Agency	Systemic	Intersections	Reduce Fs and As
Grand Blanc Road	Roadway	Install / remove / modify passing zone	0.6	Miles	$364300	$465266.25	HSIP (23 U.S.C. 148)	Urban Minor Arterial	14,658	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Neff Road at Frances Road	Intersection traffic control	Intersection flashers - add advance intersection warning sign-mounted	1	Intersections	$18957.51	$21063.9	HSIP (23 U.S.C. 148)	Urban Local Road or Street	2,145	55	County Highway Agency	Systemic	Intersections	Reduce Fs and As
Elms Road and Jennings Road	Intersection traffic control	Intersection flashers - add advance intersection warning sign-mounted	2	Intersections	$42759.38	$53449.23	HSIP (23 U.S.C. 148)	Urban Minor Arterial	3,121	55	County Highway Agency	Systemic	Intersections	Reduce Fs and As
Fenton Road, Linden Road, Thompson Road	Intersection traffic control	Intersection flashers - add advance intersection warning sign-mounted	3	Intersections	$55356.83	$69196.04	HSIP (23 U.S.C. 148)	Urban Minor Arterial	11,541	45	County Highway Agency	Systemic	Intersections	Reduce Fs and As
Fenton Road at Hemphill Road	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$58028.39	$72535.49	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	38,049	35	County Highway Agency	Spot	Intersections	Reduce Fs and As
Bard Road at Kerswill Road	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	1	Intersections	$342645.18	$428306.48	HSIP (23 U.S.C. 148)	Rural Major Collector	1,300	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
State Road	Roadway signs and traffic control	Curve-related warning signs and flashers	5.52	Miles	$2250	$4500	HSIP (23 U.S.C. 148)	Rural Major Collector	2,067	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Keefer Highway	Shoulder treatments	Widen shoulder - paved or other	4	Miles	$460800	$548555.72	HSIP (23 U.S.C. 148)	Rural Major Collector	1,770	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Drake Road	Railroad grade crossings	Widen crossing for additional lane	1	Locations	$20424.29	$25530.36	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	26,898	45	City of Municipal Highway Agency	Spot	Pedestrians	Reduce Fs and As
South Westnedge Road at Romence Road	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$279000	$325467.85	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	27,900	35	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
Stadium Drive	Roadway	Roadway widening - add lane(s) along segment	1	Miles	$600000	$748541.4	HSIP (23 U.S.C. 148)	Urban Minor Arterial	12,648	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
44th Street at Breton Road	Intersection traffic control	Modify traffic signal - add additional signal heads	1	Intersections	$86743.2	$111429	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	28,000	45	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As

													RELATIONSHIP TO SHSP	
PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
44th Street at Kalamazoo Avenue	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$120000	$166459.5	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	30,100	45	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
Fulton Street at Market Avenue	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$119360	$196012.5	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	19,819	45	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
52nd Street at Eastern Avenue	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$232965	$250862	HSIP (23 U.S.C. 148)	Urban Minor Arterial	14,202	45	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
Shaffer Avenue at 32nd Street	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$193852	$239355	HSIP (23 U.S.C. 148)	Urban Minor Arterial	10,451	40	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
Cedar Springs Avenue at Egner Street	Alignment	Vertical alignment or elevation change	0.14	Miles	$168098.4	$186776	HSIP (23 U.S.C. 148)	Rural Major Collector	1,460	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Division Avenue	Roadway	Roadway narrowing (road diet, roadway reconfiguration)	0.98	Miles	$600000	$931261.5	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	6,672	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Millville Road	Roadway	Roadway widening - add lane(s) along segment	0.67	Miles	$576966.4	$877337.8	HSIP (23 U.S.C. 148)	Rural Minor Arterial	7,728	45	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Otter Lake Road at North Lake Road	Intersection geometry	Intersection geometry - other	1	Intersections	$483500	$637482.15	HSIP (23 U.S.C. 148)	Urban Minor Arterial	2,132	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
Chilson Road at Coon Lake Road	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	$496000	$781000	HSIP (23 U.S.C. 148)	Urban Minor Arterial	8,500	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
Second and Third Street Connector	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	$496000	$678050.1	HSIP (23 U.S.C. 148)	Urban Minor Arterial	3,000	25	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
3 curves: Sylvania-Petersburg, Deerfield,Swan Creek	Roadway	Pavement surface - high friction surface	3	Curves	$297000	$312005.5	HSIP (23 U.S.C. 148)	Rural Minor Arterial	2,160	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Seventh Street	Intersection geometry	Auxiliary lanes - add left-turn lane	0.5	Miles	$240000	$311512	HSIP (23 U.S.C. 148)	Urban Major Collector	5,250	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Curves on Primaries - Countywide	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	44	Locations	$61490.3	$68322.56	HSIP (23 U.S.C. 148)	Rural Major Collector	1,000	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Kendaville Road	Alignment	Vertical alignment or elevation change	1	Curves	$187572	$220910.5	HSIP (23 U.S.C. 148)	Rural Major Collector	1,030	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Signs at Local Paved Intersections NW Half of County	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	392	Signs	$59724	$67726.24	HSIP (23 U.S.C. 148)	Rural Local Road or Street	1,000	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Henry Street	Pedestrians and bicyclists	Install sidewalk	0.4	Miles	$78888.64	$140910	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	18,722	35	City of Municipal Highway Agency	Spot	Pedestrians	Reduce Fs and As
Greenwich Road	Pedestrians and bicyclists	Pedestrian signal - install new at non-intersection location	0.5	Miles	$96800	$96800	HSIP (23 U.S.C. 148)	Urban Minor Arterial	580	25	City of Municipal Highway Agency	Spot	Pedestrians	Reduce Fs and As
Maple Road at Haggerty Road	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$176000	$226475	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	19,727	45	County Highway Agency	Spot	Intersections	Reduce Fs and As
Miller Road at Galbraith Road	Intersection geometry	Intersection geometry - other	1	Intersections	$52800	$68504	HSIP (23 U.S.C. 148)	Rural Minor Collector	500	55	County Highway Agency	Spot	Intersections	Reduce Fs and As

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PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
Meridian Line Road	Alignment	Vertical alignment or elevation change	0.31	Miles	$319200	$400255.8	HSIP (23 U.S.C. 148)	Rural Local Road or Street	500	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
St Helen Road North	Roadway	Pavement surface - miscellaneous	2.84	Miles	$264724.2	$298613.36	HSIP (23 U.S.C. 148)	Rural Major Collector	1,305	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
North Street	Roadside	Drainage improvements	0.1	Miles	$229000	$229000	HSIP (23 U.S.C. 148)	Urban Local Road or Street	900	25	City of Municipal Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Angevine Road	Roadside	Barrier - other	0.3	Miles	$155600	$215985.61	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	713	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
15 various primary and local roads countywide	Roadside	Removal of roadside objects (trees, poles, etc.)	40.64	Miles	$541800	$581795	HSIP (23 U.S.C. 148)	Rural Major Collector	1,000	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Geddes Road	Roadside	Barrier - other	0.18	Miles	$73780	$92225	HSIP (23 U.S.C. 148)	Urban Minor Arterial	18,800	40	City of Municipal Highway Agency	Spot	Roadway Departure	Reduce Fs and As
West Stadium Boulevard	Pedestrians and bicyclists	Pedestrian warning signs - add/modify flashers	3	Locations	$27360	$46925.9	HSIP (23 U.S.C. 148)	Urban Minor Arterial	17,600	35	City of Municipal Highway Agency	Systemic	Pedestrians	Reduce Fs and As
Countywide	Intersection traffic control	Modify traffic signal - add backplates with retroreflective borders	67	Intersections	$0	$0	HSIP (23 U.S.C. 148)	Urban Minor Arterial	5,000	55	County Highway Agency	Systemic	Intersections	Reduce Fs and As
Guardrail upgrades	Roadside	Barrier- metal	9	Locations	$184507.2	$267766.04	HSIP (23 U.S.C. 148)	Urban Minor Arterial	2,000	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Willis Road	Roadway	Roadway - other	0.45	Miles	$0	$0	HSIP (23 U.S.C. 148)	Urban Minor Arterial	5,580	45	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Conant Street	Roadway	Roadway - other	2.96	Miles	$478880	$498877	HSIP (23 U.S.C. 148)	Urban Minor Arterial	11,036	30	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
Linwood Street	Roadway	Roadway - other	3.66	Miles	$600000	$701375	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	11,080	30	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
Livernois Avenue	Roadway	Roadway - other	2.34	Miles	$468000	$488380	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	14,316	35	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
Livernois Avenue and Dragoon Street	Roadway	Roadway - other	2.48	Miles	$513000	$532306	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	23,770	35	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
Safety Program Report, Before and After Study	Non-infrastructure	Data/traffic records	131	Locations	$44999.53	$49999.48	HSIP (23 U.S.C. 148)	Various	0		State Highway Agency	Other	Data	Reduce Fs and As
I-75/US-127/M-32 Countywide Install Delineation	Roadway delineation	Roadway delineation - other	1	Numbers	$0	$364520	State and Local Funds	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Statewide Develop Local Road Safety Plans Statewide.	Non-infrastructure	Transportation safety planning	14	Locations	$550000	$550000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As
Statewide RSA Training	Non-infrastructure	Training and workforce development	2	Locations	$30000	$30000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As
Statewide Safety Summit Local Agency	Non-infrastructure	Training and workforce development	13	Numbers	$25000	$25000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As

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Workforce Developement														
Statewide SHRP 2 Speed Study Phase 2	Non-infrastructure	Data/traffic records	1	Numbers	$0	$600000	Other Federal-aid Funds (i.e. STBG, NHPP)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As
Statewide Develop Data-Driven Safety Analysis Guidance	Non-infrastructure	Training and workforce development	1	Numbers	$0	$47000	Other Federal-aid Funds (i.e. STBG, NHPP)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As
Region Wide Bay Region Retroreflectivity Measurements, Spring Condition	Non-infrastructure	Data/traffic records	1	Numbers	$7785	$7785	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As
Region Wide Bay Region Permanent Pavement Markings	Roadway delineation	Longitudinal pavement markings - remarking	5187	Miles	$2826827.19	$2826827.19	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce Fs and As
Region Wide Bay Region Permanent Pavement Markings - Special Markings	Intersection traffic control	Pavement markings - miscellaneous/other/unspecified	2040	Locations	$609658.91	$609658.91	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce Fs and As
Region Wide Grand Region Permanent Pavement Markings	Roadway delineation	Longitudinal pavement markings - remarking	4812	Miles	$3066657.41	$3066657.41	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce Fs and As
Region Wide Grand Region Permanent Pavement Markings - Special Markings	Intersection traffic control	Pavement markings - miscellaneous/other/unspecified	1097	Locations	$449566.35	$449566.35	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce Fs and As
Region Wide Grand Region Retroreflectivity Measurements, Spring Condition	Non-infrastructure	Data/traffic records	1	Numbers	$10999	$10999	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As
Region Wide Metro Region Permanent Pavement Markings	Roadway delineation	Longitudinal pavement markings - remarking	2682	Miles	$2638480.02	$2638480.02	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce Fs and As
Region Wide Metro Region Permanent Pavement Markings - Special Markings	Intersection traffic control	Pavement markings - miscellaneous/other/unspecified	2945	Locations	$942588.74	$942588.74	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce Fs and As
Region Wide Metro Region Retroreflectivity Measurements, Spring Condition	Non-infrastructure	Data/traffic records	1	Locations	$7491	$7491	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As
Region Wide North Region Permanent Pavement Markings	Roadway delineation	Longitudinal pavement markings - remarking	5132	Miles	$1975196.29	$1975196.29	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce Fs and As
Region Wide North Region Permanent	Intersection traffic control	Pavement markings - miscellaneous/other/unspecified	1090	Locations	$348258.08	$348258.08	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce Fs and As

