MISSOURI

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2023 ANNUAL REPORT

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

23 U.S.C. 407 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 1,057 fatalities in 2022, which is the highest number since 2006. This spike may have been influenced by the COVID-19 pandemic and the increase in speeding and aggressive driving seen throughout the state. 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 Strategic Highway Safety Plan (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 led 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?

Planning

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 SFY 2021. Additionally, in past years the funding distribution was for a partial amount of the full HSIP funding available to Missouri. Last year the Commission approved the full programming of HSIP funds.

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 places emphasis where severe crashes are occurring. This analysis is performed for both intersections and non-intersection locations. This analysis method places weight towards locations experiencing a higher frequency of severe crashes and identifying them as locations of higher 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 such as the Metropolitan Planning Organizations and Regional Planning Commissions.

More than half of non-state system fatalities occur in four counties (Jackson, St. Louis City, St. Louis County, and Greene). In total, there were 318 non-state system fatalities. However, these four counties accounted for 171 or 54% of the fatalities. In previous years, 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 focused on infrastructure improvement. In this subcommittee, several local agencies discuss implementation of key SHSP strategies, promote road safety assessments and local road safety plans, and share information on the latest safety research. Missouri now has three Vision Zero cities, which are Columbia, Kansas City, and Kirkwood.

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 for the development of a local road safety plan or identification of 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, so 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.

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.

In an effort to continue furthering safety, MoDOT's Highway Safety and Traffic division has created the SAFER document. The intent is for SAFER to be used to promote more safety conversations throughout the project development process. Additionally, this coming year MoDOT is going to focus on evaluating all safety improvements included on all projects in an effort to quantify the safety benefit of MoDOT's overall 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 helps 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 continues to be 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

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

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
• All crashes • Fatal and serious injury crashes only	• Volume	• 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	Exposure	Roadway
• All crashes • Fatal and serious injury crashes only	• Volume	• 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	Exposure	Roadway
• All crashes • Fatal and serious injury crashes only	• Volume	• 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	Exposure	Roadway
• Fatal and serious injury crashes only	• Traffic	• 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?

48

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

- Cable Median Barriers
- High friction surface treatment
- 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 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 in its 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. One method that is being implemented to promote this at MoDOT is the SAFER document. Additional tools to be able to calculate these safety benefits are currently being developed.

Additionally, MoDOT developed 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)	$32,199,000	$74,091,693	230.11%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$0	$0	0%
VRU Safety Special Rule (23 U.S.C. 148(g)(3))	$0	$0	0%
Penalty Funds (23 U.S.C. 154)	$15,754,000	$24,915,551	158.15%
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	$3,220,000	$8,233,100	255.69%
Totals	$51,173,000	$107,240,344	209.56%

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 is 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?

$4,000,000

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

0%

The funding programmed to be spent on the local system in Missouri as part of the Highway Safety Improvement Program (HSIP) is in St. Louis County. This is part of the much larger Safety Design Build project that is, in total, $48,000,000. The $4,000,000 that is funding projects on the local system comes from $2,000,000 in HSIP funding and $2,000,000 from the County. This will be the first time in several years that Missouri has programmed HSIP funds for local roads.

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

6%

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

6%

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
1P3316 - Add intersection turn lanes at Rte. 146 and at 30th Avenue, 1.4 miles and 0.3 mile west of the Thompson River near Trenton. $493,000 Open Con	Intersection geometry	Add/modify auxiliary lanes	1	Intersections	$1240000	$2443000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	2,240	60	State Highway Agency	Spot	Intersections	Intersections
1P3333 - Curve safety improvements in the eastbound and westbound lanes 0.5 mile east of Rte. 5 near Marceline and in the westbound lane 0.1 mile east	Roadway	Pavement surface – high friction surface	0.668	Miles	$120000	$120000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	8,456	65	State Highway Agency	Spot	Roadway Departure	Lane Departures
1P3394 - On-call work zone enforcement at various locations in the Northwest District.	Miscellaneous	Work zone enforcement	0	Workzone	$10000	$10000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Systemic	Work Zones	Work Zones
2P3090 - Bridge replacement over I-70 and construct roundabouts near New Florence. Project involves bridge A0986. $808,000 Open Container and $443,195	Interchange design	Interchange design - other	1	Interchanges	$2317000	$12931000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	2,794	45	State Highway Agency	Spot	Intersections	Intersections
2P3399 - On-call work zone enforcement at various locations in the Northeast District.	Miscellaneous	Work zone enforcement	1	Locations	$10000	$10000	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Work Zones	Work Zones

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
NE0169 - Striping upgrades in Clark, Lewis, Lincoln, Macon, Marion, Montgomery, Pike, Ralls, Randolph, Shelby, and Warren Counties.	Roadway delineation	Longitudinal pavement markings - remarking	253	Miles	$1650000	$1650000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	19,358	70	State Highway Agency	Systemic	Lane Departure	Lane Departures
3P3118E - Signal improvements from Fairground Avenue to Rte. FF. $210,000 Open Container funds.	Intersection traffic control	Modify traffic signal – add flashing yellow arrow	3	Intersections	$0	$214000	Penalty Funds (23 U.S.C. 154)	Rural	Principal Arterial-Other	3,511	40	State Highway Agency	Systemic	Intersections	Intersections
3P3168 - Add intersection turn lane at Morrow Street in Marshall. $549,000 Open Container funds.	Intersection geometry	Add/modify auxiliary lanes	1	Intersections	$0	$594000	Penalty Funds (23 U.S.C. 154)	Rural	Principal Arterial-Other	4,462	45	State Highway Agency	Spot	Intersections	Intersections
4I3516 - On-call work zone enforcement at various locations in the urban Kansas City District.	Miscellaneous	Work zone enforcement	0	Workzone	$170000	$170000	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	0	0	State Highway Agency	Systemic	Work Zones	Work Zones
4P3295 - Improve sight distance and drainage and add turn lanes at 188th Street.	Intersection geometry	Add/modify auxiliary lanes	2	Intersections	$1571000	$1527000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	4,741	55	State Highway Agency	Spot	Intersections	Intersections
4S3272 - Add roundabout at Prairie Road. $1,763,000 Open Container funds.	Intersection traffic control	Modify control – Modern Roundabout	1	Intersections	$427000	$2175000	Penalty Funds (23 U.S.C. 154)	Urban	Minor Arterial	4,396	45	State Highway Agency	Spot	Intersections	Intersections
4S3339 - Add turn lanes, pedestrian crosswalks and signals from	Intersection geometry	Add/modify auxiliary lanes	6	Intersections	$936000	$935000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	14,421	45	State Highway Agency	Systemic	Intersections	Intersections

