MICHIGAN

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2018 ANNUAL REPORT

U.S. Department of Transportation
Federal Highway Administration

Photo source: Federal Highway Administration

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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 2018 HSIP Annual Report for the Michigan Department of Transportation (MDOT) will be for the one year time period of FY 2017 which commenced on October 1, 2016 and ended on September 30, 2017. 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 Trunkline program is managed out of the MDOT Central Office in the Bureau of Highway Development - Design Division - Design Programs Section - Safety Programs/Pavement Markings

The HSIP Local Agency Non-Trunkline Program is managed out of the MDOT Central office in the 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 state owned roadway pavement markings.

The Local Agency Call for Projects is a competitive application process between all of the Local Agencies of Michigan.

The Statewide Trunkline Call for Projects has certain funding targets for each of the 7 MDOT Regions. The funding targets are calculated based on lane miles, traffic volumes, and Fatality and Serious Injuries that occur within each particular Region.

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 May 8, 2015 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. A subsequent March 22, 2016 memorandum was released to solicit an additional $2M of projects specifically on the High Risk Rural Road system. The emphasis of the local FY 2017 CFP was to address those locations with correctable fatality and injury crashes to support the department's efforts of reducing fatalities and serious injuries striving for Toward Zero Deaths. Per the CFP, the Local Agency was to provide a Time of Return (TOR) analysis showing how the proposed improvement would address fatalities and all 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 2017 projects, 2010 to 2014 (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 of traffic signals, access management, horizontal and vertical curve modifications, sight distance and drainage improvements, bridge railing replacement or retrofit, roadway intersection improvements specifically 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 2017 CFP, a greater emphasis was placed on the identification of correctable fatalities and serious injuries, both in the selection and the prioritization of safety projects. In addition, in FY 2017, 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 within 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 Safety Programs 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 specifically to promote our Toward Zero Deaths (TZD) initiative.

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

Yes

Describe HSIP program administration practices that have changed since the last reporting period.

Michigan's HSIP programs are continuously evolving to reflect research findings, the current state of practice and better knowledge of state-specific safety needs.

The Local Safety Call for Projects (CFP) is now proactively split into two separate CFP letters: one for High Risk Rural Roads and one for general HSIP projects. MDOT sets aside $6 M of the $15.1 M local safety funds for projects located on the High Risk Rural Road network.

The trunkline HSIP program did not make any administration changes on how we implement the HSIP program in FY 2017.

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 2017, $19 M in safety funding was available, of which $15.6 M 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 $2 M 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 approved by central office staff, each Region was given $200,000 for low-cost safety improvements 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 2017 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 2017, 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.

Local Safety HSIP administration is explained above in Question #6.

Program Methodology

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

Yes

To upload a copy of the State processes, attach files below.

File Name:
MDOT HSIP Manual FY 2018.pdf
FY 2017 Trunkline HSIP CFP.pdf
Non-trunkline_FY 2017 Safety Program Call Letter.pdf
Non-trunkline_High Risk Rural Road Program_2017 Call Letter.pdf

Select the programs that are administered under the HSIP.

Other-Pavement Markings
Other-Highway Safety Call for Projects
Other-Local Safety Call for Projects
Other-Local Safety High Risk Rural Roads

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]

Other-Retroreflectivity of pavement marking

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).

Rank of Priority Consideration

Available funding : 1
Cost Effectiveness : 2

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).

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.

N/A

Program: Other-Local Safety Call for Projects

Date of Program Methodology: 5/8/2015

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	Traffic Volume	Horizontal curvature Functional classification Roadside features

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

Crash frequency
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?

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 : 2
Available funding : 1
Cost Effectiveness : 3

Other-Funding set asides for specific countermeasures : 4

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

Please see the Call for Projects (CFP) letters that are attached elsewhere in this document. The local High Risk Rural Road projects are selected following the same methodology as the local HSIP projects.

Program:	Other-Local Safety High Risk Rural Roads
Date of Program Methodology:	3/22/2016

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

FHWA focused approach to safety

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**

All crashes	Traffic Volume	Horizontal curvature Functional classification Roadside features

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

Crash frequency
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?

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 : 2
Available funding : 1
Cost Effectiveness : 3

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

Please see the Call for Projects (CFP) letters that are attached elsewhere in this document.

What percentage of HSIP funds address systemic improvements?

57

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
Other-Funding set-asides in local safety call for projects

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

Systemic projects selected through the local safety call for projects (CFP) process are awarded a higher federal funding percentage (90% federal with 10% local match) as compared to non-systemic projects which have a base funding percentage of 80% federal with a 20% local match. It should be noted that all selected projects that address a fatal or serious (Type A) injury crash are funded at 90% federal participation. Additionally, the local safety CFP has set asides for High Friction Surface Treatment, Rumble Strips, Clear Zone improvements, and Guardrail upgrade projects that are systemic in nature. Of the federal HSIP funds obligated on the local system in fiscal year 2017, approximately 49% of funds went towards systemic projects.

The Trunkline Call for Projects (CFP) allowed for up to 10% of systemic funded projects. Along with the Annual CFP, MDOT elects to construct longitudinal and special pavement markings as part of the HSIP program. Overall, in FY 2017, 51% of the total HSIP Trunkline Program funds (Safety And Pavement Markings) was used for systemic type projects. 3 percent of Trunkline Safety CFP project funds were systemic type fixes. See attached Low-cost Safety Improvement Projects that is used to select systemic type projects.

Overall, 57% of HSIP project funds selected were considered to be systemic type fixes (Trunkline Safety, Pavement markings, and Local Safety).

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

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

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 are 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 and 2018. Since then, a build of the software has been provided throughout MDOT and is available for use external to the agency. 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 Trunkline 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 2017 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 (5%) 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 Wrong Way Movement (WWM) countermeasures, the Regions were allowed to use the 10 percent allocation of their Region target 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 safety improvement. A minimum of the latest three years of available crash data is to be used in the TOR analysis. For FY 2017 project, in which 2008 to 2010 (or most current data available) crash data was used .The following TOR criteria was established:

- Stand alone safety improvement - TOR of 7 years or less
  • Stand alone safety improvement for location on the current Transparency (5%) or High Crash Report – TOR of 10 years or less.
  • Safety improvement in conjunction with another Construction project (Bridge, R&R, etc.) - TOR of 10 years or less.

Each Region's submittal was reviewed by the Central office review team to ensure all criteria was 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 2017, 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 2017 improvement projects. The RSA should be done prior to 30 percent completion of the plans. The purpose of the RSA is to ensure that the appropriate safety fixes are incorporated into the overall design based on crash patterns within the project limits. Continuing in FY 2017 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 to FY 2024 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 to FY 2024, all submitted concepts must address two or more fatal and/or serious injury crashes and align with their Region Toward Zero Deaths plan.

See Question #6 for the HSIP methodology for Local HSIP/HRRR Safety.

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, 2016 to September 30, 2017

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	$57,137,220	$52,086,397	91.16%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$7,857,884	$6,062,263	77.15%
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)	$300,000	$300,000	100%
State and Local Funds	$4,770,175	$4,609,071	96.62%
Totals	$70,065,279	$63,057,731	90%

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

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

$25,319,697

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

$22,467,877

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

Michigan was subject to the High Risk Rural Road (HRRR) Special Rule for Fiscal Year 2017. As projects were already selected, a supplemental Call for Projects was issued for additional HRRR eligible projects. This increased the amount of HSIP funding programmed and obligated on local roads in fiscal 2017. The amount in fiscal year 2018 will be reduced by this same amount. However, beginning in fiscal year 2018, Michigan is proactively separating the HSIP programmed for local projects into two separate safety CFP resulting in approximately $6M of HSIP spent on HRRR eligible projects each year. The funding amounts above include Local Safety HSIP funds and HRRR funds combined, which includes the 10 or 20% local funds match.

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

$1,301,000

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

$1,301,000

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

Non-infrastructure projects for FY 2017 included funding for Before and After studies, Statewide crash analysis, and safety related research including the collection, analysis and improvement of safety data.

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.

Overall, the time frame to obligate a specific project is longer due to MPO required approvals. During the end of the fiscal year when there is bid savings from earlier projects coming under budget, some Regions cannot use said money for a new project due to the lengthy approval process of the MPO.

MDOT promotes the Toward Zero Deaths campaign to the citizens of Michigan, however not being able to use HSIP funds for educational materials has made this social campaign challenging, as we have to seek other funding sources within the department, which are also strained.

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, FY 2017, 2.9 percent of the programmed funds and 3.3 percent of the obligated funds of the HSIP State Trunkline system were directed to non-infrastructure safety items such as Before and

After studies, Statewide crash analysis, and safety related research including the collection, analysis and improvement of safety data.

On the Local Agency side no HSIP funds were directed toward tribal safety projects. Overall, 31.9 percent of the total programmed and 31.1 percent of the total obligated federal HSIP/HRRR funds were directed to local safety projects.

Overall, 6.8 percent of programmed funds used were State and Local, while 7.3 percent of obligated funds used were State and Local.

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**
Sagatoo Road at Arenac State Road	Intersection traffic control	Intersection flashers - add stop sign-mounted	1	Intersections	$40968	$45520	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	1,264	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
Round Lake Road	Roadway	Pavement surface - high friction surface	3	Curves	$108000	$119975	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	2,100	45	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Cedar Run Road and County Road 633	Roadside	Barrier- metal	2.72	Miles	$320329	$355921	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	1,768	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Hobbs Road, Garfield Road	Roadside	Removal of roadside objects (trees, poles, etc.)	5.29	Miles	$529137	$535892	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	1,400	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Gordonville Road	Roadway	Roadway - other	0.79	Miles	$537559	$620202	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	1,748	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Clinton Road	Roadway	Rumble strips - center	5	Miles	$138560	$153956	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	1,801	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
104th Avenue	Alignment	Horizontal and vertical alignment	1.2	Miles	$600000	$880991	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	810	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Starvation Lake Road	Alignment	Horizontal and vertical alignment	1.13	Miles	$558000	$657541	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	500	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Vergennes Street at Cumberland Avenue	Alignment	Vertical alignment or elevation change	0.27	Miles	$216000	$368674	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	3,460	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Barry County Guardrail and slope flattening	Roadside	Barrier- metal	5	Locations	$237600	$259653	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	1,000	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Mullet Lake Rd	Roadway	Roadway widening - travel lanes	0.24	Miles	$91460	$101622	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Local Road or Street	360	25	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Wilson Road	Shoulder treatments	Widen shoulder - paved or other	0.48	Miles	$378299	$460871	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Local Road or Street	2,106	45	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Manistee Lake Road	Shoulder treatments	Widen shoulder - paved or other	0.95	Miles	$558000	$599679	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	1,480	35	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Brown City Road	Intersection geometry	Intersection geometrics - modify skew angle	1	Intersections	$594053	$660059	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Minor Collector	231	55	County Highway Agency	Spot	Intersections	Reduce Fs and As

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Columbiaville Road	Roadway	Rumble strips - center	1.51	Miles	$483231	$636884	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	3,140	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
19 Mile Road	Roadside	Drainage improvements	1	Locations	$207293	$230325	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Local Road or Street	150	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Eastman Road	Roadway	Roadway widening - add lane(s) along segment	0.5	Miles	$634987	$791286	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	4,481	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Steffas Road	Roadside	Barrier- metal	2	Locations	$44280	$49874	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Local Road or Street	1,235	45	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
County Farm Road	Roadside	Removal of roadside objects (trees, poles, etc.)	8.8	Miles	$131928	$152727	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	3,402	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Bamfield Road	Roadway	Roadway - other	1.33	Miles	$525164	$583516	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	500	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
County Road 426	Roadway signs and traffic control	Curve-related warning signs and flashers	13	Curves	$16700	$18556	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	274	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
County Road 581	Roadway	Superelevation / cross slope	1.61	Miles	$511590	$568433	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	1,850	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Matekel Road at Dexter Creek	Roadside	Drainage improvements	1	Locations	$74950	$93688	HSIP (23 U.S.C. 148)	Rural Local Road or Street	80	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
30th Street- 118th Avenue to 128th Avenue	Roadway	Pavement surface - miscellaneous	5.08	Miles	$600000	$987177	HSIP (23 U.S.C. 148)	Rural Minor Arterial	4,327	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Bellaire Highway	Roadside	Barrier- metal	2.8	Miles	$126941	$158677	HSIP (23 U.S.C. 148)	Rural Major Collector	1,500	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Red Arrow Highway	Alignment	Vertical alignment or elevation change	0.44	Miles	$600000	$951188	HSIP (23 U.S.C. 148)	Rural Minor Arterial	5,078	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Upgrading Guardrails on various primary roads	Roadside	Barrier- metal	13.99	Miles	$557349	$700198	HSIP (23 U.S.C. 148)	Rural Major Collector	2,000	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Red Arrow Highway and John Beers intersection	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$368208	$395205	HSIP (23 U.S.C. 148)	Urban Minor Arterial	11,400	45	County Highway Agency	Spot	Intersections	Reduce Fs and As
Countywide guardrail	Roadside	Barrier- metal	6	Locations	$158087	$168449	HSIP (23 U.S.C. 148)	Rural Minor Arterial	4,000	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Irish Road at Atherton Road	Intersection traffic control	Intersection flashers - add stop sign-mounted	1	Intersections	$44309	$48232	HSIP (23 U.S.C. 148)	Urban Minor Arterial	10,542	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
Irish Road at Bristol Road	Intersection traffic control	Intersection flashers - add stop sign-mounted	1	Intersections	$44041	$48935	HSIP (23 U.S.C. 148)	Urban Minor Arterial	8,427	55	County Highway Agency	Spot	Intersections	Reduce Fs and As

