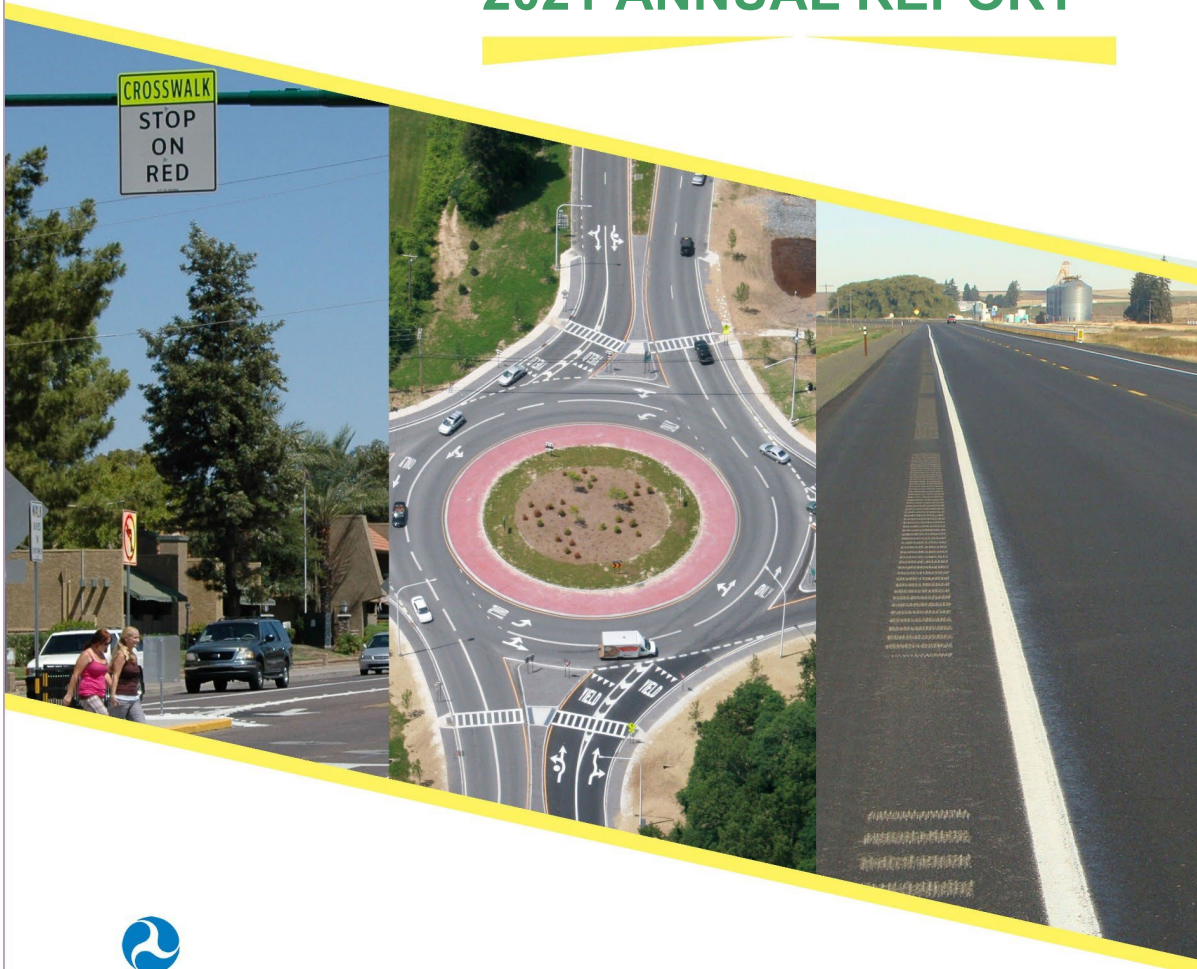




MISSOURI

# HIGHWAY SAFETY IMPROVEMENT PROGRAM 2021 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 2020, Missouri introduced its fifth edition of the SHSP and established a highway safety goal of ZERO fatalities by 2030. Show-Me ZERO: Driving Missouri Toward Safer Roads 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 SHSP 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 experienced 987 fatalities in 2020, which is the highest number since 2007. This spike may have been influenced by the COVID-19 pandemic. Fatal crashes involving aggressive driving increased by 22 percent. While the overall fatalities did rise, the benefits of Missouri's HSIP helped to mitigate this increase in severe crashes. This can be attributed to the systemic initiatives and high benefit spot treatments being deployed, 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. 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.

With the goal that every MoDOT project makes the facility safer after completion, Design and Planning staff also consider safety in their efforts.

#### **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 took effect in state fiscal year 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

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for both intersections and non-intersection locations. This analysis method places weight towards the locations that have experienced a higher frequency of severe crashes and are identified as a location of interest. Most locations are on state system roadways, but there are local roadways identified on these lists as well. While the majority of the severe crash problem is located on the state system, non-state system needs are also investigated. MoDOT also communicates the locations of interest to planning entities like our Metropolitan Planning Organizations and Regional Planning Commissions.

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.

The Missouri Coalition for Roadway Safety has a subcommittee that is focused on infrastructure improvement. Several local agencies participate in this subcommittee where we discuss implementing key SHSP strategies, promote road safety assessments and local road safety plans, and share information on the latest safety research. Missouri now has two Vision Zero cities: Columbia and Kansas City.

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, MoDOT facilitates the Transportation Engineering Assistance Program (TEAP) which allows local public agencies (LPAs) to receive engineering assistance for studying traffic engineering problems.

### **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), Complete Streets, and Safe Transportation for Every Pedestrian (STEP). FHWA's Resource Center continues to provide training support in these subjects. 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.

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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 an evaluation 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
- 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 also works with Missouri's LTAP center to continue to move safety forward. MoDOT sees benefit in continuing the Safety Circuit Rider program through the LTAP center. The Safety Circuit Rider aims to assist local public agencies in the analysis of safety issues on locally owned roads and help determine possible low-cost solutions to improve safety.

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 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. Additionally, this internal project management system is being enhanced to collect more detailed information for any project improving safety regardless of the use of HSIP funds programmed on that project.

## ***Program Methodology***

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

No

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MoDOT has an Engineering Policy Guide (EPG) article published online that outlines safety program guidelines.

[http://epg.modot.org/index.php?title=907.1\\_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

### 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

- All crashes
- Fatal crashes only
- Fatal and serious injury crashes only

#### 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).***

**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"><li>• All crashes</li><li>• Fatal and serious injury crashes only</li></ul>	<ul style="list-style-type: none"><li>• Volume</li></ul>	<ul style="list-style-type: none"><li>• Horizontal curvature</li></ul>

***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

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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

#### **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**

**Exposure**

**Roadway**

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

- Horizontal curvature

***What project identification methodology was used for this program?***

- 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).***

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?***



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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?***

48

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

- Cable Median Barriers
- High friction surface treatment
- Horizontal curve signs
- 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.

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- 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.**

Missouri's Strategic Highway Safety Plan, Show-Me ZERO: Driving Missouri Toward Safer Roads, highlights several strategies to reduce severe crashes. One of these strategies is to take advantage of technology solutions to reduce the likelihood of crashes. This includes:

- Use intelligent transportation systems to detect and warn of high-risk or adverse conditions.
- Support ongoing implementation of crash avoidance systems in vehicles by maintaining retroreflectivity levels for signs and markings and by sharing traveler information and traffic control data with mobile providers.

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. This pilot testing is just bringing it's field testing stage.

