



MISSOURI

HIGHWAY SAFETY IMPROVEMENT PROGRAM 2020 ANNUAL REPORT



U.S. Department of Transportation
Federal Highway Administration

Photo source: Federal Highway Administration

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Disclaimer

Protection of Data from Discovery Admission into Evidence

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

23 U.S.C. 148(h)(4) states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section[HSIP], shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location identified or addressed in the reports, surveys, schedules, lists, or other data.23 U.S.C. 409 states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.”

Executive Summary

The Missouri Coalition for Roadway Safety and the Missouri Department of Transportation (MoDOT) are dedicated to improving safety of roadway users through education, engineering, enforcement and emergency medical services initiatives. Safety is one of MoDOT'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 and is regularly tracked and reviewed in MoDOT's performance management system.

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 Toward 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.

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 benefits are attained.

Missouri has experienced a decreasing trend in fatalities since 2016. In 2019, there were 880 fatalities and 4481 serious injuries on Missouri roadways. This decreasing trend could be attributed to the systemic initiatives and high benefit spot treatments being deployed as part of Missouri's HSIP program as well as other efforts to change the safety culture of Missouri's motorists, such as the Buckle Up/Phone Down campaign.

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 a three-year average of the number of fatalities and serious injuries occurring their areas. From there, each district identifies how their share of HSIP funds will be programmed in accordance with Missouri's SHSP and the latest safety research and 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. While Missouri's HSIP is lead by MoDOT, each project goes through a robust planning process and allows input from various stakeholders. Additionally, these projects are tied to strategies identified in the SHSP, which involved collaboration with various partners throughout the state.

Where is HSIP staff located within the State DOT?

Operations

MoDOT's Highway Safety and Traffic Division leads the HSIP reporting effort. MoDOT's District Traffic Offices facilitate the selection of HSIP projects and implement the HSIP program.

How are HSIP funds allocated in a State?

- Formula via Districts/Regions

MoDOT's Highway Safety and Traffic Division also have some HSIP funds distributed to them. In January of 2018, the Missouri Highways and Transportation Commission approved the use of a new formula for distributing safety funds to MoDOT's Districts. This new formula places more focus on areas where fatalities and serious injuries are occurring. This new distribution will take effect in 2021.

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

Crash data on local roadways are included in the Missouri Statewide Traffic Accident Records System (STARS) managed by the Missouri State Highway Patrol (MSHP). MoDOT uses this data to evaluate all roadways in the state and place emphasis on where severe crashes are occurring. This analysis is performed for both intersections and non-intersection locations. This analysis method places weight towards the locations

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that have experienced a higher frequency of severe crashes and are identified as a location of interest. While most locations are on state system roadways, there are local roadway locations that make these lists. While the majority of the severe crash problem is located on the state system, non-state system needs are also investigated. More than half of non-state system fatalities occur in seven counties (Jackson, Jefferson, Greene, Boone, St. Charles, St. Louis City, and St. Louis County). A few years ago, local strategic highway safety plans (SHSP) were developed for the top counties experiencing severe crashes. The local SHSPs identified systemic countermeasures and projects. We also communicate the locations of interest to planning entities like our Metropolitan Planning Organizations and Regional Planning Commissions.

Missouri's LTAP center continues to move safety forward. MoDOT has begun piloting a Safety Circuit Rider program through the LTAP center. This program provides a safety expert to work with local agencies that may not have the staff required to develop a local road safety plan or identify safety countermeasures for issues in their community.

Additionally, we have used Road Safety Assessments to investigate local road issues, a Transportation Engineering Assistance Program (TEAP) to assist local agencies, and the Missouri Coalition for Roadway Safety has a subcommittee 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.

- Design
- Districts/Regions
- Governors Highway Safety Office
- Maintenance
- Operations
- Planning
- Traffic Engineering/Safety

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. Collaboration continues to take place with the Design Division to update MoDOT's Engineering Policy Guide, the Maintenance Division to improve roadsides, and the Planning Division to better evaluate and select safety needs for improvements. Training opportunities are offered to the internal partners mentioned previously, in topics such as 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. FHWA's resource center provides training for MoDOT staff on a variety of areas associated with safety, such as HSM training, IHSDM training, and STEP training.

MoDOT has also established a process to report the safety benefits of all projects utilizing HSIP funds as part of an ongoing internal assessment of Missouri's HSIP program. This assessment is used as part of a vetting process for safety projects planned to be incorporated into the State Transportation Improvement Program.

Identify which external partners are involved with HSIP planning.

- Academia/University

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- FHWA
- Governors Highway Safety Office
- Law Enforcement Agency
- Local Government Agency
- Local Technical Assistance Program
- Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
- Other-National Highway Traffic Safety Administration
- Other-Federal Motor Carrier Safety Administration
- Other-Emergency Services, Department of Revenue, etc

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 spot treatment projects. We also work with Missouri's LTAP center to continue to move safety forward. MoDOT is currently piloting a Safety Circuit Rider program through the LTAP center.

Each project in Missouri has engagement with local agencies through MoDOT's planning framework, starting with locals identifying and prioritizing projects through MoDOT's regional process for programming into the STIP. MoDOT also collaborates with planning partners through monthly webinars, which include a safety update in each webinar. This is used to let partners know about safety issues, legislation, tools, challenges, opportunities, resources, up to date status on fatalities and trends, as well as safety target coordination.

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

MoDOT went through an internal audit of their District Safety Plans which are used to identify safety needs in their areas as well as identify potential projects to address these needs. A more streamlined approach to determining needs was established and additional focus was placed on data driven safety analysis and training.

MoDOT has hired a consultant to vet current processes to reporting on the safety benefits of all projects utilizing HSIP funds. This assessment will be used to promote consistency across the state as projects are assessed to be incorporated into the State Transportation Improvement Program.

MoDOT's Engineering Policy Guide has also been updated to include various thresholds for deploying low cost systemic safety treatments based on risk factors. These systemic treatments are to be deployed on any MoDOT project as work takes place across the state.

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

Safety impacts are assessed for any project utilizing HSIP funds. These are tracked in MoDOT's internal project management system. This system has been updated to incorporate data required for the annual HSIP report, including items such as improvement category, subcategory, and SHSP relationship. This will streamline the annual HSIP reporting process.

Program Methodology

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

No

MoDOT has an EPG article that outlines safety program guidelines.

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

Select the programs that are administered under the HSIP.

- Bicycle Safety
- Horizontal Curve
- Intersection
- Median Barrier
- Pedestrian Safety
- Roadway Departure
- Skid Hazard
- Wrong Way Driving
- Other-Work Zone Enforcement
- Other-MASH Upgrades
- Other-Stripe Retroreflectivity

MoDOT shares this program information with our local agency partners to help prioritize projects and assist with their safety efforts.

Program: Bicycle Safety

Date of Program Methodology: 10/1/2016

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes	Exposure	Roadway
<ul style="list-style-type: none">• All crashes• Fatal crashes only• Fatal and serious injury crashes only	<ul style="list-style-type: none">• Traffic• Volume	<ul style="list-style-type: none">• Functional classification

What project identification methodology was used for this program?

- Crash frequency

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- Probability of specific crash types

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

Yes

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

Yes

How are projects under this program advanced for implementation?

- 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).

Program: Horizontal Curve

Date of Program Methodology: 2/8/2013

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes	Exposure	Roadway
<ul style="list-style-type: none">• All crashes• Fatal and serious injury crashes only	<ul style="list-style-type: none">• Volume	<ul style="list-style-type: none">• Horizontal curvature

What project identification methodology was used for this program?

- Crash frequency
- Excess proportions of specific crash types
- Probability of specific crash types
- Relative severity index

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

Yes

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

Yes

How are projects under this program advanced for implementation?

- 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:2

Other-Severity Index:1

Program: Intersection

Date of Program Methodology:1/21/2009

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes

- All crashes
- Fatal and serious injury crashes only

Exposure

- Volume

Roadway

- Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Excess proportions of specific crash types
- Relative severity index

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

Yes

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

Yes

How are projects under this program advanced for implementation?

- 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:2

Other-Severity Index:1

Program: Median Barrier

Date of Program Methodology:9/27/2002

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes

- All crashes
- Fatal and serious injury crashes only

Exposure

- Volume

Roadway

- Median width
- Horizontal curvature
- Functional classification
- Roadside features

What project identification methodology was used for this program?

- Crash frequency
- Excess proportions of specific crash types
- Probability of specific crash types
- Relative severity index

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

Yes

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

Yes

How are projects under this program advanced for implementation?

- 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

Program: Pedestrian Safety

Date of Program Methodology:10/1/2016

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes

- All crashes

Exposure

- Traffic
- Volume

Roadway

- Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Probability of specific crash types

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

Yes

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

Yes

How are projects under this program advanced for implementation?

- 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

Ranking based on B/C:1

Program: Roadway Departure

Date of Program Methodology:10/1/2004

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes

- All crashes
- Fatal and serious injury crashes only

Exposure

- Volume only

Roadway

- Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Excess proportions of specific crash types
- Probability of specific crash types
- Relative severity index

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

Yes

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

Yes

How are projects under this program advanced for implementation?

- 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:2

Other-Severity Index:1

Program: Skid Hazard

Date of Program Methodology:2/8/2013

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes

- All crashes
- Fatal and serious injury crashes only
- Other-Wet pavement crashes

Exposure

Roadway

- Horizontal curvature

What project identification methodology was used for this program?

- Crash frequency
- Excess proportions of specific crash types
- Other-Wet/Dry Crash Ratio
- Relative severity index

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

Yes

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

Yes

How are projects under this program advanced for implementation?

- 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:0

Other-Wet/Dry Crash Ratio:1

Program: Wrong Way Driving

Date of Program Methodology:6/1/2017

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes

- All crashes
- Fatal and serious injury crashes only

Exposure

- Volume

Roadway

- Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Probability of specific crash types

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

No

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

How are projects under this program advanced for implementation?

- Competitive application process

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).

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Rank of Priority Consideration

Other-Systemic Safety Initiative:1

Program: Other-Work Zone Enforcement

Date of Program Methodology:10/1/2016

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes

- Fatal and serious injury crashes only

Exposure

- Traffic

Roadway

- Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Probability of specific crash types

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

No

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

How are projects under this program advanced for implementation?

- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:1

Program: Other-MASH Upgrades

Date of Program Methodology:10/1/2016

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Funding set-aside

What data types were used in the program methodology?

Crashes

Exposure

Roadway

- Roadside features

What project identification methodology was used for this program?

- Probability of specific crash types

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

No

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

How are projects under this program advanced for implementation?

- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:1

Program: Other-Stripe Retroreflectivity

Date of Program Methodology:10/1/2016

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Funding set-aside

What data types were used in the program methodology?

Crashes

Exposure

Roadway

- Lane miles

What project identification methodology was used for this program?

- Probability of specific crash types

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

No

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

How are projects under this program advanced for implementation?

- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:1

What percentage of HSIP funds address systemic improvements?