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Irish Road at Richfield Road	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$144576	$150836	HSIP (23 U.S.C. 148)	Urban Minor Arterial	12,671	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
Potter Road at Elms Road	Intersection traffic control	Intersection flashers - add stop sign-mounted	1	Intersections	$17937	$19930	HSIP (23 U.S.C. 148)	Urban Minor Arterial	11,602	45	County Highway Agency	Spot	Intersections	Reduce Fs and As
Update and Install Warning Signs	Roadway signs and traffic control	Curve-related warning signs and flashers	2120	Signs	$83194	$92437	HSIP (23 U.S.C. 148)	Rural Major Collector	2,000	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Update and Install Warning Signs	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	344	Locations	$84208	$93564	HSIP (23 U.S.C. 148)	Rural Minor Arterial	2,000	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Lakeland Trails State Park	Pedestrians and bicyclists	Pedestrian warning signs - add/modify flashers	4	Intersections	$70700	$78556	HSIP (23 U.S.C. 148)	Urban Major Collector	8,337	35	Town or Township Highway Agency	Spot	Pedestrians	Reduce Fs and As
Countdown Pedestrian Signals	Pedestrians and bicyclists	Pedestrian signal - modify existing	1	Intersections	$70232	$87790	HSIP (23 U.S.C. 148)	Urban Minor Arterial	19,865	45	County Highway Agency	Spot	Pedestrians	Reduce Fs and As
Intersection of Stadium Drive at 11th Street	Intersection geometry	Auxiliary lanes - add right-turn lane	1	Intersections	$333000	$549576	HSIP (23 U.S.C. 148)	Urban Minor Arterial	20,800	45	County Highway Agency	Spot	Intersections	Reduce Fs and As
Sprinkle Road corridor	Intersection traffic control	Systemic improvements - signal-controlled	13	Intersections	$600000	$702692	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	26,207	55	County Highway Agency	Systemic	Intersections	Reduce Fs and As
36th Street and Kalamazoo Avenue Intersection	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$103872	$123789	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	30,400	35	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
Lake Drive and Fuller Avenue Intersection	Intersection traffic control	Modify traffic signal - add flashing yellow arrow	1	Intersections	$73186	$105793	HSIP (23 U.S.C. 148)	Urban Minor Arterial	28,300	25	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
Leonard Street and Diamond Ave. intersection	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$78240	$121090	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	14,046	25	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
13 Mile Road at Alpine Ave	Intersection geometry	Auxiliary lanes - add two-way left-turn lane	0.16	Miles	$266365	$295961	HSIP (23 U.S.C. 148)	Urban Minor Arterial	8,000	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
22 Intersections in Kent County	Intersection traffic control	Systemic improvements - signal-controlled	22	Intersections	$89683	$118443	HSIP (23 U.S.C. 148)	Urban Minor Arterial	10,000	55	County Highway Agency	Systemic	Intersections	Reduce Fs and As
68th Street at Patterson Ave and 84th Street at Clyde Park Ave	Intersection traffic control	Modify traffic signal - modernization/replacement	2	Intersections	$216000	$239832	HSIP (23 U.S.C. 148)	Urban Minor Arterial	12,743	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
Whitneyville Ave at 68th Street	Roadway	Roadway widening - add lane(s) along segment	0.37	Miles	$335453	$372968	HSIP (23 U.S.C. 148)	Urban Minor Arterial	7,250	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Cannonsburg Rd at Myers Lake Ave.	Intersection geometry	Auxiliary lanes - add left-turn lane	1	Intersections	$288001	$393018	HSIP (23 U.S.C. 148)	Urban Major Collector	7,530	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
Imlay City Road	Roadway	Rumble strips - center	4.85	Miles	$326505	$358571	HSIP (23 U.S.C. 148)	Rural Minor Arterial	5,000	55	County Highway Agency	Spot	Lane Departure	Reduce Fs and As

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H-40 (Hiawatha Trail)	Roadside	Roadside grading	0.2	Miles	$74970	$93713	HSIP (23 U.S.C. 148)	Rural Major Collector	100	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Garfield, 12 Mile, and 23 Mile (Signal Upgrades at 6 Locations)	Intersection traffic control	Systemic improvements - signal-controlled	6	Intersections	$600000	$701439	HSIP (23 U.S.C. 148)	Urban Minor Arterial	25,000	45	County Highway Agency	Spot	Intersections	Reduce Fs and As
Harper, 14 Mile, 18 Mile, 19 Mile, and 24 Mile	Intersection traffic control	Systemic improvements - signal-controlled	6	Intersections	$589500	$864998	HSIP (23 U.S.C. 148)	Urban Minor Arterial	25,000	45	County Highway Agency	Spot	Intersections	Reduce Fs and As
Van Dyke, Schoenherr, Hayes, and Chesterfield	Intersection traffic control	Systemic improvements - signal-controlled	7	Intersections	$540000	$692867	HSIP (23 U.S.C. 148)	Urban Minor Arterial	25,000	45	County Highway Agency	Spot	Intersections	Reduce Fs and As
Stanton Road	Roadside	Removal of roadside objects (trees, poles, etc.)	14.2	Miles	$233083	$271262	HSIP (23 U.S.C. 148)	Rural Minor Arterial	4,391	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
12 Mile Road and Southfield Road Intersection	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$247263	$309079	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	22,562	45	County Highway Agency	Spot	Intersections	Reduce Fs and As
14 Mile Road & Dequindre Road Intersection	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$275877	$307070	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	14,883	45	County Highway Agency	Spot	Intersections	Reduce Fs and As
Five intersections located in the Houghton Lake Area	Intersection traffic control	Intersection flashers - add stop sign-mounted	5	Intersections	$103242	$115441	HSIP (23 U.S.C. 148)	Urban Major Collector	1,530	55	County Highway Agency	Systemic	Intersections	Reduce Fs and As
Fuller Road	Pedestrians and bicyclists	Pedestrian beacons	2	Locations	$46598	$51775	HSIP (23 U.S.C. 148)	Urban Minor Arterial	16,600	35	City of Municipal Highway Agency	Systemic	Pedestrians	Reduce Fs and As
Geddes Road	Roadway	Rumble strips - center	1	Miles	$405816	$465907	HSIP (23 U.S.C. 148)	Urban Minor Arterial	10,835	45	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Guardrail Upgrade Project	Roadside	Barrier- metal	11	Locations	$247564	$257474	HSIP (23 U.S.C. 148)	Rural Major Collector	5,000	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Scio Church Road	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	13	Miles	$73148	$78095	HSIP (23 U.S.C. 148)	Rural Major Collector	5,719	55	County Highway Agency	Spot	Roadway Departure	Reduce Fs and As
Jackson Road	Roadway delineation	Improve retroreflectivity	4.29	Miles	$120107	$133753	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	16,700	50	County Highway Agency	Spot	Lane Departure	Reduce Fs and As
Meyers Road	Roadway	Roadway - other	4.21	Miles	$600000	$664552	HSIP (23 U.S.C. 148)	Urban Minor Arterial	10,800	30	City of Municipal Highway Agency	Spot	Lane Departure	Reduce Fs and As
Warren Avenue "1"	Roadway	Roadway - other	3.1	Miles	$418500	$448706	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	9,500	30	City of Municipal Highway Agency	Spot	Lane Departure	Reduce Fs and As
Warren Avenue "2"	Roadway	Roadway - other	1.3	Miles	$600000	$910324	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	26,100	30	City of Municipal Highway Agency	Spot	Lane Departure	Reduce Fs and As

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Warren Avenue "3"	Roadway	Roadway - other	1.3	Miles	$424800	$964139	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	29,800	30	City of Municipal Highway Agency	Spot	Lane Departure	Reduce Fs and As
Countywide guardrail	Roadside	Barrier- metal	5	Locations	$164392	$224411	HSIP (23 U.S.C. 148)	Rural Local Road or Street	250	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Blue Star Highway, 118th Avenue and 34th Street	Roadside	Removal of roadside objects (trees, poles, etc.)	37.65	Miles	$600000	$819688	HSIP (23 U.S.C. 148)	Rural Major Collector	3,900	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
16th Street @ Columbia Avenue	Intersection traffic control	Intersection traffic control - other	1	Intersections	$148000	$191354	HSIP (23 U.S.C. 148)	Urban Minor Arterial	14,523	30	City of Municipal Highway Agency	Spot	Intersections	Reduce Fs and As
10 Mile Road at Napier Road	Intersection traffic control	Modify control - traffic signal to roundabout	1	Intersections	$421848	$4796848	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	2,500	55	County Highway Agency	Spot	Intersections	Reduce Fs and As
Guardrail Upgrade Project	Roadside	Barrier- metal	5	Locations	$125148	$205795	HSIP (23 U.S.C. 148)	Rural Local Road or Street	376	55	County Highway Agency	Systemic	Roadway Departure	Reduce Fs and As
Region Wide Bay Region Longitudinal markings	Roadway delineation	Longitudinal pavement markings - remarking	5150	Miles	$2757211.27	$2757211.27	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce F's and A's
Region Wide Bay Region Special markings	Roadway delineation	Roadway delineation - other	1911	Locations	$586776.27	$586776.27	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce F's and A's
Region Wide Grand Region Longitudinal markings	Roadway delineation	Longitudinal pavement markings - remarking	4764	Miles	$2430159.34	$2430159.34	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce F's and A's
Region Wide Grand Region Special markings	Roadway delineation	Roadway delineation - other	1030	Locations	$464508.3	$464508.3	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce F's and A's
I-94 between Little Mack Ave and 16 Mile Rd - Installation of UltraGuard delineation system	Roadway delineation	Delineators post-mounted or on barrier	4	Miles	$15231	$15231	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Interstate	90,000	70	State Highway Agency	Spot	Lane Departure	Reduce F's and A's
Region Wide Metro Region Longitudinal markings	Roadway delineation	Longitudinal pavement markings - remarking	2543	Miles	$2602059.99	$2602059.99	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce F's and A's
Region Wide Metro Region Special markings	Roadway delineation	Roadway delineation - other	3473	Locations	$1435667.77	$1435667.77	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce F's and A's
Region Wide North Region Longitudinal markings	Roadway delineation	Longitudinal pavement markings - remarking	5117	Miles	$1899170.09	$1899170.09	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce F's and A's

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Region Wide North Region Special markings	Roadway delineation	Roadway delineation - other	1155	Locations	$418311.11	$418311.11	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce F's and A's
Region Wide Southwest Region Longitudinal markings	Roadway delineation	Longitudinal pavement markings - remarking	3110	Miles	$1629566.59	$1629566.59	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce F's and A's
Region Wide Southwest Region Special markings	Roadway delineation	Roadway delineation - other	1777	Locations	$373023.9	$373023.9	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce F's and A's
Region Wide Superior Region Longitudinal markings	Roadway delineation	Longitudinal pavement markings - remarking	4730	Miles	$1536191.25	$1536191.25	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce F's and A's
Region Wide Superior Region Special markings	Roadway delineation	Roadway delineation - other	863	Locations	$362885.59	$362885.59	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Intersections	Reduce F's and A's
Statewide Blanket PE for FY 2018 marking program	Non-infrastructure	Non-infrastructure - other	1	Project	$300000	$300000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Non-Infrastructure	Data	Reduce F's and A's
Region Wide University Region Longitudinal markings	Roadway delineation	Longitudinal pavement markings - remarking	4408	Miles	$2356291.35	$2356291.35	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce F's and A's
Region Wide University Region Special markings	Roadway delineation	Roadway delineation - other	2147	Locations	$538144.24	$538144.24	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce F's and A's
US-127 BR at N Mission Road - Mt Pleasant - Roundabout Construction	Intersection traffic control	Modify control - traffic signal to roundabout	1	Intersections	$1990032.93	$1990032.93	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	15,000	45	State Highway Agency	Spot	Intersections	Reduce F's and A's
Mt. Pleasant TSC - Delineator installation and upgrades	Roadway delineation	Delineators post-mounted or on barrier	12.6	Miles	$201211	$201211	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce F's and A's
M-15 - Vassar - North City Limits to North of Cottrell Road - Extend Center Left Turn Lane	Roadway	Roadway widening - add lane(s) along segment	0.74	Miles	$1185375.89	$1185375.89	HSIP (23 U.S.C. 148)	Rural Minor Arterial	10,000	50	State Highway Agency	Spot	Intersections	Reduce F's and A's
M-44 - Rockford - Blakely Drive East to Myers Lake Avenue - Add Center Left Turn Lane	Roadway	Roadway widening - add lane(s) along segment	1.29	Miles	$2146990.62	$2146990.62	HSIP (23 U.S.C. 148)	Rural Minor Collector	18,000	55	State Highway Agency	Spot	Intersections	Reduce F's and A's
US-131, I-96, I-196, and US-31 - Grand Region -	Roadway delineation	Delineators post-mounted or on barrier	162	Miles	$189944.19	$189944.19	HSIP (23 U.S.C. 148)	Various	0	70	State Highway Agency	Systemic	Roadway Departure	Reduce F's and A's