### **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.**

By MoDOT policy, any project that is funded with HSIP funds must calculate the anticipated reduction in fatal and serious injury crashes. This information is then used to justify and prioritize projects, to maximize the value of these limited safety funds.

MoDOT is attempting to expand our use of the HSM to be performed on any project impacting safety, regardless of use of HSIP funds.

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 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)	\$45,620,000	\$56,391,064	123.61%
HRRR Special Rule (23 U.S.C. 148(g)(1))	\$0	\$0	0%
Penalty Funds (23 U.S.C. 154)	\$13,984,000	\$14,779,987	105.69%
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	\$5,069,000	\$8,653,882	170.72%
<b>Totals</b>	<b>\$64,673,000</b>	<b>\$79,824,933</b>	<b>123.43%</b>

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.

State and Local Funds were assumed to be 10 percent of the HSIP funds if other federal funds were included on projects for non-safety purposes.

**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.**

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
1P3334 - Curve safety improvements in the eastbound and westbound lanes 0.3 mile east and west of Helm St. (Business Rte. 36) in Brookfield.	Roadway	Pavement surface – high friction surface	1	Miles	\$116000	\$116000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	7,705	65	State Highway Agency	Spot	Speed and Aggressive Driving	Data Driven Safety Analysis
1P3314 - On-call work zone enforcement at various locations in the Northwest District.	Miscellaneous	Work zone enforcement	1	Work Zones	\$10000	\$10000	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Interstate	1	1	State Highway Agency	Spot	Speed and Aggressive Driving	Work Zones
2P3362 - Add rumblestrips from Rte. 136 west junction at Memphis to Rte. 6 north junction at Edina in Knox County. \$559,000 Open Container funds.	Roadway	Rumble strips – edge or shoulder	22.5	Miles	\$559000	\$1322000	Penalty Funds (23 U.S.C. 154)	Rural	Minor Arterial	521	55	State Highway Agency	Systemic	Impaired Driving	Lane Departures
2P3307 - On-call work zone enforcement at various locations in the Northeast District.	Miscellaneous	Work zone enforcement	1	Work Zones	\$10000	\$10000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	1	1	State Highway Agency	Spot	Speed and Aggressive Driving	Work Zones
4P3213 - Adding shoulders and culvert extensions, intersection improvements,	Roadway	Roadway - other	8	Miles	\$8869000	\$8869000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	6,922	55	State Highway Agency	Spot	Occupant Protection	Intersections

2021 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
left turn lanes and pavement resurfacing from Rte. DD to Nation Rd. Inclu															
4S3338 - Add intersection turn lanes and crosswalks at Gregory Boulevard.	Intersection traffic control	Modify traffic signal – add backplates with retroreflective borders	12	Signal heads	\$409000	\$409000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	29,122	45	State Highway Agency	Spot	Distracted Driving	Intersections
4S3326 - Add turn lanes at Stringtown Road and 155th Street (County Line Road). \$1,175,000 Open Container funds.	Intersection geometry	Add/modify auxiliary lanes	2	Approaches	\$1550000	\$1550000	Penalty Funds (23 U.S.C. 154)	Urban	Minor Arterial	12,503	55	State Highway Agency	Systemic	Impaired Driving	Intersections
4P3212 - Improve sight distance at Pink Hill Road. \$1,728,000 Open Container funds.	Intersection geometry	Intersection geometry - other	4	Approaches	\$1761000	\$1761000	Penalty Funds (23 U.S.C. 154)	Urban	Major Collector	2,274	55	State Highway Agency	Systemic	Impaired Driving	Intersections
3S3083 - Add shoulders and pavement resurfacing from Odessa south city limits to Rte. 50. \$583,000 Open Container funds.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	10	Miles	\$4264000	\$4264000	HSIP (23 U.S.C. 148)	Rural	Major Collector	2,231	55	State Highway Agency	Systemic	Distracted Driving	Lane Departures
3S3137 - Pavement resurfacing, adding sections of two-foot shoulders and	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	2	Miles	\$648000	\$2391000	HSIP (23 U.S.C. 148)	Rural	Major Collector	9,245	45	State Highway Agency	Systemic	Distracted Driving	Lane Departures

2021 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
sidewalk improvements from Quisenberry Road to Rte. 65. \$1,082,000 District O															
3P3080B - Add turn lanes from 0.1 mile east of Air Center Circle to 0.1 mile east of Airpark Road. \$451,000 Open Container funds.	Intersection geometry	Add/modify auxiliary lanes	3	Approaches	\$451000	\$451000	Penalty Funds (23 U.S.C. 154)	Rural	Principal Arterial-Other	9,713	55	State Highway Agency	Spot	Impaired Driving	Intersections
4P3275 - Add roundabout at intersection of Rte. 45 Spur.	Intersection traffic control	Modify control – Modern Roundabout	1	Intersections	\$2007000	\$2007000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	11,402	55	State Highway Agency	Spot	Occupant Protection	Intersections
3P3100 - On-call work zone enforcement at various locations in the rural Kansas City District. \$13,000 Open Container funds.	Miscellaneous	Work zone enforcement	1	Work Zones	\$13000	\$13000	Penalty Funds (23 U.S.C. 154)	Rural	Minor Arterial	1	1	State Highway Agency	Spot	Impaired Driving	Work Zones
4I3193 - On-call work zone enforcement at various locations in the urban Kansas City District. \$162,000 Open Container funds.	Miscellaneous	Work zone enforcement	5	Work Zones	\$170000	\$170000	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial-Interstate	1	1	State Highway Agency	Spot	Impaired Driving	Work Zones
4I3382 - Add Wrong Way, Do Not Enter and One Way	Roadway signs and traffic control	Roadway signs and traffic control - other	500	Signs	\$918000	\$918000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	0	65	State Highway Agency	Systemic	Impaired Driving	Data Driven Safety Analysis



2021 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
signing at various interchange locations in the urban Kansas City District, not including Jackson Cou															
5S3319 - Pavement resurfacing and add rumblestrips from Rte. 124 to Rte. O, Rte. O from Rte. J to the end of state maintenance and Rte. UU from Rte.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	11.9	Miles	\$3221000	\$4922000	HSIP (23 U.S.C. 148)	Rural	Major Collector	1,060	55	State Highway Agency	Systemic	Speed and Aggressive Driving	Lane Departures
5P3195 - Add J-turns and intersection turn lanes at various locations.	Intersection geometry	Add/modify auxiliary lanes	4	Approaches	\$4089000	\$4089000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial- Other Freeways & Expressways	25,347	70	State Highway Agency	Spot	Speed and Aggressive Driving	Intersections
5S3324 - Pavement resurfacing and add rumblestrips from Rte. O to Rte. JJ includes pavement resurfacing on Rte. JJ from I-70 to Rte. UU. \$247,000 Ope	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	6.3	Miles	\$807000	\$1464000	HSIP (23 U.S.C. 148)	Rural	Major Collector	909	55	State Highway Agency	Systemic	Speed and Aggressive Driving	Lane Departures
5S3395 - Pavement resurfacing and add rumblestrips from Rte. J to Rte. 185.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	35	Miles	\$1378000	\$3440000	HSIP (23 U.S.C. 148)	Rural	Major Collector	836	55	State Highway Agency	Systemic	Speed and Aggressive Driving	Lane Departures