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
Laurel Avenue to Westridge Road.															
4S3405 - Add turn lanes, improve signage, upgrade pedestrian facilities to comply with the ADA Transition Plan, upgrade drainage, replace signals and	Intersection geometry	Add/modify auxiliary lanes	8	Intersections	$2793000	$6160000	Penalty Funds (23 U.S.C. 164)	Urban	Principal Arterial-Other	9,079	35	State Highway Agency	Systemic	Intersections	Intersections
4S3433 - Upgrade intersection and add turn lanes from Legend Lane to the south intersection of Peculiar Drive in Peculiar. $300,000 STBG-Urban and $59	Alignment	Horizontal curve realignment	2	Curves	$1369000	$2266000	HSIP (23 U.S.C. 148)	Urban	Major Collector	1,382	25	State Highway Agency	Spot	Intersections	Intersections
KR0234 - Striping upgrades on I-70.	Roadway delineation	Improve retroreflectivity	57.5	Miles	$390000	$390000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	18,284	70	State Highway Agency	Systemic	Lane Departure	Lane Departures
KU0048 - Upgrade lighting, high-mast luminaires, street lighting and underpass luminaires with LED lighting.	Lighting	Lighting - other	1500	Locations	$1356000	$5100000	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	0	0	State Highway Agency	Systemic	Roadway Departure	Lane Departures
5P3044 - Pavement resurfacing from Rte. 50 to 1.3 miles south of Rte. 7 and add turn lane at Rte. O.	Roadway	Roadway widening - add lane(s) along segment		Intersections	$124000	$10817000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	5,724	55	State Highway Agency	Spot	Intersections	Intersections
5P3453 - Pavement resurfacing and high friction surface treatment	Roadway	Pavement surface – high friction surface	2	Locations	$43000	$5239000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	44,986	55	State Highway Agency	Spot	Lane Departure	Lane Departures

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 0.2 mile east of Vetter Lane to 0.3 mile west of Dix Road.															
5P3495 - On-call work zone enforcement at various locations in the Central District.	Miscellaneous	Work zone enforcement	0	Workzone	$63000	$63000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Systemic	Work Zones	Work Zones
5P3507B - Add intersection turn lanes and J-turns at Clark Fork Road and Penny Hollow Lane.	Intersection geometry	Intersection geometry - other	2	Intersections	$2267000	$3171000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	19,460	70	State Highway Agency	Spot	Intersections	Intersections
5S3354 - Pavement resurfacing, add rumblestripes from Rte. 50 to Rte. E. Includes Rte. E from Rte. 63 to Rte. 89. $1,390,000 Open Container funds.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	7	Miles	$0	$2908000	Penalty Funds (23 U.S.C. 154)	Rural	Major Collector	814	55	State Highway Agency	Systemic	Roadway Departure	Lane Departures
5S3468 - Pavement resurfacing and add rumblestripes from Rte. 72 to end of state maintenance. $380,000 Open Container funds.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	9	Miles	$0	$3313000	Penalty Funds (23 U.S.C. 154)	Rural	Minor Arterial	3,054	55	State Highway Agency	Systemic	Roadway Departure	Lane Departures
CD0083 - Striping upgrades including Boone and Callaway Counties.	Roadway delineation	Longitudinal pavement markings - remarking	78	Miles	$500000	$500000	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Interstate	39,334	70	State Highway Agency	Systemic	Lane Departure	Lane Departures
CD0090 - Pavement resurfacing from west of Stadium Drive to Missouri River bridge.	Roadway	Pavement surface – high friction surface	4	Locations	$157000	$1127000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	30,560	60	State Highway Agency	Spot	Lane Departure	Lane Departures

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
CD0133 - Striping upgrades in Miller, Cole and Callaway Counties.	Roadway delineation	Longitudinal pavement markings - remarking	35	Miles	$635000	$635000	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Other Freeways & Expressways	30,560	65	State Highway Agency	Systemic	Lane Departure	Lane Departures
CD0136 - Striping upgrades in Moniteau, Cole and Osage Counties.	Roadway delineation	Longitudinal pavement markings - remarking	17	Miles	$343000	$343000	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Other Freeways & Expressways	14,346	65	State Highway Agency	Systemic	Lane Departure	Lane Departures
6P3577 - On-call work zone enforcement at various locations in the St. Louis District.	Speed management	Speed management - other	1	Miles	$1000000	$1000000	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	46,738	60	State Highway Agency	Systemic	Work Zones	Work Zones
6P3584 - Striping and signage upgrade for wrong way countermeasures at various locations between I-70 and I-270 and Rte. 364 from Hawk Ridge Trail to	Roadway signs and traffic control	Roadway signs (including post) - new or updated	600	Signs	$500000	$500000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	46,738	60	State Highway Agency	Systemic	Lane Departure	Lane Departures
6S3432 - Add J-turns at St. Luke's Church Road and Moss Hollow Road.	Intersection geometry	Innovative Intersection (e.g. MUT, RCUT, QR)	2	Intersections	$1000	$1485000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	15,800	60	State Highway Agency	Spot	Intersections	Intersections
SL0113 - Striping upgrades from I-270 to I-64.	Roadway delineation	Longitudinal pavement markings – new	11	Miles	$122000	$122000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	96,702	65	State Highway Agency	Systemic	Lane Departure	Lane Departures
SL0114 - Striping upgrades in Franklin and St. Louis Counties and St. Louis City.	Roadway delineation	Longitudinal pavement markings – new	69	Miles	$1000000	$1581000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	91,277	60	State Highway Agency	Systemic	Lane Departure	Lane Departures
SL0115 - Striping upgrades in St. Charles and St. Louis Counties	Roadway delineation	Longitudinal pavement markings – new	53	Miles	$528000	$1122000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	166,073	60	State Highway Agency	Systemic	Lane Departure	Lane Departures