67

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

- Cable Median Barriers
- High friction surface treatment
- Horizontal curve signs
- Install/Improve Lighting
- Install/Improve Pavement Marking and/or Delineation
- Install/Improve Signing
- Pavement/Shoulder Widening
- Rumble Strips
- Upgrade Guard Rails
- Wrong way driving treatments

What process is used to identify potential countermeasures?

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

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.

Emphasis Area 1 of Missouri's Strategic Highway Safety Plan targets Serious Crash Types. In this emphasis area, six focus areas were identified.

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.

MoDOT is also actively pursuing the use of autonomous Truck Mounted Attenuators (TMAs) for mobile work zones. A pilot project is currently underway testing an autonomous TMA that follows a lead vehicle.

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 encouraged to be used when performing alternative analysis of safety countermeasures for particular projects. This often involves using crash modification factors from the CMF clearinghouse.

The HSM is also used to develop anticipated safety benefits for a project, which is used to both justify using safety funds and prioritizing the project.

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More recently, MoDOT developed a systemic evaluation tools for commonly used safety countermeasures. These tools provide information regarding the anticipated value that the systemic improvement may have, based on identified risk factors.

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

MoDOT continues to report the quantifiable safety benefits of all projects utilizing HSIP funds as part of an internal assessment of our HSIP program. This assessment is used as part of a vetting process for safety projects planned to be incorporated into the State Transportation Improvement Program. This process is currently under review by a consultant to improve accuracy and consistency in reporting amongst the various MoDOT districts.

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

MoDOT uses data driven safety analysis to identify the top crash types occurring in Missouri and developed a list of strategies focused on addressing these crash types. Additionally, MoDOT develops lists of various locations of interest that identify where there may be safety concerns based on various criteria, such as:

- High Severity Locations (Intersections/Range)
- Run Off Road Crash Locations (Curves and No Shoulders)
- Wet Crash Locations
- Crossed Centerline Crash Locations

Details regarding MoDOT's Safety Program can be found in MoDOT's Engineering Policy Guide 907.1.

Project Implementation

Funds Programmed

Reporting period for HSIP funding.

State Fiscal Year

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	\$31,982,000	\$56,197,139	175.71%
HRRR Special Rule (23 U.S.C. 148(g)(1))	\$0	\$0	0%
Penalty Funds (23 U.S.C. 154)	\$20,381,000	\$21,953,117	107.71%
Penalty Funds (23 U.S.C. 164)	\$0	\$0	0%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	\$0	\$0	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	\$0	\$0	0%
State and Local Funds	\$3,553,000	\$6,244,127	175.74%
Totals	\$55,916,000	\$84,394,383	150.93%

One of the reasons for the difference between the total programmed funds and obligated funds is due to MoDOT's retroreflectivity striping and guardrail upgrades programs. Estimates for these programs were not included in the programmed numbers above. However, they are included in the obligated number above.

Another item of note are the programmed and obligated 154 penalty (open container) funds. Given the fact that the federal fiscal year ends in September and the state fiscal year ends in June, there are some safety projects programmed with open container funds that could be obligated in the following state fiscal year.

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

0%

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

0%

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

2%

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

2%

The only non-infrastructure safety projects using HSIP funds are for work zone enforcement.

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%

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

The financial impact of COVID-19 has impacted Missouri's revenue. Transportation funding has been reduced, causing MoDOT to adapt by going to a month-to-month approval of projects. This is a significant change from the annual Statewide Transportation Improvement Program update that documents Missouri's planned safety projects. This temporary change in programming projects has also resulted in enhanced collaboration between the Planning, Financial Services, and Highway Safety and Traffic Divisions to ensure Missouri's HSIP is fully programmed.

MoDOT actively practices asset management to ensure the maintenance of the existing transportation network. Implementing new safety improvements that will add to the transportation system can be a challenge to fund in Districts that are unable to meet their asset management goals. It has been proposed to include HSIP projects into MoDOT's asset management process to ensure the safety improvements constructed will be able to be maintained into the future.

General Listing of Projects

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

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
1P3072, Pavement resurfacing from Rte. AC, in St. Joseph, to Rte. 31 near Clarksdale.	Roadway	Pavement surface miscellaneous	-	11.06 Miles	\$429000	\$1966000	HSIP (23 U.S.C. 148)	Urban	Major Collector	2,137	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
2P2211, Pavement resurfacing, add shoulders, and upgrade guardrail from 1.9 miles east of Rte. 41, near Dewitt, to Rte. 5 in Keytesville. \$175,000 Ope	Roadway	Pavement surface miscellaneous	-	17.437 Miles	\$825000	\$3826000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	1,664	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
1S3172, Pavement resurfacing and add rumblestrips from Rte. 136, at Ravenwood, to Rte. 169 in Grant City. \$844,000 Open Container funds.	Roadway	Rumble strips - edge or shoulder	-	24.175 Miles	\$1394000	\$3604000	Penalty Funds (23 U.S.C. 154)	Rural	Major Collector	1,974	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
2P3173, Modify intersection configuration and add right turn lane at Rte. F near Palmyra. \$501,000 Open Container funds.	Intersection geometry	Intersection geometrics - modify skew angle	1	Intersections	\$506000	\$506000	Penalty Funds (23 U.S.C. 154)	Rural	Principal Arterial-Other Freeways & Expressways	16,263	65	State Highway Agency	Spot	Intersections	Serious Crash Types
2P3171, Add median U-turn 0.4 mile north of Rte. A, modify intersections at Rte. A and Fifth Street and add right turn lane on southbound off ramp to	Access management	Median crossover - directional crossover	2	Intersections	\$1717000	\$1717000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	11,796	65	State Highway Agency	Spot	Intersections	Serious Crash Types

2020 Missouri Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
2P3214, Pavement resurfacing and add rumblestrips from the Iowa State line to Rte. 136 east junction at Memphis.	Roadway	Rumble strips - edge or shoulder	10.821	Miles	\$718000	\$1296000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	1,770	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
2P3264, On-call work zone enforcement at various locations in the Northeast District.	Non-infrastructure	Enforcement	1	Initiative	\$10000	\$10000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	50,000	55	State Highway Agency	Systemic	Work Zones	Special Roadway Environments
4P3212D, Grading to improve sight distance at Blinker Light Road near Harrisonville.	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	1	Intersections	\$860000	\$860000	HSIP (23 U.S.C. 148)	Urban	Major Collector	2,956	55	State Highway Agency	Spot	Intersections	Serious Crash Types
4S3205, Add roundabout at Parvin Road in Kansas City. \$700,000 city of Kansas City and \$802,000 Open Container funds.	Intersection traffic control	Modify control - all-way stop to roundabout	1	Intersections	\$875000	\$1575000	Penalty Funds (23 U.S.C. 154)	Urban	Minor Arterial	13,769	35	State Highway Agency	Spot	Intersections	Serious Crash Types
4I3325, Adding Wrong Way, Do Not Enter and One Way Signing at various ramp locations along I-29.	Roadway signs and traffic control	Roadway signs (including post) - new or updated	198	Signs	\$367000	\$367000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	107,219	70	State Highway Agency	Systemic	Intersections	Serious Crash Types
4I3125, Pavement resurfacing from the Kansas State line to Manchester Trafficway.	Roadway	Pavement surface - high friction surface	0.858	Miles	\$713000	\$8951000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	105,424	55	State Highway Agency	Spot	Lane Departure	Serious Crash Types
4P3214C, Signal upgrades to add flashing yellow arrows to portions of Rte. 24, Rte. 40 and Rte. 78 in the	Intersection traffic control	Modify traffic signal - add flashing yellow arrow	26	Intersections	\$722000	\$722000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	25,095	40	State Highway Agency	Systemic	Intersections	Serious Crash Types

2020 Missouri Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
urban Kansas City area.															
4P3295B, Add Wrong Way, Do Not Enter and One Way Signing to various ramp locations, not including I-70 and I-29.	Roadway signs and traffic control	Roadway signs (including post) - new or updated	526	Signs	\$526000	\$526000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	94,522	70	State Highway Agency	Systemic	Intersections	Serious Crash Types
3P3111, Pavement resurfacing and add new sections of guardrail from the Jackson County line to County Road 1501.	Roadside	Barrier- metal	0.708	Miles	\$20000	\$3392000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	27,745	65	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
3P3143, Add left turn lanes at Henkel Drive in Richmond.	Intersection geometry	Auxiliary lanes - add left-turn lane	1	Intersections	\$297000	\$297000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	6,997	60	State Highway Agency	Spot	Intersections	Serious Crash Types
3P3085C, Add left turn lanes at the intersection of Rte. O/Z.	Intersection geometry	Auxiliary lanes - add left-turn lane	1	Intersections	\$385000	\$385000	HSIP (23 U.S.C. 148)	Rural	Major Collector	6,260	60	State Highway Agency	Spot	Intersections	Serious Crash Types
3P3085D, Add left turn lanes at the intersection of Rte. 10.	Intersection geometry	Auxiliary lanes - add left-turn lane	1	Intersections	\$346000	\$346000	HSIP (23 U.S.C. 148)	Rural	Major Collector	4,985	60	State Highway Agency	Spot	Intersections	Serious Crash Types
3P3101, On-call work zone enforcement at various locations in the rural Kansas City District.	Non-infrastructure	Enforcement	1	Initiative	\$13000	\$13000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	50,000	55	State Highway Agency	Systemic	Work Zones	Special Roadway Environments
4I3192, On-call work zone enforcement at various locations in the urban Kansas City District.	Non-infrastructure	Enforcement	1	Initiative	\$170000	\$170000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	50,000	55	State Highway Agency	Systemic	Work Zones	Special Roadway Environments

2020 Missouri Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
5S3230, Pavement resurfacing and add rumblestrips from Rte. B to Rte. 50 and on Rte. E from Rte. 54 to Rte. B. \$326,000 Open Container funds.	Roadway	Rumble strips - edge or shoulder	13.6	Miles	\$2070000	\$3150000	HSIP (23 U.S.C. 148)	Rural	Major Collector	4,072	55	State Highway Agency	Systemic	Lane Departure	Serious Crash Types
5P3237, Pavement resurfacing and add rumblestrips from I-70 to Rte. 50.	Roadway	Rumble strips - edge or shoulder	25.3	Miles	\$2892000	\$4844000	HSIP (23 U.S.C. 148)	Rural	Major Collector	1,728	55	State Highway Agency	Systemic	Lane Departure	Serious Crash Types
5I3302, Safety improvements for wrong way countermeasures at various ramp locations.	Roadway signs and traffic control	Roadway signs and traffic control - other	240	Signs	\$558000	\$558000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	14,139	70	State Highway Agency	Systemic	Older Drivers	Vulnerable Roadway Users
5S3280, Pavement resurfacing and add rumblestrips from Rte. 42 to Rte. 133 in Crocker and pavement resurfacing on Rte. T from Rte. 133 to Rte. 17 near	Roadway	Rumble strips - edge or shoulder	15.4	Miles	\$1536000	\$3634000	HSIP (23 U.S.C. 148)	Rural	Major Collector	922	55	State Highway Agency	Systemic	Lane Departure	Serious Crash Types
5P3181, Add interchange and replace signals at Bagnell Dam Boulevard and Osage Hills Road. \$1,760,000 Open Container funds and \$115,694 Lake Ozark fund	Interchange design	Convert at-grade intersection to interchange	1	Access points	\$1760000	\$11728000	Penalty Funds (23 U.S.C. 154)	Rural	Principal Arterial-Other Freeways & Expressways	28,155	65	State Highway Agency	Spot	Intersections	Serious Crash Types
5S3266, Pavement resurfacing and add rumblestrips from 1.1 miles	Roadway	Rumble strips - edge or shoulder	13.1	Miles	\$1837000	\$3187000	Penalty Funds (23 U.S.C. 154)	Rural	Major Collector	783	55	State Highway Agency	Systemic	Lane Departure	Serious Crash Types