2021 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
5S3384 - Pavement improvements and add rumblestripes from Rte. 28 to Rte. 68. \$1,773,000 Open Container funds.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	21	Miles	\$1773000	\$4138000	Penalty Funds (23 U.S.C. 154)	Rural	Major Collector	519	55	State Highway Agency	Systemic	Impaired Driving	Lane Departures
5P3222 - Add J-turns and add intersection turn lanes at various locations in Miller County.	Intersection geometry	Intersection geometry - other	18.5	Approaches	\$3509000	\$3509000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	14,709	70	State Highway Agency	Spot	Speed and Aggressive Driving	Intersections
5P3222B - Add J-turns and add intersection turn lanes at various locations in Miller County.	Intersection geometry	Intersection geometry - other	18.5	Approaches	\$2412000	\$2412000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	14,709	70	State Highway Agency	Spot	Speed and Aggressive Driving	Intersections
5P3199 - Add intersection turn lanes at Rte. 5 west of Tipton.	Intersection geometry	Add/modify auxiliary lanes	0.7	Approaches	\$1471000	\$1471000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	6,229	60	State Highway Agency	Spot	Speed and Aggressive Driving	Intersections
5S3380 - Pavement improvements and add rumblestripes from Rte. 50 to the end of state maintenance.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	4.3	Miles	\$501000	\$789000	HSIP (23 U.S.C. 148)	Rural	Minor Collector	1,985	55	State Highway Agency	Systemic	Speed and Aggressive Driving	Lane Departures
5P3236 - Pavement resurfacing and add rumblestripes from Rte. 8 to Rte. 19 near Salem and	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	25.1	Miles	\$2760000	\$4548000	HSIP (23 U.S.C. 148)	Rural	Major Collector	1,146	55	State Highway Agency	Systemic	Distracted Driving	Lane Departures

2021 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
Rte. HH from Rte. 32 to the end of state maintenance.															
5I3408 - High friction surface treatment at various locations in Central District.	Roadway	Pavement surface – high friction surface	3	Miles	\$1102000	\$1102000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	1	1	State Highway Agency	Systemic	Speed and Aggressive Driving	Data Driven Safety Analysis
5P3406 - On-call work zone enforcement at various locations in the Central District.	Miscellaneous	Work zone enforcement	1	Work Zones	\$63000	\$63000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	1	1	State Highway Agency	Spot	Speed and Aggressive Driving	Work Zones
5S3290 - Pavement resurfacing and add rumblestrips from Rte. 8 to Rte. CC and on Rte. H from Rte. 47 to Rte. WW.	Roadway	Rumble strips – edge or shoulder	15.4	Miles	\$1695000	\$2877000	HSIP (23 U.S.C. 148)	Rural	Major Collector	2,035	55	State Highway Agency	Systemic	Speed and Aggressive Driving	Lane Departures
5S3385 - Pavement resurfacing and add rumblestrips from Rte. 8 to Rte. M.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	9.8	Miles	\$1090000	\$2036000	HSIP (23 U.S.C. 148)	Rural	Major Collector	1,038	55	State Highway Agency	Systemic	Speed and Aggressive Driving	Lane Departures
6S3292 - Pavement resurfacing, guardrail upgrades and turn lane additions from Old Highway 21 to east of Collins Road. Add turn lanes at Harrison Lake	Intersection geometry	Add/modify auxiliary lanes	1	Approaches	\$759000	\$6493000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	10,686	60	State Highway Agency	Spot	Distracted Driving	Intersections

2021 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
6S3517 - Pavement resurfacing, guardrail upgrades and add shoulders from Washington County line to Rte. 21. \$802,000 Open Container funds.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	10.3	Miles	\$802000	\$4100000	Penalty Funds (23 U.S.C. 154)	Urban	Major Collector	3,108	55	State Highway Agency	Spot	Impaired Driving	Lane Departures
6I3498 - Upgrade signing for wrong way counter-measures at various ramp locations in St. Charles, St. Louis and Jefferson Counties and St. Louis City.	Roadway signs and traffic control	Roadway signs and traffic control - other	39.2	Signs	\$750000	\$750000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial- Interstate	77,445	60	State Highway Agency	Systemic	Impaired Driving	Data Driven Safety Analysis
6P3482 - Median barrier repair and upgrades over I-64 between on and off ramps. Project involves bridge A6120. \$200,000 Open Container funds.	Roadside	Barrier concrete –	0.5	Miles	\$200000	\$200000	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial- Other Freeways & Expressways	30,478	45	State Highway Agency	Spot	Impaired Driving	Lane Departures
6P3372 - Add J-turns at Riverlands Way and raise southbound lanes from the Mississippi River to north of Machens Club Drive. \$800,000	Access management	Median crossover directional crossover -	2	Crossovers	\$1683000	\$6384000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial- Other Freeways & Expressways	21,645	55	State Highway Agency	Spot	Impaired Driving	Lane Departures

2021 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
Open Container,															
6P3464 - On-call work zone enforcement at various locations in the St. Louis District.	Miscellaneous	Work zone enforcement	5	Work Zones	\$650000	\$750000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	1	1	State Highway Agency	Spot	Speed and Aggressive Driving	Work Zones
6P3477 - High friction surface treatment on curves at various locations around the St. Louis District.	Roadway	Pavement surface – high friction surface	1.5	Miles	\$692000	\$692000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	77,445	55	State Highway Agency	Systemic	Distracted Driving	Lane Departures
8P0588H - Add lanes, turn lanes, drainage from Fort St to 0.2 mile E/O Tiffany Blvd; add fiber optic connection from Rte 160 to Ridgecrest St; add sid	Intersection geometry	Add/modify auxiliary lanes	3	Approaches	\$527000	\$8009000	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial-Other	13,390	30	State Highway Agency	Spot	Impaired Driving	Intersections
8S3188 - Pavement resurfacing and add shoulders from Rte. AB to I-44 in Springfield.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	2.7	Miles	\$72000	\$798000	HSIP (23 U.S.C. 148)	Rural	Major Collector	9,033	55	State Highway Agency	Systemic	Distracted Driving	Lane Departures
8S3092 - Pavement resurfacing from Rte. WW to north of Stoneridge Street.	Roadway	Rumble strips – center	8.8	Miles	\$4000	\$587000	HSIP (23 U.S.C. 148)	Urban	Major Collector	8,609	55	State Highway Agency	Systemic	Distracted Driving	Lane Departures
8S3187 - Pavement resurfacing and add shoulders from	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	1.2	Miles	\$117000	\$585000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	4,865	55	State Highway Agency	Spot	Speed and Aggressive Driving	Lane Departures

2021 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
0.1 mile south of I-44 to north of Rte. 60 in Greene County.															
8S3193 - High friction surface treatment at various locations in the urban Southwest District.	Roadway	Pavement surface – high friction surface	1.2	Miles	\$432000	\$432000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	9,580	55	State Highway Agency	Spot	Speed and Aggressive Driving	Lane Departures
8S3123 - Pavement resurfacing from Jackson Street in Willard to Rte. 13.	Roadway	Rumble strips – edge or shoulder	4.06	Miles	\$63000	\$592000	HSIP (23 U.S.C. 148)	Rural	Major Collector	1,760	55	State Highway Agency	Systemic	Distracted Driving	Lane Departures
8P3032B - Add lanes on James River Freeway, improve ramps from National Avenue to Rte. 65, and reconfigure interchange at Bus. 65 (Glenstone Avenue) i	Interchange design	Interchange improvements	1	Interchanges	\$1229000	\$20358000	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial-Other Freeways & Expressways	80,000	60	State Highway Agency	Spot	Impaired Driving	Intersections
7P3262 - Pavement resurfacing from the Kansas State line to west of Fir Road in Carl Junction; add roundabout at Rte. 96 and Rte. YY; and add turn lan	Intersection traffic control	Modify control – Modern Roundabout	1	Intersections	\$819000	\$4567000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	7,900	55	State Highway Agency	Spot	Speed and Aggressive Driving	Intersections
7S3189J - Pavement resurfacing	Roadway	Rumble strips – edge or shoulder	2.7	Miles	\$73000	\$435000	Penalty Funds (23 U.S.C. 154)	Rural	Major Collector	1,372	55	State Highway Agency	Systemic	Impaired Driving	Lane Departures