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 St. Louis City.															
7I3471 - On-call work zone enforcement at various locations in the rural Southwest District.	Miscellaneous	Work zone enforcement	0	Workzone	$100000	$100000	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Work Zones	Work Zones
7S3442 - Pavement resurfacing and add rumblestripes from Rte. 60 in Verona to west of Cowan Drive in Aurora.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	0.618	Miles	$191000	$803000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	10,647	60	State Highway Agency	Systemic	Roadway Departure	Lane Departures
7S3454 - Pavement resurfacing and add rumblestripes from I-44 in Joplin to Rte. BB (Iris Road).	Shoulder treatments	Shoulder treatments - other	1.216	Miles	$610000	$2151000	HSIP (23 U.S.C. 148)	Rural	Major Collector	1,768	55	State Highway Agency	Systemic	Roadway Departure	Lane Departures
8I3214 - On-call work zone enforcement at various locations in the urban Southwest District.	Miscellaneous	Work zone enforcement	0	Workzone	$220000	$220000	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	0	0	State Highway Agency	Systemic	Work Zones	Work Zones
8P0683E - Add interchange at Rte. 125 in Rogersville. $4,008,000 Open Container, $1,000,000 Rogersville and $1,000,000 Greene County funds.	Interchange design	Convert at-grade intersection to interchange	1	Interchanges	$6948000	$20344000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	26,993	60	State Highway Agency	Spot	Intersections	Intersections
8S3160 - Modify access, signals, ADA Transition Plan	Intersection traffic control	Systemic improvements – signal-controlled	18	Intersections	$150000	$5787000	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial-Other Freeways & Expressways	39,866	40	State Highway Agency	Systemic	Intersections	Intersections

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
improvements and replace bus stop pads from Valley Water Mill Rd. to Rte. 60 in Springfield. $677															
SR0036 - Pavement resurfacing and add rumblestripes from Rte. 171 to Rte. 43.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	6.9	Miles	$795000	$1839000	HSIP (23 U.S.C. 148)	Rural	Major Collector	508	55	State Highway Agency	Systemic	Roadway Departure	Lane Departures
SR0037 - Pavement resurfacing and add rumblestripes from Rte. N to Rte. 96.	Shoulder treatments	Widen shoulder – paved or other (includes add shoulder)	6.501	Miles	$273000	$1362000	HSIP (23 U.S.C. 148)	Rural	Major Collector	769	55	State Highway Agency	Systemic	Roadway Departure	Lane Departures
SR0150 - Striping upgrades from 1 mile east of Prigmor Avenue in Joplin to Rte. 360 in Greene County and from 2 miles east of Rte. 125 to 3 miles east	Roadway delineation	Longitudinal pavement markings - remarking	199.912	Miles	$724000	$724000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	33,589	70	State Highway Agency	Systemic	Lane Departure	Lane Departures
SR0152 - Striping upgrades from the Oklahoma State line to 1 mile east of Prigmor Avenue in Joplin and on I-49 from I-44 west junction in Joplin to Rt	Roadway delineation	Longitudinal pavement markings - remarking	42.577	Miles	$361000	$361000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	31,708	70	State Highway Agency	Systemic	Lane Departure	Lane Departures
SR0153 - Striping upgrades from Rte. EE near Pineville to the Arkansas State line.	Roadway delineation	Longitudinal pavement markings - remarking	43.674	Miles	$167000	$167000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	13,852	65	State Highway Agency	Systemic	Lane Departure	Lane Departures

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
SR0154 - Striping upgrades from 0.5 mile south of Rtes. A/B in Archie to Rtes. A/B in Rich Hill, from Rte. 54 in Nevada to I-44, on Rte. 7 from 0.3 mi	Roadway delineation	Longitudinal pavement markings - remarking	377.669	Miles	$1059000	$1059000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	13,798	70	State Highway Agency	Systemic	Lane Departure	Lane Departures
SU0151 - Striping upgrades from 0.1 mile east of Rte. 360 to 2 miles east of Rte. 125 in Strafford.	Roadway delineation	Longitudinal pavement markings - remarking	43.674	Miles	$239000	$239000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	42,369	70	State Highway Agency	Systemic	Lane Departure	Lane Departures
9P3733 - Conversion to low profile islands in various locations throughout the Southeast District.	Lighting	Intersection lighting	3	Intersections	$32000	$425000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Systemic	Intersections	Intersections
9P3759 - On-call work zone enforcement at various locations in the Southeast District.	Miscellaneous	Work zone enforcement	0	Workzone	$40000	$40000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Systemic	Work Zones	Work Zones
9S3731 - Add rumblestripes from 0.4 mile south of Rte. WW to Rte. 160. $2,683,000 Open Container funds.	Shoulder treatments	Pave existing shoulders		Miles	$0	$2858000	Penalty Funds (23 U.S.C. 154)	Rural	Minor Arterial	0	0	State Highway Agency	Spot	Roadway Departure	Lane Departures
SE0161 - Striping upgrades from Webster County line to I-55, on Rte. 67 from Jefferson County line to Rte. 160 and on Rte. 63 from east intersection o	Roadway delineation	Longitudinal pavement markings - remarking		Miles	$1381000	$1381000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	0	0	State Highway Agency	Systemic	Roadway Departure	Lane Departures

2023 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
ST0011 - Safety Circuit Rider statewide liaison for state fiscal year 2023.	Miscellaneous	Local road safety plans	1	Safety Circuit Rider	$60000	$75000	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	Other Local Agency	Spot	Data	Data Driven Safety Analysis