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Pavement Markings - Special Markings														
Region Wide North Region Retroreflectivity Measurements, Spring Condition	Non-infrastructure	Data/traffic records	1	Numbers	$15742	$15742	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As
Region Wide Southwest Region Permanent Pavement Markings	Roadway delineation	Longitudinal pavement markings - remarking	3239	Miles	$1933505.82	$1933505.82	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce Fs and As
Region Wide Southwest Region Permanent Pavement Markings - Special Markings	Intersection traffic control	Pavement markings - miscellaneous/other/unspecified	1812	Locations	$289291.22	$289291.22	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce Fs and As
Region Wide Southwest Region Retroreflectivity Measurements, Spring Condition	Non-infrastructure	Data/traffic records	1	Locations	$13492	$13492	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As
Region Wide Superior Region Permanent Pavement Markings	Roadway delineation	Longitudinal pavement markings - remarking	4895	Miles	$1876385.69	$1876385.69	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce Fs and As
Region Wide Superior Region Retroreflectivity Measurements, Spring Condition	Non-infrastructure	Data/traffic records	1	Locations	$14257	$14257	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As
Region Wide Superior Region Permanent Pavement Markings - Special Markings	Intersection traffic control	Pavement markings - miscellaneous/other/unspecified	1067	Locations	$502690.25	$502690.25	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce Fs and As
Regionwide University Region Retroreflectivity Measurements, Spring Condition	Non-infrastructure	Data/traffic records	1	Numbers	$7361	$7361	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Data	Reduce Fs and As
Region Wide University Region Permanent Pavement Markings	Roadway delineation	Longitudinal pavement markings - remarking	4276	Miles	$2439262.69	$2439262.69	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce Fs and As
Region Wide University Region Permanent Pavement Markings - Special Markings	Intersection traffic control	Pavement markings - miscellaneous/other/unspecified	2322	Locations	$698034.72	$698034.72	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce Fs and As
I-75 at Bristol Road Install Roundabout	Intersection geometry	Intersection geometry - other	1	Intersections	$1666059.2	$1666059.2	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Interstate	0	70	State Highway Agency	Spot	Intersections	Reduce Fs and As

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PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
M-24 at Dockham Road Install Center Left Turn Lane	Intersection geometry	Auxiliary lanes - add left-turn lane	1	Intersections	$747015.99	$747015.99	HSIP (23 U.S.C. 148)	Rural Minor Arterial	12,016	55	State Highway Agency	Spot	Intersections	Reduce Fs and As
M-46 at River Road Traffic Signal Modernization	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$0	$376559.24	State and Local Funds	Rural Principal Arterial - Other	26,551	45	State Highway Agency	Spot	Intersections	Reduce Fs and As
M-21 at Hudson Street Install Right Turn Lane	Intersection geometry	Auxiliary lanes - add right-turn lane	1	Intersections	$299978.37	$299978.37	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	18,260	25	State Highway Agency	Spot	Intersections	Reduce Fs and As
M-46 East of US-131 NB off-ramp to east of Edgar Road Install Center Left Turn Lane	Intersection geometry	Auxiliary lanes - add left-turn lane	0.96	Miles	$1957252.2	$1957252.2	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	7,394	55	State Highway Agency	Spot	Data	Reduce Fs and As
Shoreline Drive at Terrace, 3rd, 4th, and 7th. Upgrade Pedestrian Signals	Pedestrians and bicyclists	Pedestrian signal - modify existing	4	Intersections	$19000	$19000	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	18,083	35	State Highway Agency	Spot	Pedestrians	Reduce Fs and As
M-82 at Stewart Avenue Install Right Turn Lane	Intersection geometry	Auxiliary lanes - add right-turn lane	1	Intersections	$41000	$41000	HSIP (23 U.S.C. 148)	Rural Minor Arterial	10,780	25	State Highway Agency	Spot	Intersections	Reduce Fs and As
Region Wide Grand Region TZD Systemic Improvements	Roadway delineation	Roadway delineation - other	1	Locations	$0	$190847.23	State and Local Funds	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
M-24 at Harmon Road Traffic Signal Modernization/Extend Left Turn Lane	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$1104688.28	$1104688.28	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	54,208	55	State Highway Agency	Spot	Data	Reduce Fs and As
I-75 at Gardenia Install High Friction Surface	Roadway	Pavement surface - high friction surface	1	Intersections	$242563.81	$242563.81	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Interstate	170,730	0	State Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Region Wide Metro Region Install Delineation	Roadway delineation	Roadway delineation - other	1	Locations	$0	$129139.23	State and Local Funds	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
I-75 NB I-75 approaching Ambassador Bridge Installation of Wrong Way and Flashing Signs	Roadway signs and traffic control	Roadway signs and traffic control - other	1	Approaches	$60000	$60000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Interstate	102,600	55	State Highway Agency	Spot	Roadway Departure	Reduce Fs and As
M-68 from Viehl Road to Upper Black River Install Center Left Turn Lane	Intersection geometry	Auxiliary lanes - add left-turn lane	0.74	Miles	$2313636	$2313636	HSIP (23 U.S.C. 148)	Rural Minor Arterial	3,138	55	State Highway Agency	Spot	Intersections	Reduce Fs and As
M-113 at Clark Road Install Right Turn Lane	Intersection geometry	Auxiliary lanes - add right-turn lane	1	Intersections	$0	$232941.37	State and Local Funds	Rural Minor Arterial	7,381	55	State Highway Agency	Spot	Intersections	Reduce Fs and As

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M-66 M-72 to Missaukee Co. Line Improve Shoulders	Shoulder treatments	Shoulder treatments - other	14.04	Miles	$0	$125480.76	State and Local Funds	Rural Minor Arterial	1,158	55	State Highway Agency	Spot	Roadway Departure	Reduce Fs and As
M-32 at Manier Road Install High Friction Surface	Roadway	Pavement surface - high friction surface	1	Intersections	$84872.03	$84872.03	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	3,193	55	State Highway Agency	Spot	Roadway Departure	Reduce Fs and As
I-75/US-127 Gaylord TSC TZD Systemic Improvements	Roadway delineation	Roadway delineation - other	1	Locations	$85909.69	$85909.69	HSIP (23 U.S.C. 148)	Various	0	70	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
M-115 at 13th Street Traffic Signal Modernization	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Lanes	$70000	$70000	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	8,972	55	State Highway Agency	Spot	Intersections	Reduce Fs and As
US-12 at Old M-205 Intersection Improvements	Intersection geometry	Intersection geometry - other	1	Intersections	$0	$2840690	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural Principal Arterial - Other	8,071	55	State Highway Agency	Spot	Intersections	Reduce Fs and As
M-60 Cass County Install Delineation	Roadway delineation	Roadway delineation - other	1	Locations	$110936.23	$110936.23	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Region Wide Four Locations along I-94 and US-131 Install High Friction Surface	Roadway	Pavement surface - high friction surface	4	Ramps	$0	$763333.13	State and Local Funds	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
I-196 Berrien and Van Buren Counties Emergency Route Signing	Roadway signs and traffic control	Roadway signs and traffic control - other	19.14	Miles	$89810.76	$89810.76	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Interstate	0	70	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
I-94 EB from MM 43.0 to MM 45.3 Tree Removal and Intersection Sight Improvements	Roadside	Removal of roadside objects (trees, poles, etc.)	2.54	Miles	$0	$206621.32	State and Local Funds	Rural Principal Arterial - Interstate	0	70	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
US-41 at US-41/M-28 Install Roundabout	Intersection geometry	Intersection geometry - other	1	Intersections	$2905865.85	$2905865.85	HSIP (23 U.S.C. 148)	Urban Minor Arterial	18,037	55	State Highway Agency	Spot	Intersections	Reduce Fs and As
Region Wide Superior Region TZD Systemic Improvements	Roadway delineation	Roadway delineation - other	1	Locations	$0	$371743.52	State and Local Funds	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
US-2 / M-28 Superior Region Install Mile Marker Signs	Roadway signs and traffic control	Roadway signs and traffic control - other	1	Locations	$95500	$95500	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
I-94 Jackson County Install Delineation	Roadway delineation	Roadway delineation - other	1	Locations	$0	$103448.23	State and Local Funds	Various	0	70	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Region Wide University Region TZD Systemic Improvements	Roadway delineation	Roadway delineation - other	1	Locations	$0	$99750	State and Local Funds	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Region Wide University Region	Roadside	Removal of roadside objects (trees, poles, etc.)	1	Locations	$0	$26681	State and Local Funds	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce Fs and As

													RELATIONSHIP TO SHSP	
PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
Remove Roadside Obstacles														
M-52 at Werkner Install Roundabout	Intersection geometry	Intersection geometry - other	1	Intersections	$1438590.97	$1438590.97	HSIP (23 U.S.C. 148)	Rural Minor Arterial	5,970	55	State Highway Agency	Spot	Intersections	Reduce Fs and As
I-94 BL west of Ingalls Street Install Pedestrian Midblock Crossing Signing	Pedestrians and bicyclists	Modify existing crosswalk	1	Crosswalks	$0	$2500	State and Local Funds	Rural Principal Arterial - Other	18,438	35	State Highway Agency	Spot	Pedestrians	Reduce Fs and As

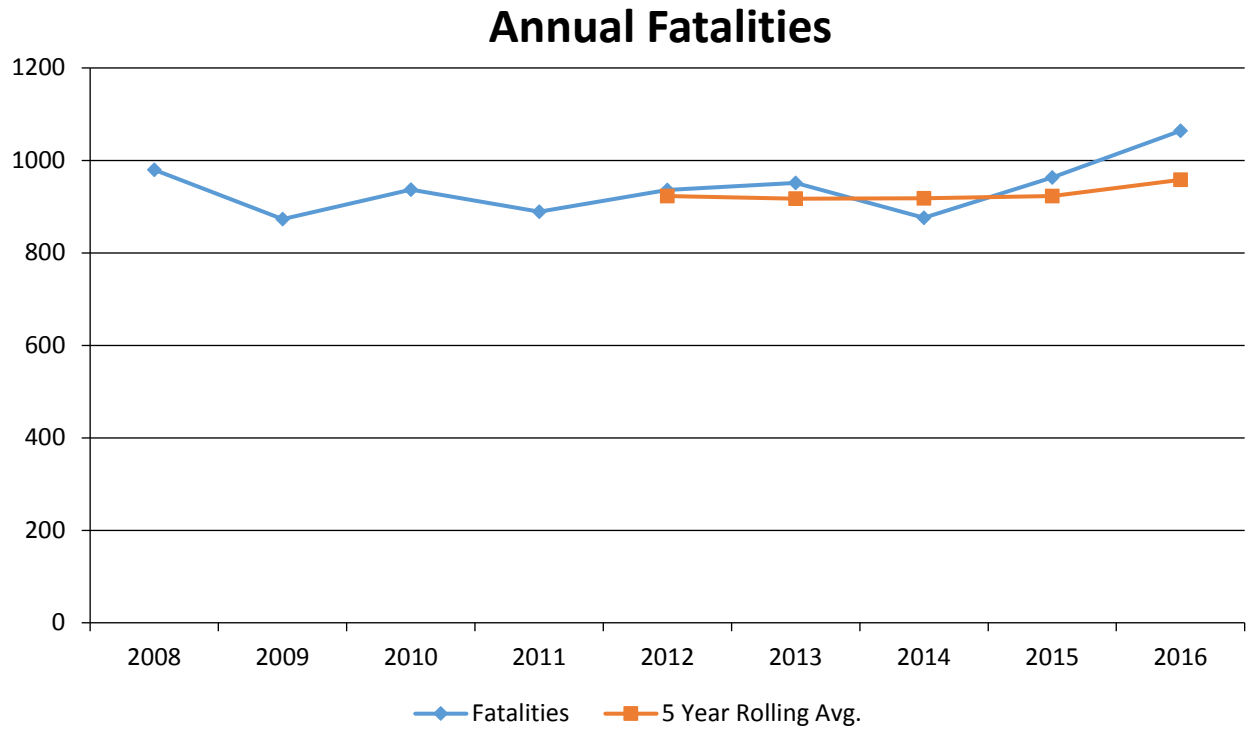
Enter additional comments here to clarify your response for this question or add supporting information.