2021 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
and add shoulders at various locations from Rte. D in Alba to Rte. 96. \$73,000 Open Container funds.															
7S3292 - Pavement resurfacing and add shoulders and rumblestrips at various locations from Rte. 43 in Southwest City to Rte. 37 near Washburn. \$551,0	Roadway	Rumble strips – edge or shoulder	12.3	Miles	\$551000	\$4651000	Penalty Funds (23 U.S.C. 154)	Rural	Major Collector	1,582	55	State Highway Agency	Systemic	Impaired Driving	Lane Departures
7P3424 - High friction surface treatment at various locations in Newton, Polk, Stone, Taney and Webster Counties. \$1,129,000 Open Container funds.	Roadway	Pavement surface – high friction surface	5.2	Curves	\$1868000	\$1868000	Penalty Funds (23 U.S.C. 154)	Rural	Principal Arterial- Interstate	16,749	70	State Highway Agency	Spot	Impaired Driving	Intersections
7S3181 - Pavement resurfacing and add centerline rumblestripe from Rte. 32 to Rte. WW.	Roadway	Rumble strips – center	40.4	Miles	\$16000	\$2064000	HSIP (23 U.S.C. 148)	Rural	Major Collector	2,196	55	State Highway Agency	Systemic	Distracted Driving	Lane Departures
7P3373 - On-call work zone enforcement at various locations in the rural	Miscellaneous	Work zone enforcement	1	Work Zones	\$71000	\$71000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial- Other	1	1	State Highway Agency	Spot	Speed and Aggressive Driving	Work Zones

2021 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
Southwest District.															
8P3154 - On-call work zone enforcement at various locations in the urban Southwest District.	Miscellaneous	Work zone enforcement	1	Work Zones	\$201000	\$201000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	1	1	State Highway Agency	Spot	Speed and Aggressive Driving	Work Zones
9S3556 - Add rumblestrips from County Road 462 to County Road 441.	Shoulder treatments	Pave existing shoulders	7.7	Miles	\$840000	\$840000	HSIP (23 U.S.C. 148)	Rural	Minor Collector	1,924	55	State Highway Agency	Systemic	Distracted Driving	Lane Departures
9S3732 - High friction surface treatment on various curves from Rte. EE near Charleston to end of state maintenance.	Roadway	Pavement surface – high friction surface	1.4	Miles	\$441000	\$441000	HSIP (23 U.S.C. 148)	Rural	Major Collector	1,957	55	State Highway Agency	Spot	Speed and Aggressive Driving	Lane Departures
9P3169 - Installation, widening and realignment of guardrail from 0.9 mile east of County Road 530 to 0.3 mile west of North Fork River.	Roadway	Roadway widening - curve	1.1	Miles	\$232000	\$2732000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	817	55	State Highway Agency	Systemic	Speed and Aggressive Driving	Lane Departures
9P3458 - Pavement resurfacing and add rumblestrips from Rte. 5 to Rte. 101. \$1,727,000 Open Container funds and \$2,592,000 District	Shoulder treatments	Pave existing shoulders	22.5	Miles	\$3356000	\$5948000	Penalty Funds (23 U.S.C. 154)	Rural	Minor Arterial	1,156	55	State Highway Agency	Systemic	Impaired Driving	Lane Departures



2021 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
Operation funds.															
9P3558 - Add rumblestripes from Rte. 106 to Rte. 60.	Shoulder treatments	Pave existing shoulders	13	Miles	\$559000	\$859000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	1,903	55	State Highway Agency	Systemic	Distracted Driving	Lane Departures
9P3574 - On-call work zone enforcement at various locations in the Southeast District.	Miscellaneous	Work zone enforcement	1	Work Zones	\$40000	\$40000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	1	1	State Highway Agency	Spot	Speed and Aggressive Driving	Work Zones

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.

AADT and Speed for projects improving multiple locations varied between each individual site. In these instances, the value for these fields were identified as 1 due to the variation between locations.