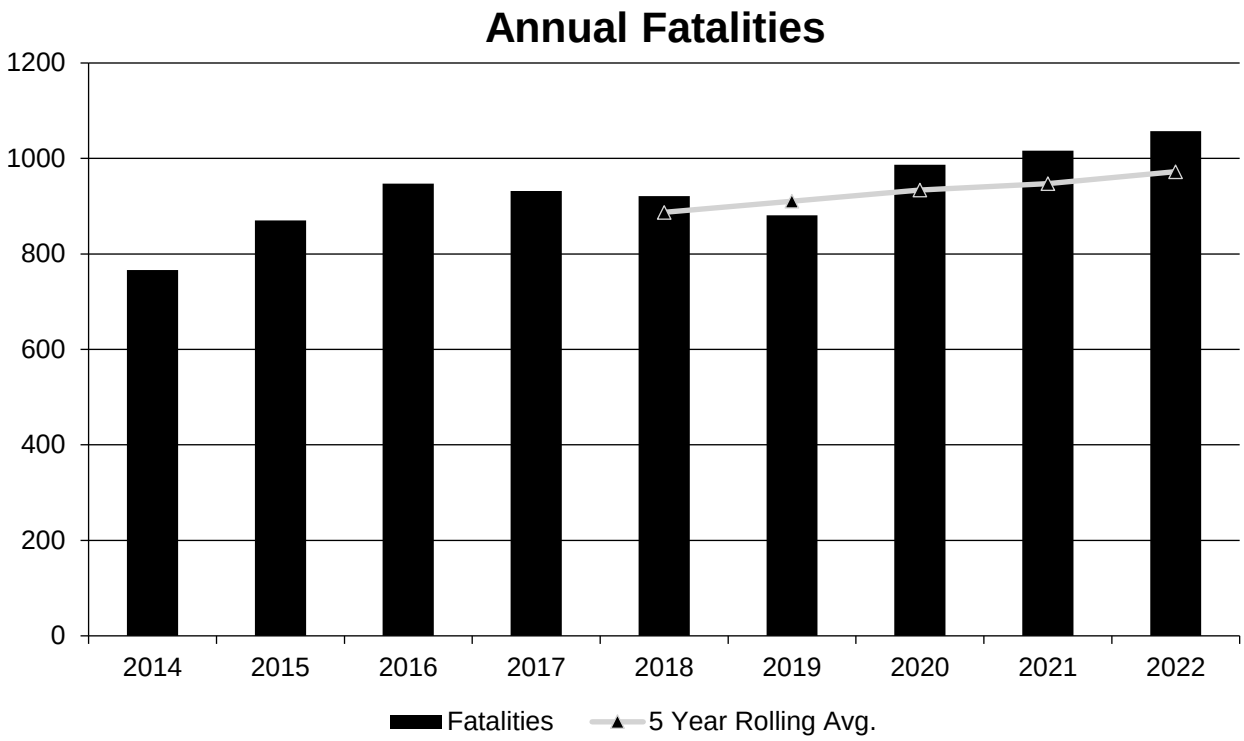
On the projects that included various routes the AADT and Speed are listed as zero for consistency.