2020 Missouri Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
south of Rte. 52 in Versailles to Rte. Y in Miller County. \$1,837,000 Open Container															
5P3313, On-call work zone enforcement at various locations in the Central District.	Non-infrastructure	Enforcement	1	Initiative	\$63000	\$63000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	50,000	55	State Highway Agency	Systemic	Work Zones	Special Roadway Environments
6S3387, Pavement resurfacing, add shoulders upgrade guardrail, and replace culvert from Commercial Avenue to Mill Hill Road. \$948,000 Open Container f	Shoulder treatments	Widen shoulder - paved or other	6.06	Miles	\$948000	\$3649000	Penalty Funds (23 U.S.C. 154)	Urban	Major Collector	1,146	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
6P3246, Pavement resurfacing and adding turn lanes at Rte. EE intersection and east of Progress Parkway/Denmark Street to west of I-44. \$1,317,000 Ope	Intersection geometry	Auxiliary lanes - add left-turn lane	2.809	Miles	\$1317000	\$2469000	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial-Other	14,723	55	State Highway Agency	Spot	Intersections	Serious Crash Types
6I3389, Add southbound auxiliary lane from Rte. A to Rte. 67.	Intersection geometry	Auxiliary lanes - add auxiliary through lane	0.785	Miles	\$2013000	\$2887000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	62,400	70	State Highway Agency	Spot	Roadway Departure	Serious Crash Types
6S3390, Add J-turn from Rivermont Trail to 0.5 mile west and add acceleration lane from Local Hillsboro Road to 500 feet east. \$974,000 Open Container	Access management	Median crossover - directional crossover	0.57	Miles	\$974000	\$1059000	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial-Other	24,450	60	State Highway Agency	Spot	Intersections	Serious Crash Types

2020 Missouri Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
6S3395, Add chevrons to curves at various locations throughout Jefferson County.	Roadway signs and traffic control	Curve-related warning signs and flashers	345	Signs	\$283000	\$283000	HSIP (23 U.S.C. 148)	Urban	Local Road or Street	1,600	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
6S3328, Pavement resurfacing and adding shoulders from Rte. 370 to Burlington Northern Santa Fe Railroad crossing in Orchard Farm. \$652,000 Open Conta	Shoulder treatments	Widen shoulder - paved or other	5.59	Miles	\$652000	\$2298000	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial-Other	5,674	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
6S3300, Pavement resurfacing and adding shoulders from Rte. D in New Melle to Rte. 94 near Defiance. \$2,324,000 Open Container funds.	Shoulder treatments	Widen shoulder - paved or other	10.329	Miles	\$4246000	\$6646000	Penalty Funds (23 U.S.C. 154)	Urban	Major Collector	1,576	45	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
6I3020B, Roundabout at WB I-270 on ramp west of Graham, shoulder widening along I-270 and Chevron installation at various locations.	Intersection traffic control	Modify control - two-way stop to roundabout	4	Locations	\$3153000	\$25300000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	144,000	60	State Highway Agency	Systemic	Pedestrians	Vulnerable Roadway Users
6I3405, Adding signing and striping for wrong way counter-measures at various ramp locations throughout the St. Louis District.	Roadway signs and traffic control	Roadway signs (including post) - new or updated	550	Signs	\$666000	\$666000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	53,804	60	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
6S3258, Pavement resurfacing and	Intersection traffic control	Modify control - traffic signal to roundabout	3	Intersections	\$3000000	\$4443000	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial-Other	20,328	35	State Highway Agency	Systemic	Intersections	Serious Crash Types

2020 Missouri Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
safety improvements from St. Louis City limits to I-70. \$2,939,000 Open Container funds.															
6P3378, On-call work zone enforcement at various locations in the St. Louis District.	Non-infrastructure	Enforcement	1	Initiative	\$750000	\$750000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	50,000	55	State Highway Agency	Systemic	Work Zones	Special Roadway Environments
7P3120, Pavement resurfacing from south of Rte. 60 to the Arkansas State line and add turn lanes at various locations.	Intersection traffic control	Intersection flashers - add advance intersection warning sign-mounted	2	Approaches	\$749000	\$6806000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	12,053	60	State Highway Agency	Spot	Intersections	Serious Crash Types
7S3230, Pavement resurfacing and chevron signing from Rte. 65 to end of route.	Roadway signs and traffic control	Roadway signs (including post) - new or updated	15	Curves	\$38000	\$722000	HSIP (23 U.S.C. 148)	Rural	Major Collector	1,360	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
8P3096, Add lanes, sidewalk, and pedestrian signal on Jackson Street from 16th Street to 0.1 mile west of Rte. NN in Ozark. \$835,000 Open Container	Pedestrians and bicyclists	Pedestrian signal - modify existing	1	Intersections	\$835000	\$4068000	Penalty Funds (23 U.S.C. 154)	Urban	Minor Arterial	15,546	35	State Highway Agency	Spot	Pedestrians	Vulnerable Roadway Users
8I3146, Add safety signage for wrong way countermeasures at various ramp locations in the urban Southwest District.	Roadway signs and traffic control	Roadway signs (including post) - new or updated	121	Signs	\$225000	\$225000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	27,487	70	State Highway Agency	Systemic	Older Drivers	Vulnerable Roadway Users
7I3201, Pavement resurfacing and ramp lengthening	Interchange design	Extend existing lane on ramp	9	Ramps	\$1074000	\$5963000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	37,510	70	State Highway Agency	Systemic	Lane Departure	Serious Crash Types

2020 Missouri Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
from 1.2 miles east of Rtes. Z and O in Halltown to Rte. 360.															
8P3069B, Add safety signage for wrong way countermeasures at various ramp locations from 0.8 mile north of I-44 to Rte. F, on Rte. 60 from Rte. 125 to	Roadway signs and traffic control	Roadway signs (including post) - new or updated	282	Signs	\$738000	\$738000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	7,506	60	State Highway Agency	Systemic	Older Drivers	Vulnerable Roadway Users
7P3422, Add safety signage for wrong-way countermeasures at various locations in the rural Southwest District.	Roadway signs and traffic control	Roadway signs (including post) - new or updated	656	Signs	\$363000	\$363000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	3,257	60	State Highway Agency	Systemic	Older Drivers	Vulnerable Roadway Users
7I3343, Add safety signage for wrong way countermeasures at various ramp locations.	Roadway signs and traffic control	Roadway signs (including post) - new or updated	330	Signs	\$405000	\$557000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	23,538	70	State Highway Agency	Systemic	Older Drivers	Vulnerable Roadway Users
7I3208, On-call work zone enforcement at various locations in the rural Southwest District.	Non-infrastructure	Enforcement	1	Initiative	\$71000	\$71000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	50,000	55	State Highway Agency	Systemic	Work Zones	Special Roadway Environments
8I3108, On-call work zone enforcement at various locations in the urban Southwest District.	Non-infrastructure	Enforcement	1	Initiative	\$201000	\$201000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	50,000	55	State Highway Agency	Systemic	Work Zones	Special Roadway Environments
7P3265, Pavement resurfacing and add offset left turn lanes at various	Intersection geometry	Auxiliary lanes - add left-turn lane	2	Crossovers	\$711000	\$4836000	Penalty Funds (23 U.S.C. 154)	Rural	Principal Arterial-Other Freeways & Expressways	15,961	65	State Highway Agency	Spot	Intersections	Serious Crash Types

2020 Missouri Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
locations from 0.6 mile west of Rte. A to west of Rte. O in Wright County. \$711															
7P3272, Pavement resurfacing and add J-turns at various locations from Rte. VV in Rogersville to 0.6 mile west of Rte. A. \$1,327,000 Open Container funds	Intersection geometry	Intersection geometry - other	2	Crossovers	\$1907000	\$6076000	Penalty Funds (23 U.S.C. 154)	Rural	Principal Arterial-Other Freeways & Expressways	21,888	65	State Highway Agency	Spot	Intersections	Serious Crash Types
9P3460, Modify interchange configuration from Old Orchard Road to 0.2 mile south of Veteran's Memorial Drive. \$310,500 city of Cape Girardeau funds	Roadway	Roadway - other	1	Interchanges	\$4103000	\$10168000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	11,622	55	State Highway Agency	Systemic	Intersections	Serious Crash Types
9I3559, Add interchange lighting at Rte. B, Rte. 105, and Rte. 62/77 and Rte. 62 on I-55.	Roadway delineation	Roadway delineation - other	5	Locations	\$577000	\$577000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	903	55	State Highway Agency	Systemic	Intersections	Serious Crash Types
9I3572, Add interchange lighting at Rte. U and Rte. 84.	Roadway delineation	Roadway delineation - other	2	Locations	\$327000	\$327000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	1,957	55	State Highway Agency	Systemic	Intersections	Serious Crash Types
9S3519, Add rumblestrips from 0.25 mile south of National Guard Drive to I-55.	Roadway	Rumble strips - edge or shoulder	6.354	Miles	\$822000	\$822000	HSIP (23 U.S.C. 148)	Rural	Major Collector	394	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
9S3555, Add rumblestrips from Rte. H to Pendelton Road. \$875,000 Open Container funds.	Roadway	Rumble strips - edge or shoulder	5.231	Miles	\$875000	\$875000	Penalty Funds (23 U.S.C. 154)	Rural	Minor Collector	530	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types

2020 Missouri Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
9S3518, Add rumblestrips from Old Fredericktown Road to Rte. AA.	Roadway	Rumble strips - edge or shoulder	3.6	Miles	\$495000	\$495000	HSIP (23 U.S.C. 148)	Rural	Major Collector	2,112	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
9S3527, Add rumblestrips from Point View Drive to Rte. D. \$405,000 Open Container funds.	Roadway	Rumble strips - edge or shoulder	6.776	Miles	\$920000	\$920000	HSIP (23 U.S.C. 148)	Rural	Major Collector	2,841	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
9S3554, Add rumblestrips from Rte. N to Rte. 221. \$829,000 Open Container funds.	Roadway	Rumble strips - edge or shoulder	4.34	Miles	\$829000	\$829000	Penalty Funds (23 U.S.C. 154)	Rural	Major Collector	901	55	State Highway Agency	Systemic	Roadway Departure	Serious Crash Types
9P3492, On-call work zone enforcement at various locations in the Southeast District.	Non-infrastructure	Enforcement	1	Initiative	\$40000	\$40000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	50,000	55	State Highway Agency	Systemic	Work Zones	Special Roadway Environments

HSIP Project Costs include Open Container plus HSIP federal funds and state matching funds. Some projects included both Open Container and HISP funds. In those cases, whichever was the greater source of funding was selected as the Funding Category.

