MISSOURI

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2017 ANNUAL REPORT

U.S. Department of Transportation
Federal Highway Administration

Photo source: Federal Highway Administration

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Protection of Data from Discovery Admission into Evidence

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

23 U.S.C. 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 Missouri Coalition for Roadway Safety and the Missouri Department of Transportation (MoDOT) are dedicated to improving safety of the motoring public through education, engineering, enforcement and emergency medical services initiatives. Safety is one of the Department's core values: "Be Safe." This message is also reinforced in the Department's Practical Design Guide that states, "Safety will not be compromised. Every project we do will make the facility safer after its completion." Additionally, "keeping our customers and ourselves safe" is a MoDOT Tangible Result.

Missouri's Highway Safety Improvement Program (HSIP) is driven by the state's Strategic Highway Safety Plan (SHSP). In October 2016, Missouri introduced its fourth edition of the SHSP and established a highway safety goal of 700 or fewer fatalities by 2020. *Missouri's Blueprint: A Partnership to Zero Deaths* guides the State's safety initiatives and addresses safety from a comprehensive standpoint including engineering, enforcement, education, emergency medical services, technology and public policy solutions. The Blueprint focuses on implementing strategies that will reduce both fatal and serious injuries on Missouri roadways. The Blueprint and the statewide fatality goal are considered in the development and implementation of each of the Department's highway safety plans.

Evidenced-based decision-making is paramount to a sound safety program. Data analysis is a critical part of identifying overrepresented crash types, locations, driver age, driver gender, and driver behaviors. These findings guide the deployment of effective and appropriate strategies to improve safety on the entire system. Efforts are made to analyze fatal and serious injury crashes to help discern where limited safety funding should be applied so that maximum safety improvements and benefits are attained.

From 2005-2014, Missouri experienced a steady decline in both fatalities and serious injuries. During that time, fatalities decreased by 40 percent (1,257 in 2005 to 766 in 2014) and serious injuries decreased by 46 percent (8,621 in 2005 to 4,567 in 2014). Over the last two years, the fatalities and serious injuries have been rising. In 2016, preliminary data indicates 949 fatalities and 4,719 serious injuries in Missouri. This results in a 24% increase in fatalities and 3% increase in serious injuries compared to 2014. The 2016 fatality rate in Missouri was 1.27. The 5-year average for fatalities increased in 2016 to 834, while the 5-year average for serious injuries decreased (4,860) for the 11th year in a row.

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 overall HSIP is administered by MoDOT's Highway Safety and Traffic Division. However, the division does not typically identify individual projects as part of this process. Instead, HSIP funds are distributed to each of MoDOT's seven districts based on the number of crashes and other factors within each region. From there, each district identifies how their share of HSIP funds will be programmed in accordance with Missouri's SHSP and MoDOT guidance. The districts carry out the projects to completion, and all HSIP projects are reported by the Highway Safety and Traffic Division. Occasionally, statewide safety projects may be carried out by the Highway Safety and Traffic Division. Missouri's HSIP is primarily developed by MoDOT. However, since the state's SHSP involves input from external stakeholders throughout the state, the HSIP is influenced by external partners as well.

Where is HSIP staff located within the State DOT?

Operations

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

The Highway Safety and Traffic Division lead the HSIP reporting effort. The District Traffic Offices help in the selection of HSIP projects and implementation of the HSIP program.

How are HSIP funds allocated in a State?

Formula via Districts/Regions

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

The Highway Safety and Traffic Division also have some HSIP funds distributed to them.

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

Our local roads are included in the crash data system analysis. We evaluate all roadways in the state and place emphasis on severe crashes. This analysis is performed for both intersections and non-intersection locations. To date we have used an analysis method, which places weight on the severe crashes and locations that have experienced a higher frequency of severe crashes and are often those that will find their way on our top priority

lists. While most of the locations to date have been on the state system roadways, we have recently seen a few of the local roads locations make these high priority lists. While we continue to believe that the majority of the problem locations will be state system locations, we have evaluated non-state system severe crash locations and have determined that 55% of our non-state system fatalities are in seven counties. Local strategic highway safety plans (SHSP) have been developed for these seven counties (Jackson, Jefferson, St. Louis City, Greene, St. Louis, Franklin, and St. Charles). The local SHSPs identify systemic countermeasures and high priority projects. To date we have communicated the problem locations to the planning entities like our Metropolitan Planning Organizations and Regional Planning Commissions. We also work with our LTAP center to continue to move safety forward in our state. Additionally, we have used the RSA process to better address local road issues on occasion, we have a Transportation Engineering Assistance Program (TEAP) to assist locals, and we also have a subcommittee from our SHSP that focuses on infrastructure improvement opportunities for local roads.

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
Districts/Regions
Governors Highway Safety Office

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

There is some overlap in these selections with the way MoDOT is structured. Traffic engineering/safety could be included under operations, however operations is more inclusive in other traffic areas that both were selected.

Describe coordination with internal partners.

MoDOT has focused for some time on system-wide safety solutions. We have worked with our Design Division to address our Engineering Policy, our Operations and Maintenance staff to improve the roadsides, and our Planning staff to better evaluate and select safety needs for improvements. We have also worked with the previously mentioned internal partners on the training and use of the Highway Safety Manual (HSM). Additionally, we work daily with the Highway Safety office to evaluate and monitor the crash types. It is vital that all areas in our department work together and focus on safety improvements. We have begun efforts to improve our safety situation on the local roads and have developed local SHSPs for our top counties. We are also working with our Planning and Design Divisions to consider how we might best administer safety projects on local roads.

Identify which external partners are involved with HSIP planning.

Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
Governors Highway Safety Office
Local Government Agency

Law Enforcement Agency
Academia/University
FHWA
Other-National Highway Traffic Safety Administration
Other-Federal Motor Carrier Safety Administration
Other-Emergency Services, Department of Revenue, etc

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

Describe coordination with external partners.

Missouri's Strategic Highway Safety Plan (SHSP) is the umbrella document that identifies emphasis areas and prioritizes strategies for reducing fatalities and serious injuries on all Missouri roadways. The development of the SHSP utilized significant involvement from external stakeholders throughout the state, including metropolitan planning organizations and local government agencies.

MoDOT has also identified the top counties where non-state system fatalities have occurred and worked with them to develop localized strategic safety plans. These plans identify systemic countermeasures and high priority projects.

Additionally, when setting the new safety performance targets, MoDOT had an inclusive process which thoroughly involved collaboration with our MPOs and other planning partners to come to a consensus on the 2018 targets.

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.

The total distribution of HSIP funds to the districts increased by $7 million in state fiscal year 2017, which started July 1st, 2016. Another $3 million in HSIP was administered by Central Office during state fiscal year 2017. This was included in last year's report, as well as, this year's report, since the fiscal year that this change took place overlaps HSIP reporting periods.

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.

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Safety initiatives continue to be driven by the State SHSP. The State SHSP includes numerous safety initiatives that are data driven. Each district develops a regional district safety plan for their available HSIP funds. These district plans must support the overarching goals of the statewide SHSP at the district level.

Program Methodology

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

No

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

MoDOT has an EPG article that outlines the safety program guidelines.

http://epg.modot.org/index.php?title=907.1_Safety_Program_Guidelines

Select the programs that are administered under the HSIP.

Median Barrier
Intersection
Horizontal Curve
Skid Hazard
Roadway Departure

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

While no HSIP funds have been spent on Local Roadways, our District staff coordinates with our local agency partners to prioritize projects and assist with the development of localized safety plans.

Program: Horizontal Curve

Date of Program Methodology: 2/8/2013

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]

Competes with all projects

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

Crashes	Exposure	Roadway
All crashes Fatal and serious injury crashes only	Volume	Horizontal curvature

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

Crash frequency
Relative severity index
Excess proportions 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?

Other-Systemic evaluation

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

Other-Systemic safety initiative : 1

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

Program: Intersection

Date of Program Methodology: 1/21/2009

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]

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Competes with all projects

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

Crashes	Exposure	Roadway
All crashes Fatal and serious injury crashes only	Volume	Functional classification

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

Crash frequency
Relative severity index
Excess proportions 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?

Other-Systemic evaluation

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

Other-Systemic safety initiative : 1

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

Program: Median Barrier

Date of Program Methodology: 9/27/2002

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]

Competes with all projects

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

Crashes	Exposure	Roadway
All crashes Fatal and serious injury crashes only	Volume	Horizontal curvature Functional classification Roadside features

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

Crash frequency
Relative severity index
Excess proportions 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?

Other-Systemic evaluation

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

Other-Systemic safety initiative : 1

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

Program: Roadway Departure

Date of Program Methodology: 10/1/2004

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]

Competes with all projects

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

Crashes	Exposure	Roadway
All crashes Fatal and serious injury crashes only	Volume	Functional classification

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

Crash frequency
Relative severity index
Excess proportions 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?

Other-Systemic evaluation

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

Other-Systemic safety initiative : 1

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

Program: Skid Hazard

Date of Program Methodology: 2/8/2013

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]

Competes with all projects

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

Crashes	Exposure	Roadway
All crashes Fatal and serious injury crashes only Other-Wet pavement crashes		Horizontal curvature

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

Crash frequency
Relative severity index
Excess proportions 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?

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Other-Systemic evaluation

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

Other-Systemic safety initiative : 1

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

What percentage of HSIP funds address systemic improvements?

80

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

Cable Median Barriers
Rumble Strips
Pavement/Shoulder Widening
Install/Improve Signing
Install/Improve Pavement Marking and/or Delineation
Upgrade Guard Rails
Safety Edge
Horizontal curve signs
High friction surface treatment
Other-Intersection improvments, wrong-way driving countermeasures, high friction surface treatments, and local safety initiatives. Other initiatives implemented due to policy change.

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

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

Engineering Study
Road Safety Assessment
Crash data analysis
SHSP/Local road safety plan
Data-driven safety analysis tools (HSM, CMF Clearinghouse, SafetyAnalyst, usRAP)
Stakeholder input
Other-Enforcement and other stakeholders input.
Other-Peer Exchange - lessons learned

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

All of the countermeasure identification processes listed here are applicable to MoDOT's countermeasure selection, although they vary depending on how the safety need was identified (Systemic, Spot, RSA).

Does the State HSIP consider connected vehicles and ITS technologies?

Yes

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

In Emphisis Area 1, Serious Crash Types, there are six focus areas.

Lane Departure

- Run-Off-Road - Not in a Curve
- Run-Off-Road - In a Curve
- Collision with Tree and/or Utility Pole
- Head-On

Intersections

- Non-signalized
- Signalized

Each of these focus areas have key strategies identified, including supporting vehicle-to-infrastructure communications. One such example would be to provide an in-vehicle warning to the driver when approaching a red light at a traffic signal.

MoDOT is also currently investigating autonomous Truck Mounted Attenuators for mobile work zones.

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.

The HSM is utilized when performing alternative analysis of safety countermeasures for a particular project. This often involves using crash modification factors from the CMF clearing house.

The HSM is also used to develop a safety benefit for a project, which is used to both justify using safety dollars and prioritize the project.

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

Yes

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

New tools have been developed to perform network screening for each MoDOT District to assist with their prioritization of safety projects. These screening tools evaluate particular safety issues, which include:

- Horizontal Curve Analysis
- Shoulder Analysis
- Expressway Intersection Analysis
- Wet Crash Analysis
- Crossed Centerline Analysis
- High Severity Analysis
- Unrestrained Analysis
- Impaired Analysis

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.

MoDOT uses a systemic approach to safety project implementation. The top crash types have been determined and focus strategies have been identified for implementation for each district. The strategies are listed in MoDOT's Engineering Policy Guide at http://epg.modot.org/index.php?title=907.1_Safety_Program_Guidelines.

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.

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	$46,332,000	$97,638,530	210.74%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$0	$281	0%
Penalty Funds (23 U.S.C. 154)	$18,109,000	$17,830,249	98.46%
Penalty Funds (23 U.S.C. 164)	$0	$0	0%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	$0	$0	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	$0	$791,729	0%
State and Local Funds	$4,633,200	$9,922,199	214.15%
Totals	$69,074,200	$126,182,988	182.68%

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

A 10% match for HSIP funds was assumed for State and Local Funds. A 20% match for Other Federal funds was assumed for State and Local Funds.

The programmed dollar amounts are for projects identified in the SFY 2017 STIP. The obligated amounts include all safety dollars spent in SFY 2017, which could include projects that were programmed in prior fiscal years or for operations, which is not included in the STIP.

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

0%

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

0%

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

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

0%

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

0%

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

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.

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

Due to limited state funding over the past few years, MoDOT's construction budget has been constrained and restricted the number of systemic safety improvements that could be implemented. This created an issue with fully programming safety projects and resulted in a growth of unobligated HSIP funding.

Beginning in state fiscal year 2017, (started July 1, 2016) MoDOT's overall construction program has increased to near normal levels. MoDOT's leadership also increased the amount of safety funds available for programming by $10 million for FY2017. Additionally, there has been a concerted effort to prioritize and over-program safety projects to bring the unobligated balance down. Together, these changes will enhance MoDOT's ability to fully obligate and program HSIP funds.

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

No

General Listing of Projects

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

													RELATIONSHIP TO SHSP	
PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
Northwest - Atchison - US 136 (1P2224) Pavement and shoulder improvements from the Tarkio River bridge, near Tarkio, to the Little Tarkio Creek bridge 0.3 mile east of Rte. M.	Roadway	Rumble strips - edge or shoulder	5.958	Miles	$450000	$1622000	Penalty Funds (23 U.S.C. 154)	Rural Minor Arterial	600	60	State Highway Agency	Systemic	Roadway Departure	Add & improve shoulders
Northwest - Buchanan - US 36 (1P3179) High friction surface treatment on Rte. 36 westbound lanes between I-229 and 10th Street in St. Joseph, and 1.5 miles east of Rte. 31 near Stewartsville in DeKalb County. $175,000 from Statewide Safety Funds.	Roadway	Pavement surface - high friction surface	0.51	Miles	$180000	$180000	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other Freeways and Expressways	11,000	65	State Highway Agency	Spot	Lane Departure	Improve pavement friction
Northwest - Chariton - US 24 (1P3005) Pavement and shoulder improvements from Rte. 5 in Keytesville to Randolph County line. $2,600,000 from SAFETEA-LU Demo ID # MO145.	Roadway	Rumble strips - edge or shoulder	13.16	Miles	$1000000	$4049000	Penalty Funds (23 U.S.C. 154)	Rural Minor Arterial	1,700	60	State Highway Agency	Systemic	Roadway Departure	Add & improve shoulders
Northwest - Daviess - US 69 (1S3028) Pavement and shoulder improvements from I-35 to Pence Road, 0.4 mile north of Rte. 36 in Cameron. $690,000 Open Container Funds.	Roadway	Rumble strips - edge or shoulder	7.292	Miles	$690000	$1837000	Penalty Funds (23 U.S.C. 154)	Rural Minor Arterial	2,600	60	State Highway Agency	Systemic	Roadway Departure	Add & improve shoulders

													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**
Northwest - Various - Various (1P3022) Job Order Contracting for guard cable and guardrail repair at various major route locations in the Northwest District.	Roadway	Roadway - other	1	Numbers	$353000	$353000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Spot	Roadway Departure	Improve guard cable & guardrail
Northwest - Various - Various (1P3154) On-call work zone law enforcement at various locations in the Northwest District.	Roadway	Roadway - other	1	Numbers	$50000	$50000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Spot	Work Zones	Increase enforcement efforts
Northeast - Lincoln - RT H (2S3109) Replace bridge over Cuivre River 4.3 miles north of Rte. 47 near Troy. Project involves bridge P0111. $250,000 Open Container funds.	Roadway	Roadway - other	0.624	Miles	$250000	$1940000	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural Minor Arterial	942	55	State Highway Agency	Spot	Roadway Departure	other
Northeast - Marion - US 61 (2P3164) Pavement treatment for safety improvements on horizontal curves at Rtes. 24 and 61 interchange at Taylor.	Roadway	Pavement surface - high friction surface	0.49	Miles	$210000	$210000	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other Freeways and Expressways	8,174	65	State Highway Agency	Spot	Roadway Departure	Improve pavement friction
Northeast - Montgomery - MO 161 (2S3072) Replace bridge over Cuivre River 0.2 mile south of Rte. T near Middletown. $85,000 Open Container funds. Project involves bridge S0806.	Roadway	Roadway - other	0.105	Miles	$85000	$968000	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural Minor Collector	296	55	State Highway Agency	Spot	Roadway Departure	other
Northeast - Pike - US 61 (2P3116) Pavement improvements on southbound lanes from 0.6 mile south of Rte. 161	Roadway	Pavement surface - miscellaneous	18.801	Miles	$160000	$4786000	Penalty Funds (23 U.S.C. 154)	Rural Principal Arterial - Other Freeways and Expressways	6,548	65	State Highway Agency	Systemic	Roadway Departure	other