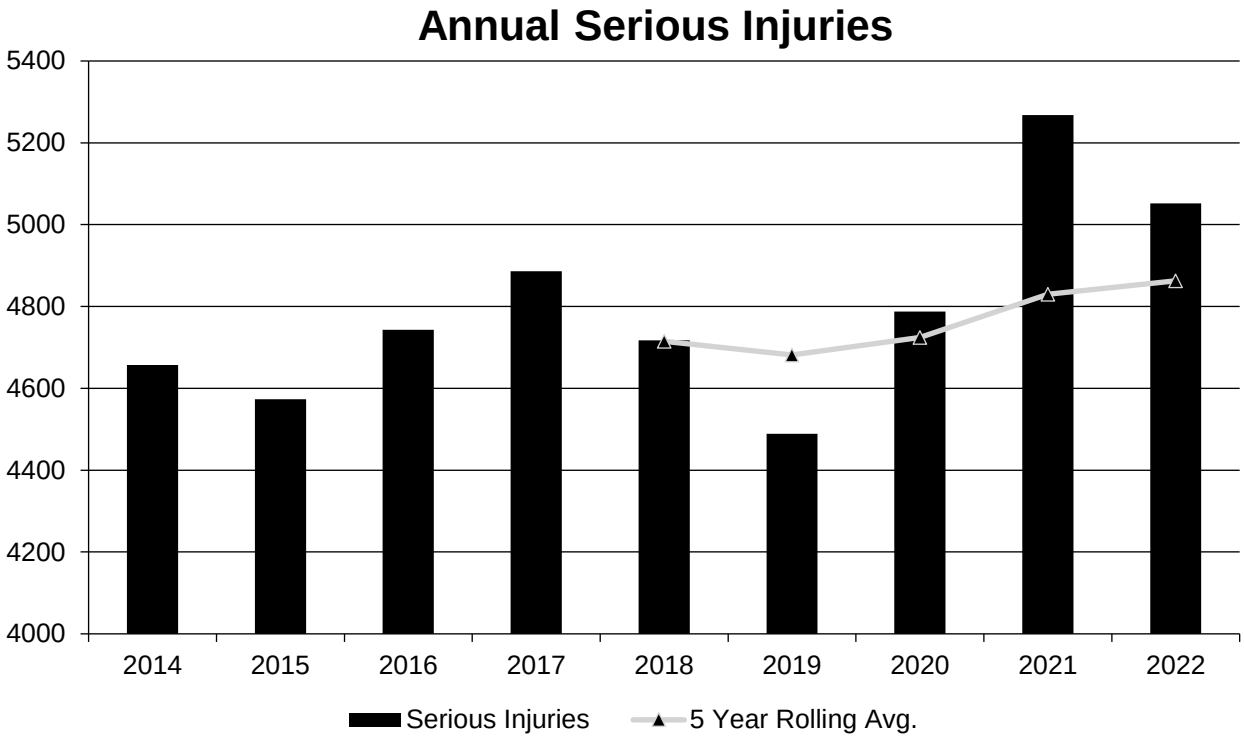
Safety Performance

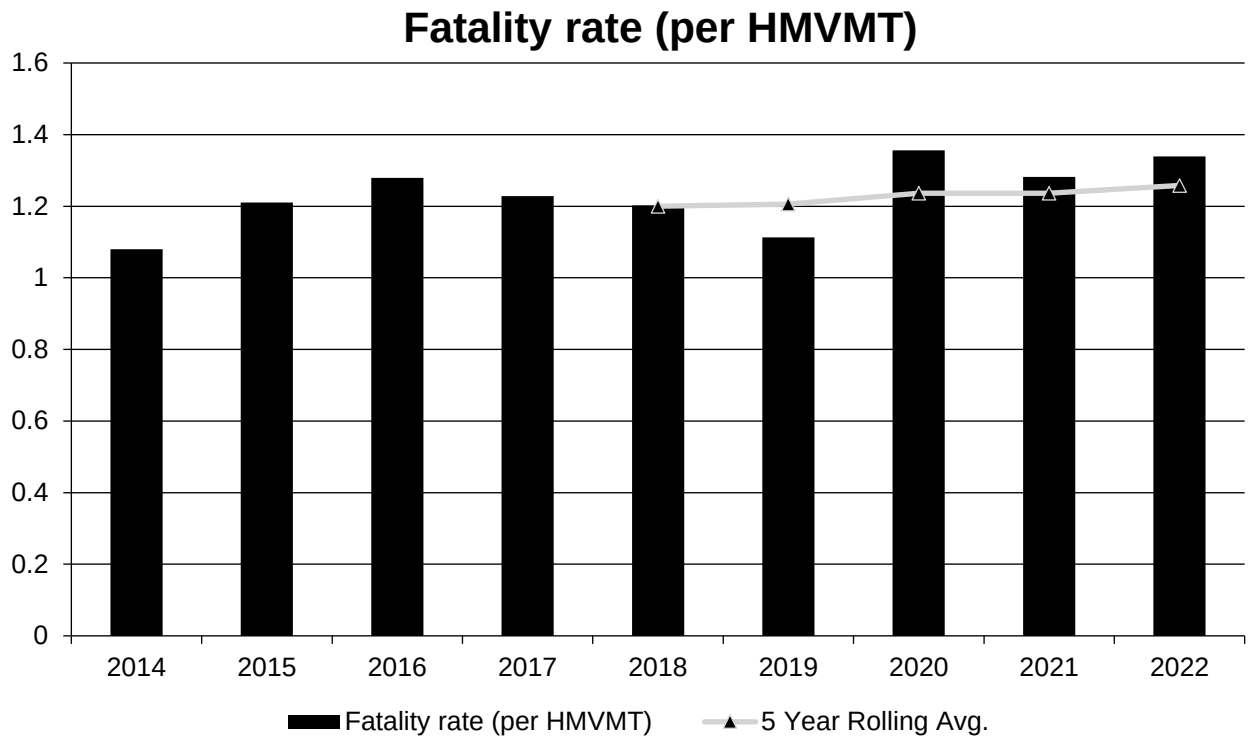
General Highway Safety Trends

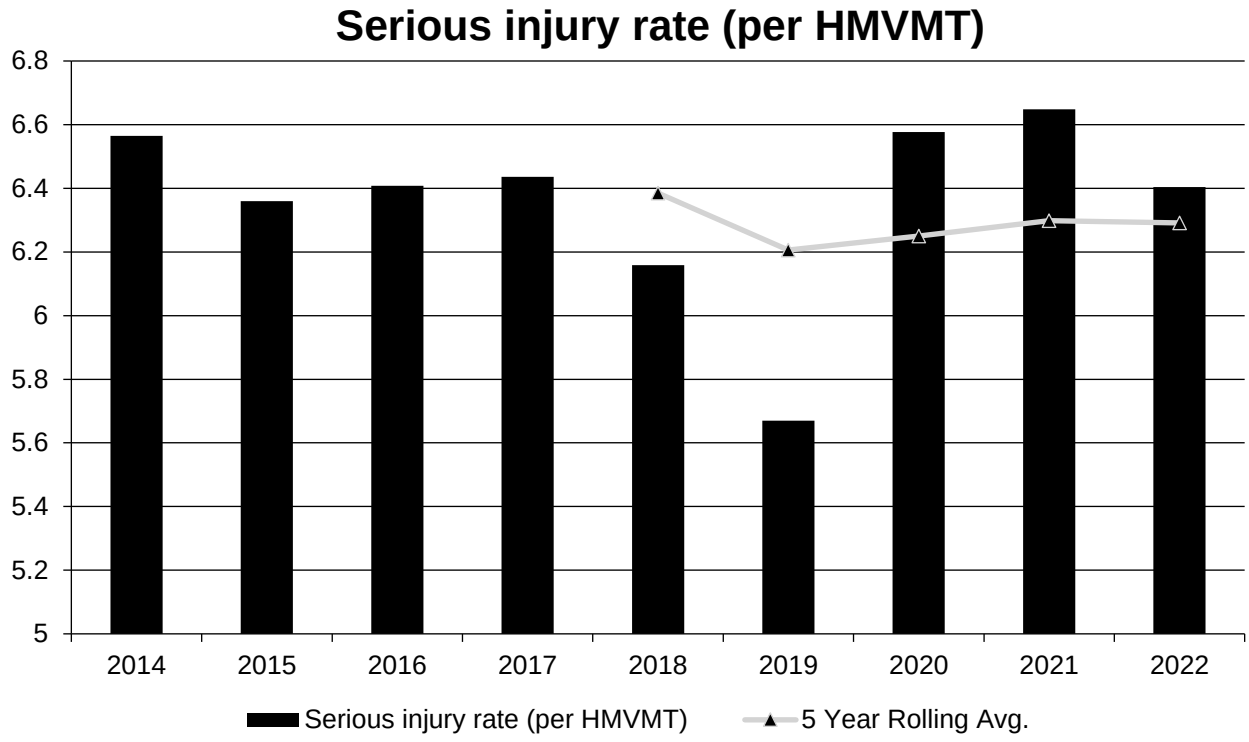
Present data showing the general highway safety trends in the State for the past five years.