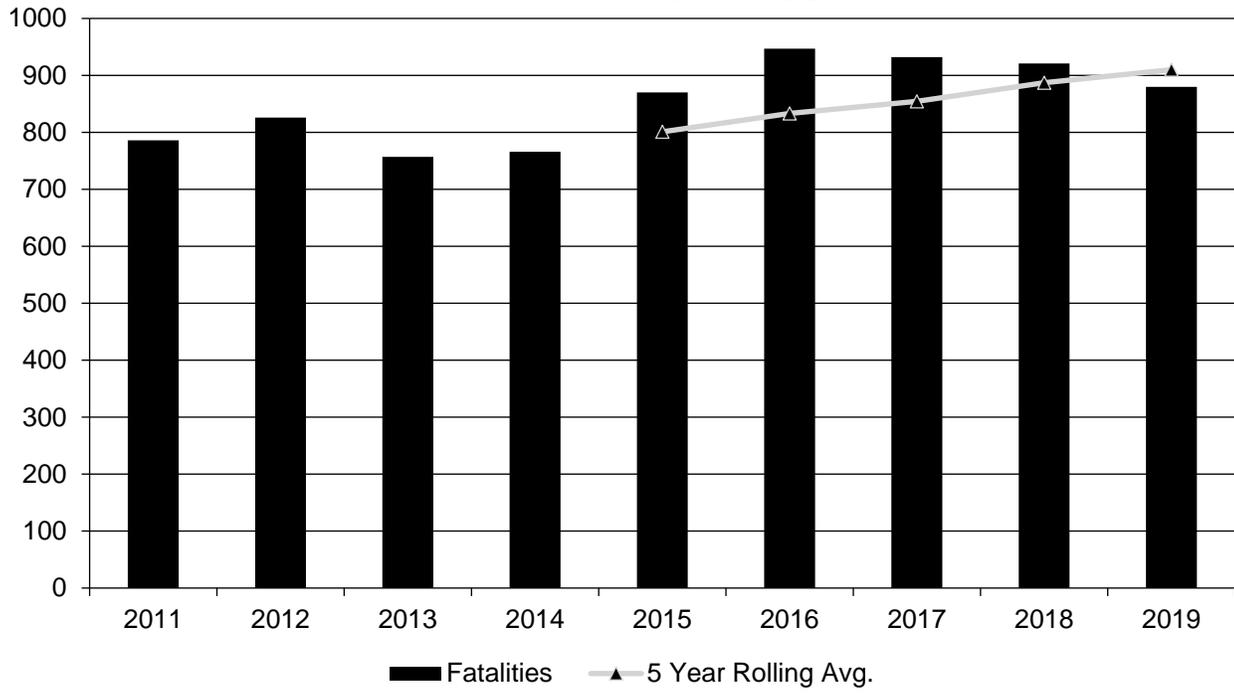
Safety Performance

General Highway Safety Trends

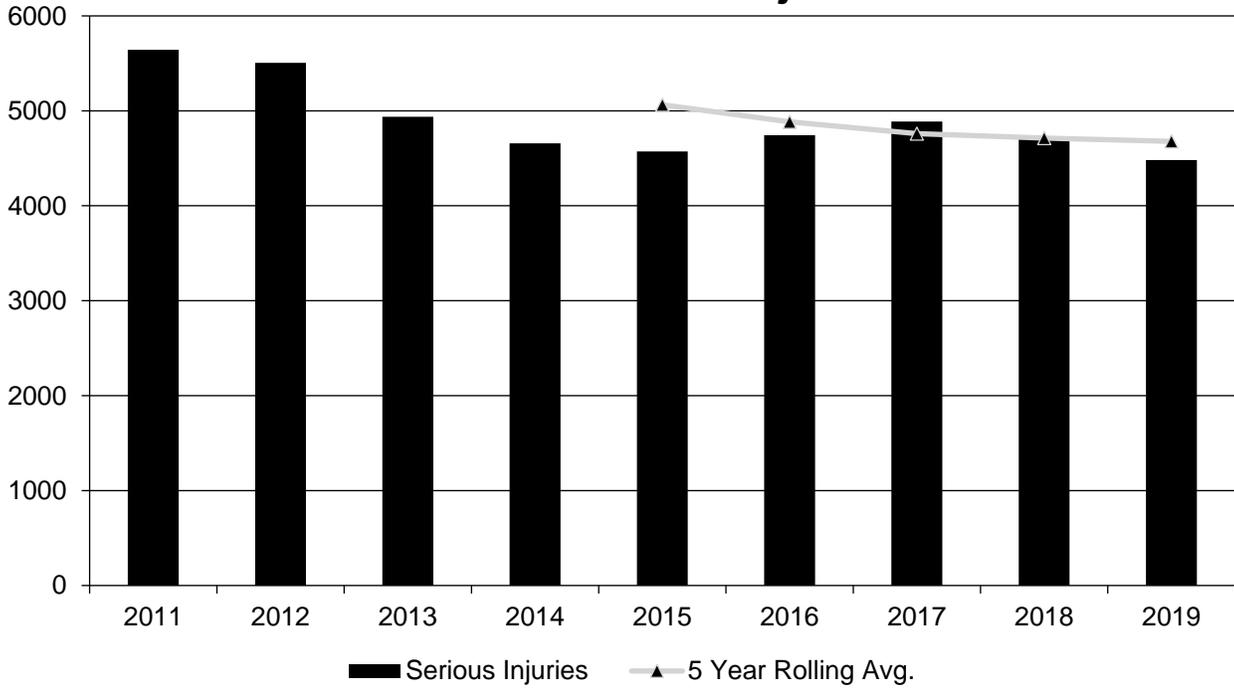
Present data showing the general highway safety trends in the State for the past five years.

PERFORMANCE MEASURES	2011	2012	2013	2014	2015	2016	2017	2018	2019
Fatalities	786	826	757	766	870	947	932	921	880
Serious Injuries	5,643	5,506	4,938	4,657	4,573	4,743	4,887	4,708	4,481
Fatality rate (per HMVMT)	1.143	1.208	1.092	1.080	1.210	1.271	1.228	1.211	1.118
Serious injury rate (per HMVMT)	8.203	8.049	7.123	6.565	6.360	6.365	6.438	6.190	5.690
Number non-motorized fatalities	77	94	81	76	117	113	113	105	127
Number of non-motorized serious injuries	402	329	367	332	319	356	358	343	388