													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**
Regionwide Upgrade freeway delineation														
US-131 from M-20 to North County line - Big Rapids - Upgrade freeway delineation	Roadway delineation	Delineators post-mounted or on barrier	9.5	Miles	$14660	$14660	HSIP (23 U.S.C. 148)	Rural Principal Arterial (RPA) - Other Freeways and Expressways	15,000	70	State Highway Agency	Systemic	Roadway Departure	Reduce F's and A's
M-120 - Whitehall Rd East to Mid-Michigan RR - North Muskegon - Addition of Center Left Turn Lane	Roadway	Roadway widening - add lane(s) along segment	0.7	Miles	$235481.71	$235481.71	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other Freeways and Expressways	18,000	45	State Highway Agency	Spot	Intersections	Reduce F's and A's
M-115 at 20 Mile Rd - Marion - intersection geometric improvements	Intersection geometry	Intersection geometrics - realignment to align offset cross streets	1	Intersections	$1705085.6	$1705085.6	HSIP (23 U.S.C. 148)	Rural Principal Arterial (RPA) - Other Freeways and Expressways	8,000	55	State Highway Agency	Spot	Intersections	Reduce F's and A's
M-19 at 29 Mile - New Haven - Road Passing Flare	Intersection geometry	Auxiliary lanes - add two-way left-turn lane	1	Intersections	$494066.85	$494066.85	HSIP (23 U.S.C. 148)	Rural Minor Arterial	12,000	55	State Highway Agency	Spot	Intersections	Reduce F's and A's
Old M-59 between Crooks and Livernois - Rochester Hills - Add Center Left Turn Lane	Roadway	Roadway widening - add lane(s) along segment	0.7	Miles	$1395490.07	$1395490.07	HSIP (23 U.S.C. 148)	Urban Minor Arterial	13,000	50	State Highway Agency	Spot	Roadway Departure	Reduce F's and A's
M-8 - Detroit - I-96 to M-10 Pedestrian Safety Improvements - Mid Block crossings - RRFB's	Pedestrians and bicyclists	Medians and pedestrian refuge areas	8	Locations	$469199.28	$469199.28	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	45,000	35	State Highway Agency	Spot	Pedestrians	Reduce F's and A's
US-31 South of Ball Road - Levering - Horizontal curve flattening	Roadway	Superelevation / cross slope	0.4	Miles	$343985.98	$343985.98	HSIP (23 U.S.C. 148)	Rural Principal Arterial (RPA) - Other	5,000	55	State Highway Agency	Spot	Roadway Departure	Reduce F's and A's
I-94 - 17 1/2 Mile Road East to the Calhoun County line - Cable Median Barrier	Roadside	Barrier - cable	5.5	Miles	$1224902.22	$1224902.22	HSIP (23 U.S.C. 148)	Rural Principal Arterial (RPA) - Interstate	55,000	70	State Highway Agency	Spot	Roadway Departure	Reduce F's and A's
Kalamazoo TSC - Various Locations in Calhoun and Kalamazoo County - Ramp Modifications	Interchange design	Improve intersection radius at ramp terminus	25	Locations	$186116.99	$186116.99	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Reduce F's and A's
Various Freeways in Southwest	Roadway delineation	Delineators post-mounted or on barrier	5300	Miles	$204301.97	$204301.97	HSIP (23 U.S.C. 148)	Various	0	70	State Highway Agency	Systemic	Roadway Departure	Reduce F's and A's

													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**
Region Enhanced Delineation														
I-196BL and Blue Star Highway - South Haven - Center Left Turn and Right/Thru on I-196BL	Intersection geometry	Auxiliary lanes - add two-way left-turn lane	1	Intersections	$818509.64	$818509.64	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	15,000	40	State Highway Agency	Spot	Intersections	Reduce F's and A's
M-553, Sands Township, Marquette County - Curve Re-alignment	Roadway	Superelevation / cross slope	1.55	Miles	$4472805.66	$4472805.66	HSIP (23 U.S.C. 148)	Rural Minor Arterial	7,000	55	State Highway Agency	Spot	Roadway Departure	Reduce F's and A's
Multiple Locations throughout the Superior Region - Installation of Delineators	Roadway delineation	Delineators post-mounted or on barrier	5240	Miles	$223125	$223125	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce F's and A's
US-BR-27 At Stoll Rd - Lansing - Center Left Turn Lane	Intersection geometry	Auxiliary lanes - add two-way left-turn lane	1	Intersections	$725425.25	$725425.25	HSIP (23 U.S.C. 148)	Rural Principal Arterial (RPA) - Other	14,000	55	State Highway Agency	Spot	Intersections	Reduce F's and A's
Statewide SafetyAnalyst licensing fee	Non-infrastructure	Data/traffic records	2	Years	$70000	$70000	HSIP (23 U.S.C. 148)	Non-Infrastructure	0	0	State Highway Agency	Non-Infrastructure	Data	Reduce F's and A's
Statewide Synchro 10 License	Non-infrastructure	Data/traffic records	75	License	$83000	$83000	HSIP (23 U.S.C. 148)	Non-Infrastructure	0	0	State Highway Agency	Non-Infrastructure	Data	Reduce F's and A's
I-96 - Doan Creek to East of Dietz Road - Cable Median Barrier	Roadside	Barrier - cable	1.69	Miles	$310812.83	$310812.83	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural Principal Arterial (RPA) - Interstate	45,000	70	State Highway Agency	Spot	Roadway Departure	Reduce F's and A's
M-52 at Sienna Heights Drive - Install Center Left Turn Lane	Intersection geometry	Auxiliary lanes - add two-way left-turn lane	1	Intersections	$915000.1	$915000.1	HSIP (23 U.S.C. 148)	Urban Minor Arterial	17,000	35	State Highway Agency	Spot	Intersections	Reduce F's and A's
Regionwide Regionwide Pavt marking and signing @ Par-Clo interchange	Roadway delineation	Delineators post-mounted or on barrier	29	Locations	$227324.19	$227324.19	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Reduce F's and A's
Statewide Locations Before and After Study for HSIP FY 2009 to FY 2011	Non-infrastructure	Non-infrastructure - other	3	Years	$48000	$48000	HSIP (23 U.S.C. 148)	Non-Infrastructure	0	0	State Highway Agency	Non-Infrastructure	Data	Reduce F's and A's
Statewide SHRP 2 Study Interrelationships between Speed Limits, Geometry	Non-infrastructure	Non-infrastructure - other	1	Research Project	$500000	$500000	Other Federal-aid Funds (i.e. STBG, NHPP)	Non-Infrastructure	0	0	State Highway Agency	Non-Infrastructure	Data	Reduce F's and A's

													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**
and Driver Behavior														
Statewide Crash Analysis	Non-infrastructure	Data/traffic records	1	Research Project	$300000	$300000	HSIP (23 U.S.C. 148)	Non-Infrastructure	0	0	State Highway Agency	Non-Infrastructure	Data	Reduce F's and A's
I-94 E EB near Kalmbach, Washtenaw Co. High Friction Surface treatment	Roadway	Pavement surface - high friction surface	0.5	Miles	$203808.19	$203808.19	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Interstate	50,000	70	State Highway Agency	Spot	Roadway Departure	Reduce F's and A's