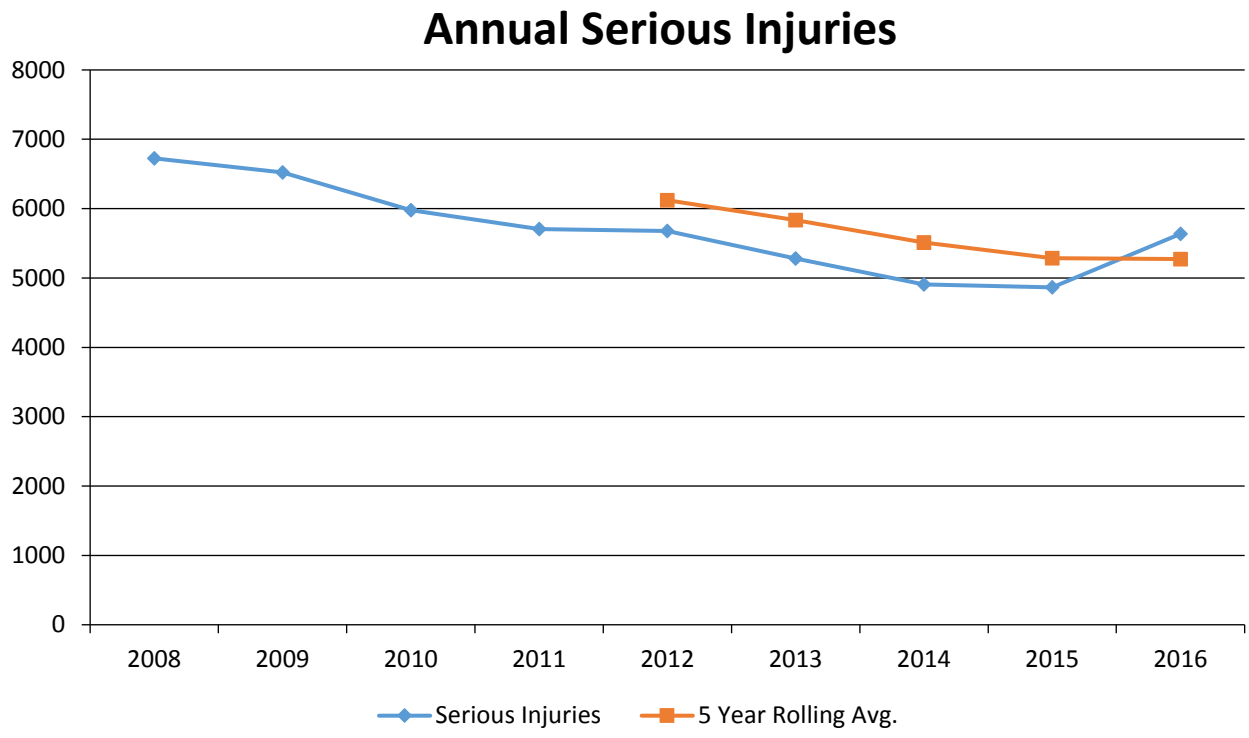
Safety Performance

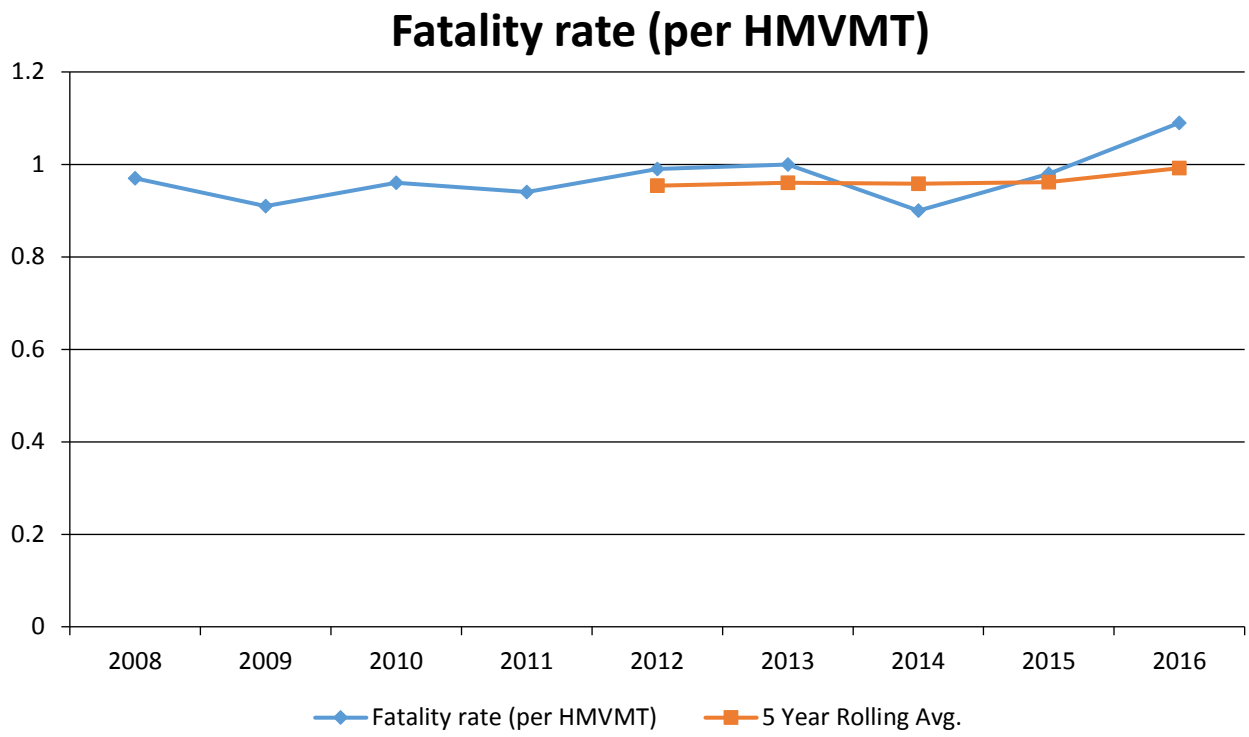
General Highway Safety Trends

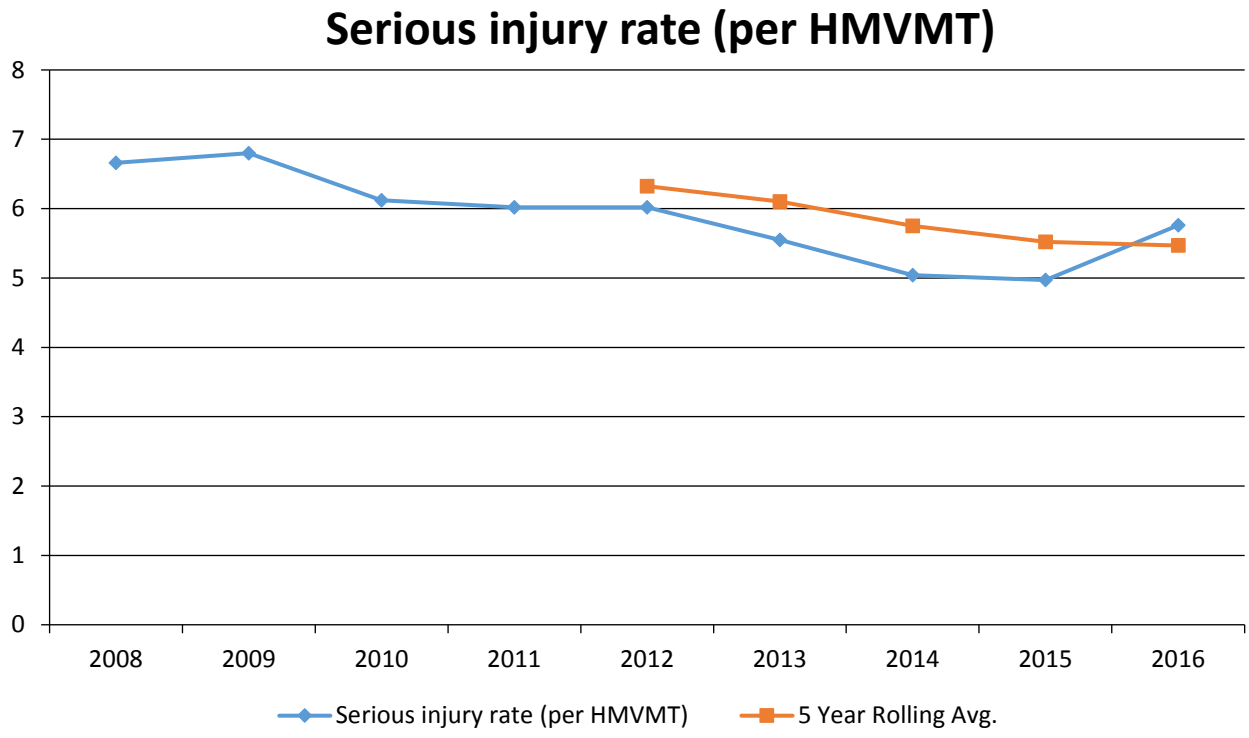
Present data showing the general highway safety trends in the State for the past five years.

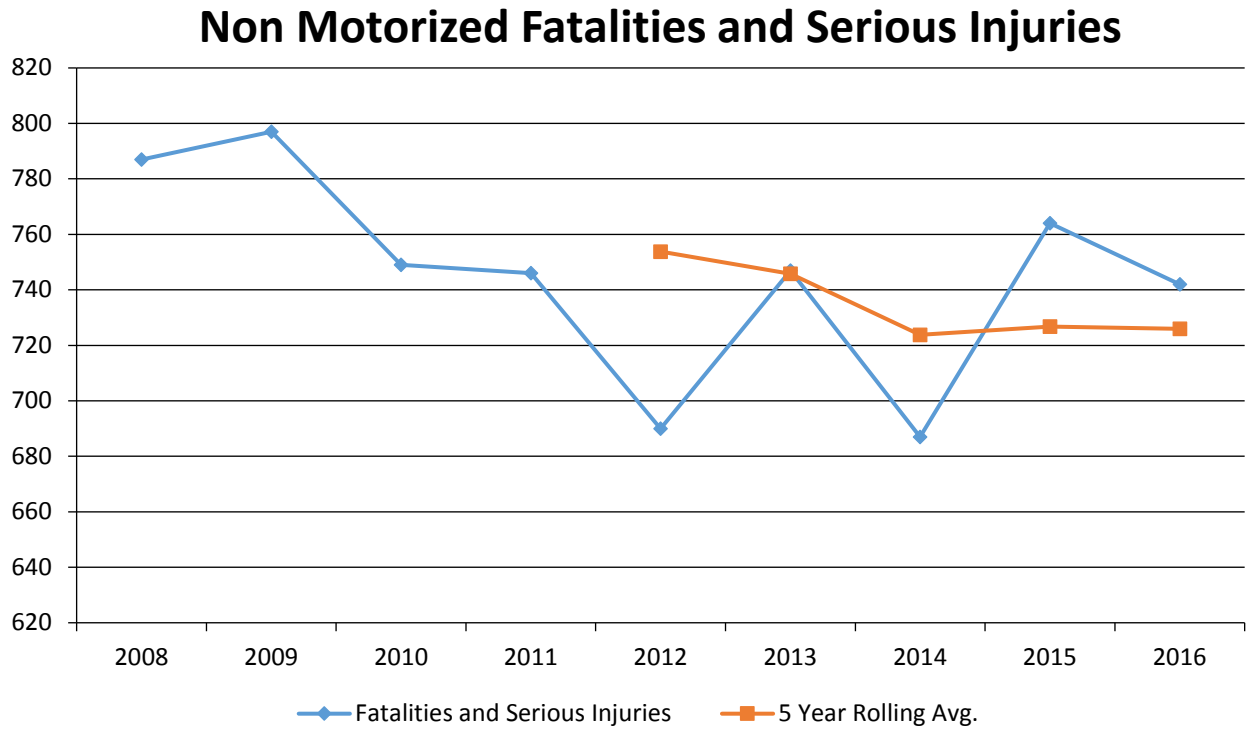
PERFORMANCE MEASURES	2008	2009	2010	2011	2012	2013	2014	2015	2016
Fatalities	980	873	937	889	936	951	876	963	1,064
Serious Injuries	6,725	6,520	5,980	5,706	5,676	5,283	4,909	4,865	5,634
Fatality rate (per HMVMT)	0.970	0.910	0.960	0.940	0.990	1.000	0.900	0.980	1.090
Serious injury rate (per HMVMT)	6.660	6.800	6.120	6.020	6.020	5.550	5.040	4.970	5.760
Number non-motorized fatalities	140	145	163	166	157	179	170	208	206
Number of non-motorized serious injuries	647	652	586	580	533	568	517	556	536


Annual Fatalities
1200
1000
800
600
400
200
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
8000
7000
6000
5000
4000
3000
2000
1000
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.2
1
0.8
0.6
0.4
0.2
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
8
7
6
5
4
3
2
1
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



Enter additional comments here to clarify your response for this question or add supporting information.