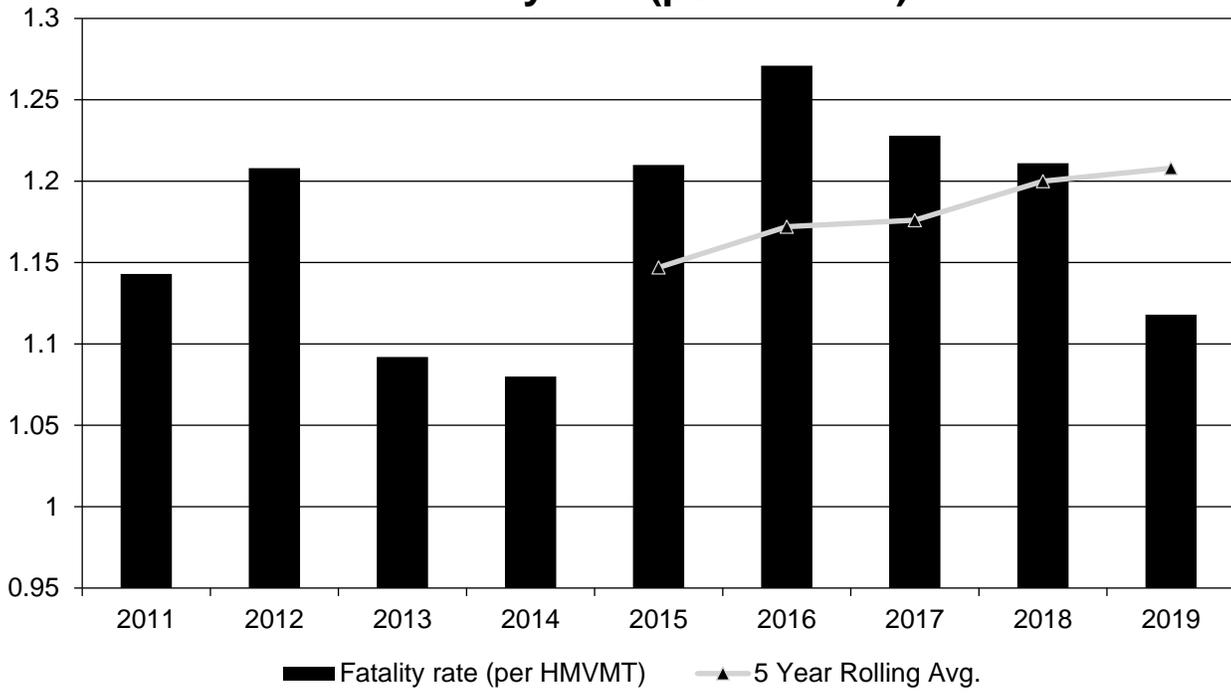
Annual Fatalities



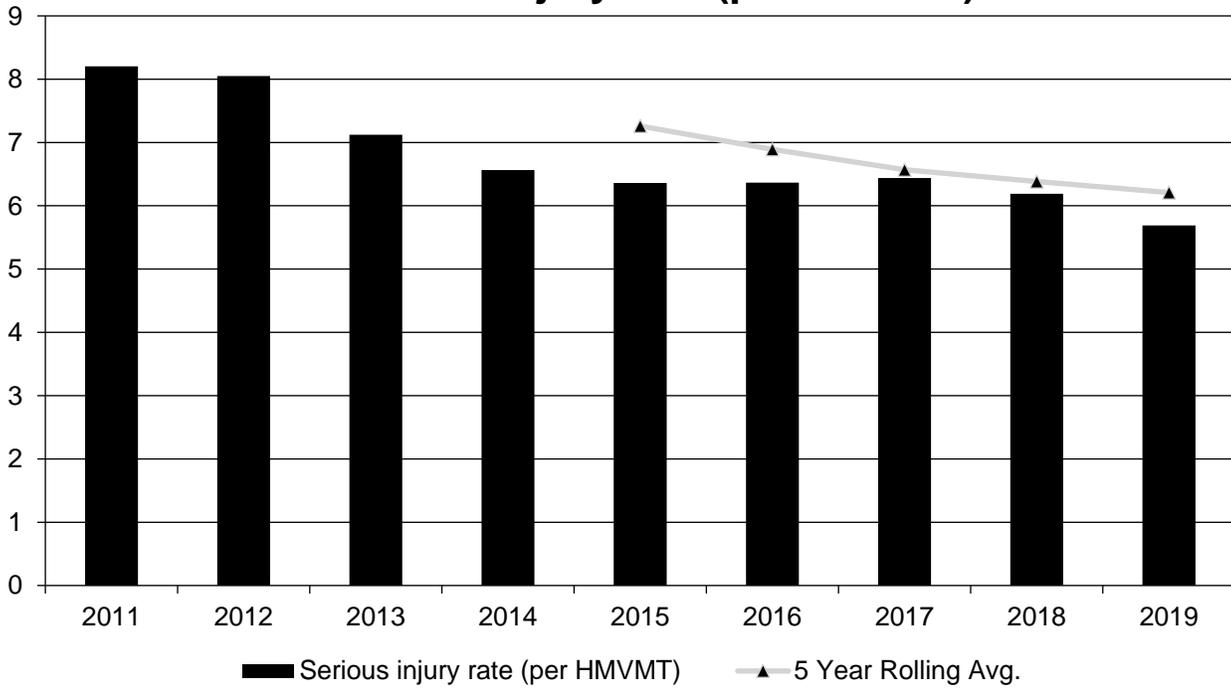
Annual Serious Injuries



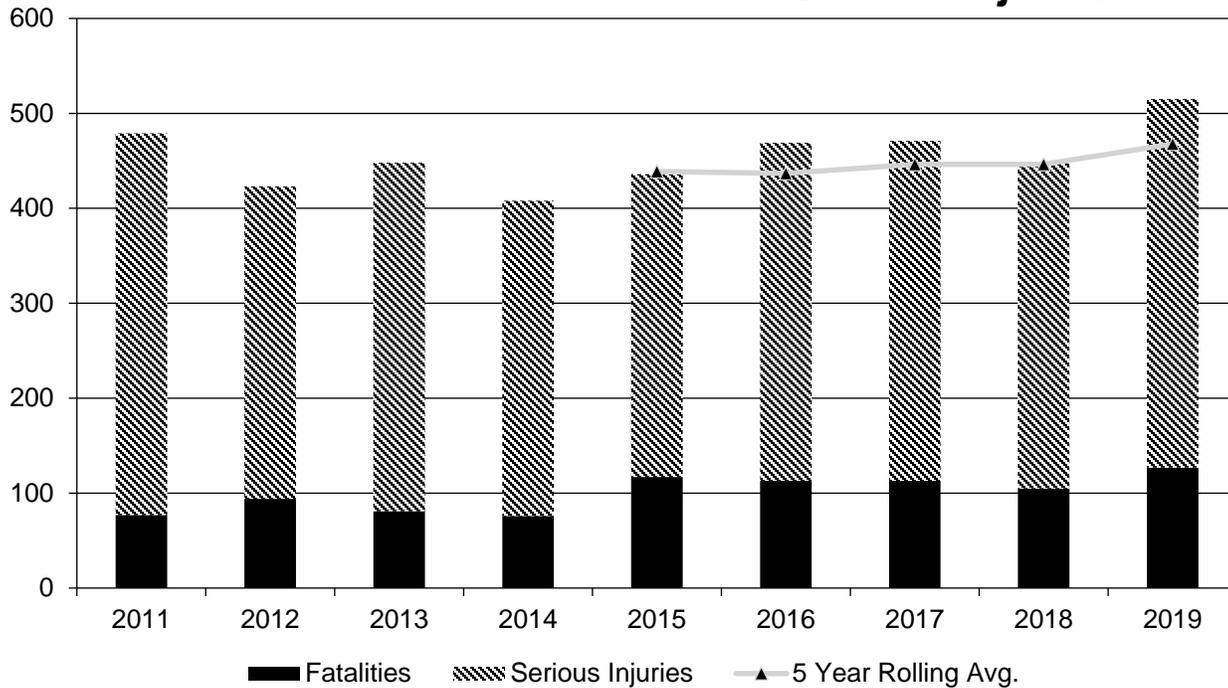
Fatality rate (per HMVMT)



Serious injury rate (per HMVMT)



Non Motorized Fatalities and Serious Injuries



In previous reports, low power electric bicycles were not included in the non-motorized fatalities and serious injuries. These motorized bikes that do not meet motorcycle status (such as mopeds) are now included in the non-motorized totals starting in the 2016 data. Data for this report was compiled in August 2020.

Describe fatality data source.

State Motor Vehicle Crash Database

The fatality information for 2019 was not published in FARS at the time of this report.

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

Year 2019

Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial (RPA) - Interstate	46.2	159.6	0.66	2.28
Rural Principal Arterial (RPA) - Other Freeways and Expressways	53.2	207.2	1.15	4.46
Rural Principal Arterial (RPA) - Other	67.6	231.6	1.94	6.68

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Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Minor Arterial	85.8	357.4	2.39	9.97
Rural Minor Collector	19	88.8	2.8	13.05
Rural Major Collector	147.4	602.4	2.93	11.96
Rural Local Road or Street	76.8	382.6	0.95	4.72
Urban Principal Arterial (UPA) - Interstate	91.2	416.2	0.64	2.91
Urban Principal Arterial (UPA) - Other Freeways and Expressways	52.2	248.2	0.97	4.58
Urban Principal Arterial (UPA) - Other	90.6	643.2	1.58	11.22
Urban Minor Arterial	93.8	668.2	1.47	10.46
Urban Minor Collector	3.4	25.2	5.48	34.82
Urban Major Collector	37	268.8	1.21	8.77
Urban Local Road or Street	45.2	379	0.6	4.98

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Year 2019

Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency				
County Highway Agency				
Town or Township Highway Agency				
City or 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				
State System	663.4	3,029.4	1.3	5.93
City & County	246.6	1,648.8	1.02	6.81

MoDOT has an improved ability to determine HMVMT per functional class. Thus, rates in previous years have been recalculated.

Sample size may be an issue with some of the rates due to low VMT for the functional classification.

Data for this report was compiled in August 2020.

Provide additional discussion related to general highway safety trends.

One of the areas that has shown significant improvement is the performance of rural major collectors. This functional class continues to show a steady decline in crashes over the last few years.

There have been over 100 non-motorized fatalities over the last 5 years and spiked last year to 127 fatalities. MoDOT has partnered with FHWA to organize Safe Transportation for Every Pedestrian (STEP) workshops to promote pedestrian safety initiatives.

MoDOT received additional funds from FHWA through an Accelerating Safety Activities Program (ASAP). These funds are to assist the development of the Missouri Systemic Countermeasures to Improve Pedestrian Safety (MoSCIPS) project. This effort would use data-driven safety analysis to develop guidance to prioritize and select pedestrian countermeasures specific to Missouri's conditions.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2021 Targets *

Number of Fatalities:871.6

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

Targets are based on an annual reduction needed to reach Zero fatalities by 2030. This reduction assumes larger decreases in future years as new safety technologies are implemented, such as autonomous vehicles. This target is in line with the SHSP to reduce the number of fatalities on Missouri's roadways.

Number of Serious Injuries:4463.9

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

Targets are based on an annual reduction needed to reach Zero serious injuries by 2040. This target is in line with the SHSP to reduce the number of serious injuries on Missouri's roadways.

Fatality Rate:1.119

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 performance 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:5.829

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 performance 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:462.2

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

The non-motorized fatalities and serious injuries performance target was based on the performance targets for number of fatalities (Zero by 2030) and number of serious injuries (Zero by 2040). An exception is made for instances where the baseline 5-year rolling average (2015-2019) is less than the calculated target. In this instance, the baseline is less than the calculated performance target, and so the baseline was used as the target. This target is in line with the SHSP to reduce the number of fatalities and serious injuries on Missouri's roadways.

Performance Measures for Fatalities, Fatality Rate, and Serious Injuries were set based on what was reported in the Highway Safety Plan.

Performance Measures for Serious Injury Rate and Non-Motorized Fatalities and Serious Injuries were set based on crash data available in August 2020 for use in the Highway Safety Improvement Program Annual Report.

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

Missouri's Highway Safety Office is located within MoDOT which promotes a collaborative environment between engineering and safety staff. MoDOT updated its Strategic Highway Safety Plan (SHSP) using a collaborative, team approach. The team included external partners from emergency management, FHWA, FMCSA, hospitals, law enforcement, Missouri Department of Revenue, MPOs, NHTSA, Regional Planning Commissions (RPCs), and universities. Revisions to the SHSP were shared periodically with the MPOs and RPCs.

Extensive coordination occurred between FHWA, MoDOT, MPO, and NHTSA staff when setting the Safety Targets. Missouri safety data was reviewed for trends, along with assumptions and challenges. MoDOT conducts monthly calls with planning stakeholders. In 2016, a target coordinating process was presented with feedback and consensus from the MPOs. In March, 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, and NHTSA. After review of feedback from partner groups, the methods and assumptions used to develop the performance targets were finalized in April. 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

Describe progress toward meeting the State's 2019 Safety Performance Targets (based on data available at the time of reporting). For each target, include a discussion of any reasons for differences in the actual outcomes and targets.

PERFORMANCE MEASURES	TARGETS	ACTUALS
Number of Fatalities	872.3	910.0
Number of Serious Injuries	4433.8	4678.4
Fatality Rate	1.160	1.208

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Serious Injury Rate	6.168	6.209
Non-Motorized Fatalities and Serious Injuries	445.4	467.8

Based on the data available at the time of reporting, the actual 2019 performance was worse than the 2019 targets, for each of the safety performance targets. This is primarily due to an increase in fatalities and serious injuries which occurred within the 5 year average reporting period. This is consistent with what was experienced nationally during this timeframe, meaning there were external factors, beyond the HSIP program, that were influencing the increase in fatalities. Fatalities reached a low point in 2013 with 757 fatalities and climbed to 947 in 2016. A similar increasing trend occurred for serious injuries which climbed from 4573 in 2015 to 4887 in 2017. This increasing trend in fatalities and serious injuries has since been halted and Missouri is now seeing a decreasing number of fatalities and serious injuries. This decreasing trend could be attributed to the systemic initiatives and high benefit spot treatments being deployed as part of Missouri's HSIP program as well as other efforts attempting to change the safety culture of Missouri's motorists.

It should be noted that as of August 2020, fatalities are higher compared to this same point last year. MoDOT is looking into some of the contributing factors for this increase and will collaborate with the Missouri Coalition for Roadway Safety to reverse this rising trend.

Applicability of Special Rules

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

No

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

PERFORMANCE MEASURES	2013	2014	2015	2016	2017	2018	2019
Number of Older Driver and Pedestrian Fatalities	110	120	137	154	135	143	120
Number of Older Driver and Pedestrian Serious Injuries	352	355	361	367	369	426	376

Data for this report was compiled in August 2020.

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

- Benefit/Cost Ratio
- Change in fatalities and serious injuries
- Lives saved
- Other-Evaluation of individual HSIP projects and programs

MoDOT reports on the safety benefits, such as benefit/cost ratio and lives saved, of all projects utilizing HSIP funds as part of an internal assessment of their HSIP program. This assessment is used as part of a vetting process for safety projects planned to be incorporated into the State Transportation Improvement Program.

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. One systemic strategy evaluated was the implementation of chevrons on curves where advisory speeds are at least 15 mph less than posted speeds. Between 2014 and 2018, horizontal curve fatalities and serious injuries on minor roads decreased from 622 to 513.