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

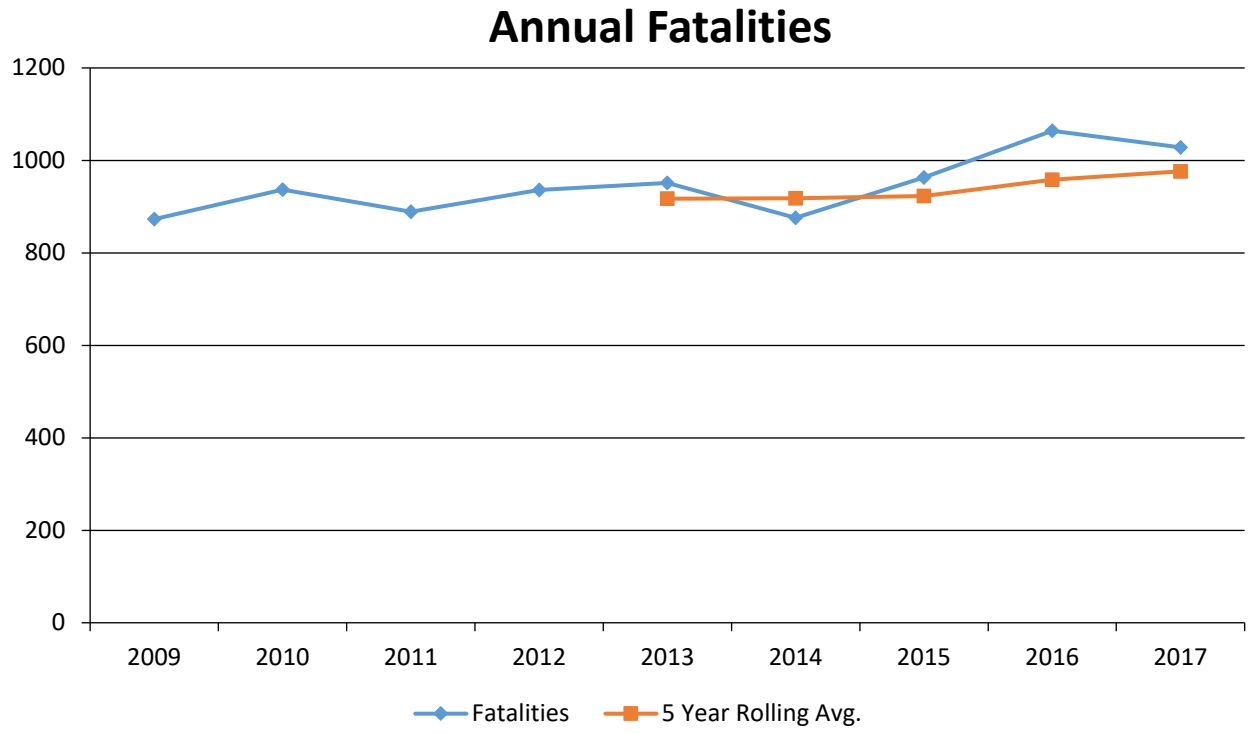
N/A

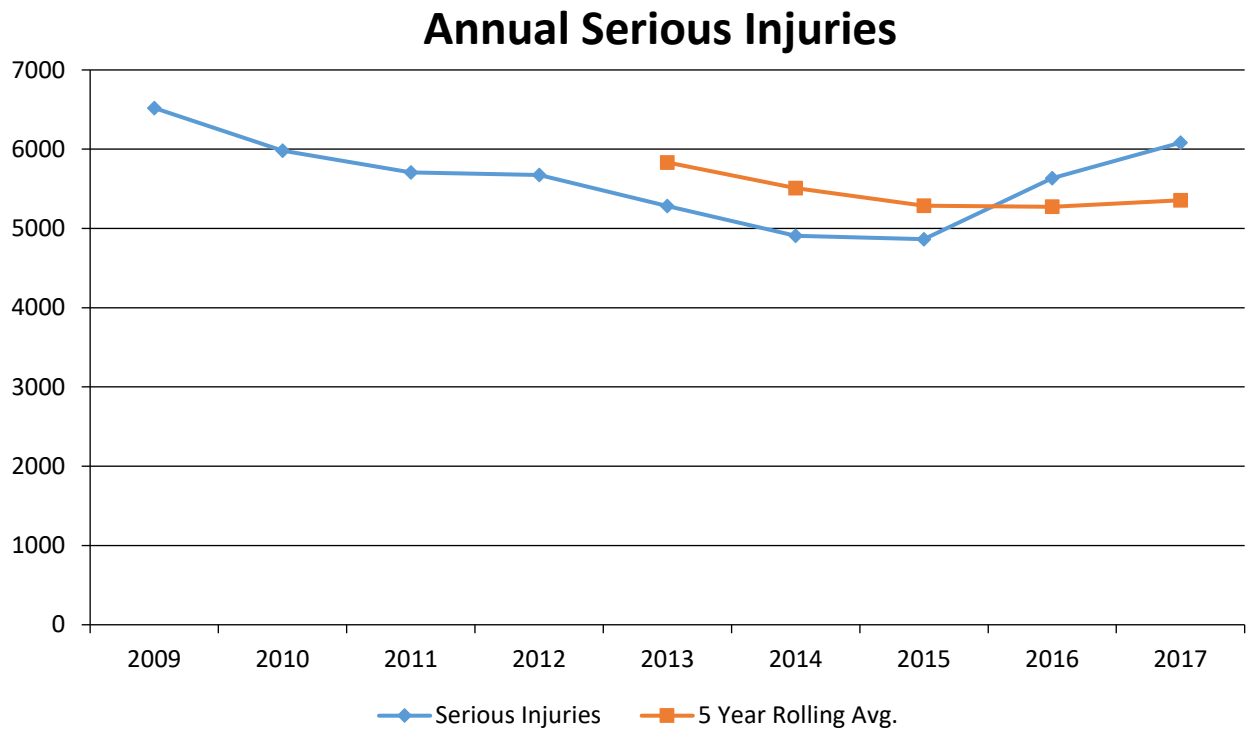
Safety Performance

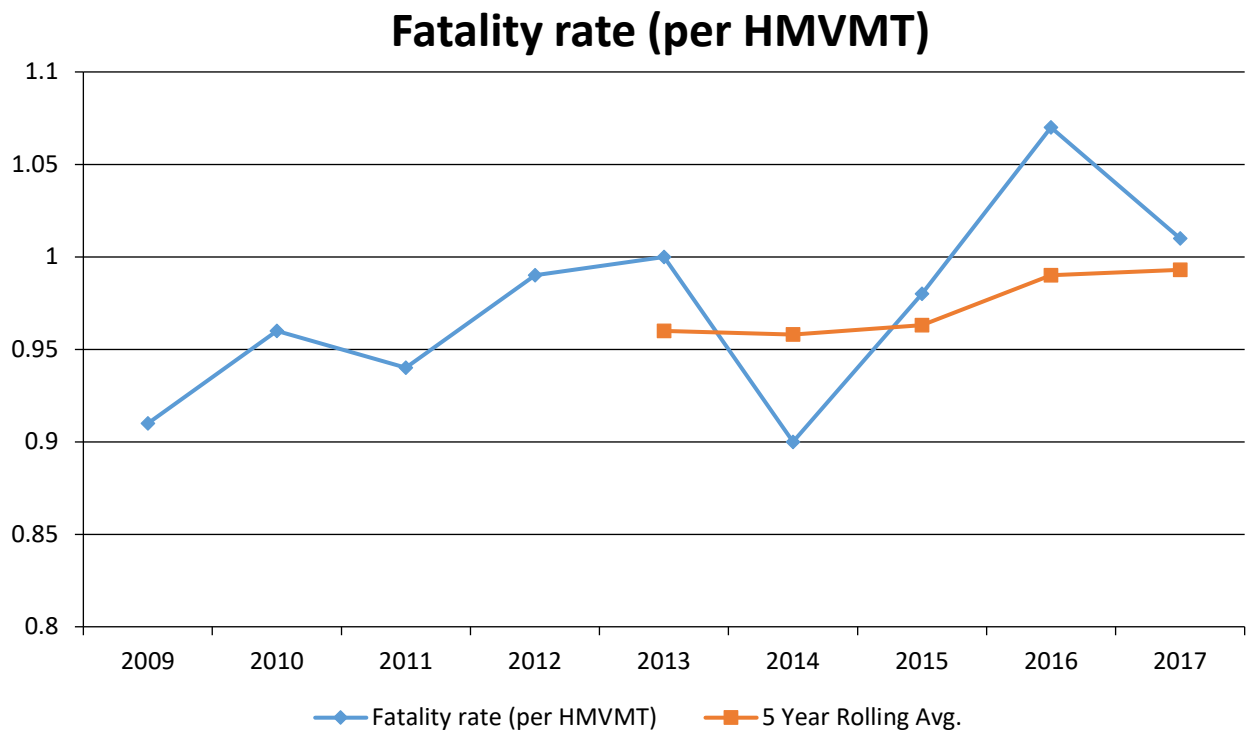
General Highway Safety Trends

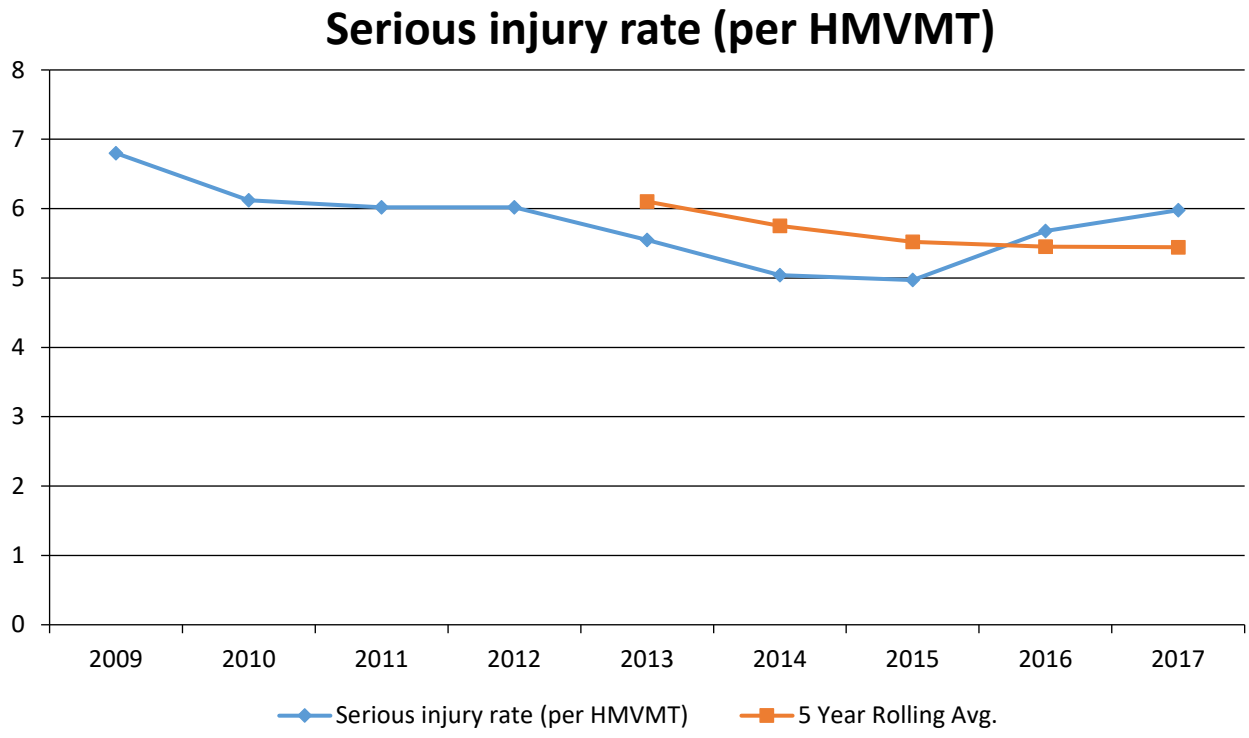
Present data showing the general highway safety trends in the State for the past five years.

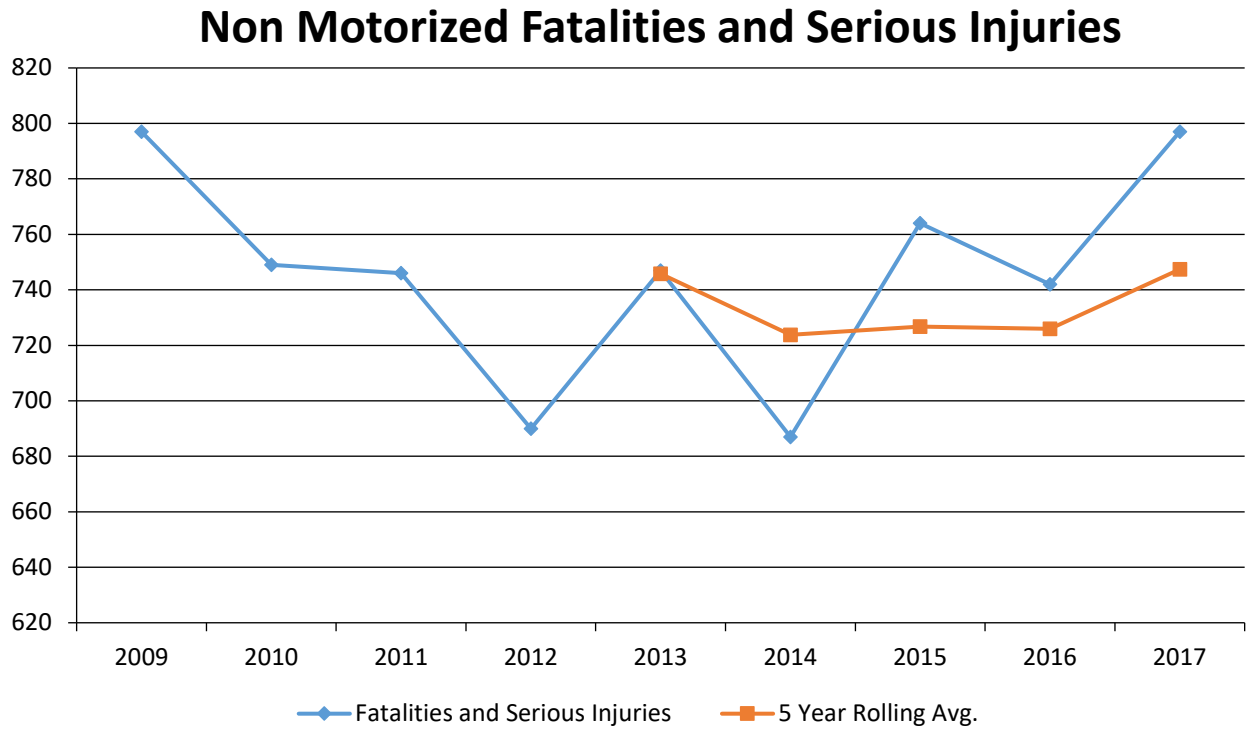
PERFORMANCE MEASURES	2009	2010	2011	2012	2013	2014	2015	2016	2017
Fatalities	873	937	889	936	951	876	963	1,064	1,028
Serious Injuries	6,520	5,980	5,706	5,676	5,283	4,909	4,865	5,634	6,084
Fatality rate (per HMVMT)	0.910	0.960	0.940	0.990	1.000	0.900	0.980	1.070	1.010
Serious injury rate (per HMVMT)	6.800	6.120	6.020	6.020	5.550	5.040	4.970	5.680	5.980
Number non-motorized fatalities	145	163	166	157	179	170	208	206	180
Number of non-motorized serious injuries	652	586	580	533	568	517	556	536	617


Annual Fatalities
1200
1000
800
600
400
200
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
7000
6000
5000
4000
3000
2000
1000
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.1
1.05
1
0.95
0.9
0.85
0.8
2009
2010
2011
2012
2013
2014
2015
2016
2017
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
8
7
6
5
4
3
2
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



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

VMT was updated for both 2016 and 2017 as 2016 VMT was not available at the time of the 2016 FY Report.

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.