													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**
to Rte. E near Auburn in Lincoln County. $160,000 Open Container funds.														
Northeast - Ralls - US 61 (3P2206) Pavement and intersection improvements from Warren Barrett Drive in Hannibal to 0.5 mile south of Rte. 19 near New London. $565,000 Open Container funds. $3,085,291 from SAFETEA-LU Demo ID # MO145.	Roadway	Pavement surface - miscellaneous	7.89	Miles	$565000	$5088000	Penalty Funds (23 U.S.C. 154)	Rural Principal Arterial - Other Freeways and Expressways	19,132	0	State Highway Agency	Systemic	Roadway Departure	Improve intersection safety
Northeast - Randolph - US 24 (2P3051) Pavement and shoulder improvements from the Chariton County line to 1.5 miles west of Rte. C near Huntsville. $225,000 Open Container funds.	Roadway	Pavement surface - miscellaneous	7.636	Miles	$225000	$1799000	Penalty Funds (23 U.S.C. 154)	Rural Principal Arterial - Other	1,870	60	State Highway Agency	Systemic	Roadway Departure	Add & improve shoulders
Northeast - Various - Various (2P3093) Job Order Contracting for guardrail repair at various locations in the Northeast District.	Roadway	Roadway - other	1	Numbers	$137000	$137000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Spot	Roadway Departure	Improve guard cable & guardrail
Northeast - Various - Various (2P3145) On-call work zone enforcement at various locations in the Northeast District.	Roadway	Roadway - other	1	Numbers	$10000	$10000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Spot	Work Zones	Increase enforcement efforts
Kansas City - Jackson - US 24 (4P3081) Pavement and ADA Transition Plan improvements from Rte. 291 to Rte. 7 in Independence. $171,000	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	5.923	Miles	$650000	$3046000	Penalty Funds (23 U.S.C. 154)	Urban Principal Arterial - Other	0	0	State Highway Agency	Spot	Pedestrians	Engineering; Upgrade ADA facilities

													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**
Statewide Transportation Alternatives funds.														
Kansas City - Johnson - MO 131 (3P3077) Safety and intersection improvements at Rte. 131. $1,200,000 District Operating Budget.	Intersection geometry	Intersection geometry - other	1.304	Miles	$848000	$2048000	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural Principal Arterial - Other Freeways and Expressways	18,100	65	State Highway Agency	Spot	Intersections	Engineering; Install J-turn
Kansas City - Lafayette - IS 70 (3I3042) Pavement improvements from east of the Jackson County line to east of Johnson Drive near Odessa. $321,000 Open Container funds. $49,000 Accelerated Innovation and Deployment (AID) Demonstration funds.	Roadway	Rumble strips - edge or shoulder	9.391	Miles	$321000	$4996000	Penalty Funds (23 U.S.C. 154)	Rural Principal Arterial - Interstate	35,000	70	State Highway Agency	Systemic	Lane Departure	Engineering; Rumblestripes
Kansas City - Lafayette - RT Z (3P3085B) To improve safety at Rte. TT intersection. $396,000 District Operating Budget.	Alignment	Vertical alignment or elevation change	0.202	Miles	$16000	$412000	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural Major Collector	1,400	55	State Highway Agency	Systemic	Intersections	Engineering; Cut hill to increase sight distance
Kansas City - Lafayette - US 24 (3P3057) Intersection improvements at Rte. 131 south of Wellington. $453,000 Open Container funds and $283,000 District Operating Budget.	Intersection geometry	Intersection geometry - other	0.4	Miles	$523000	$806000	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural Principal Arterial - Other	2,900	65	State Highway Agency	Spot	Intersections	Engineering; Install Roundabout
Kansas City - Pettis - US 50 (3P3056) Signal improvements from Winchester Road to Engineer Avenue in	Advanced technology and ITS	Advanced technology and ITS - other	1	Numbers	$100000	$106000	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural Principal Arterial - Other	15,400	0	State Highway Agency	Systemic	Data	Technology; Connect our signals to ATMS

													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**
Sedalia. $100,000 Open Container funds.														
Kansas City - Platte - IS 29 (4I3105) Pavement improvements from Todd Creek to US 69 (Vivion Rd.). $1,525,000 Open Container funds. $1,332,886 from TEA-21 Demo ID # MO019. $4,005,900 from SAFETEA-LU Demo ID # MO156. $500,000 from SAFETEA-LU Demo ID	Roadway	Rumble strips - edge or shoulder	12.273	Miles	$1525000	$12297000	Penalty Funds (23 U.S.C. 154)	Rural Principal Arterial - Interstate	0	0	State Highway Agency	Systemic	Lane Departure	Engineering; Rumblestripes
Kansas City - Platte - MO 152 (4S3207) Install median guard cable from I-435 to Congress Ave. $1,092,000 District Operations Budget.	Roadside	Barrier - cable	4.81	Miles	$98000	$1190000	Other Federal-aid Funds (i.e. STBG, NHPP)	Urban Principal Arterial - Other Freeways and Expressways	8,000	65	State Highway Agency	Systemic	Roadway Departure	Engineering; Install High Tension Guard Cable
Kansas City - Platte - MO 9 (4S3208) Install median guard cable from I-635 to Rte. 169. $449,000 District Operations Budget.	Roadside	Barrier - cable	1.332	Miles	$40000	$489000	Other Federal-aid Funds (i.e. STBG, NHPP)	Urban Principal Arterial - Other Freeways and Expressways	10,702	55	State Highway Agency	Systemic	Roadway Departure	Engineering; Install High Tension Guard Cable
Kansas City - Platte - MO 92 (4P3139) Pavement improvements from Rte. 371 in Platte City to Rte. DD. Includes Rte. 273 from Rte. 371 to Spur 92, Spur 92 from Rte. 273 to Rte. 92, and Rte. 92 from Spur 92 to Rt $282,000 Open Container funds.	Roadway	Rumble strips - edge or shoulder	15.242	Miles	$282000	$3623000	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural Principal Arterial - Other	5,200	0	State Highway Agency	Systemic	Lane Departure	Engineering; Rumblestripes
Kansas City - Various - Various (3I3023) On-call	Roadway signs and traffic control	Roadway signs and traffic control - other	1	Numbers	$11000	$11000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Work Zones	Enforcement; Increased Presence in WZ

													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**
work zone enforcement at various locations in the rural Kansas City District.														
Kansas City - Various - Various (3S3079) Chevron sign installations at various locations in the rural Kansas City District. $46,000 District Operating Budget.	Roadway signs and traffic control	Curve-related warning signs and flashers	1	Numbers	$163000	$209000	Other Federal-aid Funds (i.e. STBG, NHPP)	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Engineering; Install chevrons on curves
Kansas City - Various - Various (4I3044) On-call work zone enforcement at various locations in the urban Kansas City District.	Roadway signs and traffic control	Roadway signs and traffic control - other	1	Numbers	$162000	$162000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Work Zones	Enforcement; Increased Presence in WZ
Kansas City - Various - Various (4P3142) Signal improvements at various locations in Clay, Platte and Jackson counties in the urban Kansas City District. $450,000 Open Container Funds, $50,000 District Operations Budget.	Advanced technology and ITS	Advanced technology and ITS - other	1	Numbers	$450000	$510000	Other Federal-aid Funds (i.e. STBG, NHPP)	Various	0	0	State Highway Agency	Systemic	Data	Technology; Connect our signals to ATMS
Kansas City - Various - Various (4P3231) Safety improvements at various locations in the urban Kansas City District.	Roadway	Pavement surface - high friction surface	1	Numbers	$278000	$278000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Spot	Roadway Departure	Engineering; Increase pavement friction
Central - Boone - MO 124 (5P3225) Pavement and shoulder improvements from Hallsville to Centralia. Includes pavement and shoulder improvements on	Shoulder treatments	Pave existing shoulders	14.797	Miles	$946000	$3213000	HSIP (23 U.S.C. 148)	Rural Minor Arterial	5,954	60	State Highway Agency	Systemic	Roadway Departure	Engineering; Improve Shoulders

													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**
Rte. B from Hallsville to Brown Station Road at Columbia.														
Central - Callaway - US 54 (5P3119) Bridge improvements from 2.2 miles south of Rte. BB to I-70 near Fulton. Project includes safety improvements from 0.1 mile west of Rte. W to I-70 at Kingdom City. Involves bridges L0964, H0284, A2109, A2110, A2111	Roadside	Barrier - cable	28.863	Miles	$3607000	$10278000	Penalty Funds (23 U.S.C. 154)	Rural Principal Arterial - Other Freeways and Expressways	0	70	State Highway Agency	Systemic	Roadway Departure	Engineering; median barrier cable
Central - Camden - RT F (5S3148) Pavement and shoulder improvements from Rte. 5 to end of state maintenance. Includes pavement and shoulder improvements on Rte. TT to end of state maintenance and on Rte. MM from Rte. T	Shoulder treatments	Widen shoulder - paved or other	14.035	Miles	$475000	$2686000	Penalty Funds (23 U.S.C. 154)	Rural Minor Arterial	1,652	45	State Highway Agency	Systemic	Roadway Departure	Engineering; widen shoulders
Central - Camden - US 54 (5P3221) Safety improvements 1.2 miles west of Rte. Y. Includes safety improvements on Rte. 5 from 0.2 mile south of Rte. 7 north Jct. to 0.7 mile south of Rte. 7 north Jct. in Camden Co. and Rte. W from 0.1 mile north of Wel	Roadway	Pavement surface - high friction surface	0.985	Miles	$271000	$271000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Spot	Lane Departure	Engineering; High Friction Surface Treatment
Central - Cole - RT B (5S3149) Pavement and shoulder improvements from Lorenzo Green Drive in	Shoulder treatments	Widen shoulder - paved or other	19.634	Miles	$1255000	$5109000	Penalty Funds (23 U.S.C. 154)	Rural Major Collector	7,390	55	State Highway Agency	Systemic	Roadway Departure	Engineering; Improve Shoulders

													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**
Jefferson City to Rte. 133 in Meta. $17,187 from City of Meta.														
Central - Cole - US 50 (5P3056) Intersection improvements at Liberty Road in Jefferson City. Includes intersection improvements at Lisletown Road 0.7 mile east of Rte. J at Taos.	Access management	Change in access - close or restrict existing access	0.761	Miles	$19000	$457000	Penalty Funds (23 U.S.C. 154)	Rural Principal Arterial - Other Freeways and Expressways	17,497	65	State Highway Agency	Spot	Intersections	Engineering; intersection improvements: median improvements (restrict access), acceleration lanes, deceleration lanes
Central - Cooper - MO 5 (5P3170) Pavement and shoulder improvements from I-70 to Rte. 50. $2,312,000 from Open Container funds.	Shoulder treatments	Pave existing shoulders	19.754	Miles	$2312000	$4784000	Penalty Funds (23 U.S.C. 154)	Rural Minor Arterial	1,392	55	State Highway Agency	Systemic	Roadway Departure	Engineering; Improve Shoulders
Central - Morgan - MO 52 (5P3117) Pavement and shoulder improvements from Rte. 5 west junction at Versailles to Aurora Street at Eldon. $49,000 Accelerated Innovation Deployment (AID) Demonstration funds.	Shoulder treatments	Pave existing shoulders	17.93	Miles	$877000	$3632000	Penalty Funds (23 U.S.C. 154)	Rural Minor Arterial	0	0	State Highway Agency	Systemic	Roadway Departure	Engineering; Improve Shoulders
Central - Various - Various (5P3180) On-call work zone enforcement at various locations in the Central District.	Speed management	Traffic calming feature	1	Numbers	$0	$35000	Penalty Funds (23 U.S.C. 154)	Various	0	0	State Highway Agency	Spot	Work Zones	Enforcement
Central - Various - Various (5P3204) Chevron installation on various curves in Boone and Callaway Counties.	Roadway signs and traffic control	Curve-related warning signs and flashers	1	Numbers	$12000	$326000	Penalty Funds (23 U.S.C. 154)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Engineering; Improve roadway visibility

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PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
St. Louis - Franklin - RT BB (6S3137) Pavement and shoulder improvements from Rte. A to Rte. 50.	Roadway	Roadway - other	3.074	Miles	$262000	$1391000	Penalty Funds (23 U.S.C. 154)	Rural Major Collector	1,586	55	State Highway Agency	Spot	Roadway Departure	Add shoulders and improve pavement
St. Louis - Jefferson - CRD OLD HWY 21 (6S3174) Install new signal at Konert Road.	Intersection traffic control	Systemic improvements - signal-controlled	0.02	Miles	$184000	$184000	HSIP (23 U.S.C. 148)	Urban Minor Collector	5,397	40	State Highway Agency	Spot	Intersections	Improve intersection safety
St. Louis - Jefferson - MO 141 (6P3143) Intersection improvements at Ridgewood School Road.	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	0.087	Miles	$946000	$955000	Penalty Funds (23 U.S.C. 154)	Urban Principal Arterial - Other Freeways and Expressways	16,955	55	State Highway Agency	Spot	Intersections	Improve intersection safety
St. Louis - St. Charles - MO 364 (6P3135) Safety improvements from I-64 to Mid Rivers Mall Drive.	Roadside	Barrier - other	8.61	Miles	$1178000	$1178000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other Freeways and Expressways	14,938	60	State Highway Agency	Systemic	Roadway Departure	Install median barrier and guardrail
St. Louis - St. Louis - MO 141 (6P3164) Install guard cable from Casino Center Drive to River Valley Drive.	Roadside	Barrier - cable	2.478	Miles	$494000	$494000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other Freeways and Expressways	8,220	45	State Highway Agency	Systemic	Roadway Departure	Install median barrier
St. Louis - St. Louis - RP IS270W TO MO364E (6S3199) High friction surface treatments on seven locations in counties of Franklin, St. Charles, St. Louis, and St Louis City.	Roadway	Pavement surface - high friction surface	1.704	Miles	$567000	$567000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Improve curve safety
St. Louis - Various - Various (6P3194) Safety improvements on various routes in the St. Louis District. $5,032,000 Open Container funds. Design Build project.	Roadway	Roadway - other	1	Numbers	$22608000	$22608000	Other Federal-aid Funds (i.e. STBG, NHPP)	Various	0	0	State Highway Agency	Systemic	Various	Various

													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**
St. Louis - Various - Various (6P3319) On-call work zone enforcement at various locations in the St. Louis District.	Non-infrastructure	Enforcement	1	Numbers	$270000	$270000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Work Zones	Improve work zone safety
Southwest - Barry - MO 76 (7S2227B) Pavement and safety improvements from County Road 2182 to north of Fourth Street in Cassville and from Rte. 112 to Flat Creek Road.	Roadway	Rumble strips - edge or shoulder	21.299	Miles	$730000	$2583000	Penalty Funds (23 U.S.C. 154)	Rural Major Collector	1,434	0	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Edgeline Rumbles
Southwest - Barry - RT W (7S3185) Pavement and safety improvements from Rte. 86 to Rte. 37.	Roadway	Rumble strips - edge or shoulder	8.815	Miles	$465000	$1148000	Penalty Funds (23 U.S.C. 154)	Rural Major Collector	2,500	55	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Edgeline Rumbles
Southwest - Cedar - MO 32 (7P3097) Safety improvements at Rte. CC.	Roadway	Pavement surface - high friction surface	0.129	Miles	$58000	$58000	HSIP (23 U.S.C. 148)	Rural Minor Arterial	1,449	55	State Highway Agency	Spot	Lane Departure	High Friction Surface Treatment
Southwest - Christian - MO 14 (7P3089) Pavement and safety improvements from Rte. OO to Rte. 125 south junction.	Roadway	Rumble strips - edge or shoulder	2.719	Miles	$172000	$527000	Penalty Funds (23 U.S.C. 154)	Rural Minor Arterial	8,655	0	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Centerline and Edgeline Rumbles
Southwest - Christian - MO 14 (8P3057) Pavement and safety improvements from Rte. W to Rte. OO.	Roadway	Rumble strips - edge or shoulder	2.885	Miles	$208000	$575000	HSIP (23 U.S.C. 148)	Rural Minor Arterial	11,552	55	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Centerline and Edgeline Rumbles
Southwest - Dallas - MO 32 (7P3091) Pavement and safety improvements from Rte. 65 to	Roadway	Rumble strips - edge or shoulder	2.847	Miles	$19000	$477000	Penalty Funds (23 U.S.C. 154)	Rural Minor Arterial	5,650	0	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Edgeline Rumbles. Upgrade guardrail to MGS