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

- HSIP Obligations

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

There are other success indicators that MoDOT has seen some improvement but they are not currently being reported on. These indicators include:

- # of RSAs completed
- Increased awareness of safety and data-driven process
- Increased focus on local road safety
- More systemic programs

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

MoDOT performed an internal audit of the planning process District's use to identify safety projects. The audit identified several areas to streamline the process and place additional emphasis in coordination, evaluation, and training efforts.

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Missouri's Safety Circuit Rider Program (SCR) is now underway. Funded by FHWA with a State Transportation Innovation Councils (STIC) Incentive Program grant, the SCR will provide assistance in identifying local safety concerns and implementing low-cost counter measures. The program also aims to provide guidance in applying for additional funding where warranted to Local Public Agencies (LPA) with limited or no in-house transportation safety engineering resources.

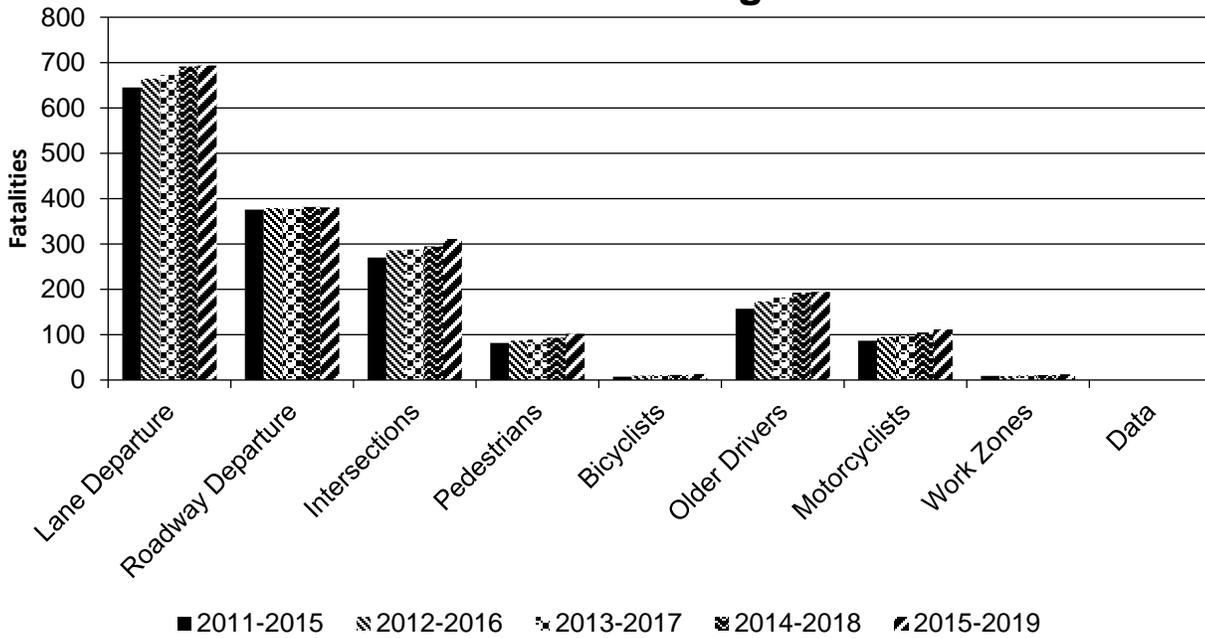
Effectiveness of Groupings or Similar Types of Improvements

Present and describe trends in SHSP emphasis area performance measures.

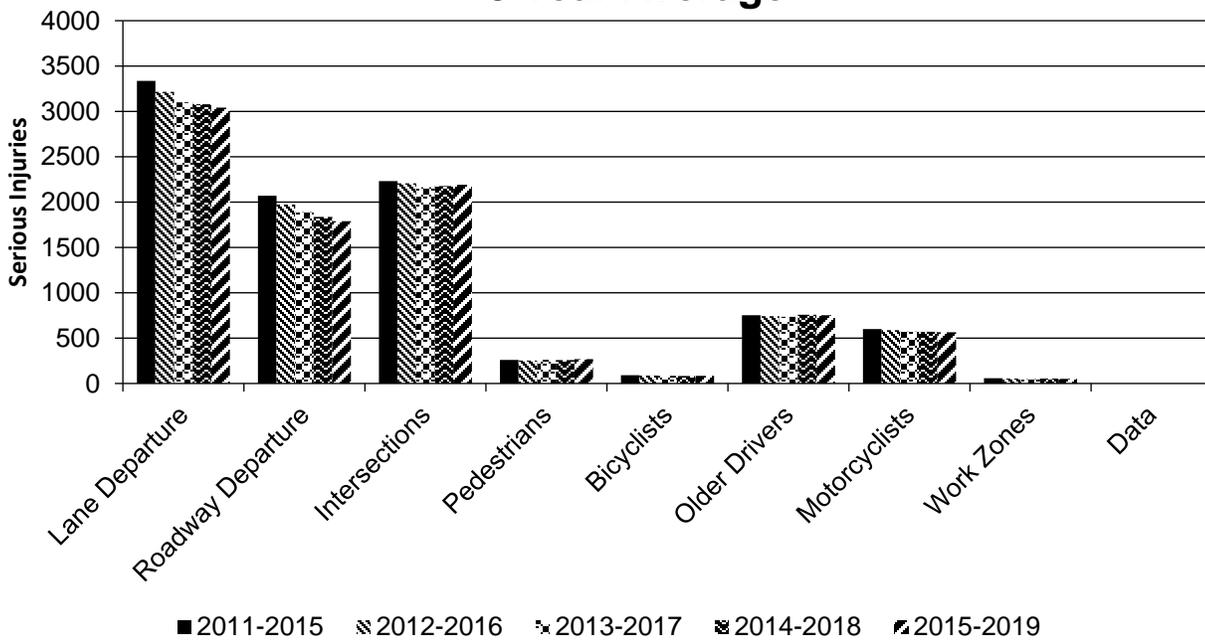
Year 2019

SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Lane Departure		693.4	3,041	0.92	4.04
Roadway Departure		380.8	1,788.8	0.51	2.38
Intersections		311.2	2,190.6	0.41	2.91
Pedestrians		101.8	269.2	0.13	0.36
Bicyclists		13.2	83.6	0.02	0.11
Older Drivers		194.2	752	0.26	1
Motorcyclists		111.6	564.2	0.15	0.75
Work Zones		12.8	50.8	0.02	0.07
Data		0	0	0	0

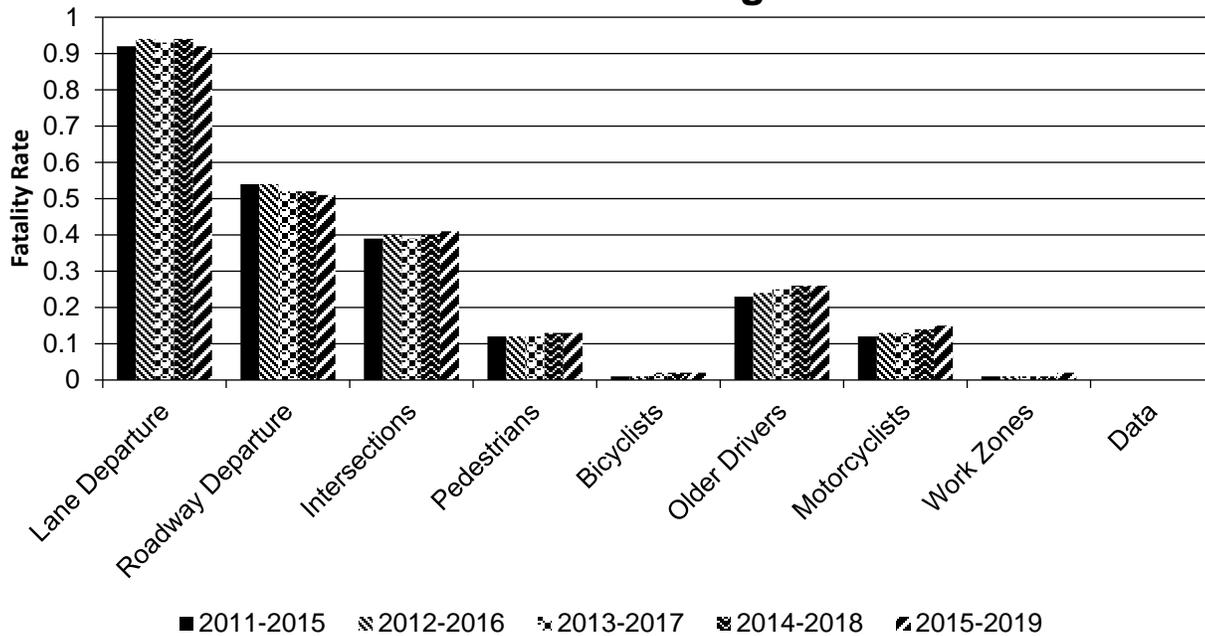
Number of Fatalities 5 Year Average



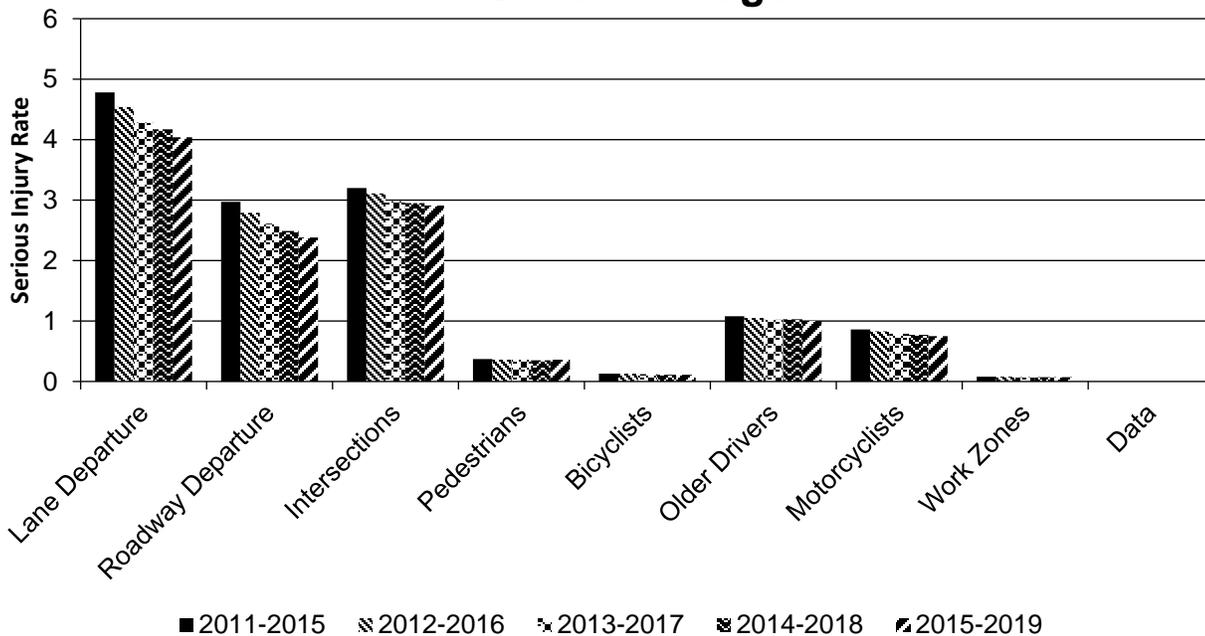
Number of Serious Injuries 5 Year Average



Fatality Rate (per HMVMT) 5 Year Average



Serious Injury Rate (per HMVMT) 5 Year Average



Data for this report was compiled in August 2020.