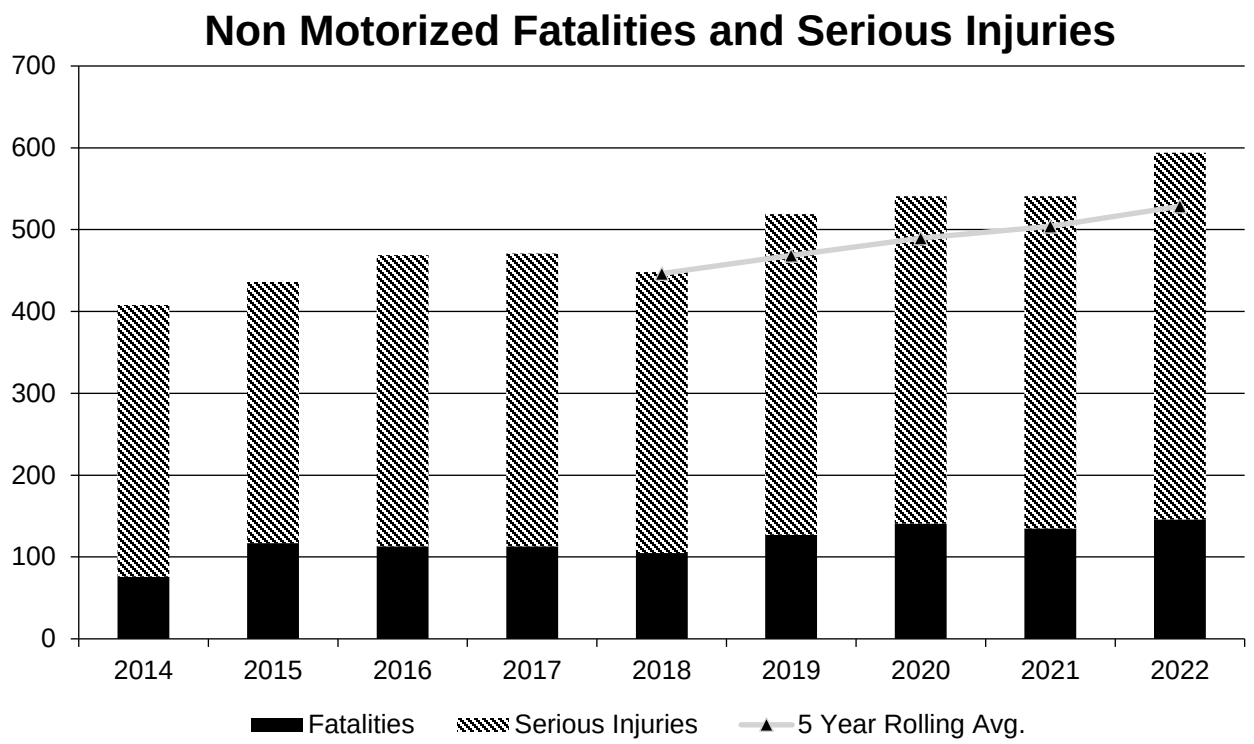
PERFORMANCE MEASURES	2014	2015	2016	2017	2018	2019	2020	2021	2022
Fatalities	766	870	947	932	921	881	987	1,016	1,057
Serious Injuries	4,657	4,573	4,743	4,886	4,717	4,489	4,788	5,268	5,052
Fatality rate (per HMVMT)	1.080	1.210	1.279	1.228	1.202	1.113	1.356	1.282	1.339
Serious injury rate (per HMVMT)	6.565	6.360	6.408	6.436	6.158	5.670	6.577	6.648	6.404
Number non-motorized fatalities	76	117	113	113	105	127	141	135	146
Number of non-motorized serious injuries	332	319	356	358	343	392	400	406	448


Annual Fatalities
1200
1000
800
600
400
200
0
2014
2015
2016
2017
2018
2019
2020
2021
2022
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
5400
5200
5000
4800
4600
4400
4200
4000
2014
2015
2016
2017
2018
2019
2020
2021
2022
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2014
2015
2016
2017
2018
2019
2020
2021
2022
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
6.8
6.6
6.4
6.2
6
5.8
5.6
5.4
5.2
5
2014
2015
2016
2017
2018
2019
2020
2021
2022
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



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 2023.

Describe fatality data source.

State Motor Vehicle Crash Database

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

Year 2022

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	48.2	166.2	0.66	2.29
Rural Principal Arterial (RPA) - Other Freeways and Expressways	54.2	200.8	1.04	3.84
Rural Principal Arterial (RPA) - Other	69	242.4	2.12	7.44
Rural Minor Arterial	93.2	359	2.56	9.84

Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Minor Collector	21.8	91.6	3.14	13.16
Rural Major Collector	140.2	576.2	2.75	11.26
Rural Local Road or Street	77.2	403.8	0.83	4.35
Urban Principal Arterial (UPA) - Interstate	95.6	452	0.7	3.29
Urban Principal Arterial (UPA) - Other Freeways and Expressways	52.2	235.8	0.96	4.33
Urban Principal Arterial (UPA) - Other	119	683.2	2.2	12.59
Urban Minor Arterial	111.8	734.4	1.8	11.81
Urban Minor Collector	3.2	29.4	1.5	13.9
Urban Major Collector	38.6	282.6	1.3	9.56
Urban Local Road or Street	47	394.2	0.57	4.75

Year 2022

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				
State System	692.6	3,033.2	1.36	5.95
City & County	279.8	1,829.4	1.08	7.05

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 two years 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 each year, over the last 6 years and last year alone Missouri experienced 146 fatalities. MoDOT partnered with FHWA and hosted two Safe Transportation for Every Pedestrian (STEP) workshops to promote pedestrian safety initiatives.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2024 Targets *

Number of Fatalities:972.4

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:4861.8

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:1.258

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%. In 2021 the VMT rebounded more than anticipated such that it is just slightly higher than 2019. It is anticipated that the typically estimated 1% growth per year will be sufficient moving forward. This target is in line with the SHSP to reduce the number of fatalities on Missouri's roadways.

Serious Injury Rate:6.227

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%. In 2021 the VMT rebounded more than anticipated such that it is just slightly higher than 2019. It is anticipated that the typically estimated 1% growth per year will be sufficient moving forward. 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:523.0

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 2023 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 2022 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	920.6	972.4
Number of Serious Injuries	4564.1	4862.8
Fatality Rate	1.205	1.258
Serious Injury Rate	5.972	6.291

Non-Motorized Fatalities and Serious Injuries	484.0	528.6

Based on the data available at the time of reporting, the actual 2022 performance was worse than the 2022 targets, for each of the safety performance targets. This is primarily due to an increase in fatalities and serious injuries which occurred within the five-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.

Although the last three years (2020, 2021, and 2022) saw increases in fatalities and serious injuries the trend is looking to be more positive this year (2023), as Missouri is currently seeing a decrease in severe crashes. However, this has still not recovered to the point that the severe crashes are below what was seen before 2020. This can most likely can be attributed to the increase in speeding and aggressive driving observed throughout the state. Additionally, Missouri's Fall 2020 state legislature 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 VRU Safety Special Rule apply to the State for this reporting period?

No

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	2016	2017	2018	2019	2020	2021	2022
Number of Older Driver and Pedestrian Fatalities	154	135	143	121	148	153	184
Number of Older Driver and Pedestrian Serious Injuries	367	369	426	378	368	432	484

Data for this was compiled in August 2023.