2016 VMT was not available at the time of this report, so 2015 data was used in 2016 rates.

Describe fatality data source.

State Motor Vehicle Crash Database

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

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

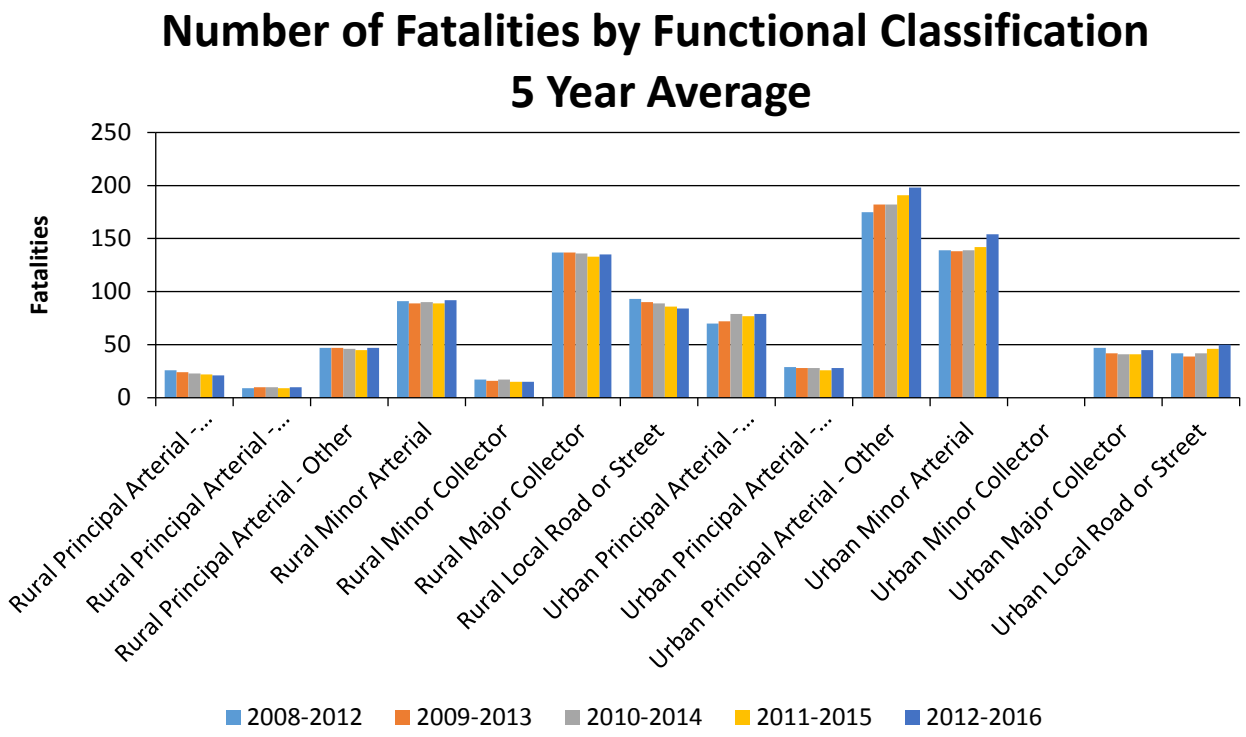
Year 2016

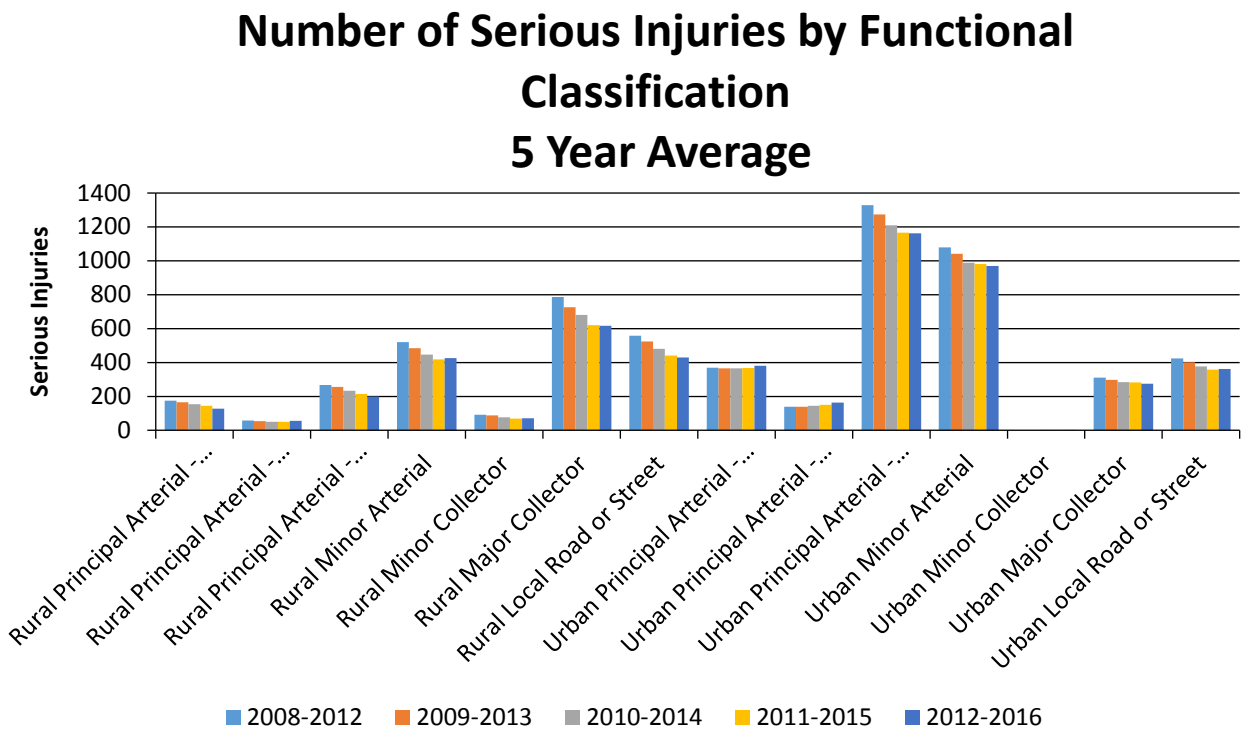
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial - Interstate	21	128	0.41	2.55
Rural Principal Arterial - Other Freeways and Expressways	10	55	0.4	2.28
Rural Principal Arterial - Other	47	199	1.18	4.98
Rural Minor Arterial	92	425	1.4	6.51

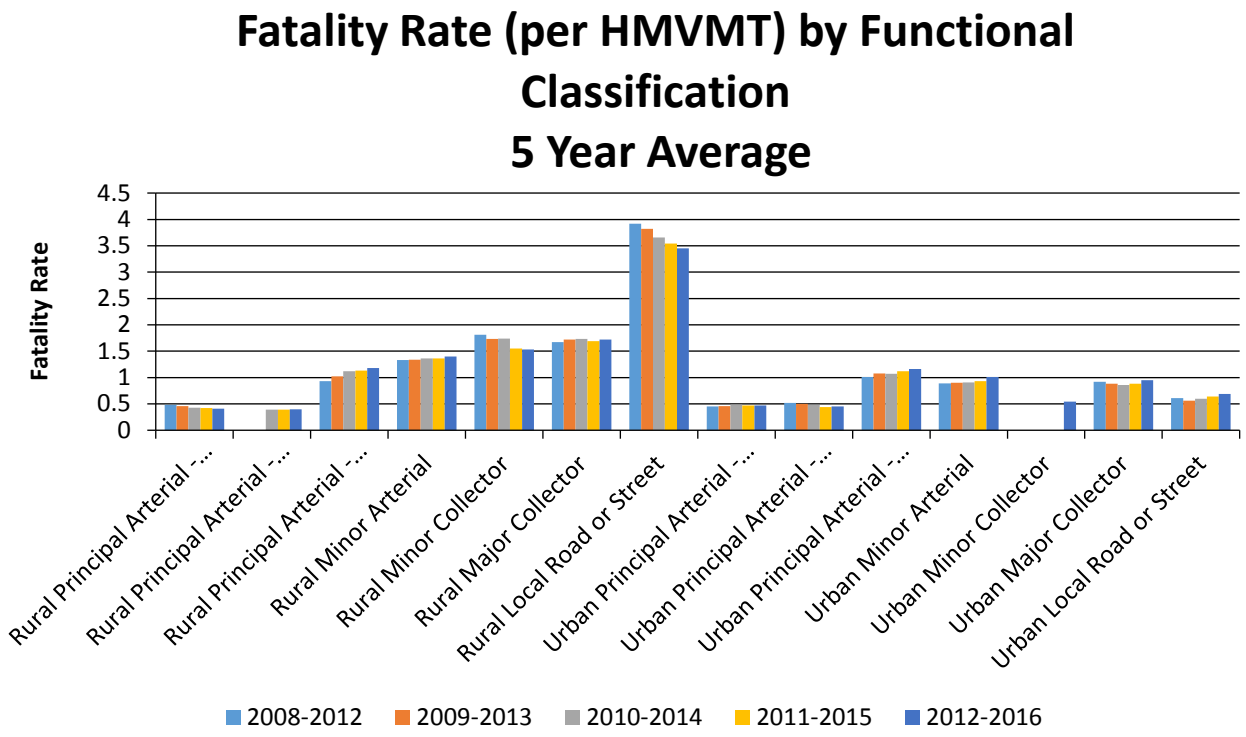
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Minor Collector	15	70	1.53	7.08
Rural Major Collector	135	616	1.72	7.83
Rural Local Road or Street	84	430	3.45	17.67
Urban Principal Arterial - Interstate	79	381	0.47	2.27
Urban Principal Arterial - Other Freeways and Expressways	28	163	0.45	2.69
Urban Principal Arterial - Other	198	1,162	1.16	6.81
Urban Minor Arterial	154	970	1.01	6.34
Urban Minor Collector	0	1	0.54	3.86
Urban Major Collector	45	275	0.95	5.8
Urban Local Road or Street	50	361	0.69	5.02