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

No

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An internal assessment of J-turns (RCUTs) is currently taking place. This effort was undertaken to update expectations for crash impacts when communicating with the public. Results are still preliminary. An initial read of the data appears to confirm the high reductions in fatal and serious injuries associated with this design. The data also appears to show an increase in PDO crashes.

Project Effectiveness

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

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
1S3038, Resurfacing and shoulder improvements from Rte. 169 to Rte. 371 near St. Joseph.	Urban Minor Arterial	Roadway	Pavement surface miscellaneous -	22.00	26.00				6.00	13.00	9.00	35.00	41.00	-7.2465
1S3081, Install pedestrian warning light at the intersection with Gordon Street in St. Joseph.	Urban Principal Arterial (UPA) - Other	Pedestrians and bicyclists	Pedestrian warning signs - add/modify flashers								1.00		1.00	-9.525
1P3027, Resurfacing and shoulder improvements from Rte. 31, north intersection, to Rte. 69 near Altamont.	Rural Minor Arterial	Roadway	Pavement surface miscellaneous -	23.00	23.00		1.00	1.00	7.00	12.00	1.00	36.00	32.00	-14.0247016706444
1P2223, Job Order Contracting for guard cable and guardrail repair on major routes in the Northwest District.	Urban Principal Arterial (UPA) - Other	Roadside	Barrier - cable											0
2P0782C, Pavement and shoulder improvements from east of Rte. 149 at the Chariton River to Bus. Rte. 63 in Kirksville.	Rural Principal Arterial (RPA) - Other	Shoulder treatments	Widen shoulder - paved or other	2.00	1.00			1.00	1.00	3.00		6.00	2.00	0.755573505654281

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LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
3P2151B, Pavement and shoulder improvements from Rte. DD in Lewis County to 0.2 mile west of Rte. 61 in Marion County near Taylor.	Rural Principal Arterial (RPA) - Other	Shoulder treatments	Widen shoulder - paved or other	13.00	10.00	2.00			4.00	3.00	1.00	18.00	15.00	579.074193548387
2L1500M, High friction surface treatment on curve 0.2 mile north of Rte. BB near Troy.	Rural Major Collector	Roadway	Pavement surface - high friction surface											0
2S3001, Pavement and shoulder improvements from Rte. J to 0.7 mile west of Rte. 61 near Moscow Mills. Includes pavement improvements on Rte. 61 west o	Rural Major Collector	Shoulder treatments	Widen shoulder - paved or other	9.00	8.00				1.00	1.00	5.00	10.00	14.00	-1.07864344637947
3L1500B, Thin lift overlay and shoulder improvements from 0.3 mile south of Rte. UU to roundabout in Bowling Green.	Rural Minor Arterial	Shoulder treatments	Widen shoulder - paved or other		1.00						1.00		2.00	-6.03333333333333
3P3026, Shoulder improvements from Rte. 50 to Rte. V.	Rural Major Collector	Shoulder treatments	Widen shoulder - paved or other	13.00	14.00			2.00		5.00	8.00	20.00	22.00	0.618435251798561
4P2395B, Addition of	Rural Minor Arterial	Shoulder treatments	Widen shoulder - paved or other	11.00	6.00	1.00		1.00	1.00	2.00	8.00	15.00	15.00	26.8466076696165

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LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
shoulder and pavement improvements from the Henry County Line to Rte. 65.														
4I2353, Pavement improvements from the Kansas State line to I-29.	Urban Principal Arterial (UPA) - Interstate	Roadside	Barrier - cable	4.00	5.00				1.00	1.00	2.00	5.00	8.00	-5.65343511450382
4P2395, Pavement improvements from Rte. O to Rte. 240 and Rte. 240 from Rte. 41 to the Missouri River Bridge.	Rural Major Collector	Shoulder treatments	Widen shoulder - paved or other	24.00	19.00		1.00	4.00		12.00	12.00	40.00	32.00	-14.9011764705882
5P3078, Safety improvements from west of Rte. FF to east of County Road 148.	Rural Principal Arterial (RPA) - Other Freeways and Expressways	Access management	Change in access - close or restrict existing access	15.00	10.00			5.00	2.00	3.00	4.00	23.00	16.00	1.13891213389121
5L1500D, Pavement and shoulder improvements from Rte. 54 to state maintenance ends. Includes pavement improvements on Rte. D and Rte. J in Camden Coun	Rural Minor Collector	Roadway	Rumble strips - edge or shoulder	13.00	10.00			6.00	1.00	7.00	2.00	26.00	13.00	21.2832369942197
5S3012, Pavement and shoulder improvements from I-70 to Rte. O in California.	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	46.00	31.00	3.00		8.00	4.00	14.00	8.00	71.00	43.00	14.200341442595

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LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
5P3017, Pavement and shoulder improvements from Hermann to Drake.	Rural Arterial Minor	Roadway	Rumble strips - edge or shoulder	46.00	37.00	1.00	2.00	7.00	1.00	15.00	12.00	69.00	52.00	-7.12829736211031
5S3006C, Pavement and shoulder improvements from Lebanon to Rte. P in Long Lane.	Rural Arterial Minor	Roadway	Rumble strips - edge or shoulder	33.00	28.00			8.00	2.00	16.00	13.00	57.00	43.00	2.78229531140658
5S3006D, Pavement and shoulder improvements from Bennett Springs to Rte. 5.	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	26.00	41.00		4.00	3.00	2.00	18.00	15.00	47.00	62.00	-42.6413566739606
5L1500C, Pavement and shoulder improvements from Eldon to state maintenance ends in Morgan County.	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	22.00	19.00			7.00	3.00	12.00	12.00	41.00	34.00	2.70161476355248
5P3016, Pavement and shoulder improvements from Rte. 52 north junction to Iberia.	Rural Arterial Minor	Roadway	Rumble strips - edge or shoulder	24.00	23.00	2.00	1.00	1.00	2.00	10.00	3.00	37.00	29.00	9.27526595744681
5S3013, Pavement and shoulder improvements from Rte. 54 to Rte. 17.	Rural Arterial Minor	Roadway	Rumble strips - edge or shoulder	14.00	9.00	2.00		1.00	1.00	4.00	4.00	21.00	14.00	28.0594101123596
5P2235B, Grading, paving and curve	Rural Major Collector	Alignment	Horizontal curve realignment	2.00		1.00		1.00			1.00	4.00	1.00	8.9426116838488

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LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
improvements near the BNSF Railroad.														
5P2235C, Safety improvements on the eastbound lanes near Rte. J and Rte. V.	Rural Principal Arterial (RPA) - Interstate	Roadway	Pavement surface - high friction surface	60.00	17.00			4.00		12.00	2.00	76.00	19.00	18.1622881355932
5S3006B, Pavement and shoulder improvements from Franklin County to Rte. 21.	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	16.00	21.00	1.00	1.00	4.00	3.00	17.00	19.00	38.00	44.00	0.237756202804746
6S2194, Pavement, shoulder and curve improvements from Rte. 100 to Rte. 47.	Urban Minor Arterial	Shoulder treatments	Shoulder treatments - other	120.00	103.00			7.00	3.00	26.00	29.00	153.00	135.00	0.836599423631124
6S2227, Intersection improvements at Rte. MM in Gray Summit.	Urban Principal Arterial (UPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	10.00	8.00	1.00				7.00		18.00	8.00	25.287643020595
6S2228, Safety improvements at various locations on Rte. T and Rte. V.	Urban Major Collector	Roadside	Barrier- metal	79.00	107.00	4.00	1.00	18.00	11.00	47.00	35.00	148.00	154.00	59.0139767054908
3S2009L, Pavement, shoulder and curve improvements from east of I-55 to Rte. A.	Urban Minor Arterial	Shoulder treatments	Shoulder treatments - other	140.00	170.00			2.00	7.00	42.00	42.00	184.00	219.00	-2.57723250201126

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LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
6S3011, Pavement, shoulders and curve improvements from Rte. 109 to Rte. F.	Urban Major Collector	Shoulder treatments	Shoulder treatments other -	52.00	25.00	1.00		5.00		15.00	4.00	73.00	29.00	10.9632124352332
6S3019, Pavement, shoulders, and curve improvements from Rte. 30 to Rte. 21.	Urban Minor Arterial	Shoulder treatments	Shoulder treatments other -	126.00	123.00	2.00	2.00	10.00	10.00	59.00	44.00	197.00	179.00	0.646443514644352
6S3021, Pavement, shoulder, and curve improvements from Twin Rivers Road to Rte. 30.	Urban Major Collector	Shoulder treatments	Shoulder treatments other -	71.00	48.00		1.00	11.00	12.00	8.00	5.00	90.00	66.00	-11.5109941520468
3S2009K, Shoulder and curve improvements from Rte. H/Rte. 94 intersection to Rte. H/J intersection.	Urban Major Collector	Shoulder treatments	Shoulder treatments other -	43.00	25.00	1.00	1.00	4.00	2.00	20.00	15.00	68.00	43.00	35.1066666666667
6S2192C, Pavement, shoulder and curve improvements from Rte. Z to Rte. 94.	Urban Minor Arterial	Shoulder treatments	Shoulder treatments other -	63.00	115.00	1.00	2.00	4.00	5.00	23.00	21.00	91.00	143.00	-9.7572850678733
6S2310B, Pavement, shoulder and curve improvements from 2 miles north of Rte. D to Rte. 94.	Urban Major Collector	Shoulder treatments	Shoulder treatments other -	28.00	24.00	1.00		1.00		12.00	5.00	42.00	29.00	6.62274019329164