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, for 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 planned safety projects 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 where 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

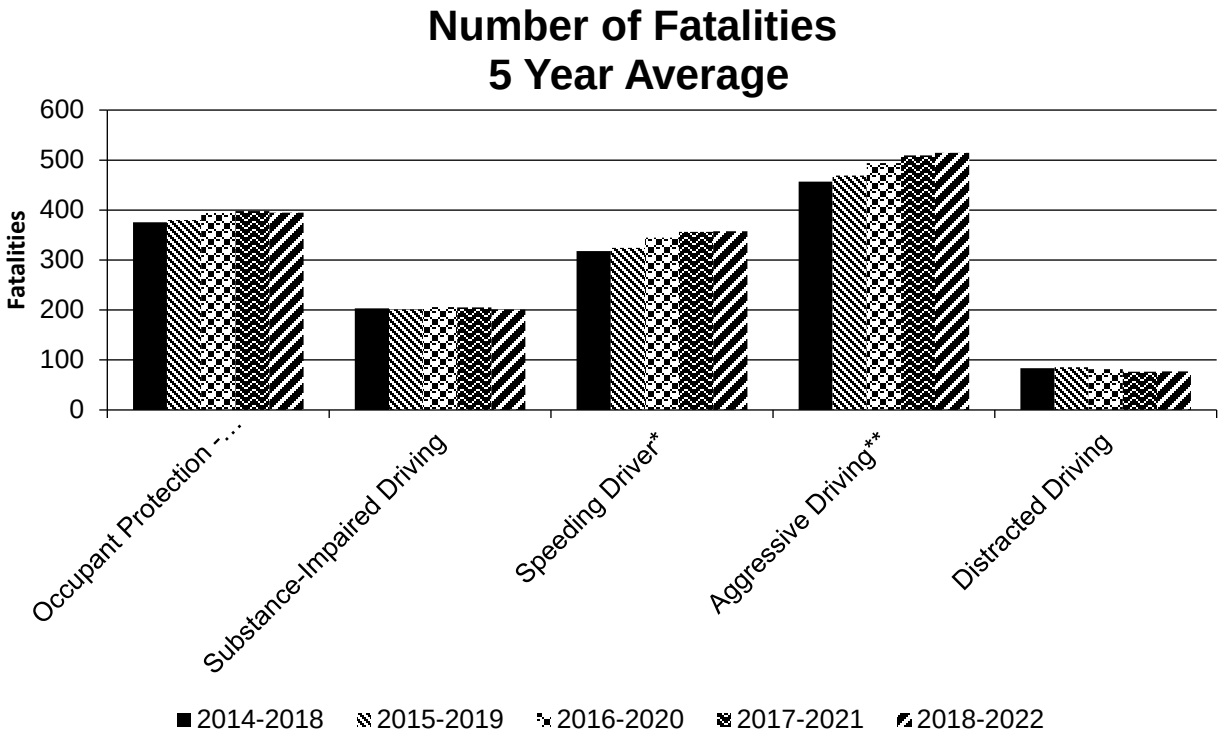
· More systemic programs

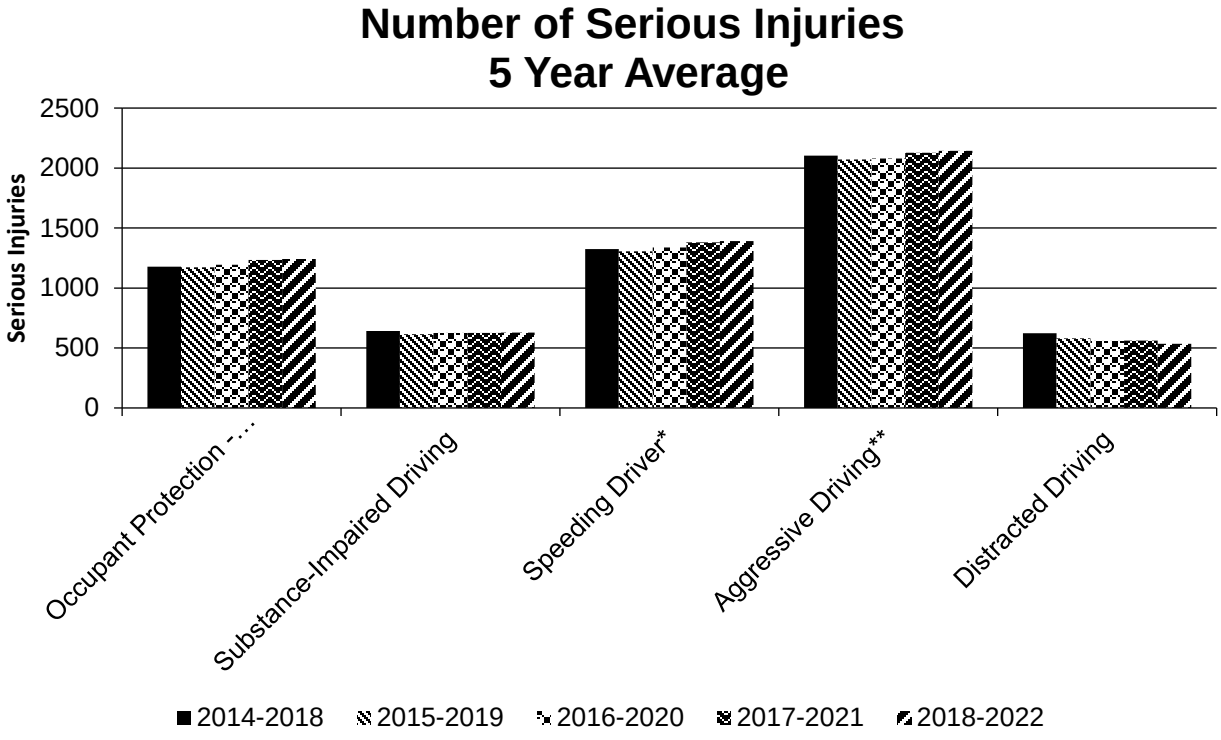
Effectiveness of Groupings or Similar Types of Improvements