													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**
0.6 mile west of Rte. H.														
Southwest - Greene - IS 44 (8I3055) Safety improvements on freeway ramps from Rte. 160 (West Bypass) to Rte. H/Loop 44 (Glenstone Avenue).	Roadway	Roadway - other	5.692	Miles	$1845000	$1845000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Interstate	30,750	0	State Highway Agency	Spot	Roadway Departure	Extending Acceleration and Deceleration Lanes at Interchanges to meet AASHTO
Southwest - Greene - LP 44 (8S3062) Safety improvements on the westbound lanes east of College Road in Springfield.	Roadway	Pavement surface - high friction surface	0.14	Miles	$57000	$57000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other Freeways and Expressways	9,404	40	State Highway Agency	Spot	Lane Departure	High Friction Surface Treatment
Southwest - Greene - MO 13 (8P3007D) Pedestrian crossing safety improvements at Rte. 13 (Kansas Expressway) and Grand Street and at Rte. 160 (West Bypass) and Loop 44 (Chestnut Expressway). $128,000 Statewide Transportation Alternatives funds.	Roadway	Roadway - other	0.315	Miles	$179000	$389000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other Freeways and Expressways	28,000	0	State Highway Agency	Spot	Pedestrians	Adding Pedestian Accomodations (Cut Thrus, Countdown Peds, Crosswalk Markings)
Southwest - Greene - MO 13 (8S3063) Safety improvements on the southbound lanes north of Division Street in Springfield.	Roadway	Pavement surface - high friction surface	0.151	Miles	$51000	$51000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other Freeways and Expressways	15,002	40	State Highway Agency	Spot	Lane Departure	High Friction Surface Treatment
Southwest - Greene - MO 360 (8P3102) Pavement and operational improvements on ramps at various locations on Rte. 60 (James River Freeway) from 0.2 mile west of Rte. MM to Rte. 65.	Roadway	Roadway - other	12.477	Miles	$500000	$3935000	Penalty Funds (23 U.S.C. 154)	Urban Principal Arterial - Other Freeways and Expressways	26,756	0	State Highway Agency	Spot	Roadway Departure	Extending Acceleration and Deceleration Lanes at Interchanges to meet AASHTO. Upgrade guardrail.

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PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
Southwest - Greene - RT AB (8S3059) Pavement and safety improvements from Rte. 160 to Rte. 266.	Roadway	Rumble strips - edge or shoulder	6.095	Miles	$227000	$856000	HSIP (23 U.S.C. 148)	Rural Major Collector	3,680	0	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Edgeline Rumbles
Southwest - Greene - RT EE (8S3058) Pavement and safety improvements from Rte. AB to Rte. 160.	Roadway	Rumble strips - edge or shoulder	5.077	Miles	$251000	$799000	HSIP (23 U.S.C. 148)	Rural Major Collector	3,190	0	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Edgeline Rumbles
Southwest - Greene - US 60 (8P3056) Safety improvements at various intersections on Rtes. 413/60 from Rte. 174 in Republic to 0.5 mile west of Rte. 160 (West Bypass) in Springfield. $815,000 Open Container Funds.	Roadway	Roadway - other	6.968	Miles	$3192000	$3205000	Other Federal-aid Funds (i.e. STBG, NHPP)	Urban Principal Arterial - Other Freeways and Expressways	29,314	0	State Highway Agency	Systemic	Intersections	Construct full length left turn decel lanes, offset left turns, and offset right turns.
Southwest - Greene - US 60 (8P3094) Guardrail improvements on James River Freeway from 0.3 mile south of I-44 to Rte. 65.	Roadway	Roadway - other	13.411	Miles	$1539000	$1539000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other Freeways and Expressways	0	0	State Highway Agency	Spot	Roadway Departure	Upgrade Guardrail to current standards.
Southwest - Greene - US 65 (8P3079) Guardrail improvements from Rte. 744 (Kearney Street) to 0.3 mile north of Rte. D (Sunshine Street).	Roadway	Roadway - other	3.711	Miles	$431000	$431000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other Freeways and Expressways	0	60	State Highway Agency	Spot	Roadway Departure	Upgrade Guardrail to current standards.
Southwest - Henry - MO 52 (7P3114) Pavement and safety improvements from Rte. 7 in Clinton to Rte. B east of Windsor.	Roadway	Rumble strips - edge or shoulder	18.536	Miles	$1130000	$3374000	Penalty Funds (23 U.S.C. 154)	Rural Minor Arterial	3,140	55	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Edgeline Rumbles. Upgrade guardrail to MGS

													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**
Southwest - Jasper - MO 37 (7P3093) Pavement and safety improvements from Rte. 96 to south of Joplin Avenue in Sarcoxie. $421,000 Open Container Funds.	Roadway	Rumble strips - edge or shoulder	11.845	Miles	$492000	$1650000	Penalty Funds (23 U.S.C. 154)	Rural Minor Arterial	2,606	55	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Edgeline Rumbles. Upgrade guardrail to MGS
Southwest - Jasper - MO 96 (7S3095) Pavement and safety improvements from Rte. 571 to Rte. YY in Lawrence County.	Roadway	Rumble strips - edge or shoulder	16.838	Miles	$250000	$2676000	Penalty Funds (23 U.S.C. 154)	Rural Minor Arterial	6,961	65	State Highway Agency	Spot	Roadway Departure	Upgrade Guardrail to current standards.
Southwest - Lawrence - MO 39 (8S2272) Pavement and safety improvements from I-44 to 0.2 mile north of Olive Street in Aurora and on Rte. M from Rte. 96 to Rte. 174. Project involves bridge K0008. $849,000 Open Container funds. $800,000 from SAFETEA-L	Roadway	Rumble strips - edge or shoulder	14.303	Miles	$849000	$2225000	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural Minor Arterial	5,180	55	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Edgeline Rumbles. Upgrade guardrail to MGS
Southwest - McDonald - MO 76 (7S3176) Pavement and safety improvements from 1 mile east of I-49 to Rte. U.	Roadway	Rumble strips - edge or shoulder	20.796	Miles	$689000	$2371000	Penalty Funds (23 U.S.C. 154)	Rural Major Collector	1,454	55	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Edgline Rumbles.
Southwest - Stone - MO 76 (7P3098) Safety improvements on curves near Deerfoot trail east of Cape Fair.	Roadway	Pavement surface - high friction surface	0.228	Miles	$87000	$87000	HSIP (23 U.S.C. 148)	Rural Minor Arterial	3,872	50	State Highway Agency	Spot	Lane Departure	High Friction Surface Treatment
Southwest - Taney - MO 76 (7S3094) Pavement and safety improvements from east of Rte.	Roadway	Rumble strips - edge or shoulder	12.283	Miles	$597000	$1945000	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural Minor Arterial	20,353	0	State Highway Agency	Systemic	Roadway Departure	Add 2' Shoulders and Edgeline Rumbles. Upgrade guardrail to MGS

													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**
65 in Branson to Bull Shoals Lake. $597,000 Open Container Funds.														
Southwest - Taney - MO 76 (8P2386) Safety improvements at Lakeshore Drive near Hollister.	Roadway	Pavement surface - high friction surface	0.112	Miles	$49000	$49000	HSIP (23 U.S.C. 148)	Urban Minor Arterial	6,516	50	State Highway Agency	Spot	Lane Departure	High Friction Surface Treatment
Southwest - Taney - MO 76 (8P2402) Intersection improvements at Lakeshore Drive near Hollister.	Roadway	Superelevation / cross slope	0.055	Miles	$77000	$77000	HSIP (23 U.S.C. 148)	Urban Minor Arterial	18,780	35	State Highway Agency	Spot	Roadway Departure	Add Low Profile Island. Fix Superelevation in the curve.
Southwest - Taney - US 160 (7P3161) Safety improvements near Silver Creek Road and at Rte. H.	Roadway	Pavement surface - high friction surface	0.544	Miles	$217000	$217000	HSIP (23 U.S.C. 148)	Rural Minor Arterial	6,516	55	State Highway Agency	Spot	Lane Departure	High Friction Surface Treatment
Southwest - Various - Various (7P3080) On-call work zone enforcement at various locations in the rural Southwest District.	Speed management	Speed management - other	1	Numbers	$25000	$25000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Spot	Work Zones	Speed Limit Enforcement in Workzones
Southwest - Various - Various (7P3196) Install chevron signs at various curves on various routes in the rural Southwest district.	Roadway signs and traffic control	Curve-related warning signs and flashers	1	Numbers	$784000	$784000	HSIP (23 U.S.C. 148)	Various	10,911	0	State Highway Agency	Systemic	Roadway Departure	Adding Chevrons to Curves.
Southwest - Various - Various (8P3054) On-call work zone enforcement at various locations in the urban Southwest District.	Speed management	Speed management - other	1	Numbers	$37000	$37000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Spot	Work Zones	Speed Limit Enforcement in Workzones
Southwest - Various - Various (8P3100) Intersection improvements to off-set left turns at	Roadway	Roadway - other	1	Numbers	$1902000	$1902000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Spot	Intersections	Offset lefts to allow turning vehicles to greater visibility.

													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**
various intersections in the urban Southwest District.														
Southwest - Vernon - US 54 (7P3092) Pavement improvements east of Rte. AA.	Roadway	Rumble strips - edge or shoulder	0.67	Miles	$349000	$349000	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	5,741	65	State Highway Agency	Spot	Roadway Departure	Upgrade Guardrail to current standards.
Southwest - Webster - IS 44 (7I3099) Safety improvements on the eastbound lanes at Rte. B.	Roadway	Pavement surface - high friction surface	1.333	Miles	$460000	$460000	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Interstate	17,302	70	State Highway Agency	Spot	Lane Departure	High Friction Surface Treatment
Southeast - Butler - RT B (9S3249) Pavement improvements and installation of rumble stripes from Bus. 60 to Rte. 51.	Roadway	Rumble strips - edge or shoulder	7.198	Miles	$889000	$1753000	HSIP (23 U.S.C. 148)	Rural Major Collector	3,100	55	State Highway Agency	Systemic	Roadway Departure	Add and improve shoulders
Southeast - Howell - US 60 (9P3300) Installation of rumble stripes at various locations from Bus. 63 in Willow Springs to County Road 256 in Carter County.	Roadway	Rumble strips - edge or shoulder	80.856	Miles	$179000	$179000	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other Freeways and Expressways	2,400	65	State Highway Agency	Systemic	Roadway Departure	Add and improve shoulders
Southeast - Reynolds - MO 21 (9P3162) Pavement improvements, addition of shoulders and railroad crossing upgrade from Rte. K near Ellington to Rte. 49 west of Lesterville and at Rte. K/Union Pacific railroad crossing in Annapolis. $1,668,000 Open Con	Roadway	Roadway - other	20.346	Miles	$1668000	$4543000	Other Federal-aid Funds (i.e. STBG, NHPP)	Various	1,800	60	State Highway Agency	Spot	Roadway Departure	Improve roadway
Southeast - Scott - IS 55 (9I3111) Pavement and safety improvements	Roadway	Pavement surface - miscellaneous	31.266	Miles	$230000	$13112000	Penalty Funds (23 U.S.C. 154)	Various	0	0	State Highway Agency	Systemic	Lane Departure	Improve roadway

													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**
from I-57 to N. of Rte. 61/62 (Ristin), 3 miles S. of 162 (Portageville) to 0.8 mile S. of I-155 (Hayti) and 2.6 miles S. of Rte. E (Holland) to Arkan $801,180 MO119, $1,501,526 MO15														
Southeast - Ste. Genevieve - RT H (9S3166) Pavement improvements and addition of two foot shoulders from east of Rte. 61 to Rte. 51.	Roadway	Pavement surface - miscellaneous	6.838	Miles	$525000	$812000	HSIP (23 U.S.C. 148)	Rural Major Collector	1,300	55	State Highway Agency	Systemic	Roadway Departure	Add and improve shoulders
Southeast - Stoddard - MO 51 (9S3179) Pavement improvements and addition of two foot shoulders from 0.9 mile south of Rte. 60 to Rte. B. $147,000 District Operating Budget.	Roadway	Pavement surface - miscellaneous	3.014	Miles	$5000	$152000	Other Federal-aid Funds (i.e. STBG, NHPP)	Urban Major Collector	1,900	55	State Highway Agency	Systemic	Roadway Departure	Add and improve shoulders
Southeast - Texas - MO 17 (9P3161) Pavement improvements and addition of two foot shoulders from Rte. 63 in Houston to Rte. 106 in Summersville. $49,000 Accelerated Innovation Deployment (AID) Demonstration funds.	Roadway	Pavement surface - miscellaneous	22.4	Miles	$1663000	$3702000	Penalty Funds (23 U.S.C. 154)	Urban Minor Arterial	2,800	55	State Highway Agency	Systemic	Roadway Departure	Add and improve shoulders
Southeast - Various - Various (9P3237) On-call work zone enforcement at various locations in Southeast District.	Roadway signs and traffic control	Roadway signs and traffic control - other	1	Numbers	$75000	$75000	HSIP (23 U.S.C. 148)	Various	0	45	State Highway Agency	Spot	Work Zones	Increase Enforement efforts

													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**
Southeast - Various - Various (9P3304) Install chevrons at various locations in Southeast District.	Roadway signs and traffic control	Curve-related warning signs and flashers	1	Numbers	$322000	$322000	HSIP (23 U.S.C. 148)	Various	0	0	State Highway Agency	Systemic	Roadway Departure	Improve Curve Safety

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

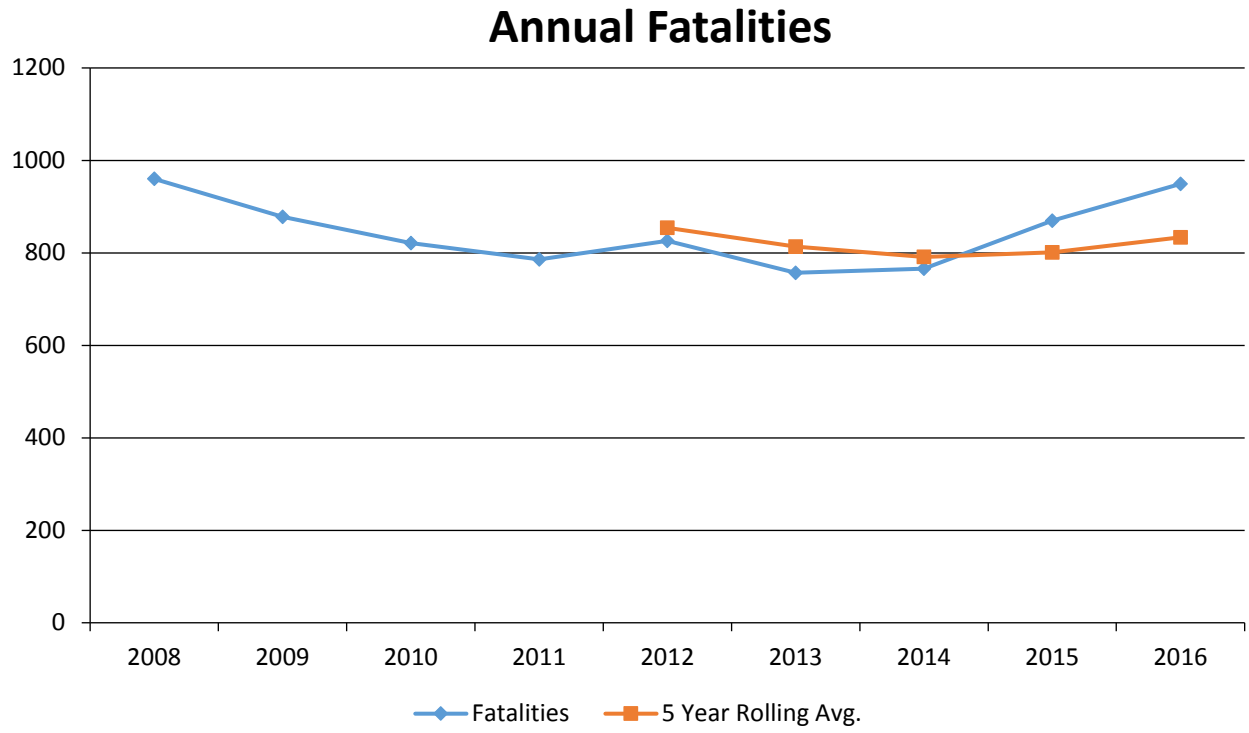
AADT and Speed were set at zero (0) if there were various speeds/AADT through the project.