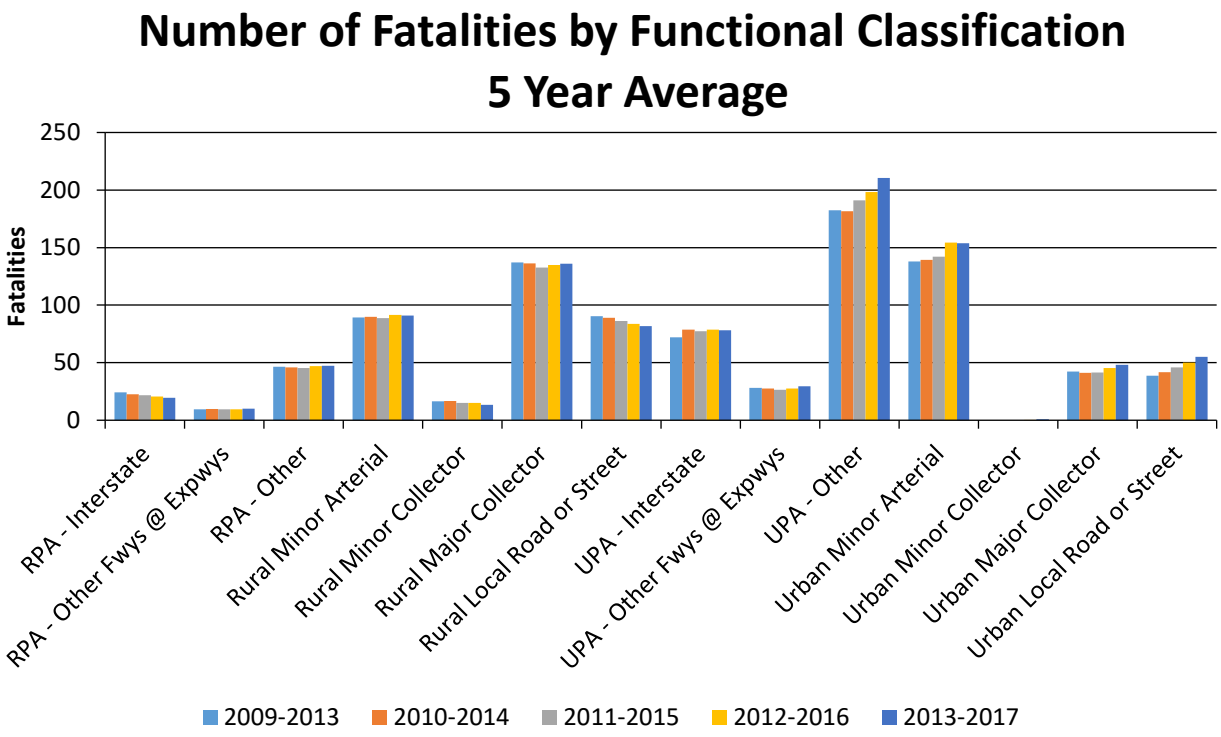
Year 2017

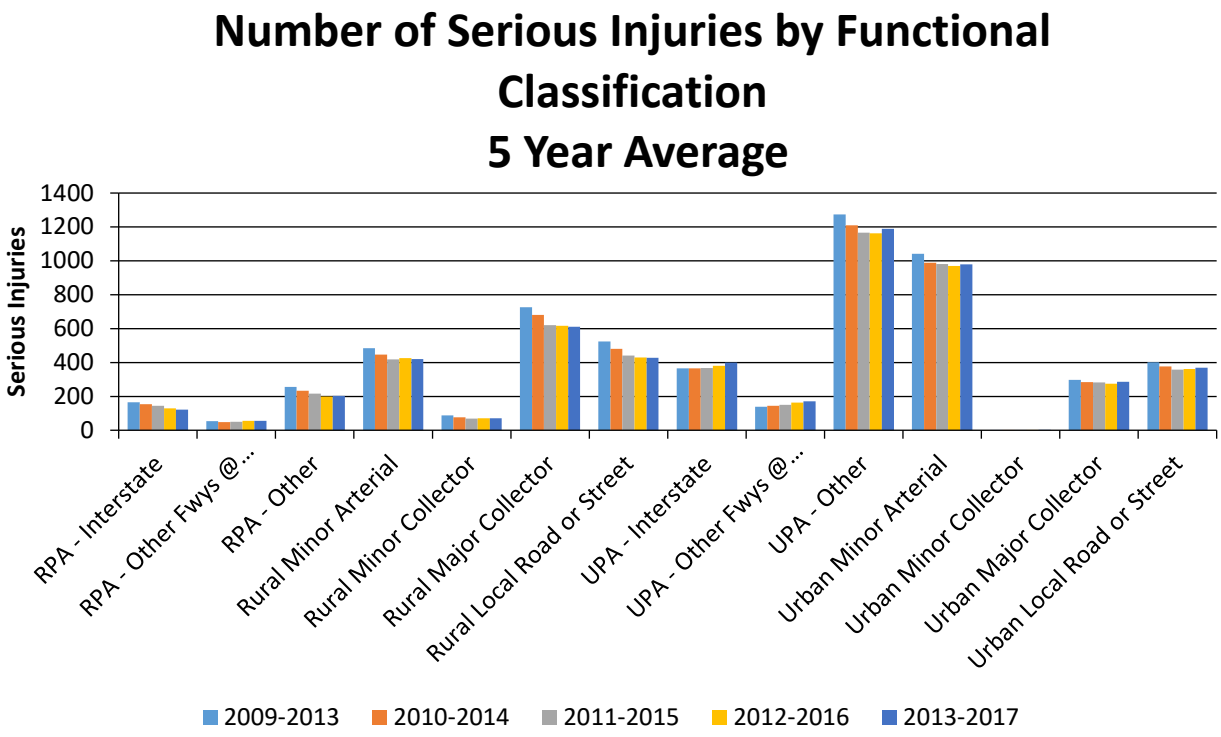
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial (RPA) - Interstate	19.6	122.2	0.38	2.39
Rural Principal Arterial (RPA) - Other Freeways and Expressways	10	56.2	0.4	2.31
Rural Principal Arterial (RPA) - Other	47.4	202.8	1.18	5.03

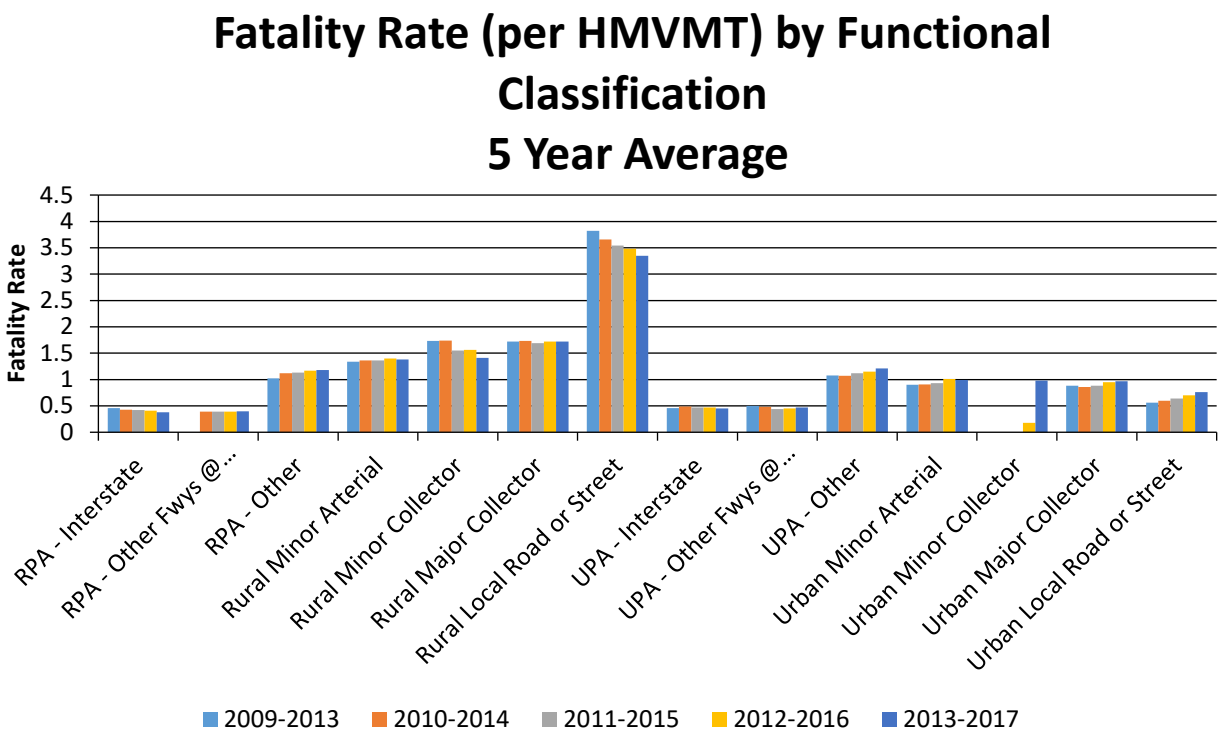
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Minor Arterial	91	421	1.38	6.38
Rural Minor Collector	13.4	70.2	1.41	7.48
Rural Major Collector	136	610.6	1.72	7.71
Rural Local Road or Street	81.8	427.8	3.35	17.55
Urban Principal Arterial (UPA) - Interstate	78.2	398.4	0.45	2.3
Urban Principal Arterial (UPA) - Other Freeways and Expressways	29.6	171.6	0.47	2.74
Urban Principal Arterial (UPA) - Other	210.6	1,189.2	1.21	6.83
Urban Minor Arterial	153.8	979.8	0.99	6.29
Urban Minor Collector	1	2.2	0.98	3.78
Urban Major Collector	48	285.8	0.97	0.77
Urban Local Road or Street	55	368.4	0.76	5.13