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LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
6S2322, Pavement and shoulder improvements from I-70 to Rte. D.	Urban Minor Arterial	Shoulder treatments	Shoulder treatments - other	83.00	163.00	2.00	1.00	5.00	3.00	28.00	24.00	118.00	191.00	7.13960655737705
6S2328, Pavement, shoulder, and curve improvements from Rte. Z to Sommers Road.	Urban Major Collector	Shoulder treatments	Shoulder treatments - other	99.00	143.00	2.00		5.00	6.00	31.00	39.00	137.00	188.00	6.77152165580682
6S3018, Pavement, shoulder, and curve improvements from Rte. T to Rte. Z.	Urban Minor Arterial	Shoulder treatments	Shoulder treatments - other	29.00	53.00		1.00		1.00	9.00	13.00	38.00	68.00	-4.12973560304238
6S3028, Shoulder and curve improvements from Rte. T to Rte. Z.	Urban Major Collector	Shoulder treatments	Shoulder treatments - other	43.00	42.00	2.00	1.00	4.00	3.00	20.00	18.00	69.00	64.00	5.6896750524109
6I3108, High friction surface treatment on westbound Rte. 364 to southbound I-270 ramp and eastbound Rte. 364 to northbound I-270 ramp.	Urban Principal Arterial (UPA) - Interstate	Roadway	Pavement surface - high friction surface	21.00	32.00			2.00	1.00	6.00	9.00	29.00	42.00	0.238095238095238
6P2291, Installation of lighting facilities at Fine Road.	Urban Principal Arterial (UPA) - Other	Lighting	Intersection lighting	6.00	3.00					1.00	1.00	7.00	4.00	0.318181818181818
6S2046B, Intersection improvements	Urban Minor Arterial	Intersection traffic control	Modify control - two-way stop to roundabout	12.00	18.00					2.00	1.00	14.00	19.00	0.174609375

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LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
at Pond Grover Loop.														
8S2277, Pavement improvements on various sections from County Road 194 to Rte. 14.	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	4.00	3.00			2.00		3.00	2.00	9.00	5.00	5.49291666666667
8S2414, Safety improvements 0.8 mile west of Nixa.	Urban Minor Arterial	Roadway	Roadway widening - curve	5.00	3.00			3.00		2.00	2.00	10.00	5.00	6.40182481751825
8S2416, Safety improvements 1 mile east of Rte. N.	Rural Minor Arterial	Roadway	Roadway widening - curve	3.00				1.00		2.00	1.00	6.00	1.00	3.2271186440678
8S2443, Pavement improvements on various sections from 1.6 miles west of Rte. M to 0.2 mile west of Rte. M in Nixa.	Urban Minor Arterial	Roadway	Rumble strips - edge or shoulder	2.00				2.00		1.00		5.00		26.576
7P3022, Safety improvements on various sections from Rte. 65 to Rte. 64A.	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	4.00	2.00					2.00	2.00	6.00	4.00	0.025
8P2290, Replace nonstandard guardrail, installation of guardrail, guard cable and/or access restraint cable at various locations	Rural Principal Arterial (RPA) - Other Freeways and Expressways	Roadside	Barrier - cable		4.00								4.00	-0.28

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LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
between Rte. EE and t														
8S2465, Pavement improvements on various sections from east of Rte. 65 to Rte. P.	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	8.00	4.00		3.00			4.00	7.00	12.00	14.00	-86.090625
7P3020C, Safety improvements on the James River Freeway westbound ramp to I-44.	Rural Principal Arterial (RPA) - Other Freeways and Expressways	Roadway	Pavement surface - high friction surface											0
8P2265, Pavement improvements on various sections from Rte. 744 (Mulroy Road) to 0.2 mi. east of County Road 249.	Urban Major Collector	Roadway	Rumble strips - edge or shoulder	1.00	2.00					1.00		2.00	2.00	0.639189189189189
8S1300B, Pavement improvements on various sections from south of Rte. M to County Road 194.	Urban Major Collector	Roadway	Rumble strips - edge or shoulder	1.00	3.00						1.00	1.00	4.00	-3.09642857142857
8S2340, Pavement improvements on various sections from 1 mile west of Paradise Road to Rte. B in Northview.	Urban Minor Collector	Roadway	Rumble strips - edge or shoulder				1.00			1.00		1.00	1.00	-55.4265536723164
8S2449, Safety improvements on Kearney	Urban Principal Arterial (UPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	1.00						1.00		2.00		1.26279069767442

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LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
Street at Mustard Way and Mulroy Road in Springfield.														
8S2444, Pavement improvements on various sections from Rte. 60 in Marionville to 1 mile east of Rte. N.	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	5.00	6.00	1.00		3.00	3.00	2.00	4.00	11.00	13.00	26.0745945945946
7P2226B, Safety improvements on various sections from 0.3 mile east of Rte. D in Bolivar to 0.1 mile west of Rte. 65 in Buffalo.	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	6.00	3.00	1.00	1.00		2.00	8.00	3.00	15.00	9.00	-0.537741456166419
7S3023, Safety improvements on various sections from Rte. D in Bolivar to Rte. 65 in Louisburg.	Rural Major Collector	Roadway	Rumble strips - edge or shoulder	1.00			1.00			3.00	3.00	4.00	4.00	-23.0914153132251
0P2196, Pavement improvements from Rte. 51 in Marble Hill to Rte. 72/34 intersection.	Urban Principal Arterial (UPA) - Other	Shoulder treatments	Shoulder treatments - other	54.00	49.00	1.00	2.00	8.00	2.00	19.00	18.00	82.00	71.00	-2.81260616897631
9P3019, Pavement improvements from Rte. 60 to Rte. 160.	Rural Minor Arterial	Roadway	Pavement surface - miscellaneous	42.00	54.00	4.00	1.00	7.00	2.00	13.00	4.00	66.00	61.00	17.0369554331497

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LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
9P0582, Pavement improvements from Rte. 106 to Rte. 34.	Rural Arterial	Minor Roadway	Pavement surface miscellaneous -	16.00	16.00	1.00	1.00	3.00	2.00	4.00	4.00	24.00	23.00	0.299016563146998
9P2245B, Pavement improvements from Rte. H to Rte. 21.	Rural Arterial	Minor Roadway	Pavement surface miscellaneous -	6.00	15.00		1.00	1.00	1.00	4.00	3.00	11.00	20.00	-4.9107585523054
9S3054, Pavement improvements from Rte. 25 to Rte. 60 and on city streets in Dexter.	Rural Arterial	Minor Shoulder treatments	Shoulder treatments other -	21.00	15.00			2.00		17.00	10.00	40.00	25.00	2.06805429864253
9P2264, Signing and striping improvements at various intersections, phase 1, in districts NW, NE, Central, St Louis, and SE.	Rural Principal Arterial (RPA) - Other	Roadway signs and traffic control	Roadway signs (including post) - new or updated	243.00	320.00	7.00	5.00	20.00	20.00	119.00	133.00	389.00	478.00	20.3154306220096

The projects included above were completed during calendar year 2015, and have 3 years of before and after crash data.

Some of the projects implemented during this timeframe were systemic improvements. These improvements may have been deployed at locations with characteristics associated where crashes could occur without necessarily having an immediate history of severe crashes.

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

The next SHSP update is on track to be released this fall.

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

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

ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
ROADWAY SEGMENT	Segment Identifier (12) [12]	100	100					100	100	100	100
	Route Number (8) [8]	100	100								
	Route/Street Name (9) [9]	100	100								
	Federal Aid/Route Type (21) [21]	100	100								
	Rural/Urban Designation (20) [20]	100	100					100	100		
	Surface Type (23) [24]	100	90					100	40		
	Begin Point Segment Descriptor (10) [10]	100	100					100	100	100	100
	End Point Segment Descriptor (11) [11]	100	100					100	100	100	100
	Segment Length (13) [13]	100	100								
	Direction of Inventory (18) [18]	100	100								
Functional Class (19) [19]	100	100					100	100	100	100	

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ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
	Median Type (54) [55]	30	30								
	Access Control (22) [23]	100	50								
	One/Two Way Operations (91) [93]	100	80								
	Number of Through Lanes (31) [32]	100	90					100	40		
	Average Annual Daily Traffic (79) [81]	100	100					100	20		
	AADT Year (80) [82]	100	100								
	Type of Governmental Ownership (4) [4]	100	100					100	100	100	100
INTERSECTION	Unique Junction Identifier (120) [110]			100	100						
	Location Identifier for Road 1 Crossing Point (122) [112]			100	100						
	Location Identifier for Road 2 Crossing Point (123) [113]			100	100						
	Intersection/Junction Geometry (126) [116]			100	100						
	Intersection/Junction Traffic Control (131) [131]			100	80						
	AADT for Each Intersecting Road (79) [81]			100	80						
	AADT Year (80) [82]			100	80						
	Unique Approach Identifier (139) [129]			100	100						
INTERCHANGE/RAMP	Unique Interchange Identifier (178) [168]					100	100				
	Location Identifier for Roadway at					100	100				

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ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
	Beginning of Ramp Terminal (197) [187]										
	Location Identifier for Roadway at Ending Ramp Terminal (201) [191]					100	100				
	Ramp Length (187) [177]					100	100				
	Roadway Type at Beginning of Ramp Terminal (195) [185]					100	100				
	Roadway Type at End Ramp Terminal (199) [189]					100	100				
	Interchange Type (182) [172]					100	100				
	Ramp AADT (191) [181]					100	100				
	Year of Ramp AADT (192) [182]					100	100				
	Functional Class (19) [19]					100	100				
	Type of Governmental Ownership (4) [4]					100	100				
Totals (Average Percent Complete):		96.11	91.11	100.00	92.50	100.00	100.00	100.00	77.78	100.00	100.00

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

Describe actions the State will take moving forward to meet the requirement to have complete access to the MIRE fundamental data elements on all public roads by September 30, 2026.

MoDOT will use multiple 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.

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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 \$3 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. Assuming that MoDOT would receive an additional \$3 million annually and choose to spend it on our traffic collection program, the AADT data for Local paved Roads could be completed by September 30, 2026.

Optional Attachments

Program Structure:

Project Implementation:

Safety Performance:

Evaluation:

Compliance Assessment:

Glossary

5 year rolling average: means the average of five individuals, consecutive annual points of data (e.g. annual fatality rate).

Emphasis area: means a highway safety priority in a State's SHSP, identified through a data-driven, collaborative process.

Highway safety improvement project: means strategies, activities and projects on a public road that are consistent with a State strategic highway safety plan and corrects or improves a hazardous road location or feature or addresses a highway safety problem.

HMVMT: means hundred million vehicle miles traveled.

Non-infrastructure projects: are projects that do not result in construction. Examples of non-infrastructure projects include road safety audits, transportation safety planning activities, improvements in the collection and analysis of data, education and outreach, and enforcement activities.

Older driver special rule: applies if traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65 in a State increases during the most recent 2-year period for which data are available, as defined in the Older Driver and Pedestrian Special Rule Interim Guidance dated February 13, 2013.

Performance measure: means indicators that enable decision-makers and other stakeholders to monitor changes in system condition and performance against established visions, goals, and objectives.

Programmed funds: mean those funds that have been programmed in the Statewide Transportation Improvement Program (STIP) to be expended on highway safety improvement projects.

Roadway Functional Classification: means the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide.

Strategic Highway Safety Plan (SHSP): means a comprehensive, multi-disciplinary plan, based on safety data developed by a State Department of Transportation in accordance with 23 U.S.C. 148.

Systematic: refers to an approach where an agency deploys countermeasures at all locations across a system.

Systemic safety improvement: means an improvement that is widely implemented based on high risk roadway features that are correlated with specific severe crash types.

Transfer: means, in accordance with provisions of 23 U.S.C. 126, a State may transfer from an apportionment under section 104(b) not to exceed 50 percent of the amount apportioned for the fiscal year to any other apportionment of the State under that section.