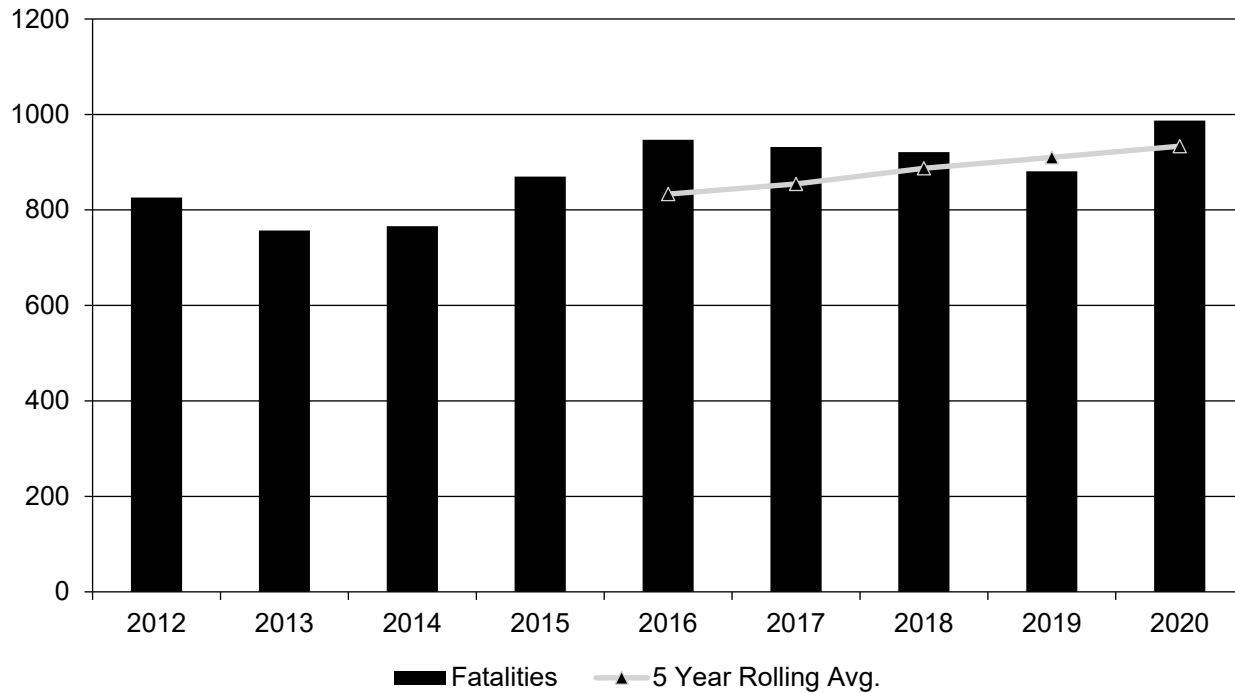
## Safety Performance

### *General Highway Safety Trends*

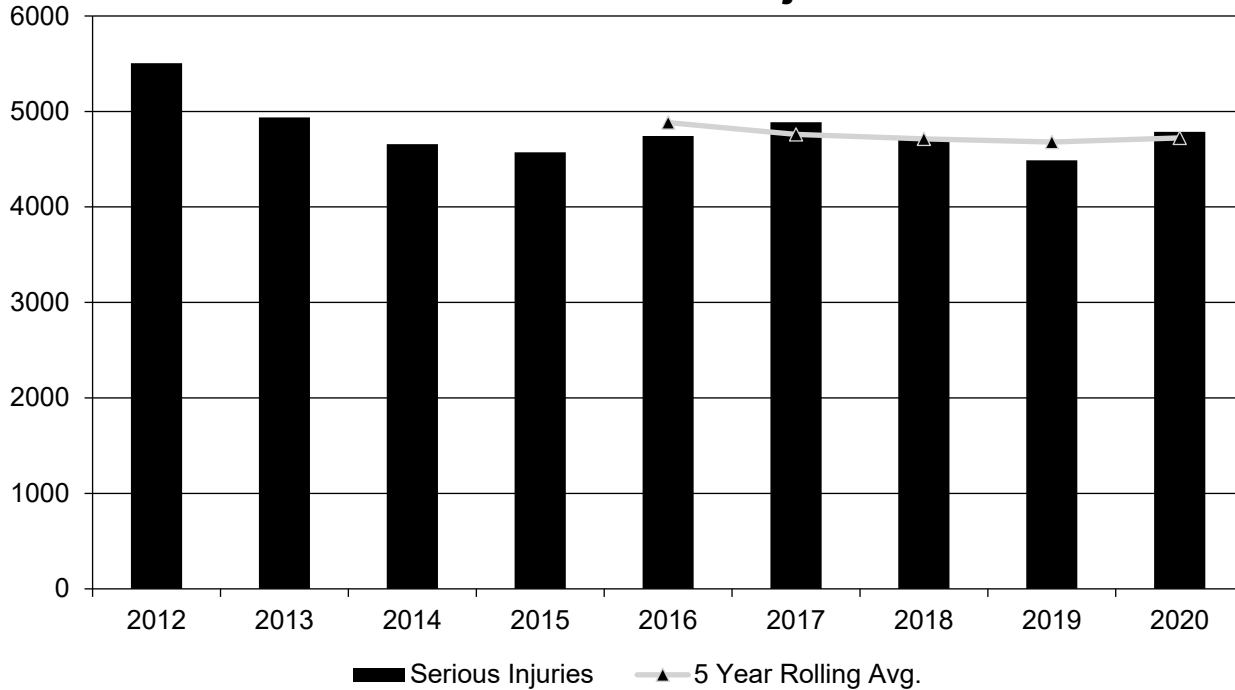
**Present data showing the general highway safety trends in the State for the past five years.**

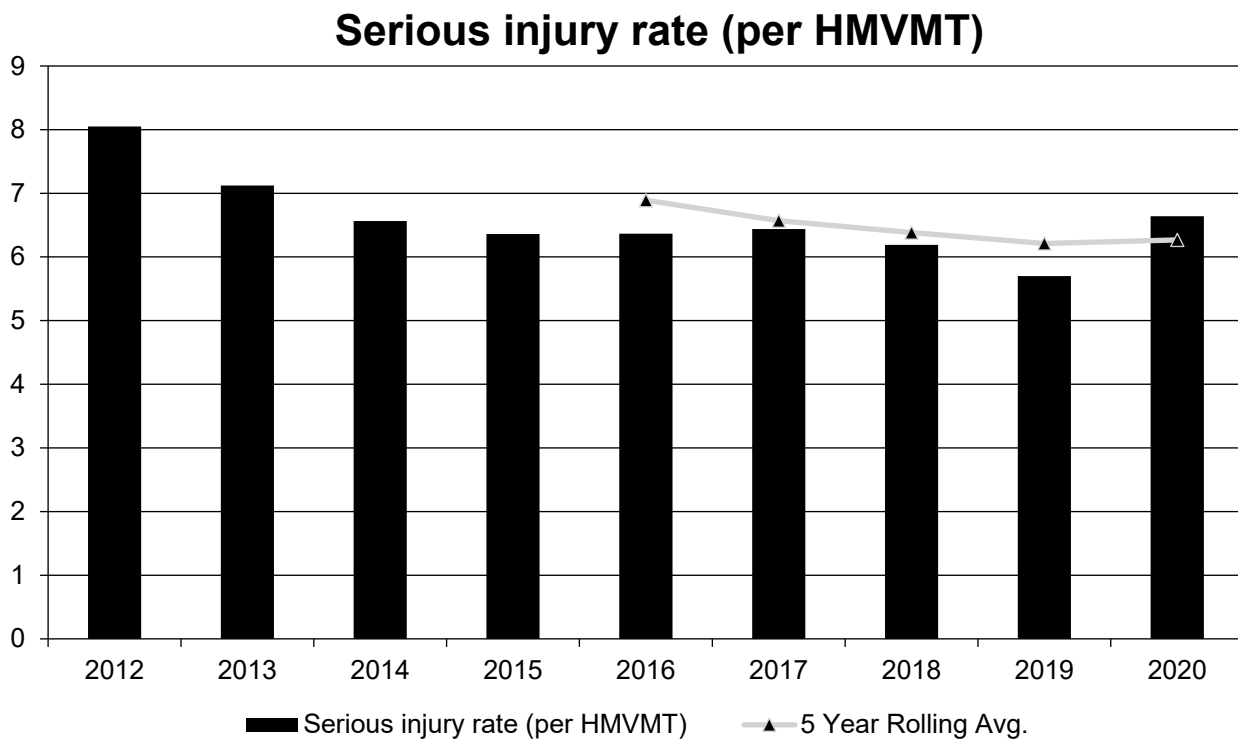
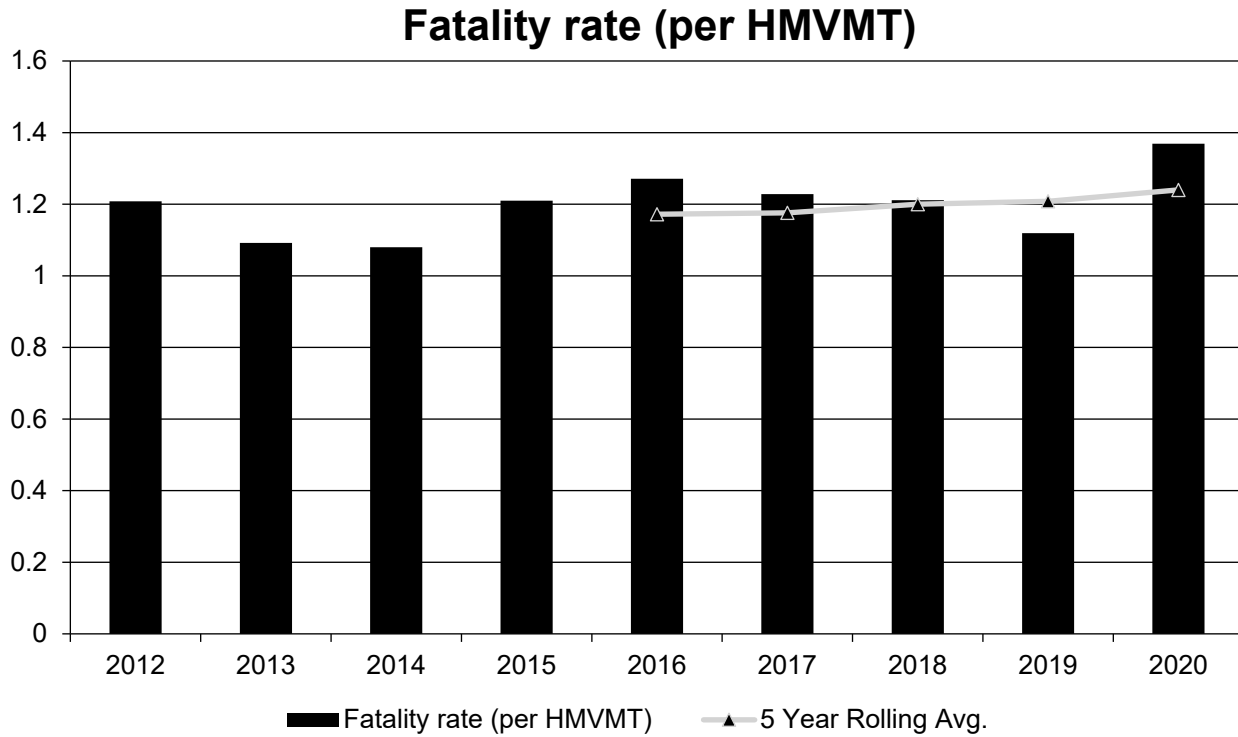
<b>PERFORMANCE MEASURES</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Fatalities	826	757	766	870	947	932	921	881	987
Serious Injuries	5,506	4,938	4,657	4,573	4,743	4,887	4,708	4,489	4,786
Fatality rate (per HMVMT)	1.208	1.092	1.080	1.210	1.271	1.228	1.211	1.119	1.369
Serious injury rate (per HMVMT)	8.049	7.123	6.565	6.360	6.365	6.438	6.190	5.700	6.640
Number non-motorized fatalities	94	81	76	117	113	113	105	127	141
Number of non-motorized serious injuries	329	367	332	319	356	358	343	392	400