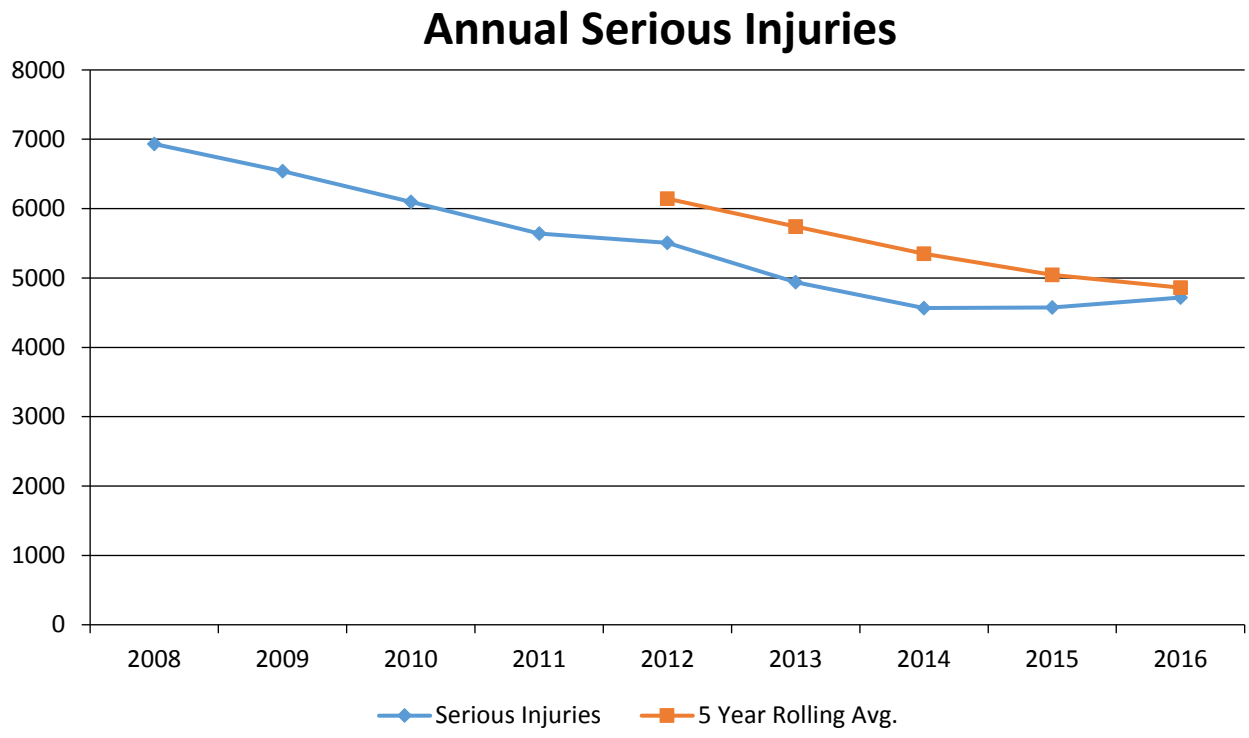
Safety Performance

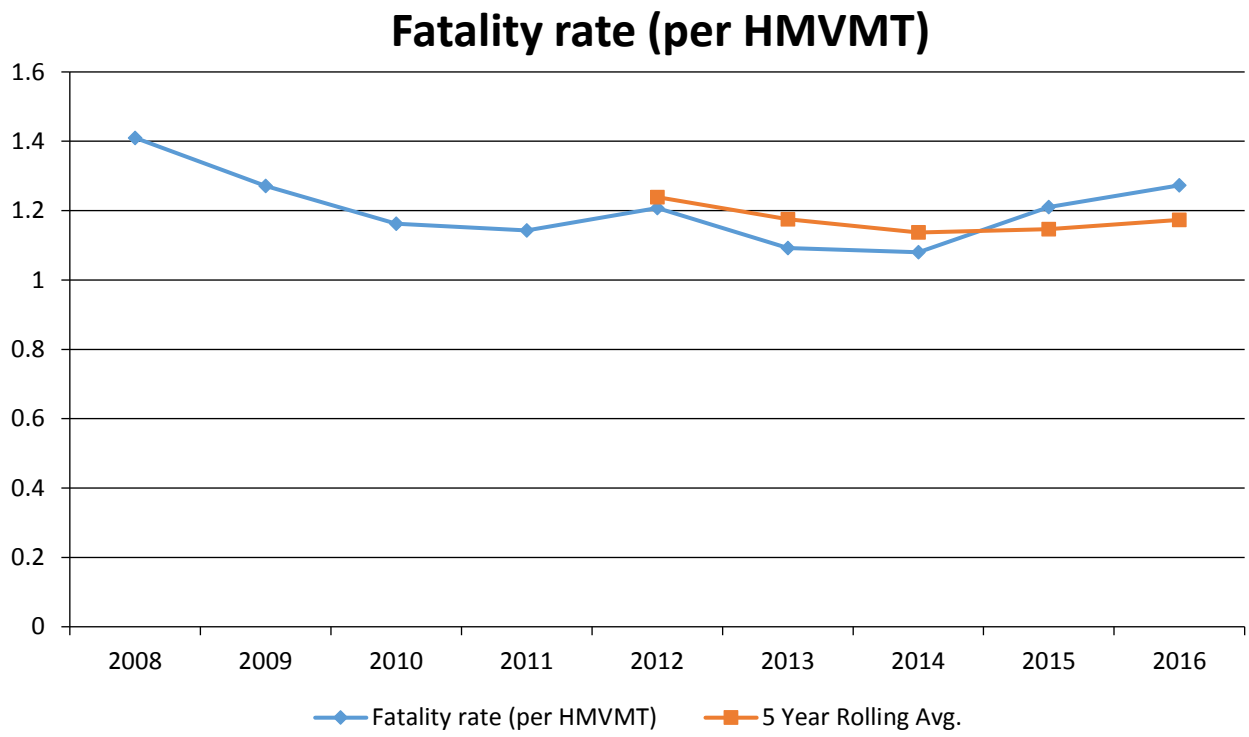
General Highway Safety Trends

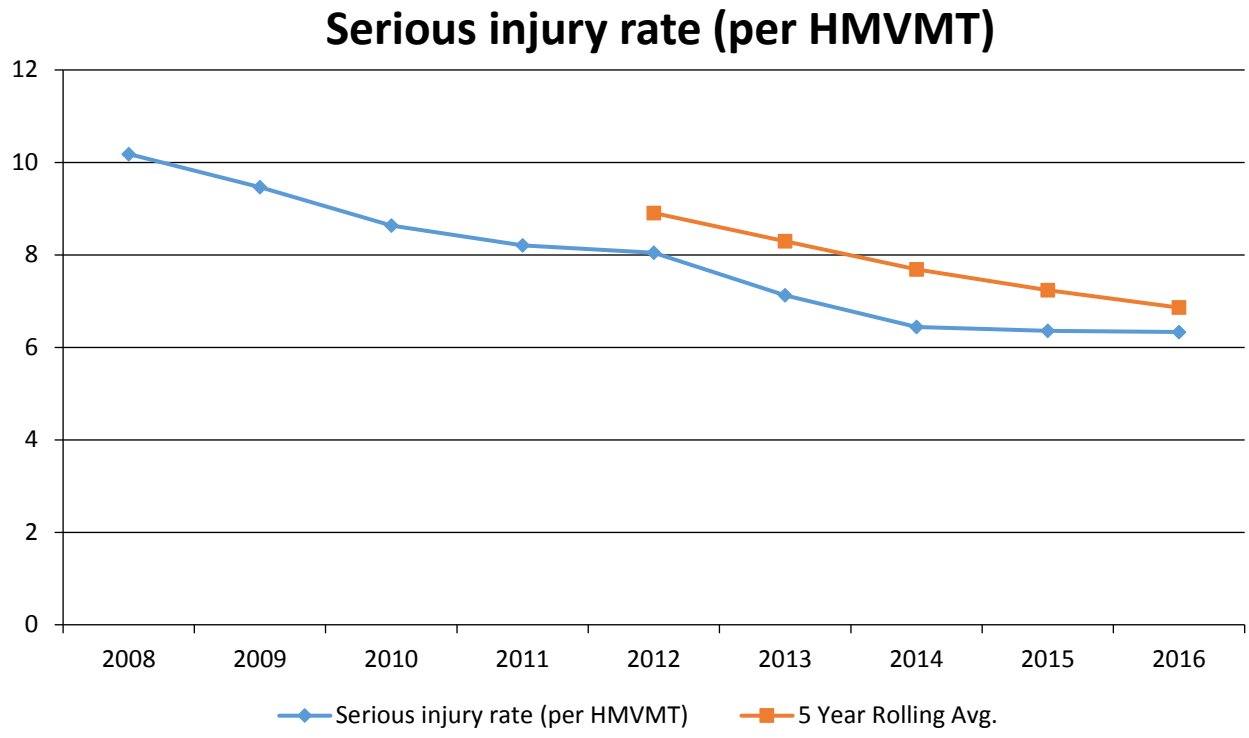
Present data showing the general highway safety trends in the State for the past five years.

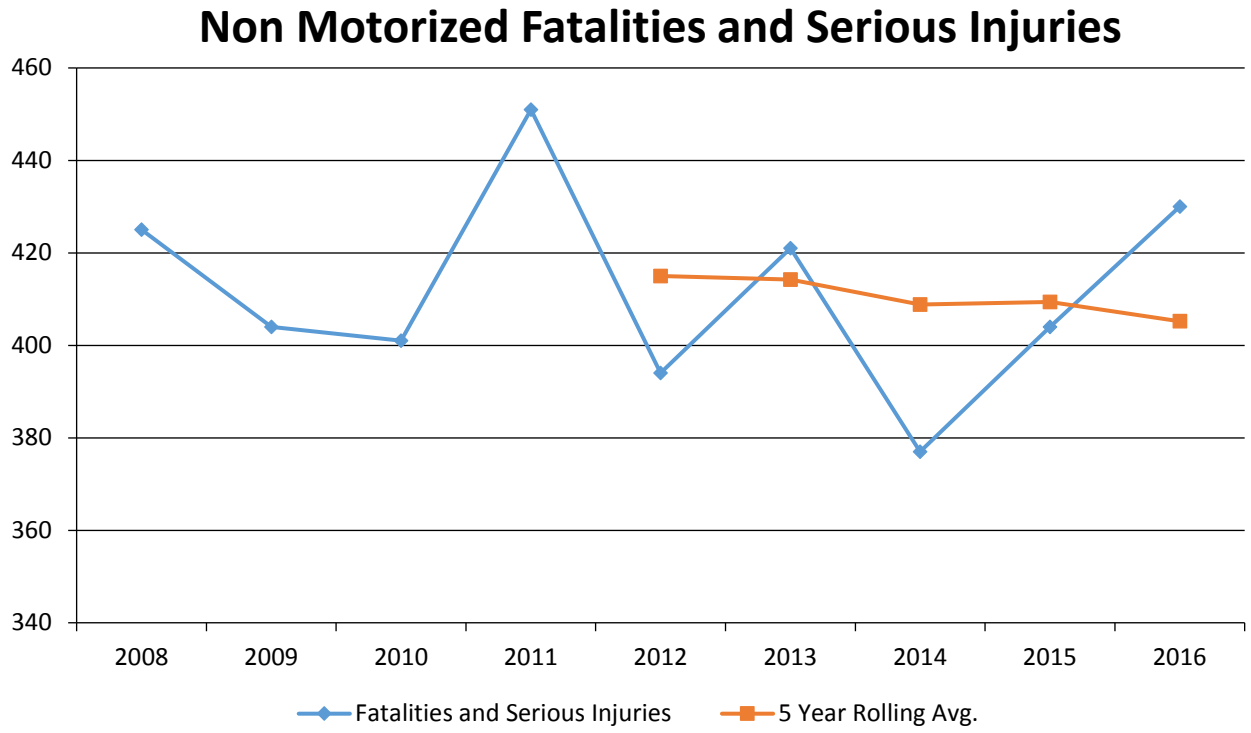
PERFORMANCE MEASURES	2008	2009	2010	2011	2012	2013	2014	2015	2016
Fatalities	960	878	821	786	826	757	766	870	949
Serious Injuries	6,932	6,540	6,096	5,643	5,506	4,938	4,567	4,573	4,719
Fatality rate (per HMVMT)	1.410	1.271	1.162	1.143	1.208	1.092	1.080	1.210	1.273
Serious injury rate (per HMVMT)	10.181	9.465	8.631	8.203	8.049	7.123	6.438	6.360	6.332
Number non-motorized fatalities	68	73	64	76	92	79	73	113	109
Number of non-motorized serious injuries	357	331	337	375	302	342	304	291	321


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


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


Fatality rate (per HMVMT)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
12
10
8
6
4
2
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



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

Describe fatality data source.