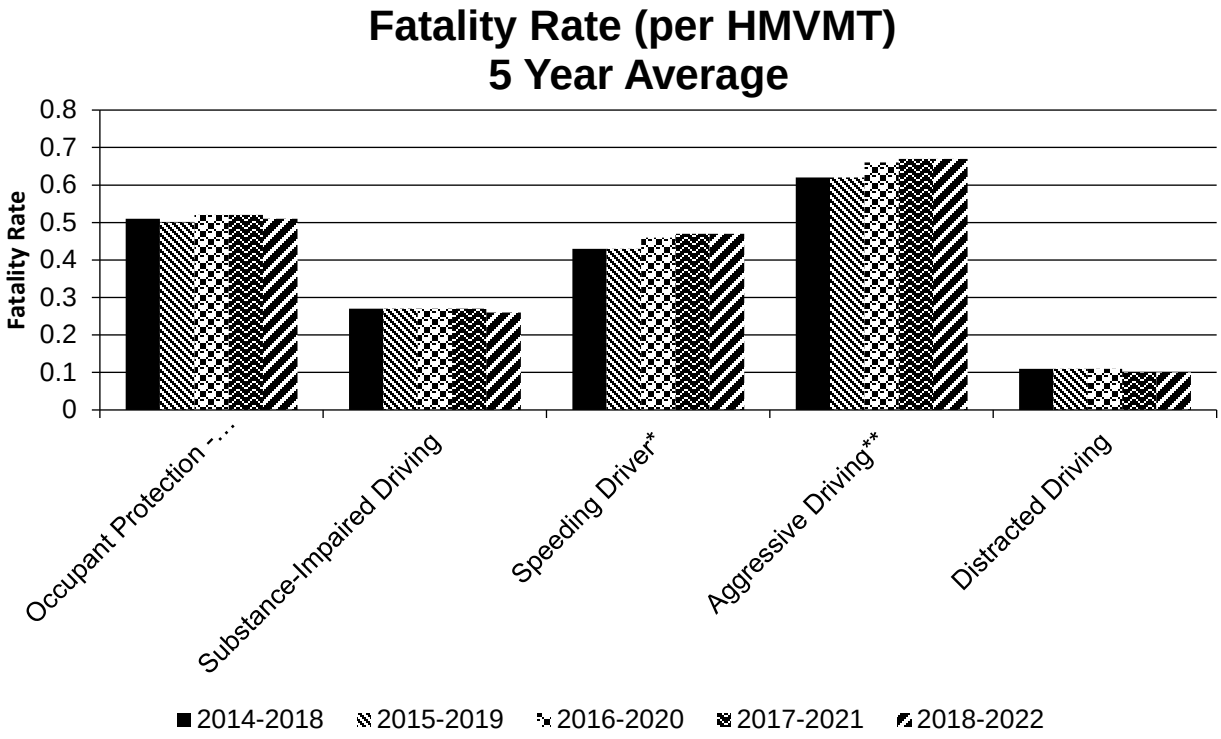
Present and describe trends in SHSP emphasis area performance measures.

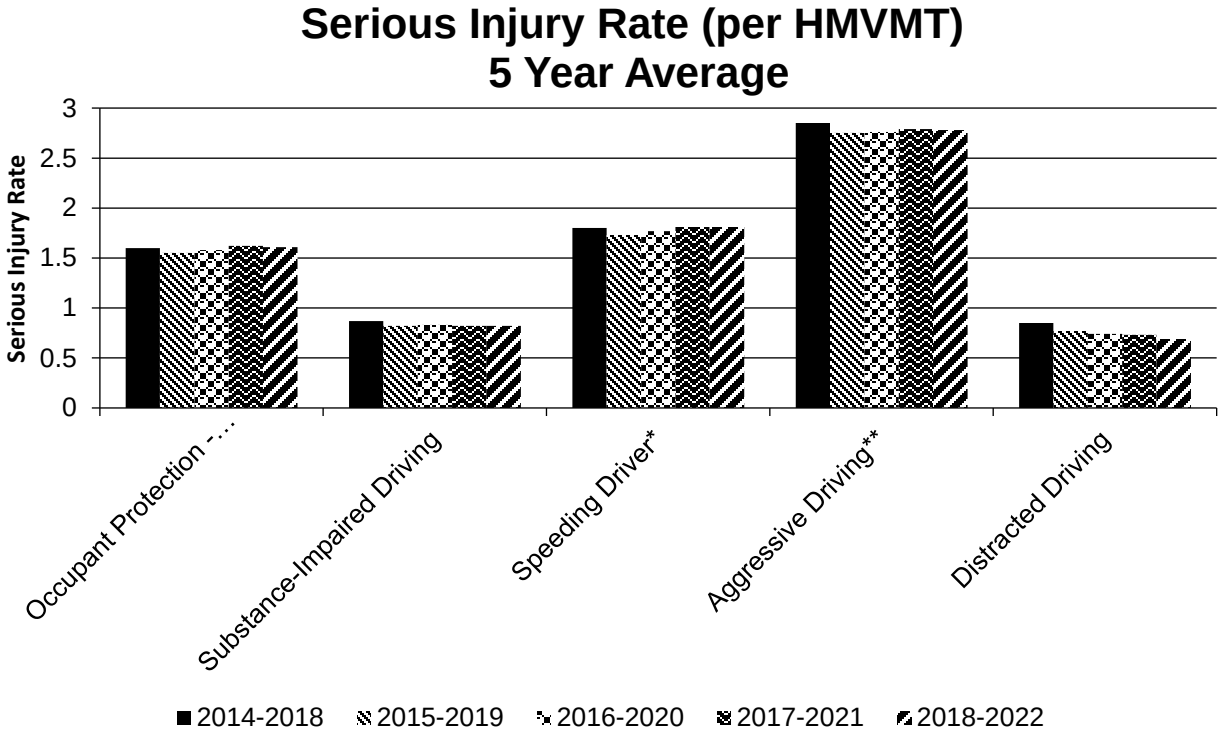
Year 2022

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)
Occupant Protection - Unbelted Vehicle Occupants		395	1,240.8	0.51	1.61
Substance-Impaired Driving		200.6	628.8	0.26	0.82
Speeding Driver*		357.8	1,391.2	0.47	1.81
Aggressive Driving**		514.4	2,142.8	0.67	2.78
Distracted Driving		77.4	533.6	0.1	0.69


Number of Fatalities
5 Year Average
Fatalities
600
500
400
300
200
100
0
Occupant Protection -…
Substance-Impaired Driving
Speeding Driver*
Aggressive Driving**
Distracted Driving
2014-2018
2015-2019
2016-2020
2017-2021
2018-2022


Number of Serious Injuries
5 Year Average
Serious Injuries
2500
2000
1500
1000
500
0
Occupant Protection -…
Substance-Impaired Driving
Speeding Driver*
Aggressive Driving**
Distracted Driving
2014-2018
2015-2019
2016-2020
2017-2021
2018-2022





*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.

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	100					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								

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
	Functional Class (19) [19]	100	100					100	100	100	100
	Median Type (54) [55]	30	30								
	Access Control (22) [23]	100	80								
	One/Two Way Operations (91) [93]	100	80								
	Number of Through Lanes (31) [32]	100	100					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				

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
	Location Identifier for Roadway at Beginning of Ramp Terminal (197) [187]					100	100				
	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**	**93.89**	**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.

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:

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.