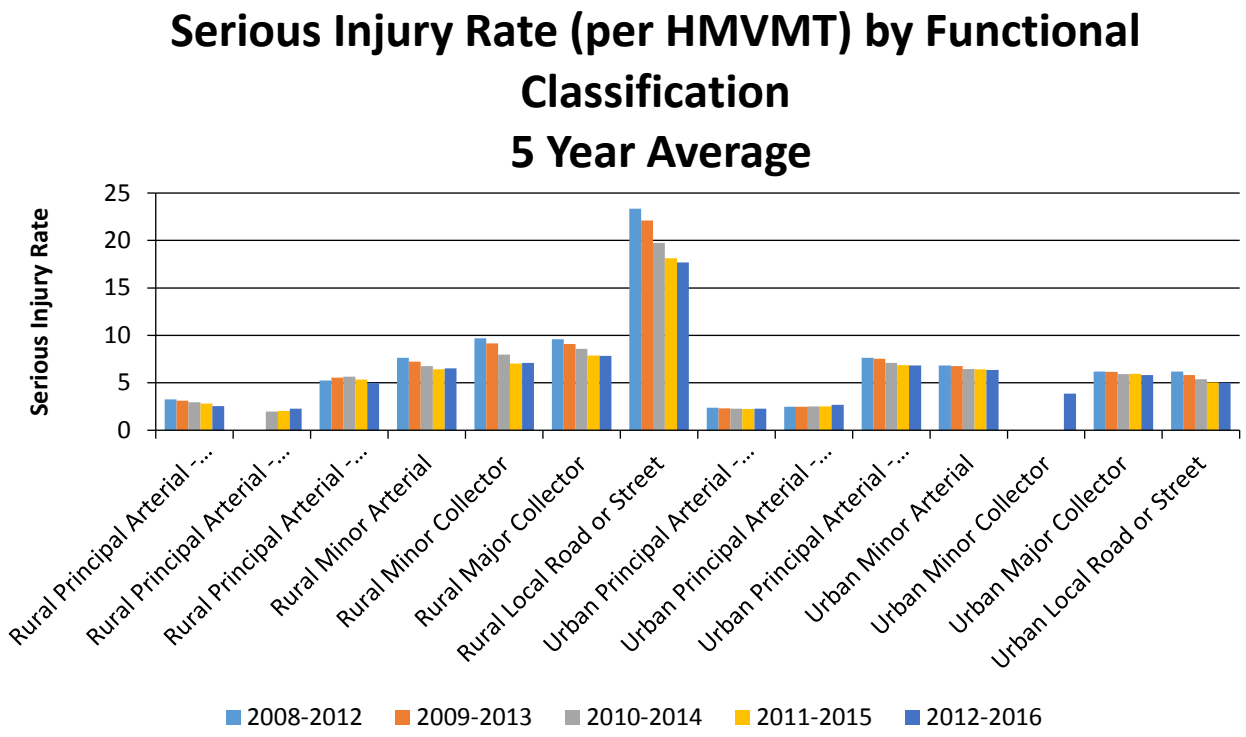
Year 2016

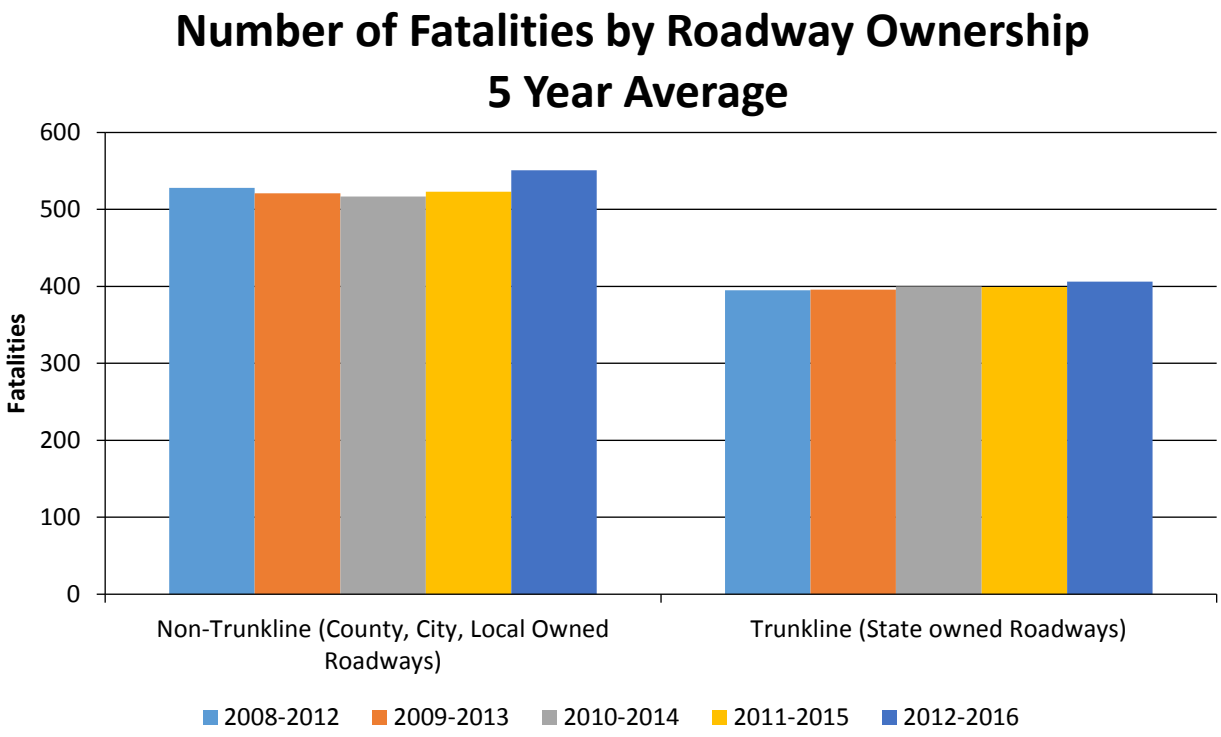
Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency				
County Highway Agency				
Town or Township Highway Agency				
City of Municipal Highway Agency				
State Park, Forest, 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				
Non-Trunkline (County, City, Local Owned Roadways)	551	3,055	1.2	6.68
Trunkline (State owned Roadways)	406	2,201	0.8	4.34

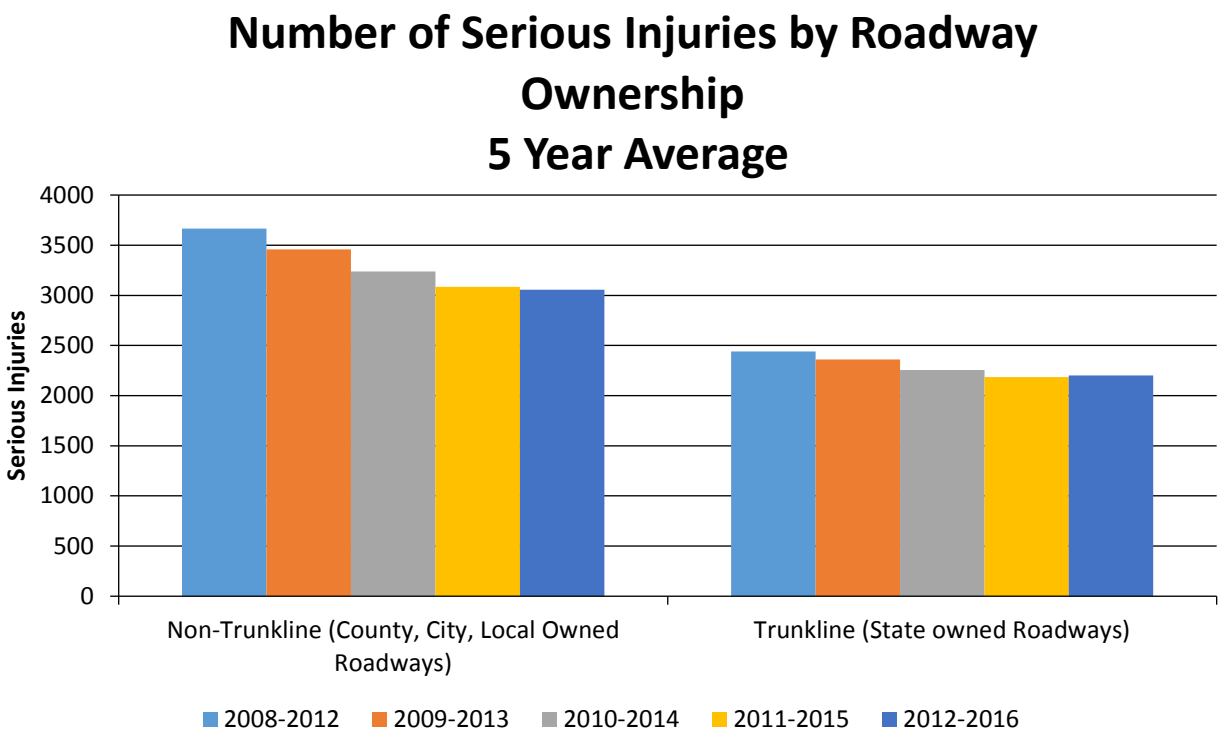

Number of Fatalities by Functional Classification
5 Year Average
Fatalities
250
200
150
100
50
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial - Other
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016

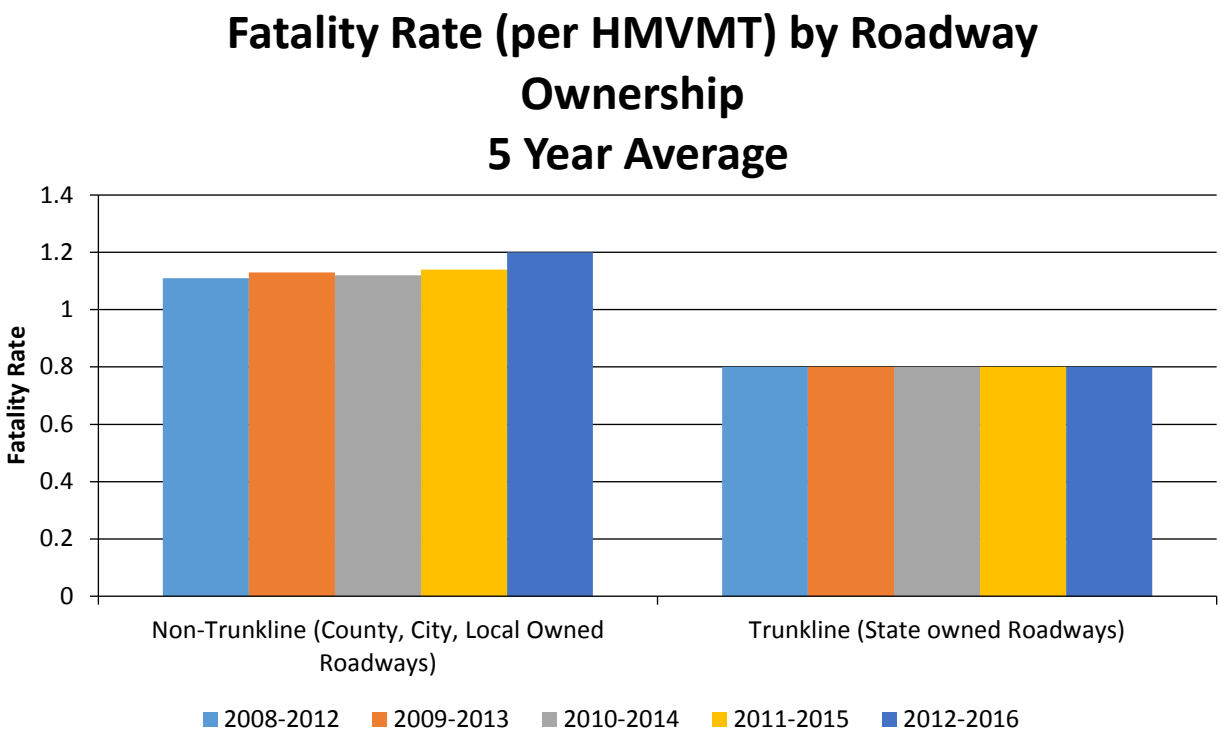

Number of Serious Injuries by Functional Classification
5 Year Average
Serious Injuries
1400
1200
1000
800
600
400
200
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016