FARS

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

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

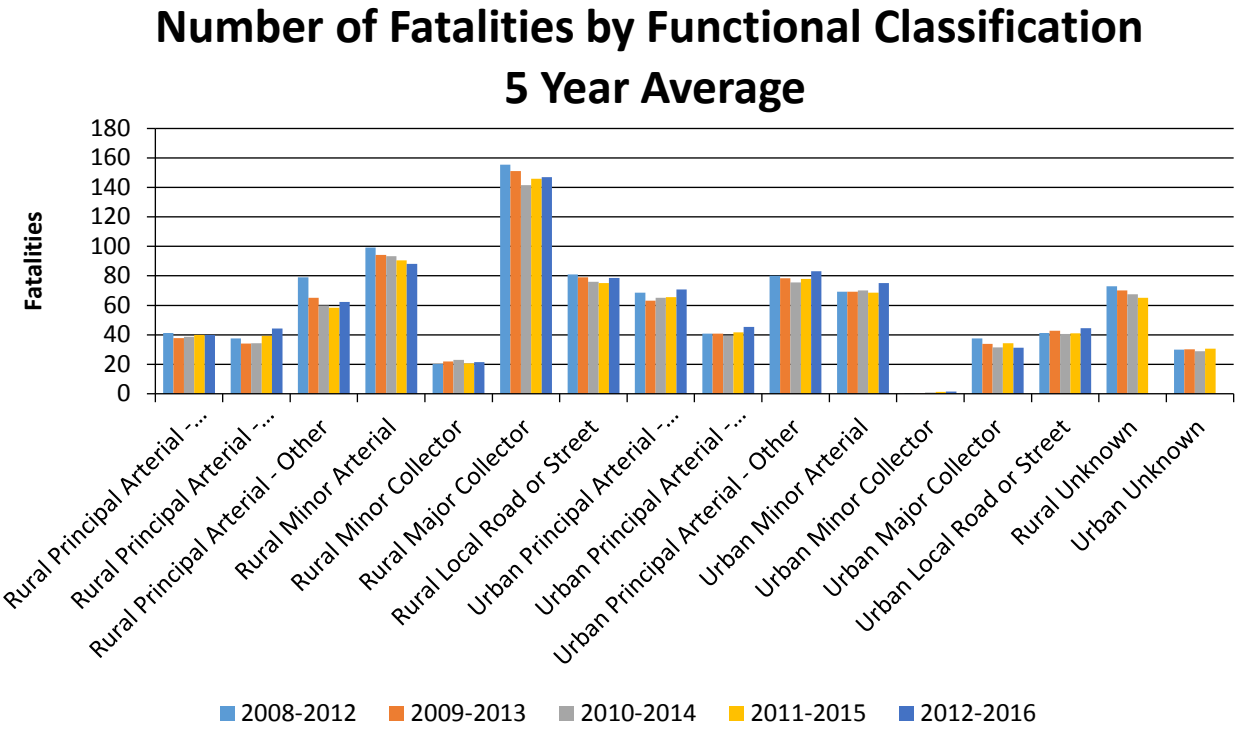
Year 2016

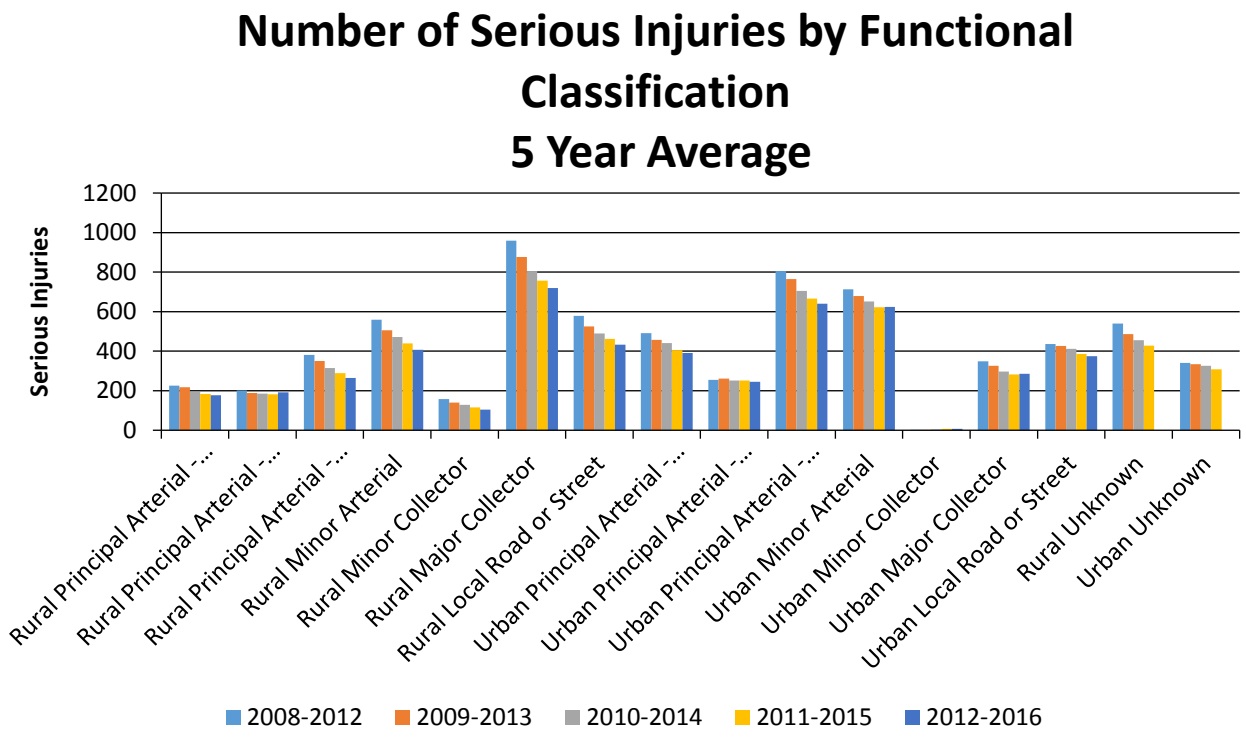
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial - Interstate	40	177.6	0.06	0.25
Rural Principal Arterial - Other Freeways and Expressways	44.2	191.8	0.06	0.27
Rural Principal Arterial - Other	62.2	265.2	0.09	0.38
Rural Minor Arterial	88.2	407.8	0.12	0.58

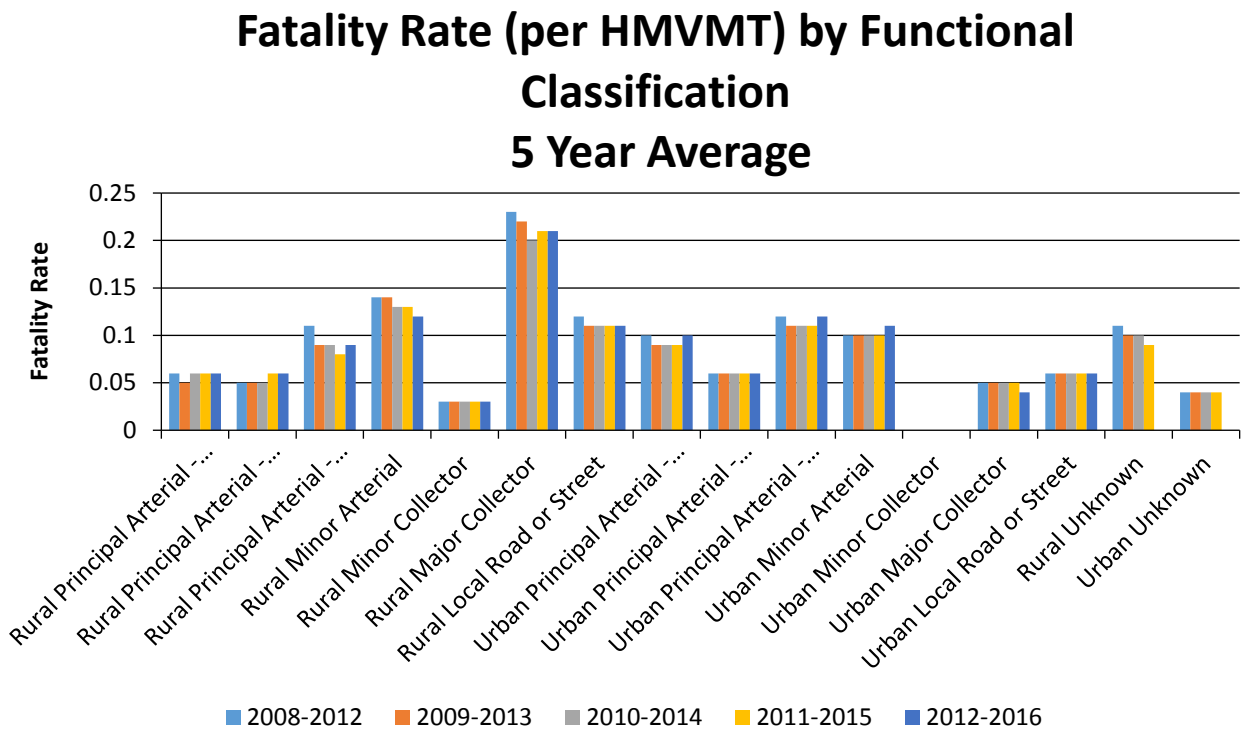
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Minor Collector	21.4	104.6	0.03	0.15
Rural Major Collector	147	719.8	0.21	1.02
Rural Local Road or Street	78.6	433.4	0.11	0.61
Urban Principal Arterial - Interstate	70.8	390.4	0.1	0.55
Urban Principal Arterial - Other Freeways and Expressways	45.4	245.6	0.06	0.35
Urban Principal Arterial - Other	83.2	640.6	0.12	0.9
Urban Minor Arterial	75	624.6	0.11	0.88
Urban Minor Collector	1.4	7.4	0	0.01
Urban Major Collector	31.2	285.6	0.04	0.4
Urban Local Road or Street	44.4	374.2	0.06	0.53

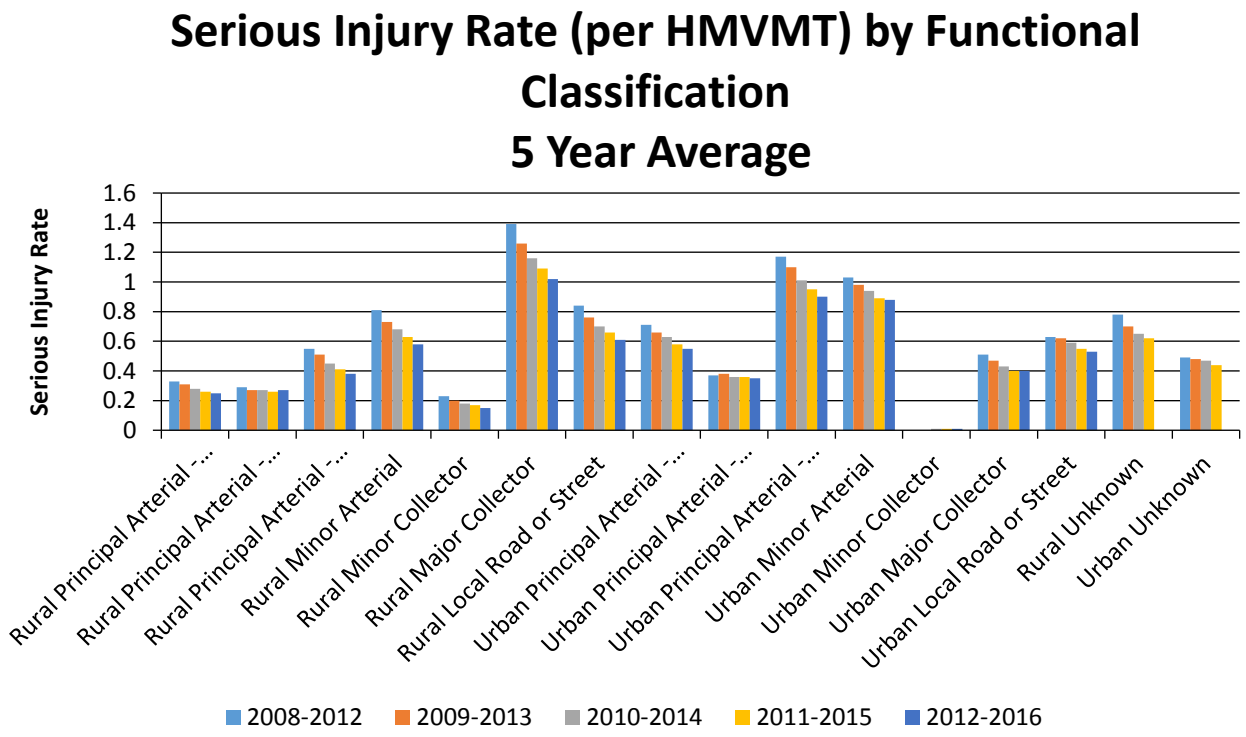
Year 2016

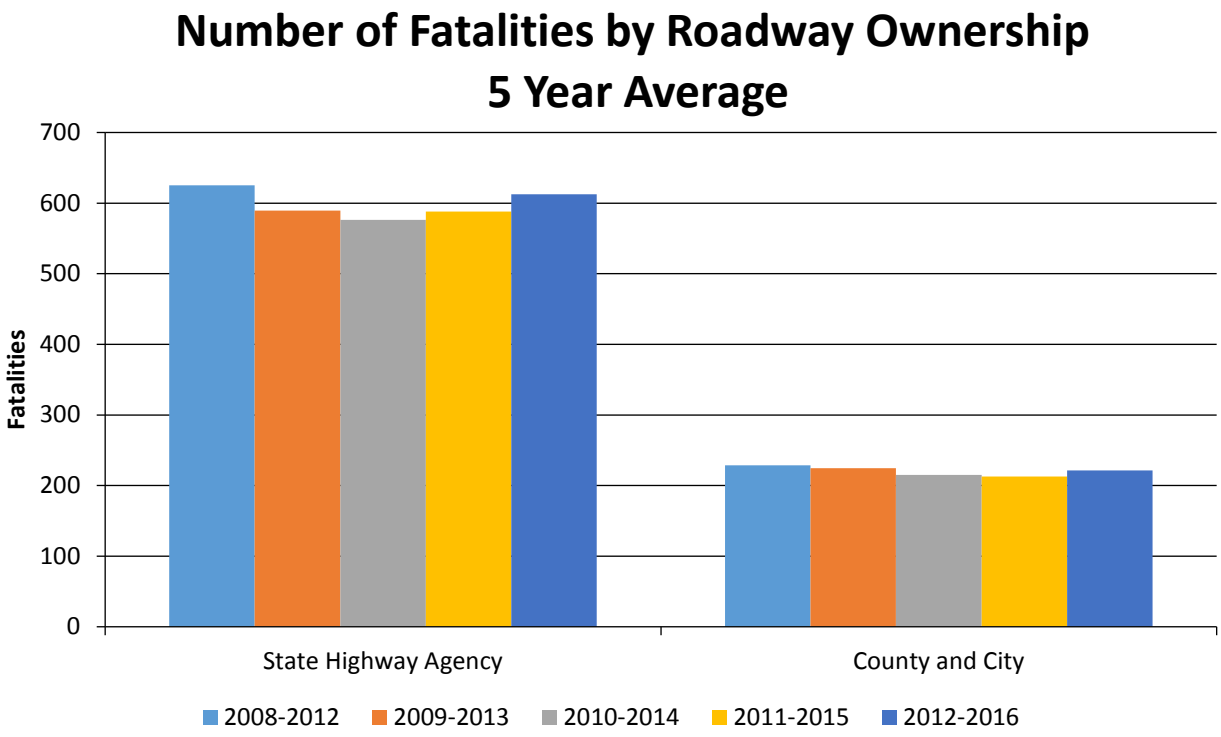
Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency	612.4	3,235.4	0.86	4.57
County Highway Agency				
Town or Township Highway Agency				
City of Municipal Highway Agency				
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				
City and County Highway Agency	221.2	1,644	0.31	2.32

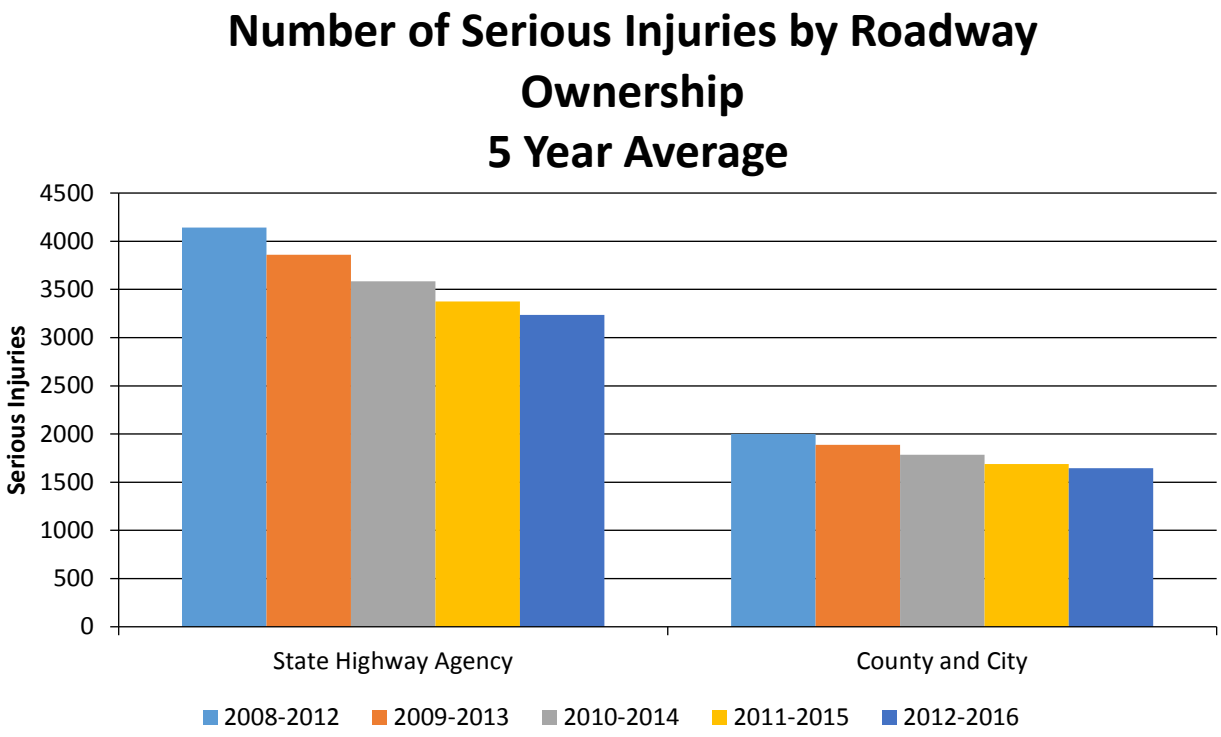

Number of Fatalities by Functional Classification
5 Year Average
Fatalities
180
160
140
120
100
80
60
40
20
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial - Other
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
Rural Unknown
Urban Unknown
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016