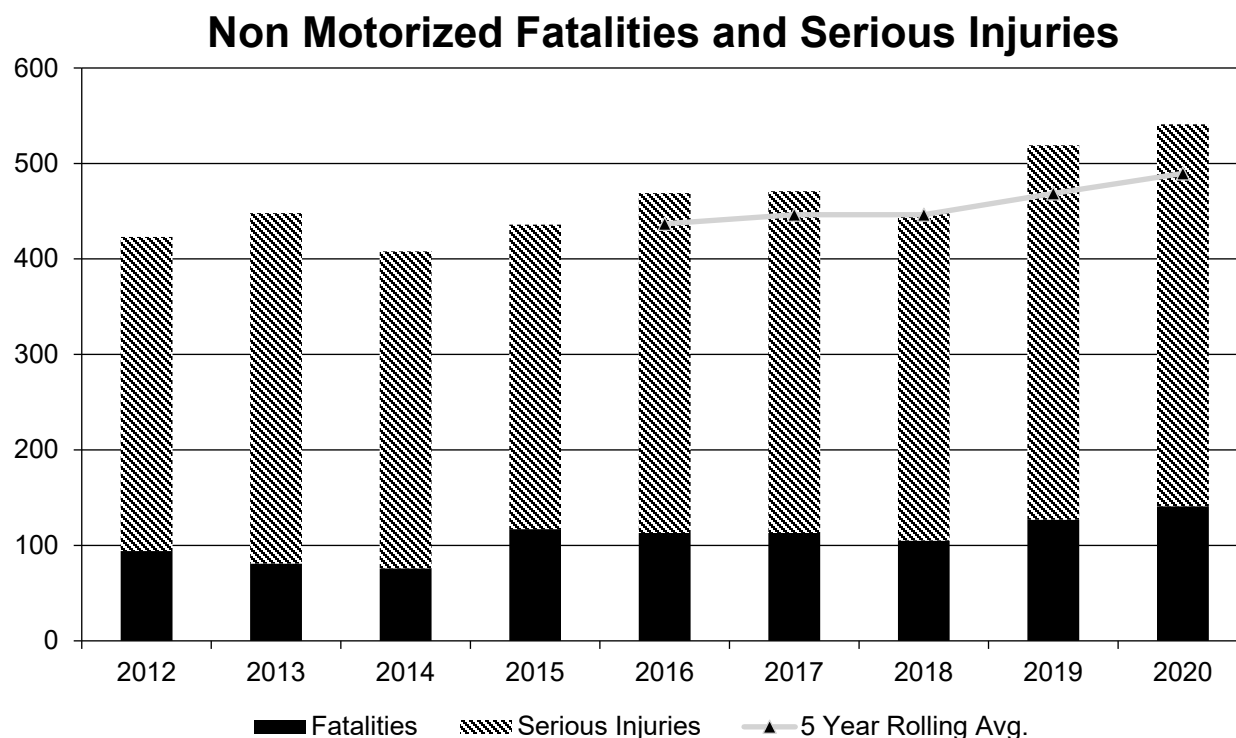
### Annual Fatalities



### Annual 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 2021.

#### Describe fatality data source.

State Motor Vehicle Crash Database

The fatality information for 2020 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 2020

Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial (RPA) - Interstate	43.6	157.8	0.63	2.28
Rural Principal Arterial (RPA) - Other Freeways and Expressways	52	196.2	1.06	4
Rural Principal Arterial (RPA) - Other	65.4	227.8	1.98	6.94

## 2021 Missouri Highway Safety Improvement Program

<b>Functional Classification</b>	<b>Number of Fatalities (5-yr avg)</b>	<b>Number of Serious Injuries (5-yr avg)</b>	<b>Fatality Rate (per HMVMT) (5-yr avg)</b>	<b>Serious Injury Rate (per HMVMT) (5-yr avg)</b>
Rural Minor Arterial	92	357.8	2.56	9.96
Rural Minor Collector	21.4	87.4	3.15	12.79
Rural Major Collector	145.8	586.2	2.92	11.75
Rural Local Road or Street	75	385.6	0.88	4.52
Urban Principal Arterial (UPA) - Interstate	95	421	0.68	3.03
Urban Principal Arterial (UPA) - Other Freeways and Expressways	51.8	240.8	0.96	4.46
Urban Principal Arterial (UPA) - Other	102	655.4	1.84	11.75
Urban Minor Arterial	103	707.2	1.63	11.16
Urban Minor Collector	3.2	26.6	3.59	25.66
Urban Major Collector	36	276.6	1.22	9.38
Urban Local Road or Street	47.4	395.6	0.6	5

## 2021 Missouri Highway Safety Improvement Program

### Year 2020

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	672	2,992.2	1.33	5.93
City & County	261.6	1,732	1.05	6.97

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 2021.

Note: Due to 2020 data being preliminary, 7 serious injuries did not contain data for rural/urban attributes.

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MO Crash data does not indicated these levels of detail in ownership of roadways at crash locations. MoDOT can only identify State or Other ownership.

### **Provide additional discussion related to general highway safety trends.**

While Missouri had been making progress in reducing the number of fatalities and serious injuries over the last few years, last year (2020) saw a significant spike in severe crashes. The impact of the COVID-19 pandemic likely had an influence on this increase, particularly as is relates to speeding and aggressive driving.

There have been over 100 non-motorized fatalities over the last 6 years and spiked last year to 141 fatalities. MoDOT has partnered with FHWA to organize Safe Transportation for Every Pedestrian (STEP) workshops to promote pedestrian safety initiatives.