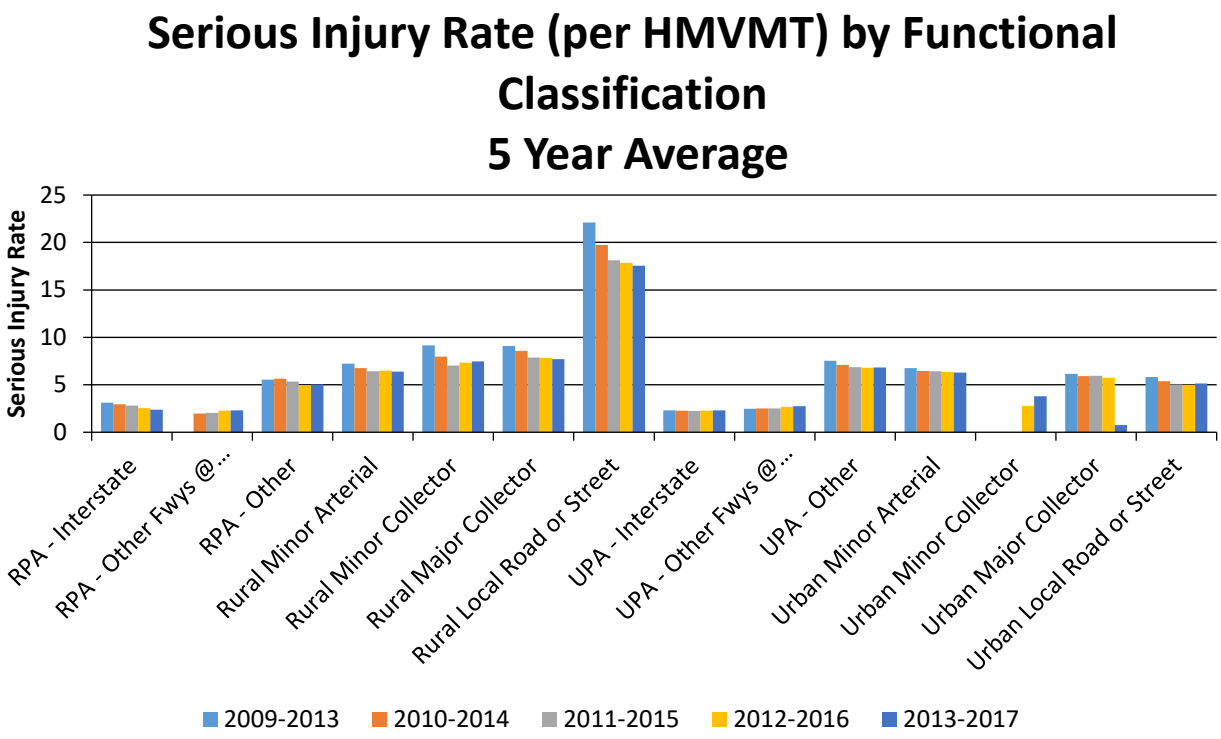
Year 2017

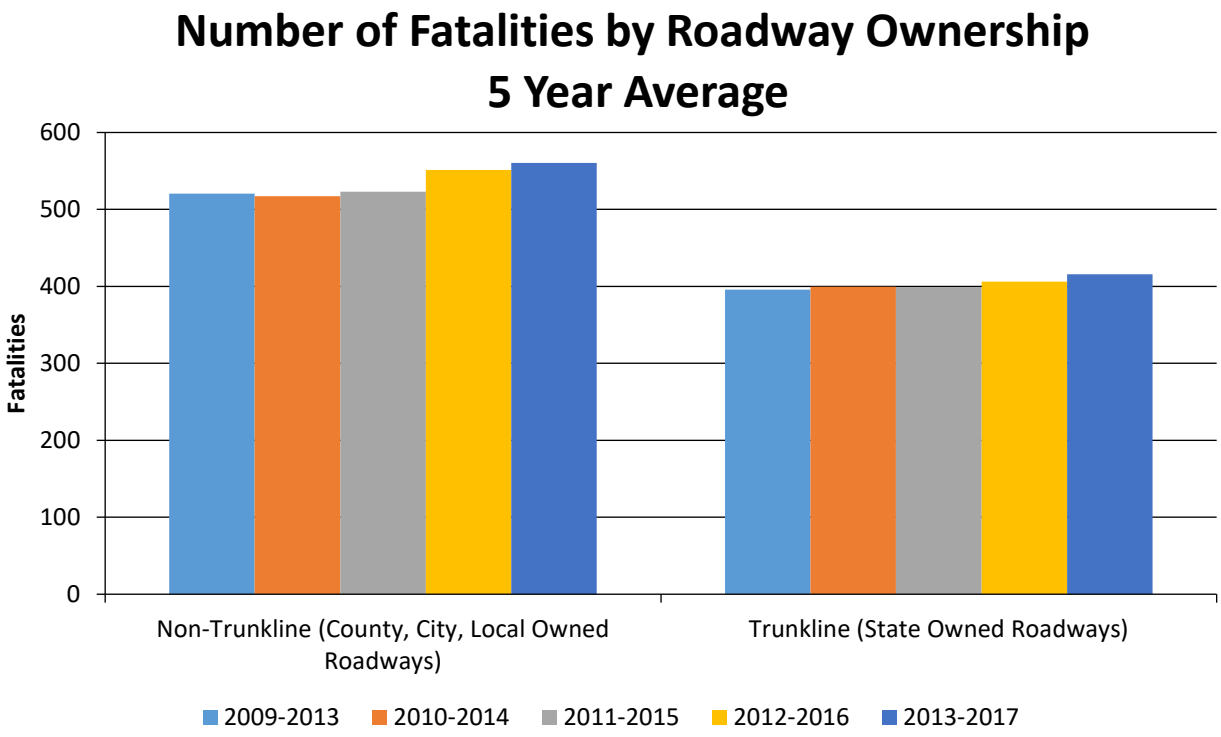
Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency				
County Highway Agency				
Town or Township Highway Agency				
City of Municipal Highway Agency				
State Park, Forest, 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)	560.4	3,081.8	1.21	6.66
Trunkline (State Owned Roadways)	415.8	2,254.4	0.8	4.33

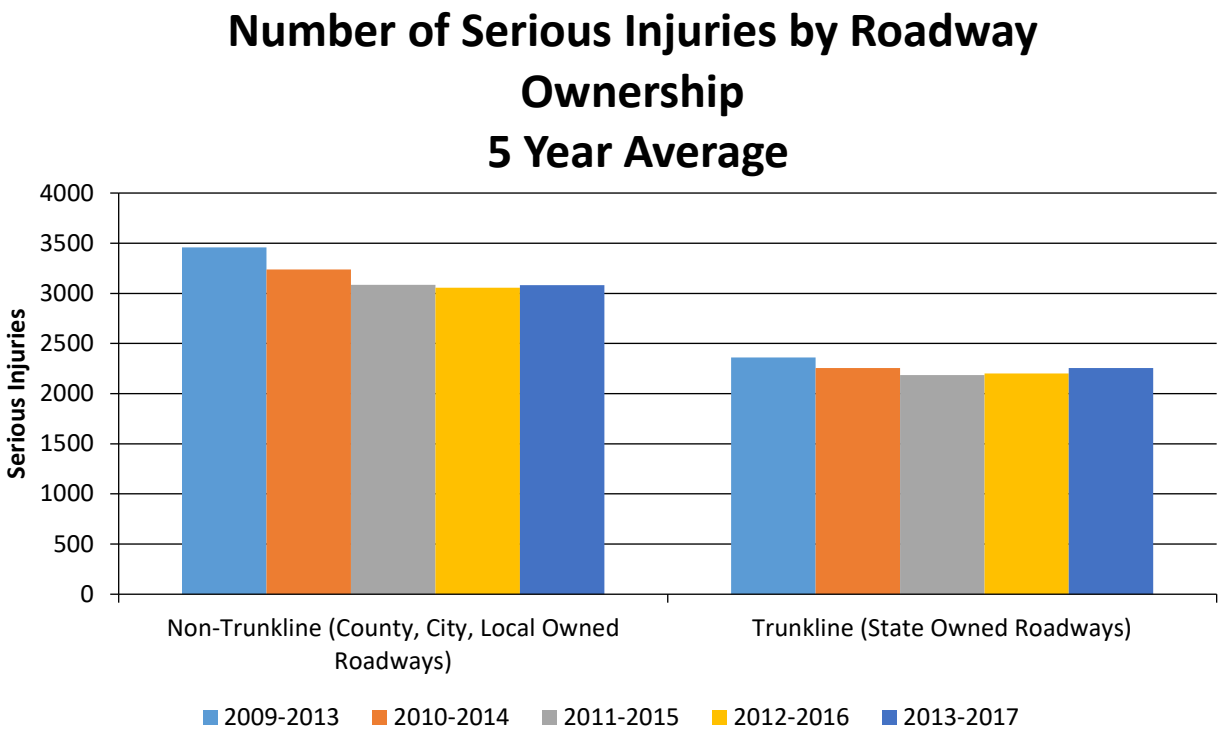

Number of Fatalities by Functional Classification
5 Year Average
Fatalities
250
200
150
100
50
0
RPA - Interstate
RPA - Other Fwys @ Expwys
RPA - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
UPA - Interstate
UPA - Other Fwys @ Expwys
UPA - Other
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017

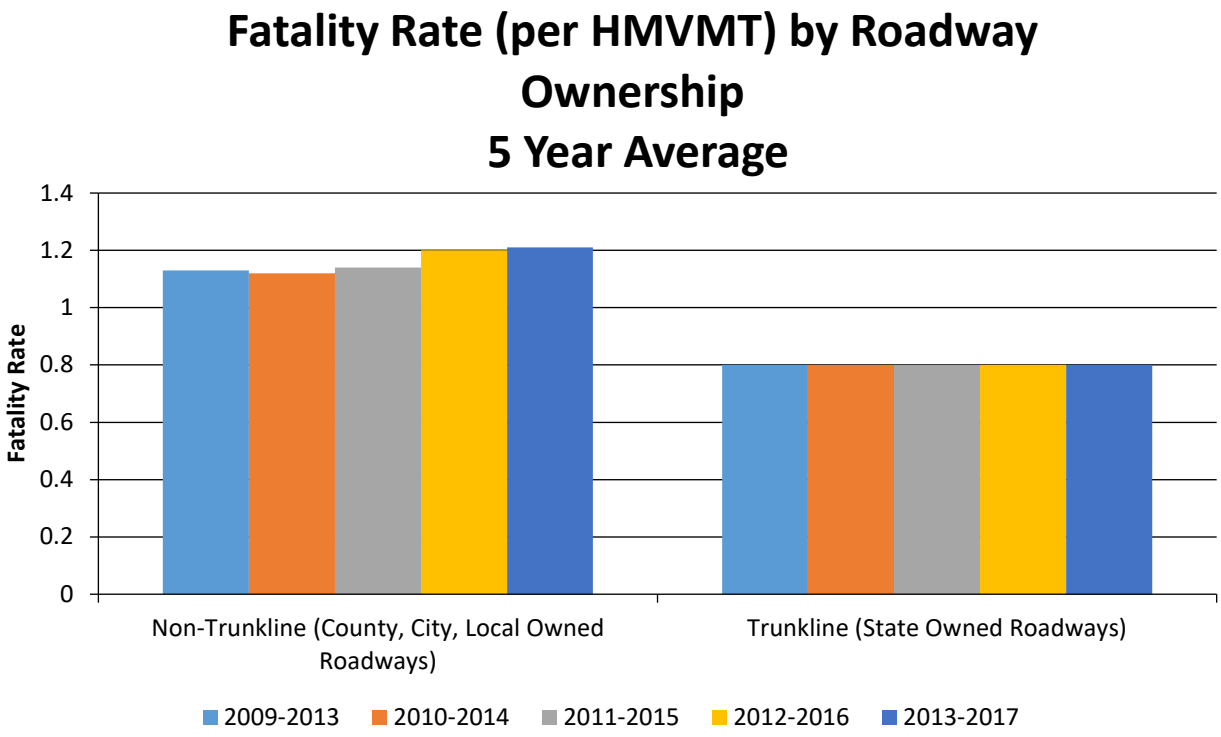

Number of Serious Injuries by Functional Classification
5 Year Average
Serious Injuries
1400
1200
1000
800
600
400
200
0
RPA - Interstate
RPA - Other Fwys @...
RPA - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
UPA - Interstate
UPA - Other Fwys @...
UPA - Other
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017

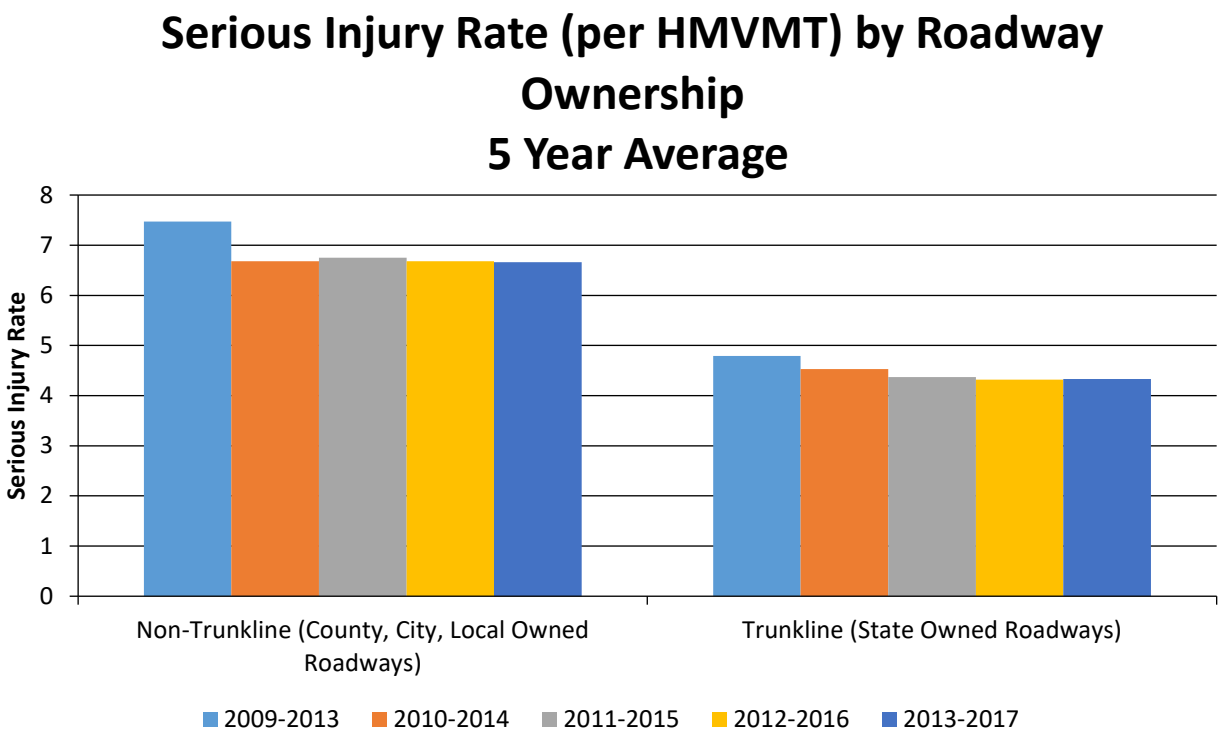

Fatality Rate (per HMVMT) by Functional Classification
5 Year Average
Fatality Rate
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
RPA - Interstate
RPA - Other Fwys @...
RPA - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
UPA - Interstate
UPA - Other Fwys @...
UPA - Other
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017


Serious Injury Rate (per HMVMT) by Functional Classification
5 Year Average
Serious Injury Rate
25
20
15
10
5
0
RPA - Interstate
RPA - Other Fwys @...
RPA - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
UPA - Interstate
UPA - Other Fwys @...
UPA - Other
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017


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)
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017


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)
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017


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)
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017



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

VMT was updated for both 2016 and 2017 as 2016 VMT was not available at the time of the FY 2016 Report.

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 Statewide, state trunkline and local roadways, fatalities have seen an increase of 5.8% over the 5 year span. State trunkline fatalities had an overall increase of 5.4% while local roadway fatalities had an overall increase of 6.2%.

Serious injuries statewide have seen a decrease of 12.5% over the 5 year rolling average. State trunkline serious injuries had an overall decrease of 7.6% while local roadway serious injuries had an overall decrease of 15.9%.

In regard to rates, the fatality and serious injury rates are lower on state trunkline than on local roadways. Overall, the fatality rate increased 1.1% while the serious injury rate increased 7.7%. The state trunkline saw a 6.9% decrease in the fatality rate and a 4.3% serious injury rate increase. The local roadways saw a 8.4% fatality rate increase and a 10.9% serious injury rate increase.