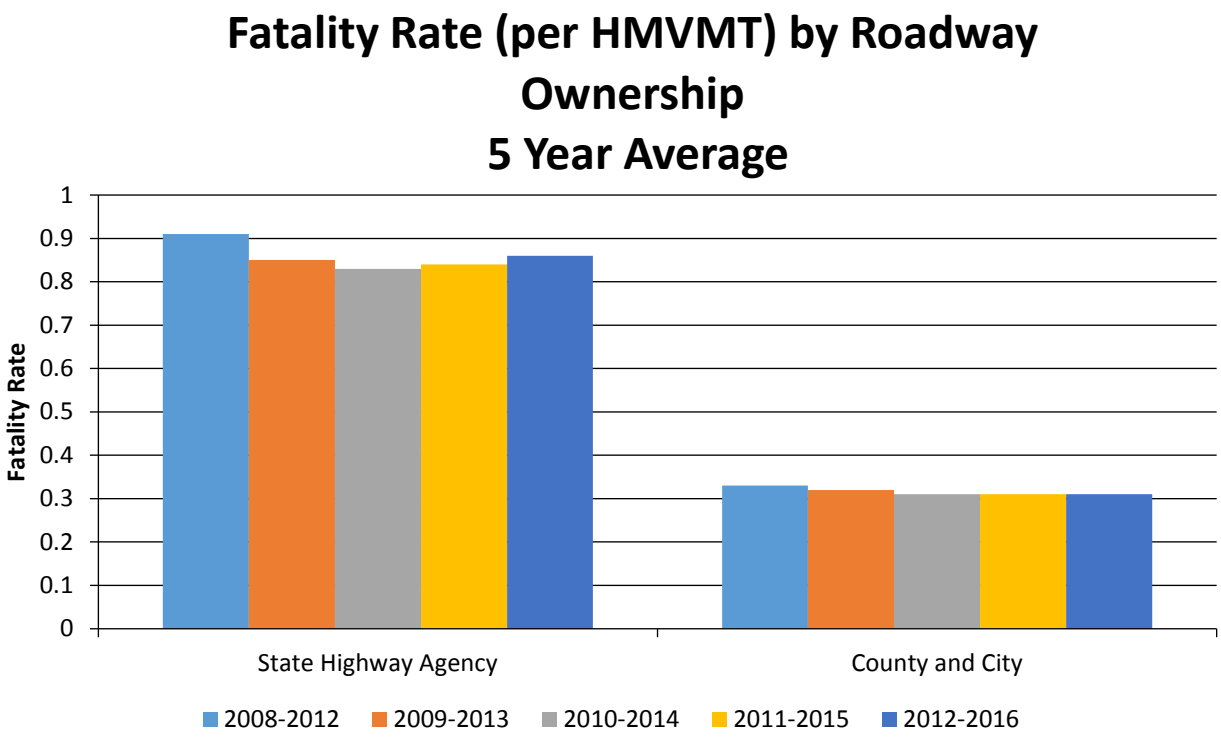

Number of Serious Injuries by Functional Classification
5 Year Average
Serious Injuries
1200
1000
800
600
400
200
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban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

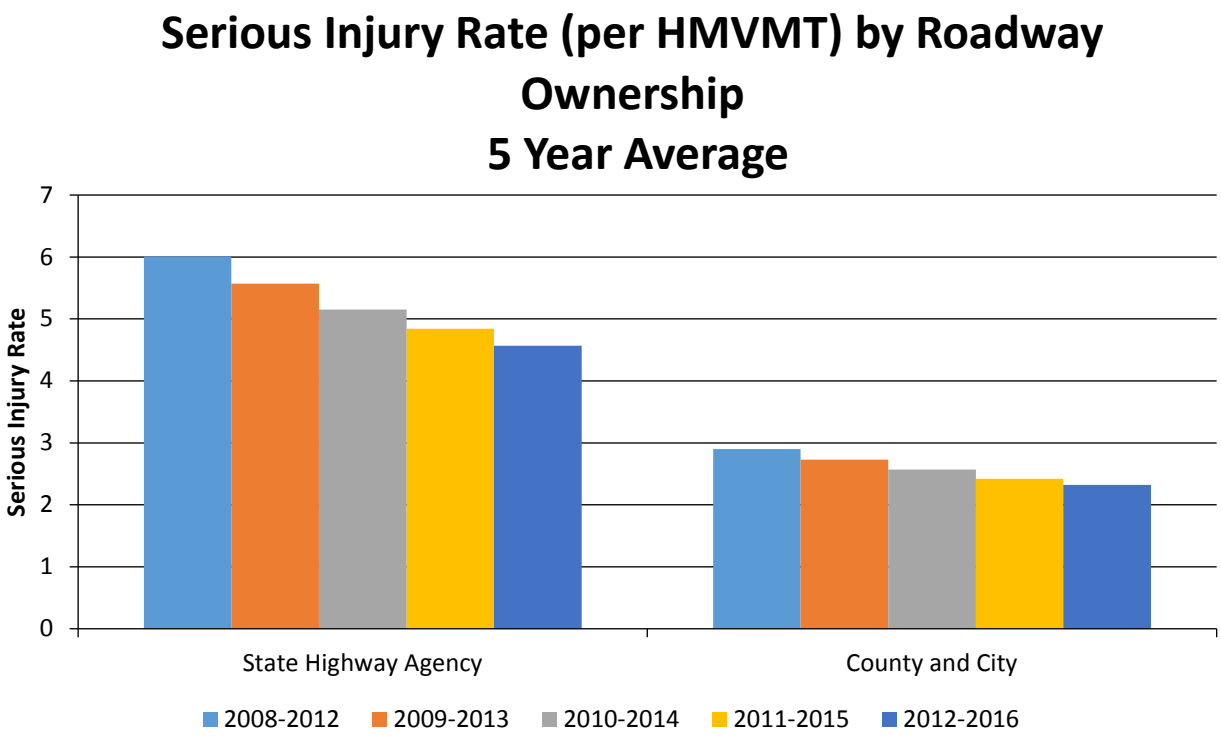

Fatality Rate (per HMVMT) by Functional Classification
5 Year Average
Fatality Rate
0.25
0.2
0.15
0.1
0.05
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
Rural Unknown
Urban Unknown
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Serious Injury Rate (per HMVMT) by Functional Classification
5 Year Average
Serious Injury Rate
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
Rural Unknown
Urban Unknown
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Fatalities by Roadway Ownership
5 Year Average
Fatalities
700
600
500
400
300
200
100
0
State Highway Agency
County and City
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Serious Injuries by Roadway Ownership
5 Year Average
Serious Injuries
4500
4000
3500
3000
2500
2000
1500
1000
500
0
State Highway Agency
County and City
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Fatality Rate (per HMVMT) by Roadway Ownership
5 Year Average
Fatality Rate
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
State Highway Agency
County and City
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016



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

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.

Overall fatalities and serious injuries were up in Missouri for 2016, which could be due to an increase in aggressive driving behaviors. Motorcycle and Pedestrian fatalities have been trending upward in recent years. MoDOT has started to place a large safety emphasis on providing safety improvements on state maintained minor roads. These safety improvements primarily consist of adding 2-foot shoulders with rumble strips as well as installing chevron signs on horizontal curves.

Safety Performance Targets

Safety Performance Targets

	Calendar Year 2018 Targets *
Number of Fatalities	857.7

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

The target is based on our 2016 Strategic Highway Safety Plan (SHSP). In this plan, the goal is to have fewer than 700 fatalities by 2020. The 2018 target was based on the historical 5-year rolling average of fatalities, the 2020 goal in the SHSP, and extrapolating an interim 5-year rolling average target for 2018. This target is in line with the SHSP to reduce the number of fatalities on Missouri's roadways.

Number of Serious Injuries 4559.3

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

This target was developed by projecting the historical 5-year rolling average of serious injury crashes to 2018. The historical data used to develop the trend line consisted of a 5-year rolling average from 2005 to 2015. This target is in line with the SHSP to reduce the number of serious injuries on Missouri's roadways.

Fatality Rate 1.163

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

The fatality rate was calculated by taking a 5-year rolling average of historical and forecasted annual fatality rates. Historical fatality rates were derived from observed fatality totals and estimated Annual Vehicle Miles Traveled (VMT). Forecasted rates were determined by using the number of fatalities target (developed from the SHSP target) and dividing by the estimated Annual VMT. It was assumed that Annual VMT would grow at a rate of 1% per year. This target is in line with the SHSP to reduce the number of fatalities on Missouri's roadways.

Serious Injury Rate 6.191

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

The serious injury rate was calculated by taking a 5-year rolling average of historical and forecasted annual serious injury rates. Historical serious injury rates were derived from observed serious injury totals and estimated Annual Vehicle Miles Traveled (VMT). Forecasted rates were determined by using the number of serious injuries target and dividing by the estimated Annual VMT. It was assumed that Annual VMT would grow at a rate of 1% per year. This target is in line with the SHSP to reduce the number of serious injuries on Missouri's roadways.

Total Number of Non-Motorized Fatalities and Serious Injuries 431.9

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

In Missouri, there are approximately four non-motorized serious injuries for every non-motorized fatality. For this reason, the methodology for this target was influenced by the target for the number of motorized serious injuries. Achieving the 2018 number of serious injuries target requires an annual reduction of 4% in serious injury crashes.

This 4% reduction was then applied to the non-motorized fatalities and serious injuries to forecast future year estimates. These future estimates, combined with historical data, allowed for calculating a 5-year rolling average, which was used to determine the Number of Non-Motorized Fatalities and Serious Injuries Target for 2018. This target is in line with the SHSP to reduce the number of non-motorized fatalities and serious injuries on Missouri's roadways.

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

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

Missouri DOT includes the Highway Safety Division so the engineering and safety staff have been collaborating for more than a decade. MoDOT updated its Strategic Highway Safety Plan (SHSP) using a collaborative, team approach from Aug. 2015 to Oct. 2016. The team included external partners from emergency management, FHWA, FMCSA, hospitals, law enforcement, Missouri Department of Revenue, MPOs, NHTSA, RPCs and universities. The 2016 SHSP team identified a goal of fewer than 700 fatalities by 2020. SHSP revisions were shared periodically with the MPOs and RPCs.

FHWA piloted its Safety Target Setting Coordination Workshop at MoDOT in May 2016 with FHWA, MoDOT, MPO, and NHTSA staff. Missouri safety data was reviewed for trends, along with assumptions and challenges. MoDOT conducts monthly calls with planning stakeholders. During the Sept. and Oct. 2016 calls, a draft target coordinating process was presented with feedback and consensus from the MPOs. In March of 2017, MoDOT calculated statewide and MPO data trends for each safety performance measure. This information was shared and discussed with MoDOT's Executive Team, MPOs, FHWA, NHTSA, and FMCSA. After further feedback from partner groups, the methods and assumptions used to develop the performance targets were finalized in April 2017. MoDOT then applied the agreed upon methodology to develop the safety performance targets and communicated them with the partners.

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.

Applicability of Special Rules

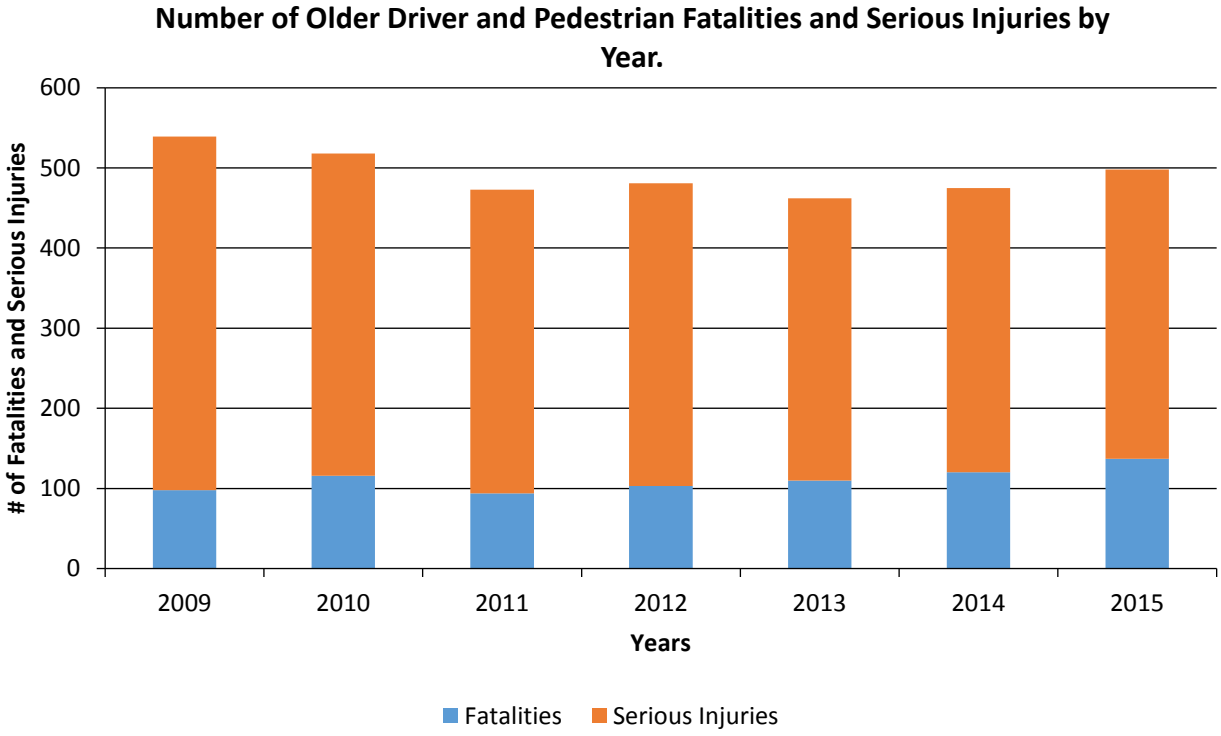
Does the HRRR special rule apply to the State for this reporting period?

No

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

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

PERFORMANCE MEASURES	2009	2010	2011	2012	2013	2014	2015
Number of Older Driver and Pedestrian Fatalities	98	116	94	103	110	120	137
Number of Older Driver and Pedestrian Serious Injuries	441	402	379	378	352	355	361



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

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

Change in fatalities and serious injuries
Other-Evaluation of individual HSIP projects and programs

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

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

MoDOT will evaluate specific HSIP projects to assess their effectiveness at reducing fatal and serious injury crashes. This information is then used to promote or discourage the use of a particular safety countermeasure.

For systemic improvements, MoDOT tracks the change in the number of fatalities as the amount of a safety improvement is further deployed. This allows MoDOT to monitor the safety benefits returned on its continued investment of a systemic strategy.

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

HSIP Obligations

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

MoDOT's planning office tracks the programming of safety funds to ensure they do not lapse on HSIP funds.

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

Yes

Describe significant program changes that have occurred since the last reporting period.