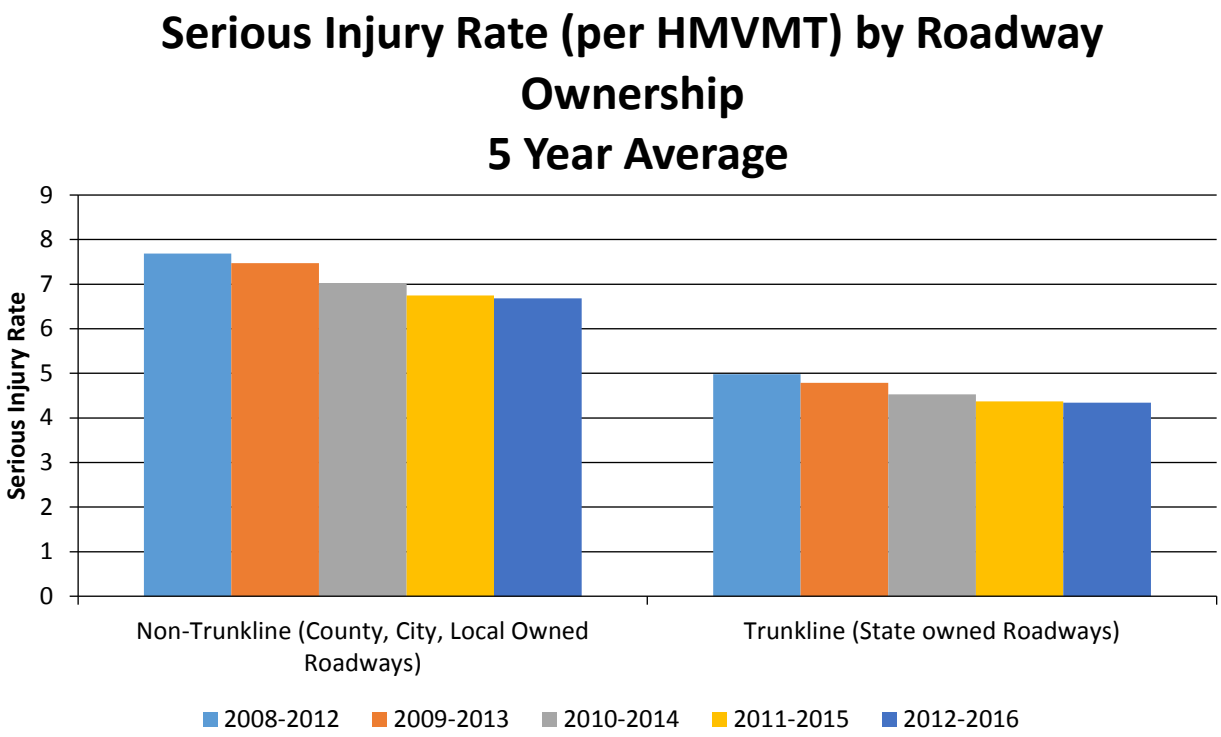

Fatality Rate (per HMVMT) by Functional Classification
5 Year Average
Fatality Rate
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Serious Injury Rate (per HMVMT) by Functional Classification
5 Year Average
Serious Injury Rate
25
20
15
10
5
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Fatalities by Roadway Ownership
5 Year Average
600
500
400
300
200
100
0
Fatalities
Non-Trunkline (County, City, Local Owned Roadways)
Trunkline (State owned Roadways)
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Serious Injuries by Roadway Ownership
5 Year Average
Serious Injuries
4000
3500
3000
2500
2000
1500
1000
500
0
Non-Trunkline (County, City, Local Owned Roadways)
Trunkline (State owned Roadways)
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Fatality Rate (per HMVMT) by Roadway Ownership
5 Year Average
Fatality Rate
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Non-Trunkline (County, City, Local Owned Roadways)
Trunkline (State owned Roadways)
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016



Enter additional comments here to clarify your response for this question or add supporting information.

2016 VMT was not available at the time of this report, so 2015 data was used in 2016 rates.

Are there any other aspects of the general highway safety trends on which the State would like to elaborate?

Yes

Provide additional discussion related to general highway safety trends.

In review of the 5-Year Rolling Average for Statewide, state trunkline and local roadways, fatalities have seen an increase of 4% over the rolling average. State trunkline fatalities had an overall increase of 3% while local roadway fatalities had an overall increase of 4%.

Serious injuries statewide have seen a decrease of 16% over the 5 year rolling average. State trunkline serious injuries had an overall decrease of 11% while local roadway serious injuries had an overall decrease of 20%.

In regards to rates while the fatality and serious injury rates are lower on state trunkline the percent decrease over the analysis time period is consistent between the two roadway networks. For both statewide and state trunkline the fatality rate has been below 1.0 fatality per 100 million vehicle miles traveled since 2008-2012. The local roadways fatality rate has been below 1.20 during the entire analysis time period.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2018 Targets *

Number of Fatalities 1003.2

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

In determining the fatal five year rolling average target values were proposed for calendar year (CY) 2017 and 2018 using models developed by the Michigan Department of Transportation (MDOT) and the University of Michigan Transportation Research Institute (UMTRI). MDOT's model evaluated the impact of Oil and Dow Jones Industrial (DJI) futures on fatalities while UMTRI, through the research on the Identification of Factors Contributing to the Decline of Traffic Fatalities in the United States (NCHRP 17-67), found a strong correlation with VMY, GDP per capita, median annual income, and the unemployment rate among 16 to 24-year old's. The result is a prediction of 1,058 and 1,030 fatalities in 2017 and 2018 respectfully. This supports the SHSP by identifying Michigan's key safety needs and guide investment decisions to achieve significant reductions in traffic fatalities and serious injuries on public roads.

Number of Serious Injuries 5136.4

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

In the UMTRI analysis a strong linear relationship of the ratio of serious injuries and fatalities (A/K) was found. In response to the above noted MDOT model not being as strong with the economic indicators for serious injuries, UMTRI's A/K relationship was used to predict 5,243 and 5,031 serious injuries in 2017 and 2018 respectfully. This supports the SHSP by identifying Michigan's key safety needs and guide investment decisions to achieve significant reductions in traffic fatalities and serious injuries on public roads.

Fatality Rate 1.02

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

The VMT value for 2016 has been estimated along with VMT values predicted for 2017 and 2018. Using the fatality yearly values, as noted above, along with the VMT's, the annual respective rates have been calculated and used to determine the 2017 and 2018 values, respectively. This supports the SHSP by identifying Michigan's key safety needs and guide investment decisions to achieve significant reductions in traffic fatalities and serious injuries on public roads.

Serious Injury Rate 5.23

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

The VMT value for 2016 has been estimated along with VMT values predicted for

2017 and 2018. Using the serious injury yearly values, as noted above, along with the VMT's, the annual respective rates have been calculated and used to determine the 2017 and 2018 values, respectively. This supports the SHSP by identifying Michigan's key safety needs and guide investment decisions to achieve significant reductions in traffic fatalities and serious injuries on public roads.

Total Number of Non-Motorized Fatalities and Serious Injuries	743.6

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

The relationship of non motorized fatalities and serious injuries with the economic indicators was not as strong as hoped. MDOT's best estimates were lower than what has been previously experienced through the end of April with values up by 45 percent. Therefore, the A/K relationship, as noted above, was used resulting in a prediction of 782 and 752 non-motorized fatalities and serious injuries in 2017 and 2018 respectfully. This supports the SHSP by identifying Michigan's key safety needs and guide investment decisions to achieve significant reductions in traffic fatalities and serious injuries on public roads.

Enter additional comments here to clarify your response for this question or add supporting information.

MDOT acknowledges the increasing trend of fatalities and serious injuries that are occurring on our roadway network. Please see the attached summary document regarding the Safety Performance Measures.

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

MDOT, OHSP, and UMTRI collaborated to establish the safety performance targets for Michigan. This collaboration included meetings with the analysis team along with input from MPO's and FHWA.

Does the State want to report additional optional targets?

No

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

Applicability of Special Rules

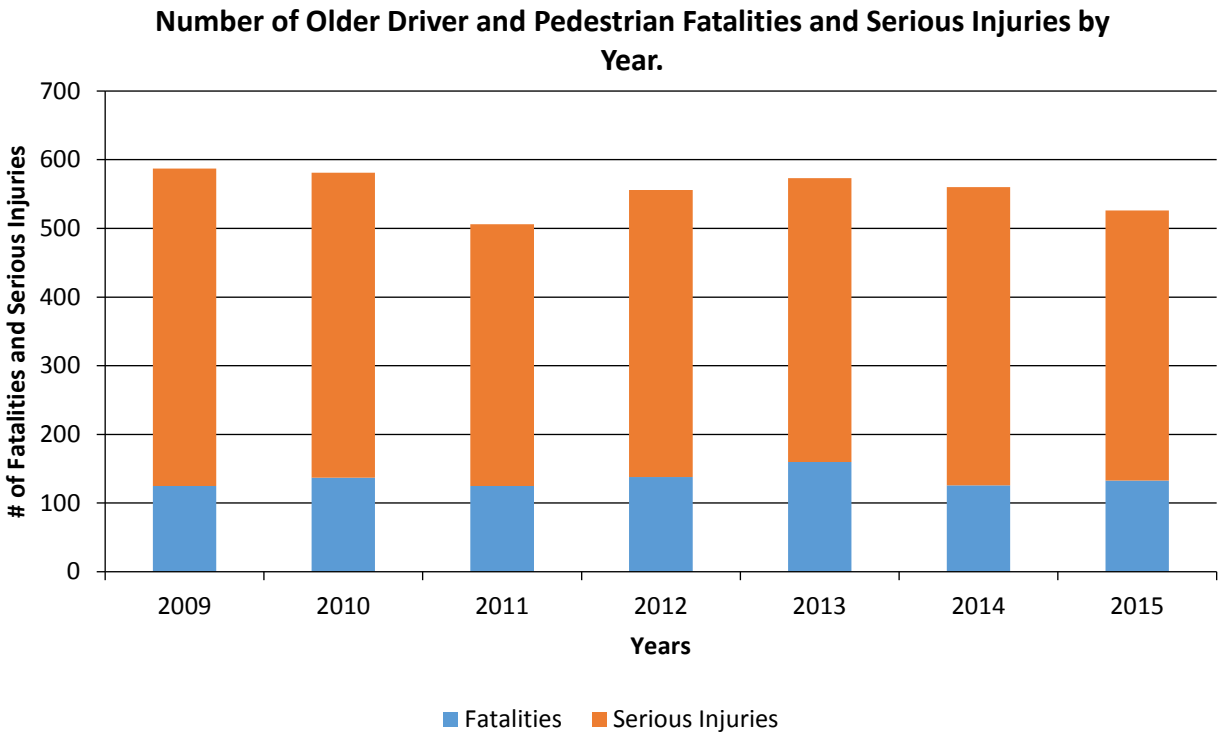
Does the HRRR special rule apply to the State for this reporting period?

No

Enter additional comments here to clarify your response for this question or add supporting information.

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

PERFORMANCE MEASURES	2009	2010	2011	2012	2013	2014	2015
Number of Older Driver and Pedestrian Fatalities	125	137	125	138	160	126	133
Number of Older Driver and Pedestrian Serious Injuries	462	444	381	418	413	434	393



Enter additional comments here to clarify your response for this question or add supporting information.

N/A

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

Other-Decrease of both fatal and serious injuries on a five-year rolling average

Enter additional comments here to clarify your response for this question or add supporting information.

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

Attached please see the Local Agency Programs Before and After study summary that was recently conducted.

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

More systemic programs
RSAs completed
Increased awareness of safety and data-driven process
Increased focus on local road safety
Other-Before and After Studies

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

Are there any significant programmatic changes that have occurred since the last reporting period?