For both statewide and state trunkline the fatality rate has been at or below 1.0 fatality per 100 million vehicle miles traveled for 2010-2014, and 2011 to 2015. The local roadway fatality rate was below 1.32 during the entire analysis time period, while the state trunkine fatality rate was below 0.86 for the same time period.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2019 Targets *

Number of Fatalities 1023.2

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

To forecast the total fatalities and serious injuries for target setting purposes, the Michigan Department of Transportation (MDOT) and the Office of Highway Safety Planning (OHSP) relied on models developed and maintained by the University of Michigan Transportation Research Institute (UMTRI). The UMTRI models rely on results of a recently completed research report titled Identification of Factors Contributing to the Decline of Traffic Fatalities in the United States, which was completed as part of the National Cooperative Highway Research Program project 17-67. The two models, predicting counts and the change in counts of fatalities, rely on the correlation between traffic crashes, vehicle miles traveled (VMT) and risk. Four factors were identified that can influence risk; economic factors, safety and capital expenditures, vehicle safety and safety regulations. For both models, economic factors such as the Gross Domestic Product (GDP) per capita, median annual income, the unemployment rate among 16 to 24-year old’s and beer consumption had the greatest impact at approximately 85 percent. The change model created by UMTRI predicted 1,029 fatalities in 2018 and 1,028 in 2019. 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 5406.8

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

To forecast the total fatalities and serious injuries for target setting purposes, the Michigan Department of Transportation (MDOT) and the Office of Highway Safety Planning (OHSP) relied on models developed and maintained by the University of Michigan Transportation Research Institute (UMTRI). The UMTRI models rely on results of a recently completed research report titled Identification of Factors Contributing to the Decline of Traffic Fatalities in the United States, which was completed as part of the National Cooperative Highway Research Program project 17-67. The two models, predicting counts and the change in counts of fatalities, rely on the correlation between traffic crashes, vehicle miles traveled (VMT) and risk. Four factors were identified that can influence risk; economic factors, safety and capital expenditures, vehicle safety and safety regulations. For both models, economic factors such as the Gross Domestic Product (GDP) per capita, median annual income, the

unemployment rate among 16 to 24-year old's and beer consumption had the greatest impact at approximately 85 percent. The change model created by UMTRI predicted 5,299 serious injuries in 2018 and 5,152 in 2019. 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 1.020

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

The VMT value for 2017 has been estimated along with VMT values predicted for 2018 and 2019. Using the fatality and serious injury yearly values along with the VMT's, the annual respective rates have been calculated and used to determine the five-year rolling average for 2019 and the 2017 baseline. 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 5.410

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

The VMT value for 2017 has been estimated along with VMT values predicted for 2018 and 2019. Using the fatality and serious injury yearly values along with the VMT's, the annual respective rates have been calculated and used to determine the five-year rolling average for 2019 and the 2017 baseline. 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 759.8

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

To forecast the total fatalities and serious injuries for target setting purposes, the Michigan Department of Transportation (MDOT) and the Office of Highway Safety Planning (OHSP) relied on models developed and maintained by the University of Michigan Transportation Research Institute (UMTRI). The UMTRI models rely on results of a recently completed research report titled Identification of Factors Contributing to the Decline of Traffic Fatalities in the United States, which was completed as part of the National Cooperative Highway Research Program project 17-67. The two models, predicting counts and the change in counts of fatalities, rely on the correlation between traffic crashes, vehicle miles traveled (VMT) and risk. Four factors were identified that can influence risk; economic factors, safety and capital expenditures, vehicle safety and safety regulations. For both models, economic factors such as the Gross Domestic Product (GDP) per capita, median annual income, the unemployment rate among 16 to 24-year old's and beer consumption had the greatest impact at approximately 85 percent. Results from the UMTRI model (the A/K relationship) was also used to generate forecasted values of 760 and 751 non-motorized fatalities and serious injuries in 2018 and 2019, 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.

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. Emphasis has been put on the departments strategy of Toward Zero Deaths, which MDOT hopes will improve the safety culture in Michigan as well as reduce fatalities and serious injuries that occur on our roadways every year.

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

Michigan DOT, the Michigan Office of Highway Safety Planning (OHSP), and the University of Michigan Transportation Research Institute (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.

The OSHP is a division under the Michigan State Police. The Director of OHSP serves as the chair to the Governor's Traffic Safety Advisory Commission (GTSAC) in Michigan.

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?

Yes

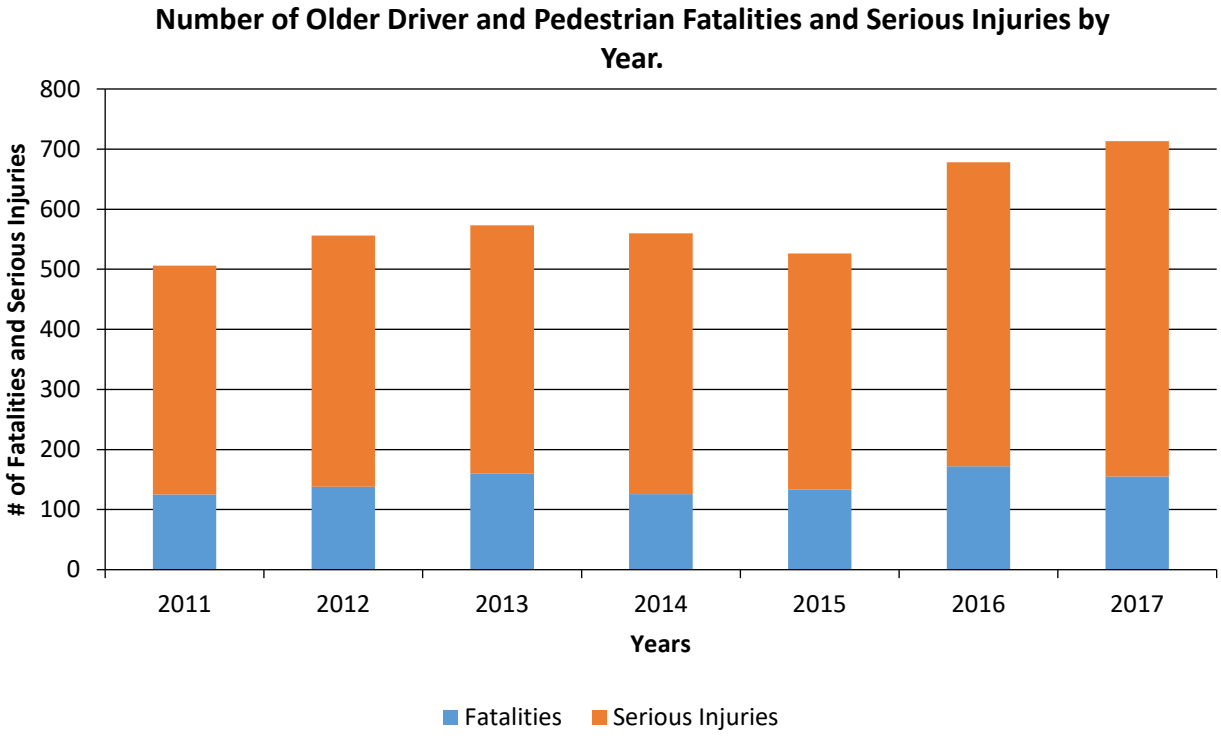
Enter additional comments here to clarify your response for this question or add supporting information.

MDOT was notified on March 2, 2016 that the HRRR special rule applied to Michigan. MDOT was required to obligate $5,852,012 in HRRR funds for FY 2017.

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

PERFORMANCE MEASURES	2011	2012	2013	2014	2015	2016	2017

Number of Older Driver and Pedestrian Fatalities	125	138	160	126	133	172	155
Number of Older Driver and Pedestrian Serious Injuries	381	418	413	434	393	506	558



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

Data has been updated with 2017 information.

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.

MDOT acknowledges the increasing trend of fatalities and serious injuries that are occurring on our roadway network. MDOT is focusing on projects that affect the roadway networks in large areas including pavement markings, delineation, and other systemic treatments.

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

MDOT is currently conducting a Before and After study for state-owned trunkline roadways for FY 2009, 2010, and 2011.

MDOT is also planning on conducting a Before and After study in fiscal year 2019 for Local roadway safety projects (both HSIP and HRRR) that were constructed in fiscal years 2013 and 2014.

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?

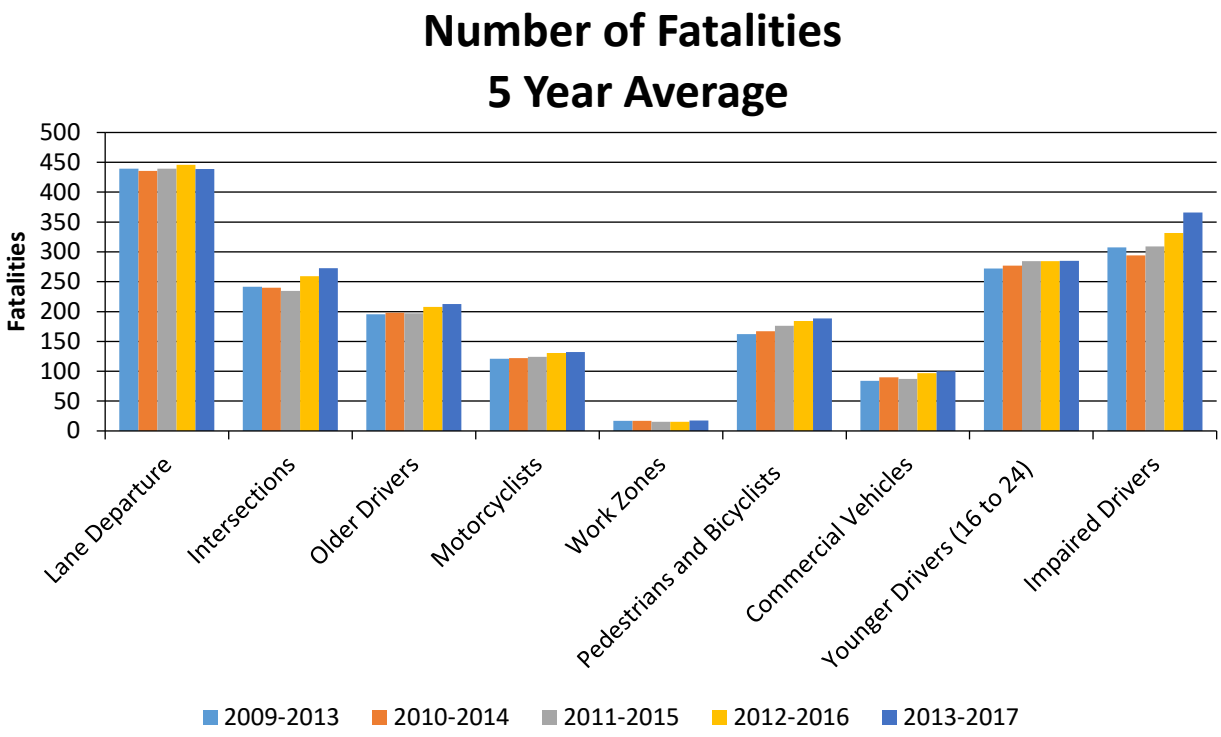
No

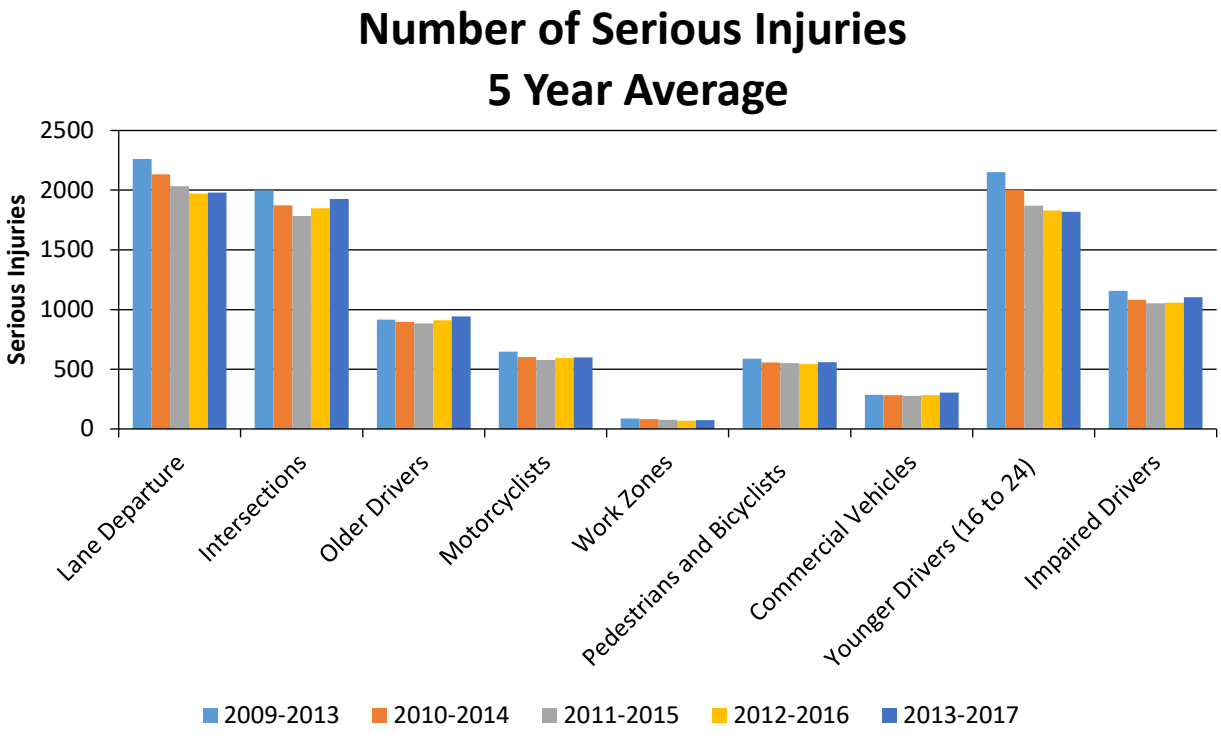
Effectiveness of Groupings or Similar Types of Improvements