### ***Safety Performance Targets***

#### **Safety Performance Targets**

##### **Calendar Year 2022 Targets \***

***Number of Fatalities:920.6***

***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:4564.1***

***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:1.205***

***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. The VMT dropped significantly in 2020, by nearly 10%. It is anticipated at 2021 volumes will rebound by 7% followed by an annual growth 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:5.972***

***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. The VMT dropped significantly in 2020, by nearly 10%. It is anticipated at 2021 volumes will rebound by 7% followed by an annual growth rate



## 2021 Missouri Highway Safety Improvement Program

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:484.0**

#### **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 2021 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 2020 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	859.3	933.6
Number of Serious Injuries	4505.4	4722.6

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<b>Fatality Rate</b>	1.130	1.240
<b>Serious Injury Rate</b>	5.953	6.267
<b>Non-Motorized Fatalities and Serious Injuries</b>	437.4	489.6

Based on the data available at the time of reporting, the actual 2020 performance was worse than the 2020 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. One of the major external factors is that of the COVID-19 pandemic.

Unfortunately, last years (2020) increase in fatalities and serious injures may be more than an outlier, as Missouri is currently experiencing a comparable number of severe crashes this year (2021). The largest increases have been involved speeding and aggressive driving as well as in the more rural areas. Additionally, Missouri's state legislature recently repealed a helmet law for motorcyclists, which can be correlated to an increase in motorcycle fatalities.

MoDOT will continue to work with the Missouri Coalition for Roadway Safety to attempting to change the safety culture of Missouri's motorists, specifically as it relates to the 4 emphasis areas identified in Missouri's SHSP: Occupant Protection, Distracted Driving, Speed and Aggressive Driving, and Impaired Driving.

### ***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.**

<b>PERFORMANCE MEASURES</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Number of Older Driver and Pedestrian Fatalities	120	137	154	135	143	121	148
Number of Older Driver and Pedestrian Serious Injuries	355	361	367	369	426	378	368

Data for this report was compiled in August 2021.

## **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 2019, horizontal curve fatalities and serious injuries on minor roads decreased from 622 to 474.

#### **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:

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

### ***Effectiveness of Groupings or Similar Types of Improvements***

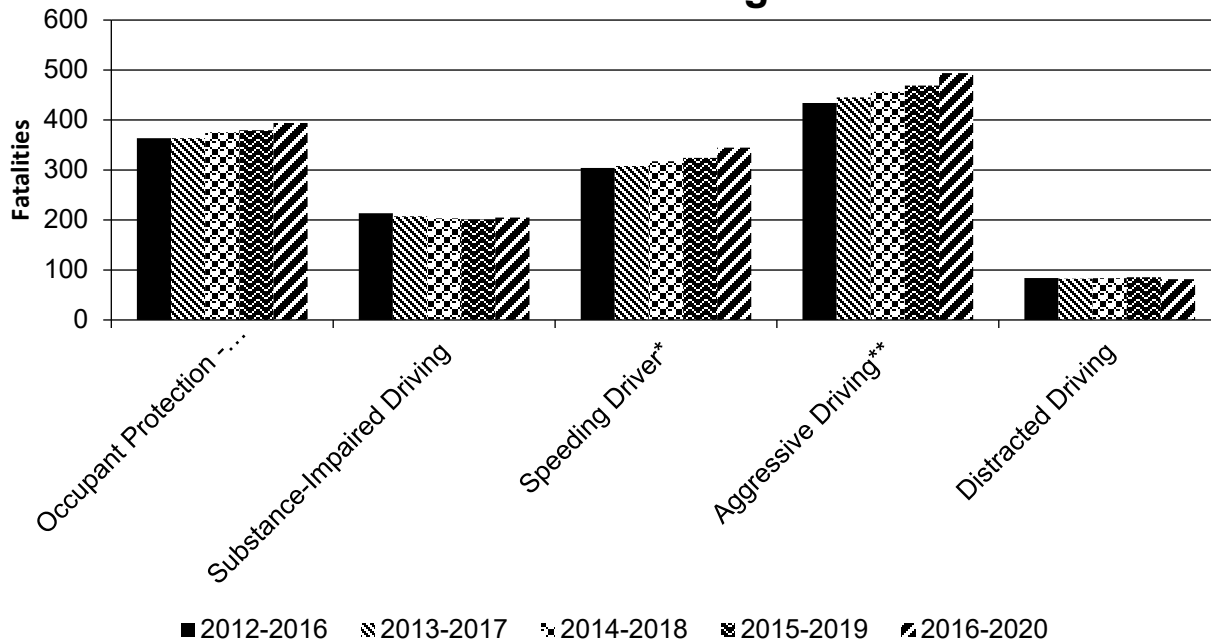
**Present and describe trends in SHSP emphasis area performance measures.**

**Year 2020**

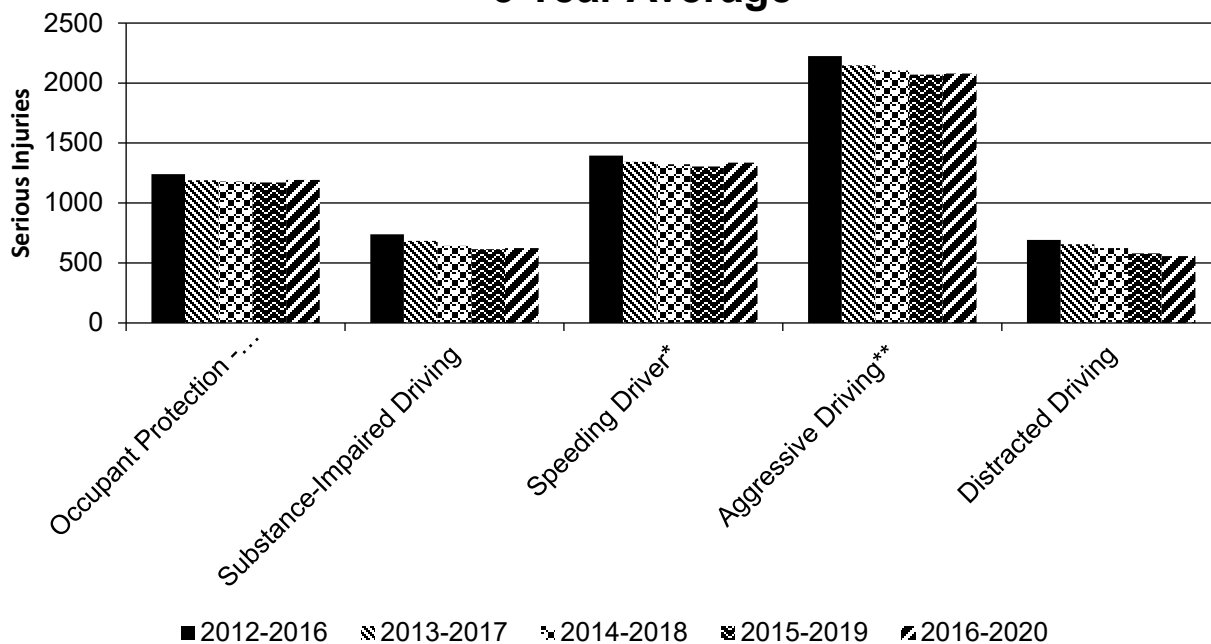
## 2021 Missouri Highway Safety Improvement Program