No

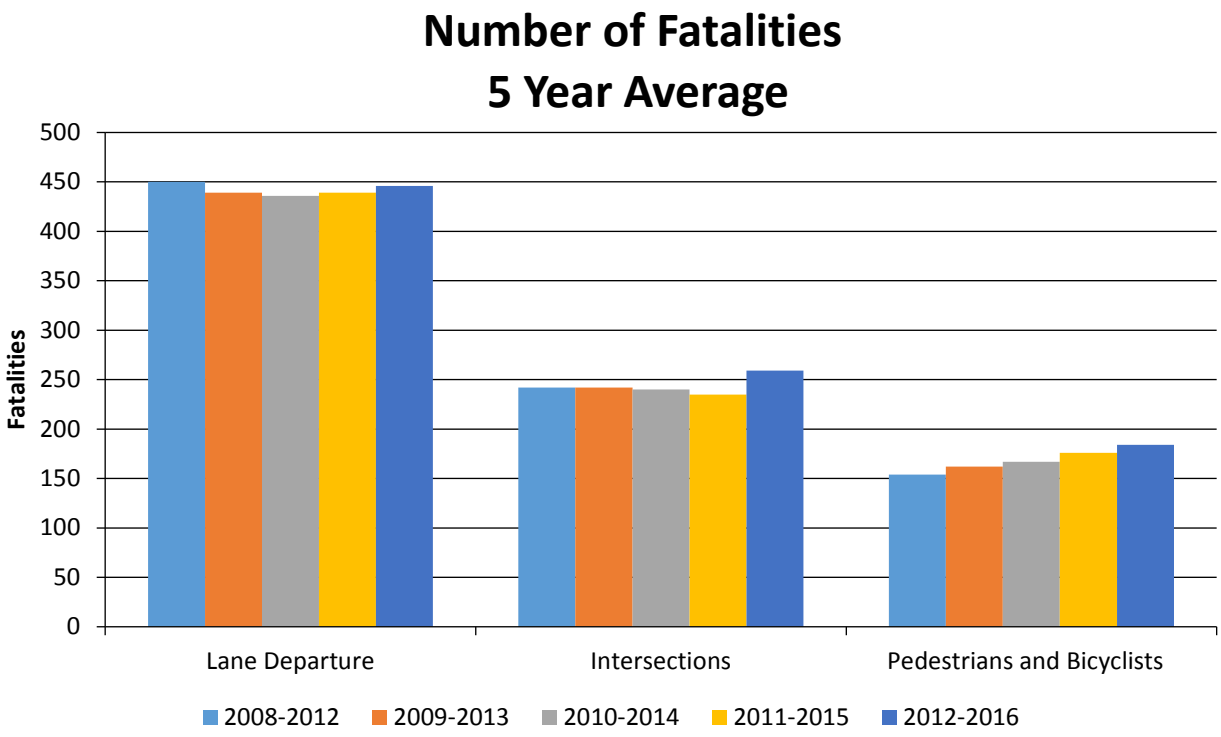
Effectiveness of Groupings or Similar Types of Improvements

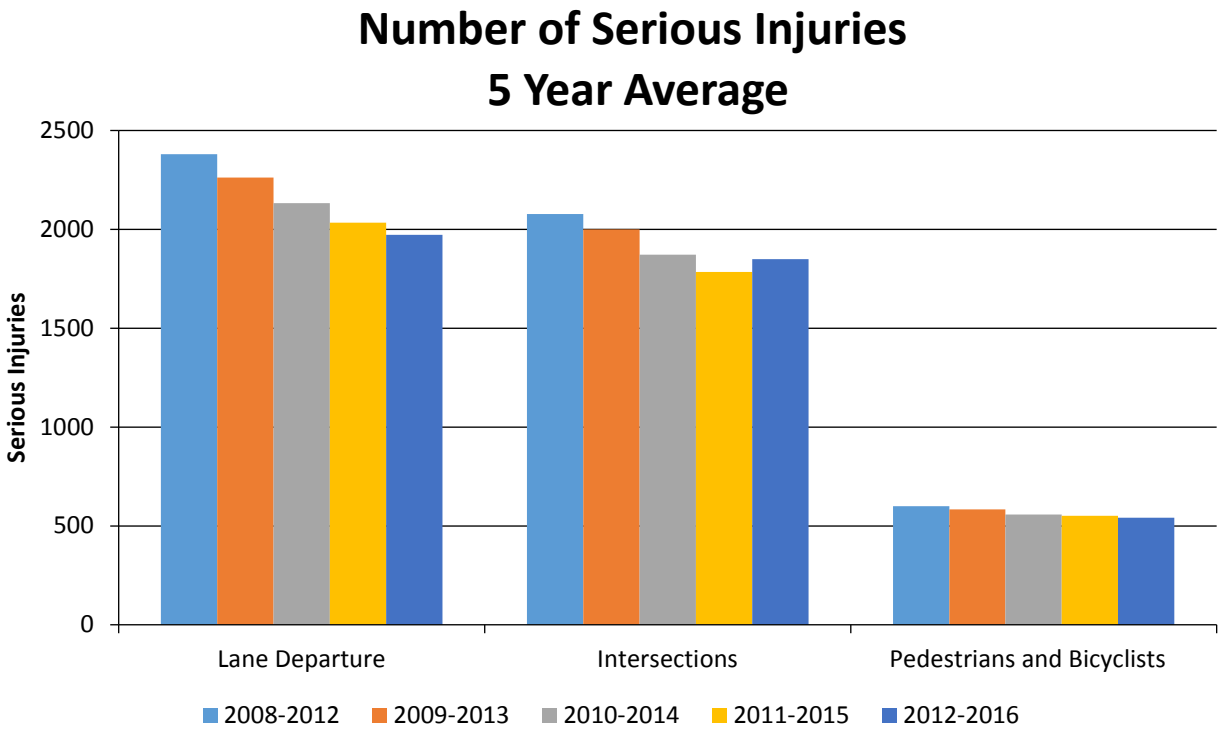
Present and describe trends in SHSP emphasis area performance measures.

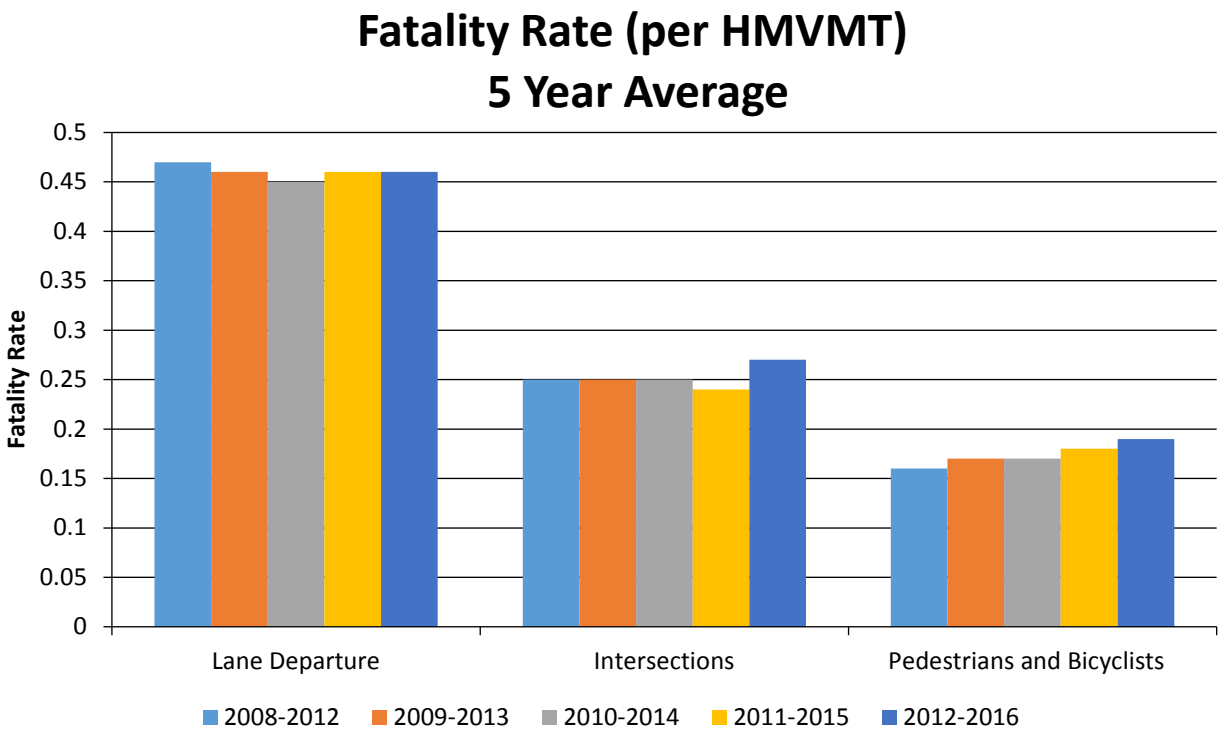
Year 2016

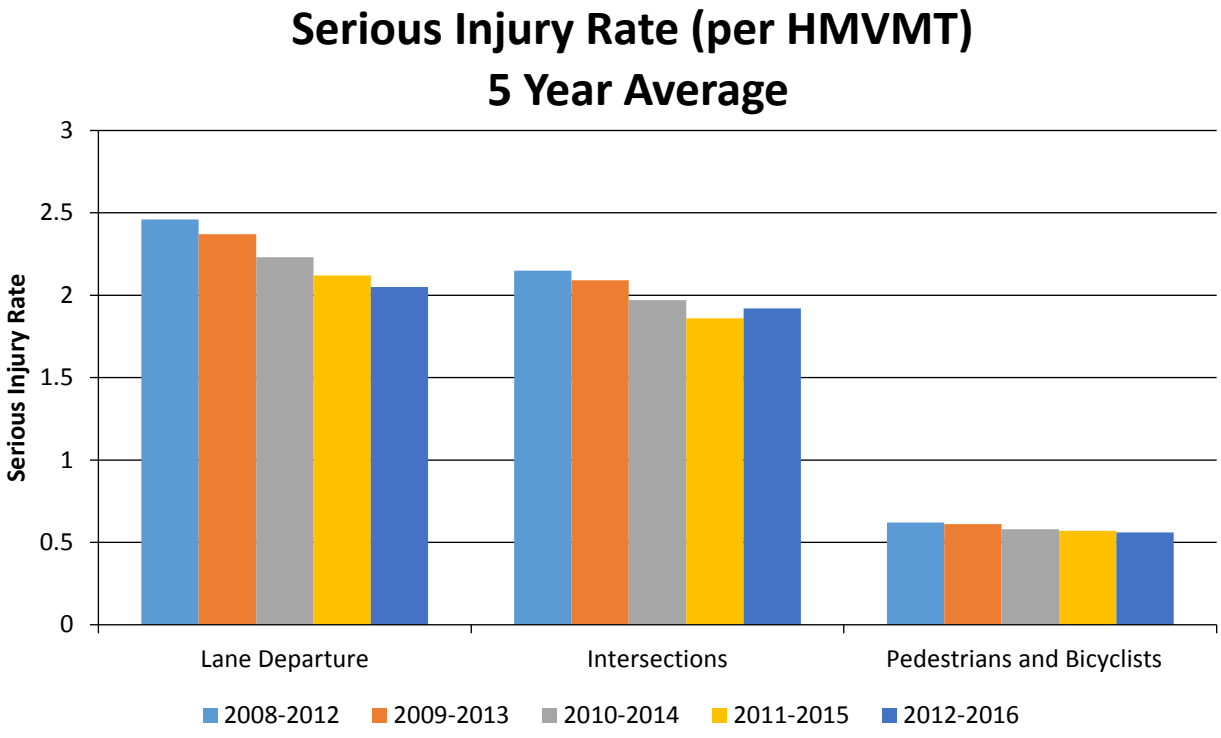
SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)	Other 1	Other 2	Other 3
Lane Departure		446	1,972	0.46	2.05			

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)	Other 1	Other 2	Other 3
Intersections		259	1,849	0.27	1.92			
Pedestrians and Bicyclists		184	542	0.19	0.56			


Number of Fatalities
5 Year Average
Fatalities
500
450
400
350
300
250
200
150
100
50
0
Lane Departure
Intersections
Pedestrians and Bicyclists
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Serious Injuries
5 Year Average
Serious Injuries
2500
2000
1500
1000
500
0
Lane Departure
Intersections
Pedestrians and Bicyclists
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016





Enter additional comments here to clarify your response for this question or add supporting information.