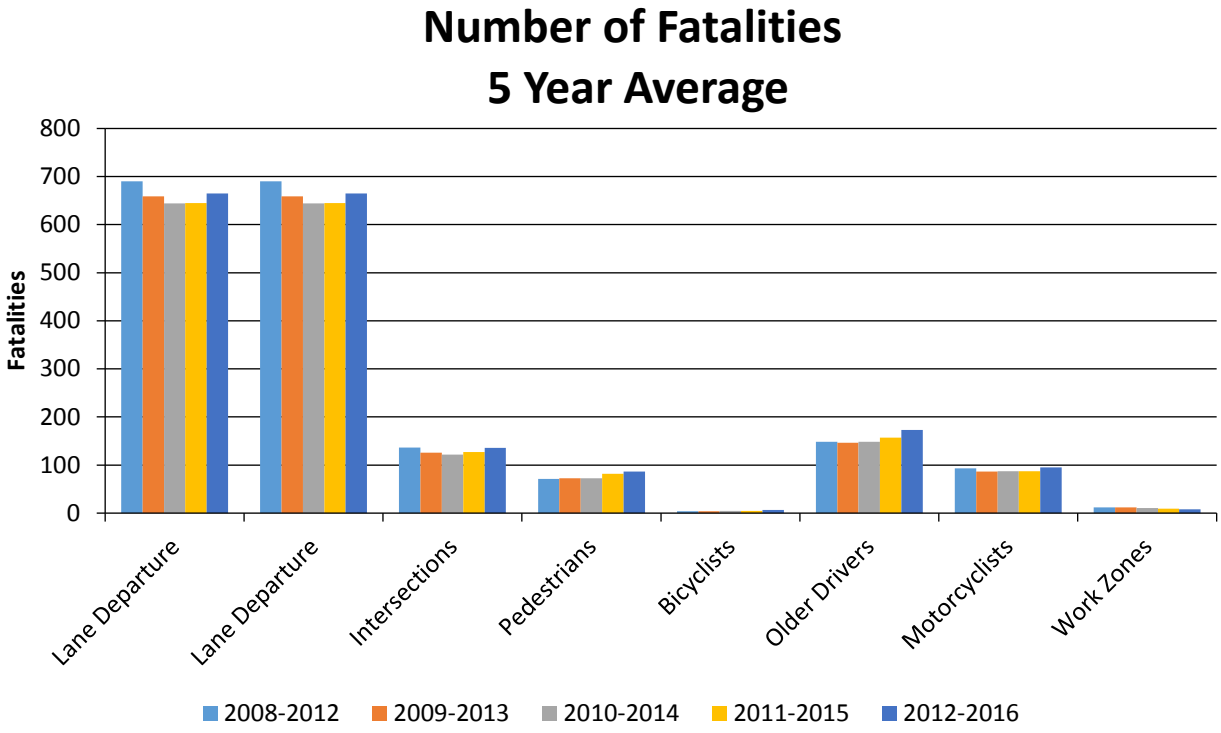
MoDOT's leadership increased the amount of safety funds available for programming by $10 million for FY2017.

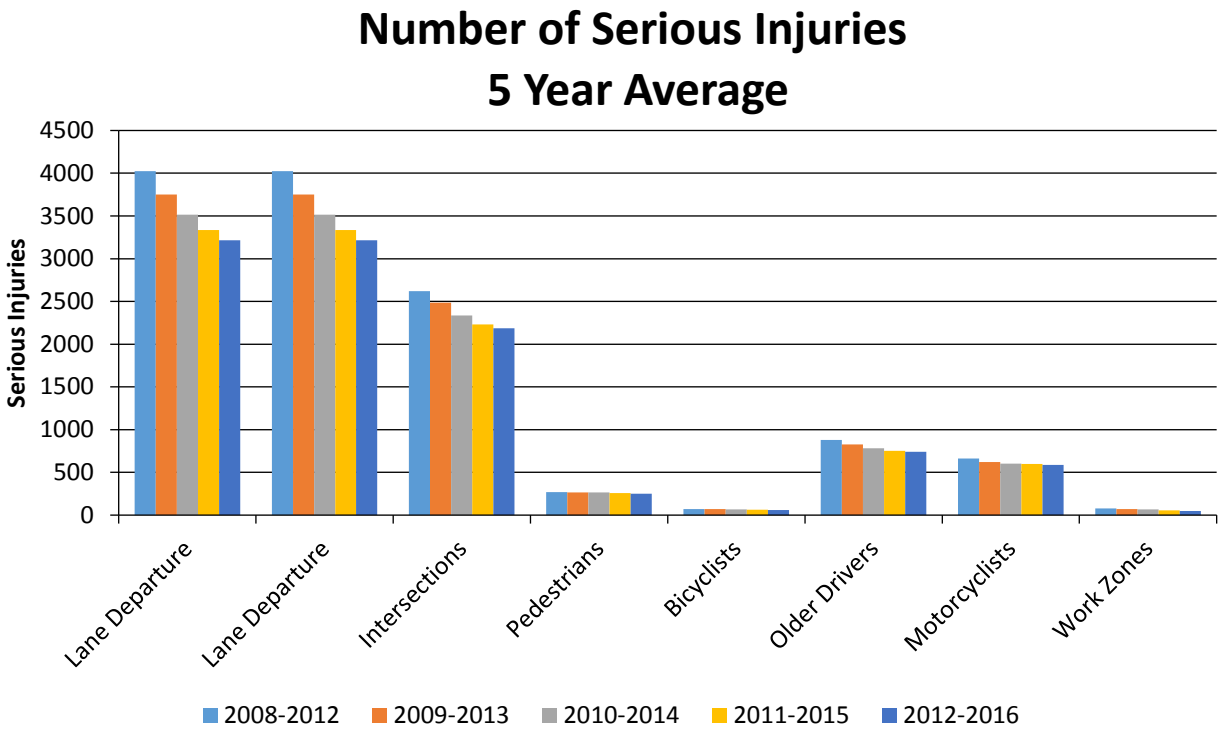
As of this reporting period, every MoDOT district now has a curve treated with a High Friction Surface Treatment (HFST). This has provided the opportunity for MoDOT staff to become familiar with this safety countermeasure and get first hand experience with its application in the field.

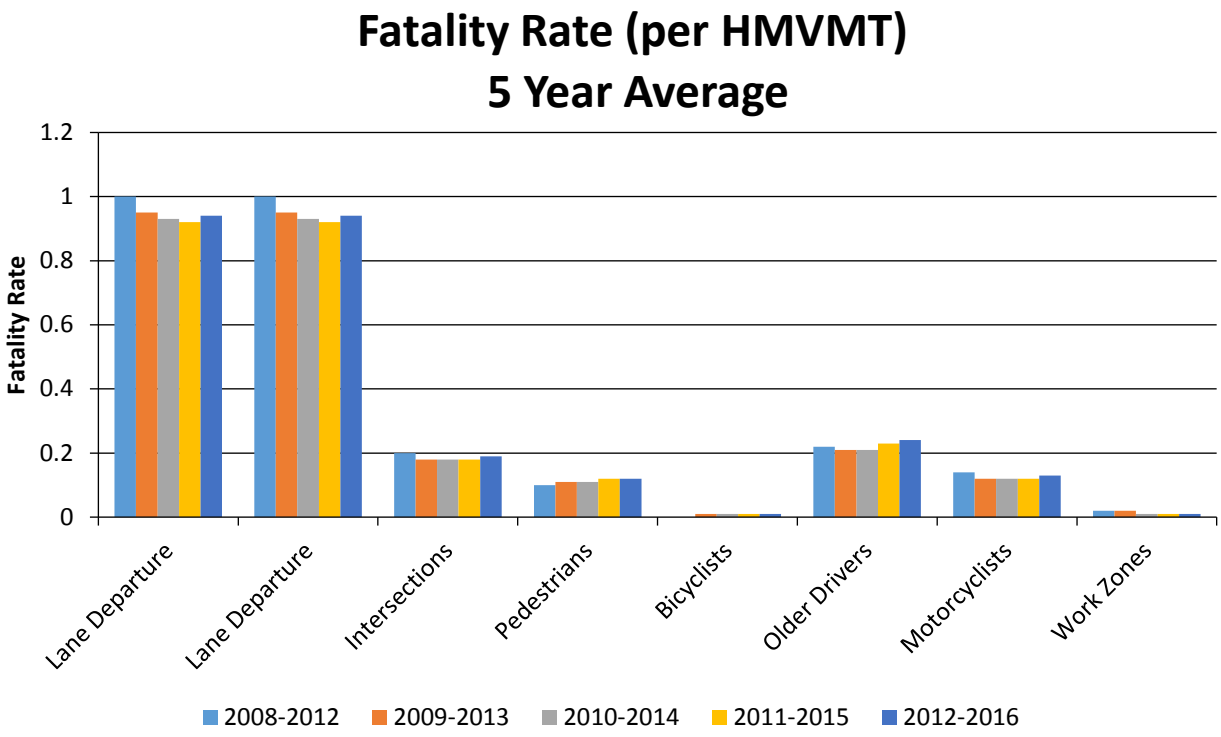
Present and describe trends in SHSP emphasis area performance measures.

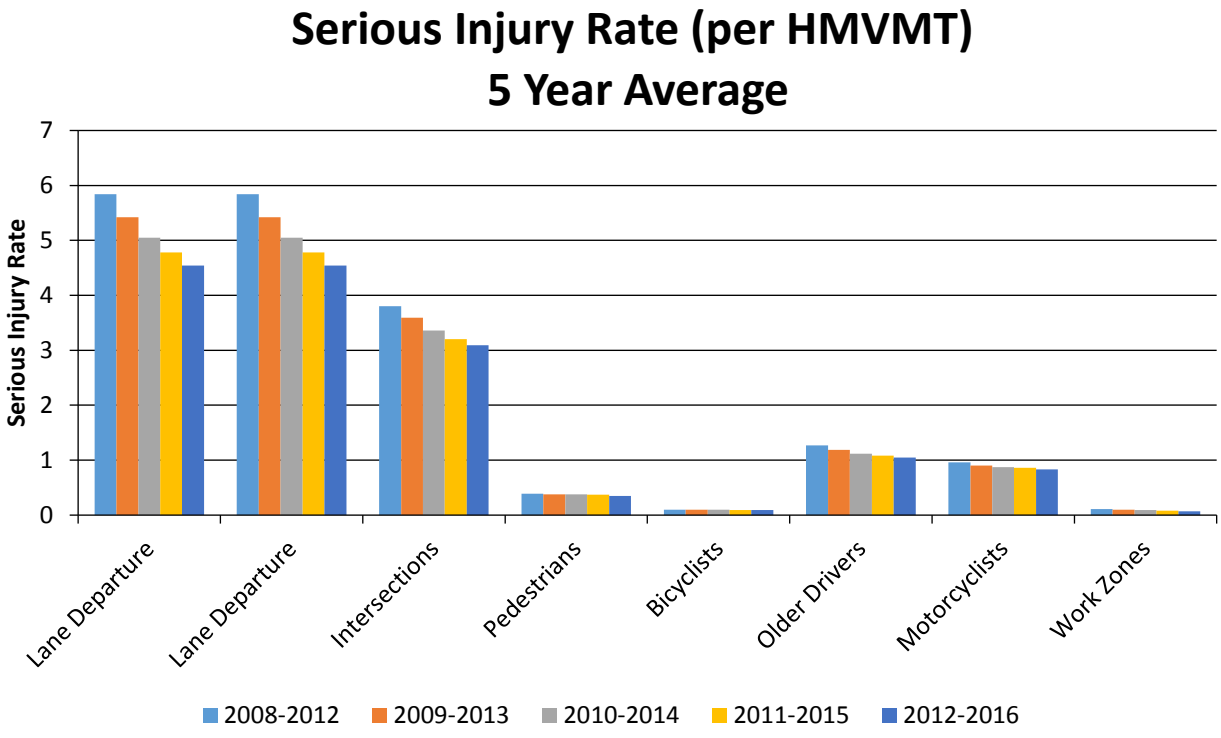
Year 2016

SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)	Other 1	Other 2	Other 3
Lane Departure		665	3,215.4	0.94	4.54			
Intersections		135.4	2,186.6	0.19	3.09			
Pedestrians		86.6	251.2	0.12	0.35			
Bicyclists		6.6	60.8	0.01	0.09			
Older Drivers		173.2	741.4	0.24	1.05			
Motorcyclists		95.2	586.8	0.13	0.83			
Work Zones		8.2	49.6	0.01	0.07			


Number of Fatalities
5 Year Average
Fatalities
800
700
600
500
400
300
200
100
0
Lane Departure
Lane Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Serious Injuries
5 Year Average
Serious Injuries
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Lane Departure
Lane Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016





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

Lane Departure includes Two Vehicle Analysis = “Front to Front” or “Sideswipe (Opposite Direction), Sequence of Events = “Cross Center of Road” or “Ran off Road - Right” or “Ran off Road - Left”.

All rates are based off of the total statewide VMT. MoDOT does not collect VMT specific to motorcycles, older drivers, etc.

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

Yes

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

CounterMeasures:	RCUT (J-Turns)
Description:	This was an internal study that evaluated the safety impacts of installing J-Turns (RCUT) on Missouri roadways.
Target Crash Type:	Angle
Number of Installations:	19
Number of Installations:	19
Miles Treated:	
Years Before:	5 years for 15 locations
Years After:	61 years over 19 locations
Methodology:	Simple before/after
Results:	The net benefit of the 19 J-Turn locations across the state has been significant. Collectively, total crashes at these intersections are down 25%. More importantly, fatal crashes are down 88% and serious injury crashes are down 78%. In addition, right angle crashes, the crash type most responsible for fatalities and serious injuries at intersections, are also down 88%.

File Name: Statewide Analysis of J-Turns.pdf

Project Effectiveness

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

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
MO 32 Shoulder Improvements in Dent County (5P3013)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	18.00	12.00	1.00		10.00	4.00	10.00	16.00	39.00	32.00	7.6
US 54 Intersection Improvements in Cole County (9P2263B)	Rural Principal Arterial - Other	Intersection geometry	Auxiliary lanes - modify left-turn lane offset	3.00	3.00			1.00				4.00	3.00	0.3
Route M Cole County Pavement and Signing Improvements (5L1701C)	Rural Major Collector	Roadway signs and traffic control	Curve-related warning signs and flashers	10.00	2.00		1.00			4.00		14.00	3.00	-388.6
MO 87 Pavement and shoulder improvements from I-70 to California (5S3012)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	51.00	43.00	2.00	1.00	10.00	2.00	15.00	11.00	78.00	57.00	3.4
MO 6 Daviess/DeKalb Shoulders and rumble stripe (1P3027)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	18.00	24.00			2.00	1.00	9.00	6.00	29.00	31.00	0.6
US 36 Buchanan/DeKalb Resurfacing, shoulders and rumble stripe (1P2195)	Rural Principal Arterial - Other	Roadway	Rumble strips - edge or shoulder	20.00	30.00			1.00	1.00	15.00	16.00	36.00	47.00	-0.2
US 71 Andrew Rurfacing, shoulders and rumble stripe (1P1039)	Rural Principal Arterial - Other	Roadway	Rumble strips - edge or shoulder	6.00	4.00	1.00		1.00		4.00	1.00	12.00	5.00	8
US 169 Buchanan Shoulders and rumble stripe (1P2215)	Urban Principal Arterial - Other	Roadway	Rumble strips - edge or shoulder	72.00	72.00		2.00	7.00	12.00	30.00	31.00	109.00	117.00	-12.1
MO 13 Lafayette Shoulders and rumble stripe (3P3012)	Rural Principal Arterial - Other	Roadway	Rumble strips - edge or shoulder	11.00	24.00			2.00	1.00	10.00	8.00	23.00	33.00	1
I-49 at MO 58 Cass Interchange Improvements (4P2389)	Urban Principal Arterial - Interstate	Interchange design	Interchange design - other	8.00	1.00					3.00		11.00	1.00	0.5