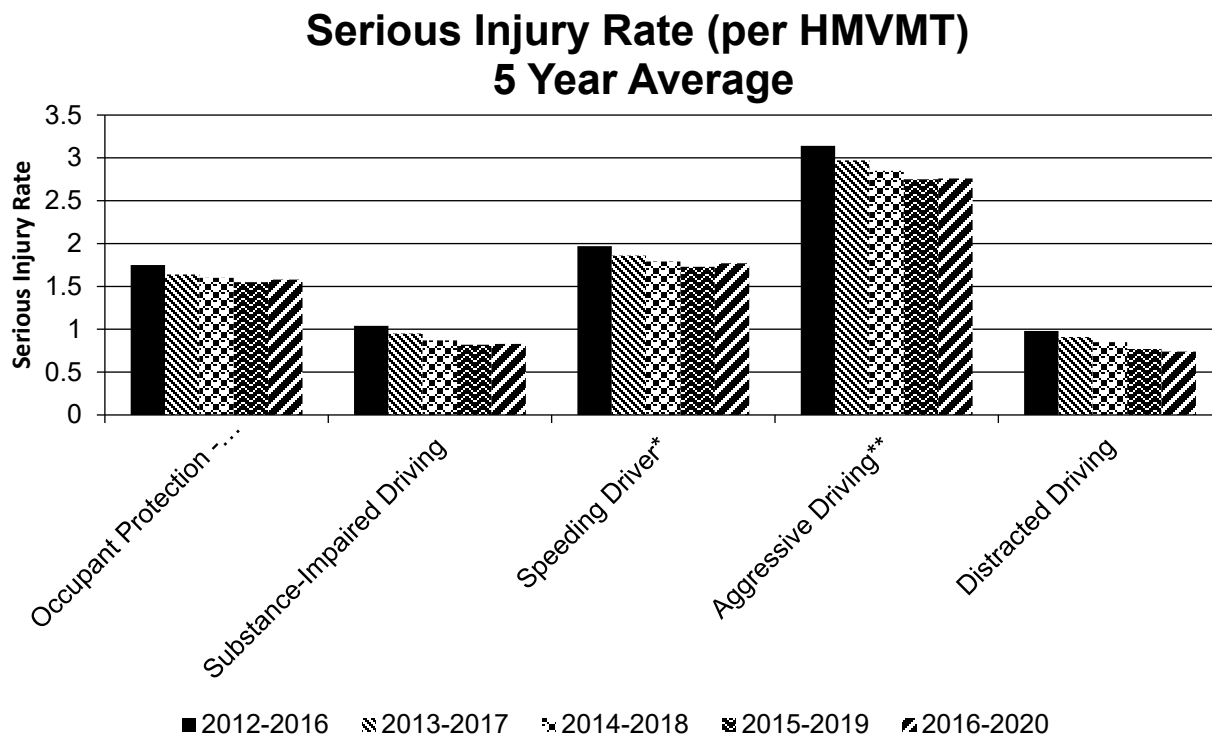
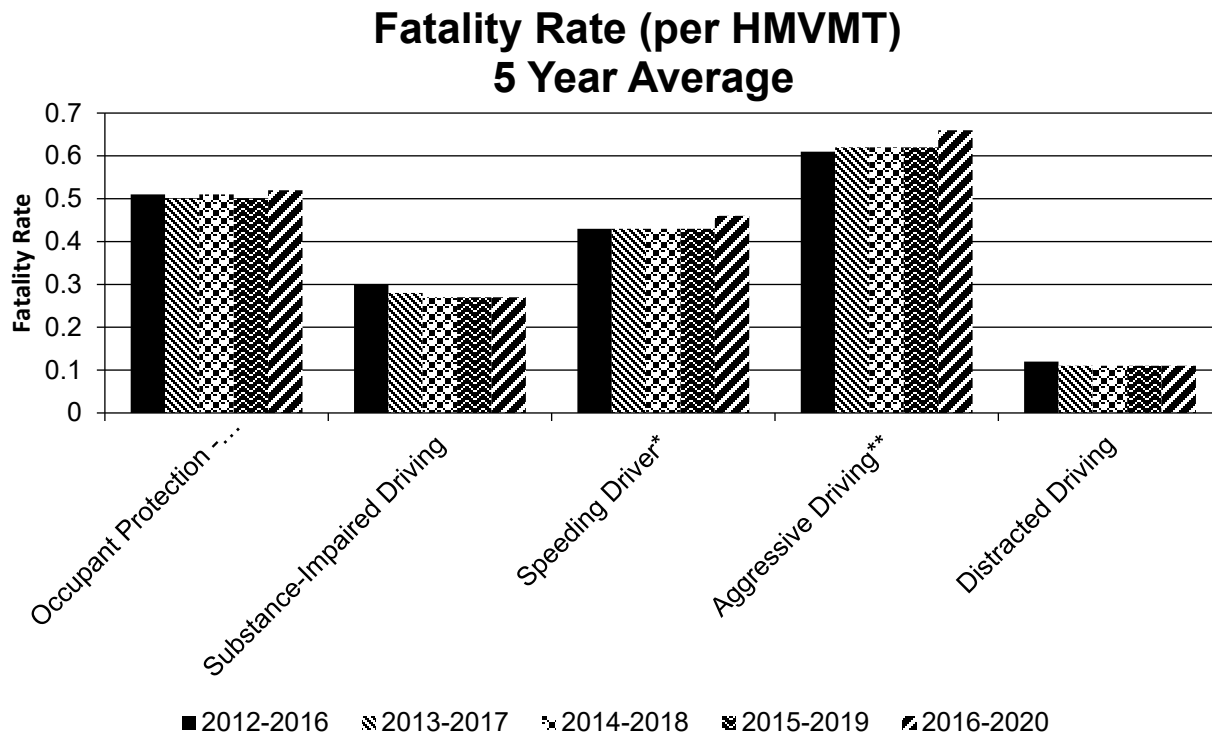
<b>SHSP Emphasis Area</b>	<b>Targeted Crash Type</b>	<b>Number of Fatalities (5-yr avg)</b>	<b>Number of Serious Injuries (5-yr avg)</b>	<b>Fatality Rate (per HMVMT) (5-yr avg)</b>	<b>Serious Injury Rate (per HMVMT) (5-yr avg)</b>
Occupant Protection - Unbelted Vehicle Occupants		394	1,192.6	0.52	1.58
Substance-Impaired Driving		205	623.8	0.27	0.83
Speeding Driver*		344.6	1,336.6	0.46	1.77
Aggressive Driving**		493.8	2,079.6	0.66	2.76
Distracted Driving		81.6	557.6	0.11	0.74

### Number of Fatalities 5 Year Average



### Number of Serious Injuries 5 Year Average





\*Speeding driving includes the contributing circumstances: speed exceeded limit and too fast for conditions.

\*\*Aggressive driving includes the following contributing circumstances: speed exceeded limit, too fast for conditions, improper passing, following too close, and improper lane usage/change.

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

Yes

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

<b>CounterMeasures:</b>	RCUT
<b>Description:</b>	Simple before-after evaluation of RCUT performance in Missouri.
<b>Target Crash Type:</b>	Angle
<b>Number of Installations:</b>	15
<b>Number of Installations:</b>	15
<b>Miles Treated:</b>	
<b>Years Before:</b>	3
<b>Years After:</b>	3
<b>Methodology:</b>	Simple before/after
<b>Results:</b>	93 percent reduction in fatal crashes 76 percent reduction in serious injury crashes 92 percent reduction in right angle crashes.
<b>File Name:</b>	y20v2AnalysisOfJTURNS.docx

***Project Effectiveness***

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



Compliance Assessment

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

09/29/2020

What are the years being covered by the current SHSP?

From: 2021 To: 2025

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

2025

Missouri's Strategic Highway Safety Plan, Show-Me ZERO, can be found on the Missouri Coalition for Roadway Safety's website. <https://www.savemolives.com/mcrs/show-me-zero>

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

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				

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. MoDOT has attempted to work 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 governments 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 data.

## **Optional Attachments**

Program Structure:

Project Implementation:

Safety Performance:

Evaluation:

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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.