N/A

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

2017 Michigan Highway Safety Improvement Program

No

Enter additional comments here to clarify your response for this question or add supporting information.
N/A

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 INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
N/A														

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

Are there any other aspects of the overall HSIP effectiveness on which the State would like to elaborate?

Yes

Describe any other aspects of HSIP effectiveness on which the State would like to elaborate.

MDOT's implementation of the Systemic Approach to Safety has impacted the citizens throughout Michigan by helping improving the safety on the state trunkline network. By continuing this efforts through construction projects this proactive approach to safety will assist in the State of Michigan's efforts of saving lives and minimizing injuries moving toward the ultimate goal of Zero Deaths.

As reported in previous HSIP Reports the department undertook two system wide initiatives in FY 2008: freeway median barrier and non-freeway rumble strips. Both initiatives address lane departure, which is part of one of the 12 focus areas in the SHSP. Lane departure related crashes accounted for at least 455 fatalities statewide in 2015 (47 percent of all fatalities). A primary objective for this focus area is to identify cost effective strategies that help reduce unintentional lane departures, as well as alert the driver should a lane departure occur. The secondary objective is to assist the driver in returning to the travel lane safely and minimize departure consequences by creating roadside clear zones.

Rumble strips are proving to be a cost-effective countermeasure to lane-departure crashes on Michigan's state highways. MDOT is reaching out to local agencies to increase their understanding of the benefits of rumble strips and to encourage interest in installing them on county, city and township roads either systemwide or at specific sites. To support this effort, MDOT has developed concise, user-friendly design and installation guidelines for use by local agencies.

MDOT has fully embraced implementation of TZD as a safety program in and of itself and has developed several related action plans. Each of the 7 Regions have developed TZD implementation plans focusing on the highest concentration of crash types including, lane departure, intersections, and pedestrian/bicylce. The Traffic & Safety Section created and is actively tracking a TZD Strategic Plan for the purpose of increasing "awareness of MDOT's TZD efforts within the State of Michigan by 1) identifying effective strategies to distribute the TZD logo and create logo recognition, and 2) gaining TZD partnerships. This Strategic Plan is designed to capture a widespread audience including: MDOT Employees and State agencies/employees, Local Agencies (County, City, Village, Township, etc.), private organizations, and the general public."

Communication is a key aspect of implementing TZD and in addition to the Region TZD plans, MDOT has developed a number of tools and resources. A sample of the TZD-focused resources include a website, rest area posters, internal and external newsletter articles, crash statistics postcard, safety fact sheet with actionable items for pedestrians, bicyclists, motorcyclists and drivers and a safety programs brochure. MDOT also communicates the year-to-date fatalities across a number of different media including a weekly email listserv, messaging on our digital messaging signs and social media outlets. This effort has let to numerous related news stories by media outlets across the state. www.michigan.gov/ZeroDeaths

Compliance Assessment

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

03/15/2017

What are the years being covered by the current SHSP?

From: 2017 To: 2018

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

2018

Enter additional comments here to clarify your response for this question or add supporting information.

Here is the link to Michigan's current SHSP.

http://www.michigan.gov/documents/msp/SHSP_2013_08_web_412992_7.pdf

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

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)	100	100					100	100	100	100
Route Number (8)	100	0								
Route/Street Name (9)	100	100								
Federal Aid/Route Type (21)	0	0								
Rural/Urban Designation (20)	100	100					100	100		
Surface Type (23)	100	100					100	0		
Begin Point Segment Descriptor (10)	100	100					0	0	0	0
End Point Segment Descriptor (11)	100	100					0	0	0	0
Segment Length (13)	100	100								

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
Direction of Inventory (18)	0	0								
Functional Class (19)	100	100					100	100	100	100
Median Type (54)	80	95								
Access Control (22)	0	0								
One/Two Way Operations (91)	95	10								
Number of Through Lanes (31)	0	80					100	0		
Average Annual Daily Traffic (79)	100	95					0	0		
AADT Year (80)	100	95								
Type of Governmental Ownership (4)	100	100					100	0	0	0
INTERSECTION										
Unique Junction Identifier (120)			100	100						
Location Identifier for Road 1 Crossing Point (122)			100	100						
Location Identifier for Road 2 Crossing Point (123)			100	100						
Intersection/Junction Geometry (126)			0	0						
Intersection/Junction Traffic Control (131)			0	0						
AADT for Each Intersecting Road (79)			0	0						
AADT Year (80)			100	95						
Unique Approach Identifier (139)			0	0						
INTERCHANGE/RAMP										
Unique Interchange Identifier (178)					100	100				
Location Identifier for Roadway at Beginning of Ramp Terminal (197)					100	100				
Location Identifier for Roadway at Ending Ramp Terminal (201)					100	100				

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
Ramp Length (187)					100	100				
Roadway Type at Beginning of Ramp Terminal (195)					100	100				
Roadway Type at End Ramp Terminal (199)					0	100				
Interchange Type (182)					100	100				
Ramp AADT (191)					98	100				
Year of Ramp AADT (192)					98	100				
Functional Class (19)					100	100				
Type of Governmental Ownership (4)					100	100				
Totals (Average Percent Complete):	**76.39**	**70.83**	**50.00**	**49.38**	**90.55**	**100.00**	**66.67**	**33.33**	**40.00**	**40.00**

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

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.

During 2017, MDOT will lead two separate efforts to identify MIRE FDE data gaps, identify method and process for collecting missing data, and ensured the data is stored in a format that makes it accessible to all data users. The two efforts are:

a) Data availability - MDOT has budgeted $20 K in the SPR program to provide outreach and surveys to Local Transportation Agencies to assess the data collection resources available to those agencies. The purpose is to determine what MIRE FDE information might have already been collected by Local Agencies, and in what format.

b) Data handling - MDOT is proceeding now to ensure that missing MIRE FDE, when they do become available in the future, can be input into newly-created fields in the existing software used by MDOT and Local Agencies in Michigan. Through a $90 K traffic records grant from OHSP, MDOT has hired Michigan Technological University to upgrade the existing ROADSOFT software to accept these missing data elements.

The collection requirements for the 36 fundamental data elements are categorized by road functional classification, and then again by local vs state jurisdiction, resulting in 89 required data entries. MDOT staff believe they currently have access to these data elements as follows:

For State-owned roads:

- Minor arterial and higher classification
  - Road segments: 100% data access for 15 of the 18 required FDEs, with partial access to the other three FDEs.
  - Intersections: 100% data access to 6 of the 7 required FDEs, with 95% access to the remaining FDE.
  - Interchange/ramp: 100% data access to 9 of the 11 required FDEs, with 98% access to the remaining two FDEs.
- Local paved roads - 100% access to all 9 required FDEs
- Unpaved roads - 100% access to all 5 required FDEs

2017 Michigan Highway Safety Improvement Program
For locally-owned roads:

- Minor arterial and higher classification -
  - Road segments: 100% data access for 10 of the 18 required FDEs, with partial access to the other eight FDEs.
  - Intersections: 100% data access to 6 of the 7 required FDEs, with no access to the remaining FDE.
- Local paved roads - 100% access to 6 of the 9 required FDEs, with no access to the remaining 3 FDEs
- Unpaved roads - 100% access to all 5 required FDEs, with the provision that MDOT first has to establish

As expected, MDOT currently has access to more information on MDOT owned roadways than on locally owned roadways. However, a $20 K survey will be conducted in 2017 by MDOT. MDOT will be surveying cities and counties on what additional data they currently have that they could share with MDOT regarding some of these required FDEs. However, funding is a potential issue in the collection effort. Although MDOT has not yet estimated what it will cost them to collect, handle and store the required FDEs, it should be noted that FHWA estimated a potential cost of $15 M for Michigan to achieve compliance. MDOT has not yet included any costs in their future budget projections, other than the $20K noted above for the survey.

Although MDOT has not yet estimated costs to comply with this MIRE FDE requirement, current staff is actively discussing the requirement, and exploring various concepts of how the data might be accessed. MDOT staff have identified at least three ways that some or all of the various data elements might be collected: data supplied by Local Agencies, estimation tools, and one-time field collection efforts. In addition, MDOT is in the initial discussion stages of how and where the MIRE FDEs will be stored to ensure they are accessible to all data users. In summary, MDOT is taking this requirement seriously, and is doing everything reasonable at this time to put itself on a path to compliance. Please see the attached Traffic Records Coordinating Committee Draft Action Plan that will help implement many of the above MIRE FDE requirements.

Provide the suspected serious injury identifier, definition and attributes used by the State for both the crash report form and the crash database using the table below. Please also indicate whether or not these elements are compliant with the MMUCC 4th edition criteria for data element P5. Injury Status, suspected serious injury.

CRITERIA	SUSPECTED SERIOUS INJURY IDENTIFIER(NAME)	MMUCC 4TH EDITION COMPLIANT *	SUSPECTED SERIOUS INJURY DEFINITION	MMUCC 4TH EDITION COMPLIANT *	SUSPECTED SERIOUS INJURY ATTRIBUTES(DESCRIPTORS)	MMUCC 4TH EDITION COMPLIANT *
Crash Report Form	Suspected Serious Injury	Yes	N/A	Yes	N/A	Yes
Crash Report Form Instruction Manual	Suspected Serious Injury	No	Suspected Serious Injury is any injury, other than fatal, that prevents the injured person from walking, driving, or normally continuing the activities which he or she was capable of performing prior to the motor vehicle traffic crash.	No	See attached definition sheet from the Michigan UD-10 manual.	No
Crash Database	Suspected Serious Injury	No	N/A	No	N/A	No
Crash Database Data Dictionary	Suspected Serious Injury	No	Suspected Serious Injury is any injury, other than fatal, that prevents the injured person from walking, driving, or normally continuing the activities which he or she was capable of performing prior to the motor vehicle traffic crash.	No	See attached definition sheet from the Michigan UD-10 manual.	No

Please describe the actions the State is taking to become compliant by April 15, 2019.

The current State of Michigan definition of serious injury is substantially compliant with the new MMUTCC attributes - Michigan attributes are very similar to MMUCC attributes. However, the Michigan State Police does have a process to re-define serious injury for 100% compliance, and that process is expected to be completed by January 1, 2019. No change will be required in the state’s crash report form (UD-10).

Attached please find the suspected serious injury definition and attributes from the Michigan UD-10 instructions manual.

Enter additional comments here to clarify your response for this question or add supporting information.

N/A

Did the State conduct an HSIP program assessment during the reporting period?

Yes

Describe the purpose and outcomes of the State’s HSIP program assessment.

Please see attached report.

Optional Attachments

Program Structure:

LAP Safety Call for Project FY 2016.pdf
FY 2016 Trunkline Safety CFP Section.pdf
Low Cost Eligibility Guidelines.pdf

Project Implementation:

Safety Performance:

2018 Safety Performance Management Measures report.pdf
Evaluation:

Local Safety FY_2011__2012_Before-After_Study_572203_7.pdf

Compliance Assessment:

HSIP Program Review Final Report MAR142017.pdf
TRCC Stragetic Plan Attachment Safety draft 2017 - 2021.pdf
UD-10 Manual Serious Injury Definition.pdf

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.