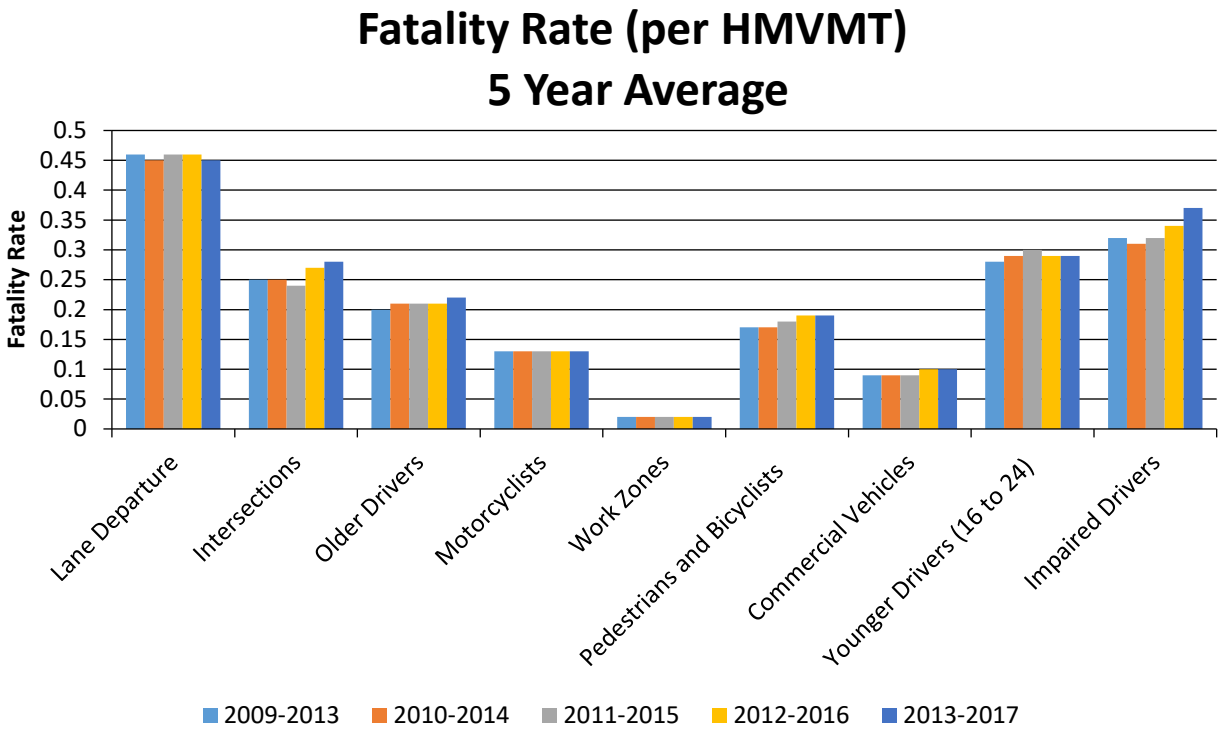
Present and describe trends in SHSP emphasis area performance measures.

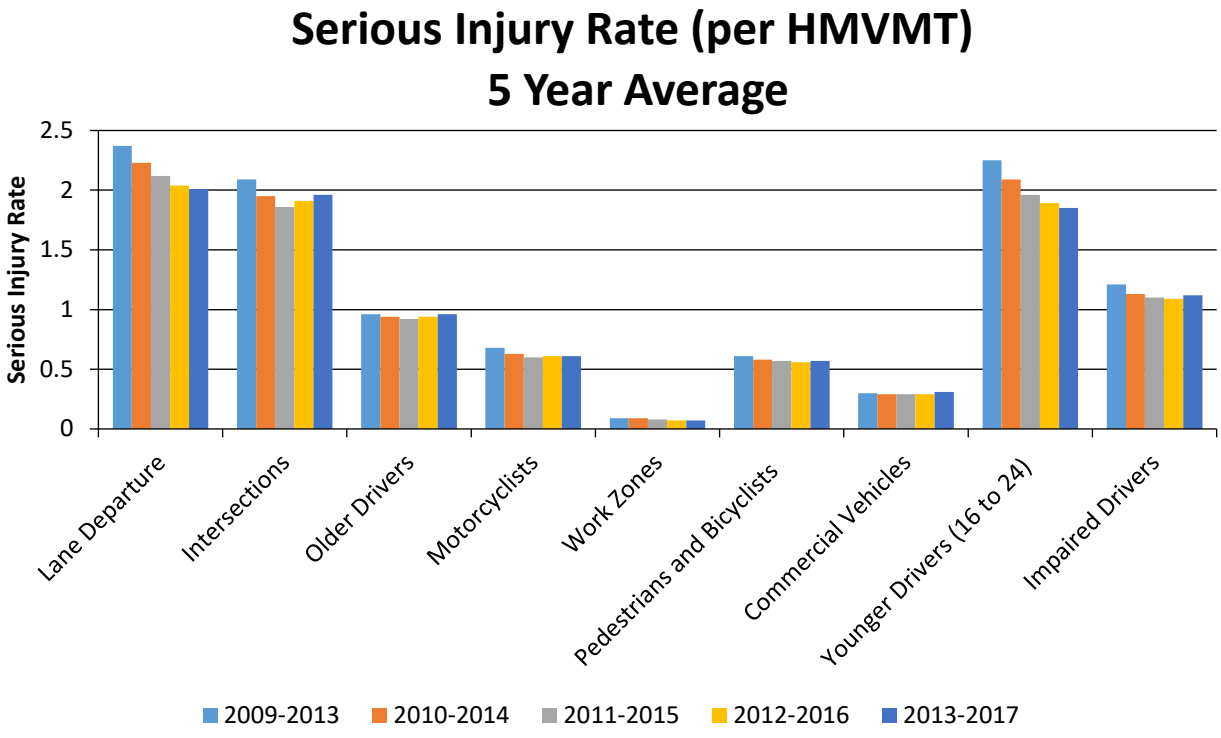
Year 2017

SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Lane Departure		439	1,979.2	0.45	2.01
Intersections		272.4	1,926	0.28	1.96
Older Drivers		212.8	943.4	0.22	0.96
Motorcyclists		132.4	599.8	0.13	0.61
Work Zones		17.4	73.2	0.02	0.07
Pedestrians and Bicyclists		188.6	558.8	0.19	0.57
Commercial Vehicles		99.8	304.4	0.1	0.31
Younger Drivers (16 to 24)		285.2	1,819	0.29	1.85
Impaired Drivers		365.8	1,104.2	0.37	1.12


Number of Fatalities
5 Year Average
Fatalities
500
450
400
350
300
250
200
150
100
50
0
Lane Departure
Intersections
Older Drivers
Motorcyclists
Work Zones
Pedestrians and Bicyclists
Commercial Vehicles
Younger Drivers (16 to 24)
Impaired Drivers
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017


Number of Serious Injuries
5 Year Average
Serious Injuries
2500
2000
1500
1000
500
0
Lane Departure
Intersections
Older Drivers
Motorcyclists
Work Zones
Pedestrians and Bicyclists
Commercial Vehicles
Younger Drivers (16 to 24)
Impaired Drivers
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017





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

The 2017-2018 Michigan SHSP has four broad emphasis areas including; High-Risk Behaviors, At-Risk Road Users, Engineering Infrastructure, and System Administration. Under these emphasis areas are specific areas of focus including the following:

High-Risk Behaviors

- Distracted Driving
- Impaired Driving
- Occupant Protection

At-Risk Road Users

- Commercial Motor Vehicle Safety
- Motorcycle Safety
- Pedestrian and Bicycle Safety
- Senior Mobility and Safety
- Drivers Age 24 and Younger

Engineering Infrastructure

- Traffic Safety Engineering

System Administration

- Traffic Incident Management
- Traffic Records and Information Systems

Each focus area has a statewide action team that is under the Governors Traffic Safety Advisory Commission (GTSAC) that meets quarterly to discuss key safety issues and tackle a series of short-term and long-term strategies to improve safety within their specific emphasis area.

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

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 OTHER INJURY BEFORE	ALL OTHER 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.

MDOT is currently conduction a Before and After study for state-owned trunkline roadways for FY 2009, 2010, and 2011.

MDOT is also planning on conducting a Before and After study in fiscal year 2019 for Local roadway safety projects (both HSIP and HRRR) that were constructed in fiscal years 2013 and 2014.

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 11 focus areas in the SHSP, Traffic Safety Engineering. Lane departure related crashes accounted for at least 424 fatalities statewide in 2017 (41 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. In FY 2017, a small portion of the local safety funds were allocated to five several lane departure countermeasures, Centerline and Shoulder Rumble Strips, Guardrail Upgrades, and Clear Zone Improvements.

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 and 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

The future SHSP will be on a 4-year cycle to coincide with the Gubernatorial cycle in Michigan (2019-2022).

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**

*Based on Functional Classification

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

MIRE FDE percent completes remain uncharged for 2017.

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.

MDOT plans on beginning the collection of MIRE FDE in 2020 using the Roadsoft program updated by Michigan Technological University.

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 description on attached UD-10 Manual Instructions	No
Crash Database	Suspected Serious Injury	Yes	N/A	Yes	N/A	Yes
Crash Database Data Dictionary	Suspected Serious Injury	Yes	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	Yes	When the Crash Database Data Dictionary is produced, the definition will be compliant.	Yes

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 *
			was capable of performing prior to the motor vehicle traffic crash.			

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

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

Please see attached UD-10 Manual pages in reference to the Suspected Serious Injury definition and attributes.

The crash report form instruction manual should be completed by October 1, 2018, this is currently being updated.

The Crash Database Data Dictionary is produced on a need basis. When this is produced the database dictionary is MMUCC 4th Edition complaint.

Did the State conduct an HSIP program assessment during the reporting period?
No

When does the State plan to complete it’s next HSIP program assessment.

2021

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

MDOT conducted a HSIP program evaluation with the final report in February of 2017. Please see attached.

Beginning in FY 2017, MDOT conducted a research study that included the following objectives:

1. Review and synthesize the TZD National Strategy and related strategies.
2. Review and synthesize the FHWA Noteworthy Practices database, other engineering databases, and other state and local safety programs and practices.
3. Review the current MDOT trunkline and local safety programs to identify gaps and determine the impacts of utilizing new strategies on Michigan’s crash profile.
4. Identify best practices for selecting and programming safety projects in other states and local agencies.
5. Make recommendations to improve Michigan’s safety programs to accelerate reductions in fatal and incapacitating injury crashes on the trunkline and local owned networks.
6. Provide training on the new TZD concept, revised tools for prioritizing safety decisions, and benefit/cost analysis.

MDOT plans to conduct a HSIP program assessment in 2021.

Optional Attachments

Program Structure:

MDOT HSIP Manual FY 2018.pdf
FY 2017 Trunkline HSIP CFP.pdf
Non-trunkline_FY 2017 Safety Program Call Letter.pdf
Non-trunkline_High Risk Rural Road Program _2017 Call Letter.pdf
Low Cost Eligibility Guidelines.pdf

Project Implementation:

Safety Performance:

Evaluation:

Compliance Assessment:

HSIP Program Review Final Report MAR142017.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.