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
US 69 and MO 45 Clay Shoulder improvements and rumble stripes (4P3030)	Rural Principal Arterial - Other	Roadway	Rumble strips - edge or shoulder	86.00	80.00	1.00	2.00	3.00	3.00	21.00	25.00	111.00	110.00	-2.7
MO 273 Platte Shoulder improvements and rumble stripes (4S2182)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	9.00	14.00	3.00	11.00		1.00	2.00	4.00	14.00	30.00	-269.6
MO 2 Cass Shoulder improvements and rumble stripes (4S3031)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	22.00	14.00	2.00	1.00	3.00	1.00	16.00	9.00	43.00	25.00	9.3
MO 47 Lincoln Shoulder improvements and rumble stripes(3P2228G)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	149.00	121.00	2.00	3.00	17.00	22.00	67.00	59.00	235.00	205.00	-6.2
MO 79 Marion Shoulder improvements and rumble stripes (3P2193)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	19.00	14.00	1.00		4.00	2.00	6.00	6.00	30.00	22.00	37.6
US 24 Marion Friction improvements for interchange ramps (2P3012)	Rural Principal Arterial - Other	Roadway	Pavement surface - high friction surface	14.00	13.00	1.00		4.00		9.00	3.00	28.00	16.00	32.4
MO 3 Randolph Shoulder improvements and rumble stripes (2P3010)	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	11.00	13.00	1.00	1.00		1.00	4.00	2.00	16.00	17.00	-32
MO 30 Intersection improvements at Dillion Rd, Caroline Rd, and Delores Dr (J6P2373C)	Urban Principal Arterial - Other Freeways and Expressways	Intersection geometry	Intersection geometry - other	61.00	50.00			4.00	3.00	12.00	15.00	77.00	68.00	0.1
MO 30 Signing and guardrail from Rte. 141 to Rte. B. (J6P2373F)	Urban Principal Arterial - Other Freeways and Expressways	Roadway signs and traffic control	Roadway signs and traffic control - other	1562.00	804.00	10.00	9.00	109.00	63.00	406.00	206.00	2087.00	1082.00	129.2
MO 30 Safety improvements including signal upgrades and advanced warning systems from Rte. 141 to Rte. B. (J6P2373G)	Urban Principal Arterial - Other Freeways and Expressways	Intersection traffic control	Intersection signing - add basic advance warning	910.00	848.00	3.00	12.00	64.00	54.00	241.00	185.00	1218.00	1099.00	-33.7
Rt PP Pavement, shoulder, and curve	Rural Major Collector	Shoulder treatments	Widen shoulder - paved or other	23.00	21.00				3.00	6.00	12.00	29.00	36.00	-2.3

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
improvements from Twin Rivers Road to Rte. 30. (J6S3021)														
Rt D Pavement, shoulder and curve improvements from Rte. Z to MO 94. (J6S2192C)	Rural Major Collector	Shoulder treatments	Widen shoulder - paved or other	27.00	71.00	1.00	2.00	1.00	4.00	10.00	10.00	39.00	87.00	-7.6
Rt D Pavement, shoulder, and curve improvements from Rte. T to Rte. Z (J6S3018)	Rural Major Collector	Shoulder treatments	Widen shoulder - paved or other	17.00	26.00		1.00			6.00	5.00	23.00	32.00	-3.5
Rt DD Pavement, shoulder and curve improvements from 2 miles north of Rte. D to Rte. 94 (J6S2310B)	Rural Major Collector	Shoulder treatments	Widen shoulder - paved or other	21.00	16.00			1.00		9.00	3.00	31.00	19.00	0.6
Rt Z Pavement and shoulder improvements from I-70 to Rte. D. (J6S2322)	Urban Collector	Shoulder treatments	Widen shoulder - paved or other	42.00	93.00	2.00		4.00	2.00	11.00	13.00	59.00	108.00	6.7
MO 109 Intersection improvements at Pond Grover Loop. (J6S2046B)	Urban Minor Arterial	Intersection traffic control	Modify traffic signal - modernization/replacement	5.00	11.00							5.00	11.00	-0.1
Rt D Signal, lighting and ADA facilities improvements at Skinker Parkway, Hodiamont Avenue and Union Blvd. (J6S2242)	Urban Principal Arterial - Other	Pedestrians and bicyclists	Pedestrian signal - modify existing	77.00	104.00			3.00	3.00	38.00	37.00	118.00	144.00	-0.1
MO 366 Pavement Seal and ADA facility improvements from the City Limits to Broadway (J6S2234)	Urban Minor Arterial	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	485.00	457.00	1.00		8.00	5.00	184.00	136.00	678.00	598.00	57.2
MO 100 Pavement Overlay and ADA Facility improvements from the City Limits to Vandeventer (J6P2236), inlcuded road diet from McCausland	Urban Minor Arterial	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	194.00	204.00	2.00	1.00	4.00	4.00	77.00	61.00	277.00	270.00	34.9

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
to Kingshighway to include dedicated bike lanes.														
US 54 Benton Shoulder improvements and rumble stripes (5P0915)	Rural Principal Arterial - Other	Roadway	Rumble strips - edge or shoulder	133.00	59.00	3.00		10.00	3.00	28.00	13.00	174.00	75.00	33.6
MO 7, MO 83, & RT U Benton Shoulder improvements and rumble stripes (5P2155)	Rural Principal Arterial - Other	Roadway	Rumble strips - edge or shoulder	92.00	65.00			6.00	4.00	17.00	17.00	115.00	86.00	1.8
MO 76 Stone Shoulder improvements and rumble stripes (7P3012)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	42.00	65.00	1.00	1.00	8.00	4.00	29.00	29.00	80.00	99.00	1.4
US 160 Taney Shoulder improvements and rumble stripes (8L1300L)	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	209.00	191.00	1.00	1.00	19.00	17.00	69.00	61.00	298.00	270.00	2.7
MO 176 Taney Shoulder improvements and rumble stripes (8L1300O)	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	7.00	9.00					5.00	3.00	12.00	12.00	0.6
US 160 Greene Shoulder improvements and rumble stripes (8L1300T)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	16.00	30.00	1.00	2.00	5.00	3.00	9.00	8.00	31.00	43.00	-11
MO 86 Stone Shoulder improvements and rumble stripes (8P2385)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	52.00	79.00	3.00	1.00	21.00	8.00	6.00	30.00	82.00	118.00	18.8
US 65 Christian Intersection safety improvements at BB and A (8P2418)	Rural Principal Arterial - Other	Intersection traffic control	Intersection flashers - add "when flashing" warning sign-mounted	3.00	2.00			1.00			2.00	4.00	4.00	1.6
MO 265 Taney Shoulder improvements and rumble stripes (8S2442)	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	24.00	31.00		1.00	4.00	5.00	10.00	5.00	38.00	42.00	-69
MO 38 Webster Shoulder improvements and rumble stripes (8S2457B)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	26.00	34.00		1.00	4.00	3.00	7.00	5.00	37.00	43.00	-4.2

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
MO 125 Greene Shoulder improvements and rumble stripes (8S3018)	Urban Minor Arterial	Roadway	Rumble strips - edge or shoulder	27.00	27.00	1.00	1.00	6.00	2.00	23.00	20.00	57.00	50.00	1.7
MO 64 Polk Shoulder improvements and rumble stripes (9P2261B)	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	17.00	15.00					13.00	17.00	30.00	32.00	-0.9
RT DD Webster Shoulder improvements and rumble stripes (9P2261D)	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	6.00	15.00			1.00	1.00	5.00	4.00	12.00	20.00	0.2
9P2261E Greene Shoulder improvements and rumble stripes (9P2261E)	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	16.00	16.00	2.00	2.00	2.00	5.00	7.00	13.00	27.00	36.00	-2.7
MO 34 Bollinger Shoulder improvements and rumble stripes (0P0922)	Other Principle Arterial	Roadway	Rumble strips - edge or shoulder											0
MO 51 Bollinger Shoulder improvements and rumble stripes (0S2262)	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	52.00	33.00	1.00		4.00	1.00	11.00	13.00	68.00	47.00	3
US 61 New Madrid Shoulder improvements and rumble stripes (0S2287)	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	61.00	80.00	1.00	2.00	8.00	10.00	34.00	23.00	104.00	115.00	-66.3
IS 55 Scott Install guardcable from IS 57 to Arkansas State Line (9P2263)	Interstate	Roadside	Barrier - cable	134.00	227.00	1.00	1.00	10.00	10.00	39.00	39.00	184.00	277.00	0
RT Y St Francois Shoulder improvements and rumble stripes (9P2261)	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	36.00	24.00	2.00	2.00	2.00	4.00	10.00	7.00	50.00	37.00	-0.4

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

Evaluation Results are based on a benefit/cost of the net reduction in crashes over the cost to implement the improvement.

The following crash costs were used in the evaluation (2015 Crash Costs in Missouri)

- Fatal = $5,026,924

2017 Missouri Highway Safety Improvement Program

- Serious Injury = $314,183
- Minor Injury = $81,687
- PDO Crash = $4,569

Overall, fatal crashes increased by 11 after these safety improvements were deployed. This could be due to the increase in aggressive driving behaviors on Missouri's roadways. That said, serious injury, minor injury, and pdo crashes all decreased after the safety improvements were installed. These reductions help to support the benefits that these safety devices have had for Missourians.

- Fatal = Increased by 11
- Serious Injury = Decreased by 102
- Minor Injury = Decreased by 358
- PDO Crash = Decreased by 713

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.

In November 2016, MoDOT hosted a peer exchange with local agencies to learn best practices for using HSIP on local roadways. Overall, Missouri has had historical success in reducing roadway fatalities and serious injuries due to the systemic approach used in the state.

Compliance Assessment

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

10/17/2016

What are the years being covered by the current SHSP?

From: 2016 To: 2020

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

2020

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

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

	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
MIRE NAME (MIRE NO.)	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	100								
Route/Street Name (9)	100	100								
Federal Aid/Route Type (21)	100	100								
Rural/Urban Designation (20)	100	100					100	100		
Surface Type (23)	100	30					100	30		
Begin Point Segment Descriptor (10)	100	100					100	100	100	100
End Point Segment Descriptor (11)	100	100					100	100	100	100
Segment Length (13)	100	100								
Direction of Inventory (18)	100	100								
Functional Class (19)	100	100					100	100	100	100
Median Type (54)	30	30								

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
Access Control (22)	100	20								
One/Two Way Operations (91)	100	20								
Number of Through Lanes (31)	100	30					100	20		
Average Annual Daily Traffic (79)	100	80					100	0		
AADT Year (80)	100	80								
Type of Governmental Ownership (4)	100	100					100	100	100	100
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)			100	100						
Intersection/Junction Traffic Control (131)			100	80						
AADT for Each Intersecting Road (79)			100	80						
AADT Year (80)			100	80						
Unique Approach Identifier (139)			100	100						
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				
Ramp Length (187)					100	100				
Roadway Type at Beginning of Ramp Terminal (195)					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
Roadway Type at End Ramp Terminal (199)					100	100				
Interchange Type (182)					100	100				
Ramp AADT (191)					100	100				
Year of Ramp AADT (192)					100	100				
Functional Class (19)					100	100				
Type of Governmental Ownership (4)					100	100				
Totals (Average Percent Complete):	**96.11**	**77.22**	**100.00**	**92.50**	**100.00**	**100.00**	**100.00**	**72.22**	**100.00**	**100.00**

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

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.

MoDOT will use several methods over the next several years to meet the requirements for the collection of FDE's on all public roads. MoDOT will prioritize these needs by addressing the Non-Local Paved roads data gaps first.

Surface Type/Number of Lanes/one-two way operations/access control/Median Type – These data items will be addressed through the cooperative program we have with our local authorities that ensures we have complete and correct geospatial network. As we continue these reviews in the future, we will ask them to provide these additional four items. Also, much of this data can be collected through other sources such as aerial photography and video logging. The targeted completion data for the collection and storage of this data is December 31, 2023.

The second priority will be the Local Paved Roads.

Surface Type/Number of through lanes – These items will be collected at the same time they are collected on Non-Local Paved roads. Since geospatial reviews include all public roads, this data will have already been collected.

AADT – it is estimated that an additional 80,000 traffic count locations will be needed to fulfill this requirement. Based on historical cost and practices, this will equate to an additional cost of $2 million annually. After a complete inventory of the other FDE's is available, a better estimate will be able to be established. The funding required to collect these additional volume counts will come at the expense of an equal value of safety improvements on the system. In addition, MoDOT has worked with several local agencies to "share" traffic data, but there has been little success. Few agencies collect traffic data in a manner that allows the calculation of AADT. Local government collect traffic data, often one time only, for specific purposes like signal timing. Local agencies do not have permanent sites or a history of short term counts available to create AADT's. We anticipate, with the additional investment of $2 million annually, the AADT data for Local Paved Roads could be completed by September 30, 2026.

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	Disabling	No	N/A	No	N/A	No
Crash Report Form Instruction Manual	Disabling	No	When observed at the scene, the person sustained non-fatal injuries that prevent walking, driving, or continuing activities the person was capable of performing prior to the crash. Transport by ambulance from the scene does not necessarily indicate the individual sustained disabling injuries.	No	Severe laceration Broken or distorted limb Skull or chest injury Abdominal injury Unconsciousness at or when taken from the crash scene Unable to leave the crash scene without assistance	No
Crash Database	Disabling	No	N/A	No	N/A	No
Crash Database Data Dictionary	Disabling	No	When observed at the scene, the person sustained non-fatal injuries that prevent walking, driving, or continuing activities the	No	Severe laceration Broken or distorted limb Skull or chest injury	No

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 *
			person was capable of performing prior to the crash. Transport by ambulance from the scene does not necessarily indicate the individual sustained disabling injuries.		Abdominal injury Unconsciousness at or when taken from the crash scene Unable to leave the crash scene without assistance	

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

The Missouri State Highway Patrol (MSHP) has already begun communicating with their staff and local law enforcement partners regarding upcoming changes to the crash report form and instruction manual in order to implement the new Suspected Serious Injury definition. MoDOT's crash database utilizes the same definition as what is used by the MSHP and will be updated concurrently with MSHP's rollout of the new definition.

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

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

Yes

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

The 2016 HSIP assessment highlighted the strengths and weaknesses of Missouri's HSIP process. Some of the best practices identified include:

- The ability to align its safety projects with other transportation improvements to save on costs and extend HSIP benefits.
- The flexibility for each district to program HSIP funds to projects that best suit the needs of their region.
- The systemic approach to safety improvements, which has been widely regarded as a best practice nationally.

One of the weaknesses of the current HSIP is a lack of safety improvements on local roads. Recognizing this issue, MoDOT hosted a peer exchange, in the fall of 2016, with Federal, State, and local agencies from a variety of states. Key takeaways from the peer exchange included:

- Strong relationships and partnerships between State and local agencies are key to successful HSIP local road safety policies.
- Local agencies and officials often need technical support or techinical guianace to overcome technical expertise barriers.
- Data driven and systemic safety improvement practices lend authority to project selection decisions and make it easier to work with stakeholders.
- Regional or county/parish safety plans can be a useful tool for guiding project selection and spending.
- Application and implementation procedures need to be documented but flexible enough to handle unique circumstances and needs.

Optional Attachments

Program Structure:

Project Implementation:

Safety Performance:

Evaluation:

Statewide Analysis of J-Turns.pdf

Compliance Assessment:

Glossary

5 year rolling average	means the average of five individuals, consecutive annual points of data (e.g. annual fatality rate).
Emphasis area	means a highway safety priority in a State's SHSP, identified through a data-driven, collaborative process.
Highway safety improvement project	means strategies, activities and projects on a public road that are consistent with a State strategic highway safety plan and corrects or improves a hazardous road location or feature or addresses a highway safety problem.
HMVMT	means hundred million vehicle miles traveled.
Non-infrastructure projects	are projects that do not result in construction. Examples of non-infrastructure projects include road safety audits, transportation safety planning activities, improvements in the collection and analysis of data, education and outreach, and enforcement activities.
Older driver special rule	applies if traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65 in a State increases during the most recent 2-year period for which data are available, as defined in the Older Driver and Pedestrian Special Rule Interim Guidance dated February 13, 2013.
Performance measure	means indicators that enable decision-makers and other stakeholders to monitor changes in system condition and performance against established visions, goals, and objectives.
Programmed funds	mean those funds that have been programmed in the Statewide Transportation Improvement Program (STIP) to be expended on highway safety improvement projects.
Roadway Functional Classification	means the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide.
Strategic Highway Safety Plan (SHSP)	means a comprehensive, multi-disciplinary plan, based on safety data developed by a State Department of Transportation in accordance with 23 U.S.C. 148.
Systematic	refers to an approach where an agency deploys countermeasures at all locations across a system.
Systemic safety improvement	means an improvement that is widely implemented based on high risk roadway features that are correlated with specific severe crash types.
Transfer	means, in accordance with provisions of 23 U.S.C. 126, a State may transfer from an apportionment under section 104(b) not to exceed 50 percent of the amount apportioned for the fiscal year to any other apportionment of the State under that section.