



MARYLAND

# 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. 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

### Summary Maryland Highway Safety Improvement Program (HSIP) CY 2020

- The purpose of the HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on public roads. To obligate “core” safety funds MDOT SHA must have in effect an HSIP under which the State: 1) develops and implements a Strategic Highway Safety Plan (SHSP) that identifies and analyzes highway safety problems and opportunities to reduce fatalities and serious injuries, 2) produces a program of projects or strategies to reduce identified safety problems, 3) evaluates the plan on a regular basis to ensure the accuracy of the data and priority of proposed improvements, 4) submits an annual report to the FHWA Division.
- The principal objective of Maryland's Fund 76 Safety and Spot Improvement Program is: on an annual basis, to identify those highway locations that contain safety deficiencies based on abnormal collision experience and, as quickly as possible, implement safety improvements to reduce or eliminate these deficiencies.
- HSIP Staff is located in the Planning, Engineering and Highway Safety Office portions of MDOT.
- HSIP is administered centrally via Statewide Competitive Application Process.
- Local roads were not allocated HSIP funds in CY 2020 yet but a new program was established in 2020 and local roads will be allocated HSIP fund starting from CY2021.
- The Maryland Highway Safety Office (MHSO) along with the Maryland Transportation Authority and the Maryland Institute for Emergency Medical Services are important partners with the Maryland State Highway Administration (SHA) in the HSIP process. The Federal Highway Administration (FHWA), National Highway Traffic Safety Administration, Federal Motor Carrier Safety Administration and several regional planning organizations along with local governments, various police agencies and academic organizations also coordinate with the SHA.
- Programs administered under the HSIP
  1. Median Barrier
  2. Horizontal Curve
  3. Skid Hazard
  4. Roadway Departure
  5. Left-turn crash
  6. Intersection Crash Data
  7. Low Cost Spot Improvements
  8. Pedestrian Safety
  9. Rural State Highway
  10. Right Angle Crash
  11. Highway Sections
- The data types used in the HSIP program methodology are vehicle crashes, traffic volume and highway mileage.
- The project identification methodology used in the HSIP program are crash frequency and relative severity index.
- The HSIP projects are advanced for implementation by a SHA selection committee. The criteria considered are Safety, Congestion, Operations and Local Support. This will be revised in the future.
- Engineering studies and Road Safety Assessments are used to identify potential countermeasures.
- The Highway Safety Manual is used in site specific studies that are related to the HSIP.
- Reporting period for HSIP funding is CY 2020.
- All police crash reports used for the crash database are in electronic format as of January 1, 2015
- The general listing of projects includes various traffic control, roadside, lighting, intersection geometry and pedestrian-bicyclist access projects.
- The overview of safety trends indicates that the reported number of fatalities have increased from 505 (FARS) in 2016 to 573 (MD) in 2020 (annual format) and that the number of serious injuries (MD) have decreased from 3,167 in 2016 to 2,707 in 2020 (annual format). Please note that all 2019 FARS totals are preliminary at the time of this report. 2020 FARS totals are not available with state totals being used instead at the time of the report. Please also note that during the COVID-19 Pandemic in 2020 VMT dropped for about 24%, but the number of serious injuries didn't drop at the same rate and the number of fatalities increased

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instead. The impact of the Pandemic on fatal and serious injury crashes seems significant and please use caution when analyzing safety performance in CY2020.

- The overview of safety trends indicates that the reported number of non-motorized fatalities have increased from 124 (FARS) in 2016 to 146 (MD) in 2020 (annual format) and that the number of non-motorized serious injuries (MD) have decreased from 486 in 2016 to 426 in 2020 (annual format). Please see above note on 2019-20 FARS totals and impact of the COVID-19 Pandemic.
- Overall five-year average crash trends for the individual functional classification and roadway ownership are shown in tables in the annual report.
- Maryland maintains the Toward Zero Deaths (TZD) approach by developing interim targets to reduce fatalities by at least 50 percent in the next two decades.
- “To begin, the development team conducted one-on-one interviews with key traffic safety partners across Maryland. Safety partners included leaders from government agencies, education and outreach professionals, local law enforcement, and emergency services agencies. During the interviews, the team solicited insight into the status of traffic safety initiatives and current and future safety priorities for Maryland roadways.”  
“Information gathered from this safety partner survey helped refine goals, solicit new/updated action steps, identify emerging issues, and examine the progress of each SHSP Emphasis Area.” (2021-25 SHSP).
- Older Driver and pedestrian (65 and older) Fatalities increased from 82 in 2013 to 130 in 2019 (FARS – annual numbers. 2019 FARS totals are preliminary at the time of this report). Serious Injuries increased from 235 in 2013 to 265 in 2019 (MD – annual numbers).
- The State measures effectiveness of the HSIP by the change in fatalities and serious injuries.
- Overall yearly crash trends for the individual SHSP (Strategic Highway Safety Program) emphasis areas are shown in tables in the annual report.
- All Maryland counties along with Baltimore City are now provided a three-year listing of pedestrian involved crashes which includes a summary of serious injury and fatal crashes on state highways along with a detailed listing for local roads.
- Maryland’s current SHSP was approved by the Governor or designated State representative in January 2021.
- The years being covered by the current SHSP are 2021 to 2025.
- Maryland anticipates completing its next SHSP update by 2025.
- The status (percent complete) of MIRE fundamental data elements collection efforts are shown in tables in the annual report.
- MDOT SHA has implemented Esri’s Roads and Highways (R&H) software to manage our GIS roadway and LRS data for HPMS submission. This year MDOT SHA used Roads and Highways for their HPMS submission. With the Intersection Manager tool, our ability to better manager intersection data, and data gaps, we will be able to be 100 percent compliant by 2026.
- In conjunction with the Esri R&H implementation, we also began the One Maryland, One Centerline (OMOC) program where MDOT SHA has met with all 23 counties, and Baltimore City, to discuss the sharing of data between jurisdictions via one common geometry, maintained by the appropriate authority. We have begun a pilot conflation process between MDOT SHA and two county jurisdictions to test process and develop the protocols that will be used for the integration of the remaining counties of Maryland. This geometry will be the base of the R&H data model. This data sharing and cooperation between the local and state jurisdictions will better allow us to identify and fill data gaps, with the appropriate, authoritative information.
- FHWA has authorized several pilots to investigate developing methodologies to more accurately calculate local AADTs for lower functionally classified roadways. MIRE FDEs require this type of data, while the local jurisdictions do not have the wherewithal nor need to completely capture and maintain this type of data. Therefore, the need to develop better proxies or models to better estimate these AADTs for local roads is an ongoing activity.
- Following in Federal law, 23 U.S.C. 148(i), an HSIP Implementation Plan was developed in CY 2020 to define strategies and projects that will result in Maryland reaching or making substantial progress toward achieving its Safety Performance Targets for FY2021 and beyond.

## 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 purpose of the HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on public roads. To obligate “core” safety funds MDOT SHA must have in effect an HSIP under which the State: 1) develops and implements a Strategic Highway Safety Plan (SHSP) that identifies and analyzes highway safety problems and opportunities to reduce fatalities and serious injuries, 2) produces a program of projects or strategies to reduce identified safety problems, 3) evaluates the plan on a regular basis to ensure the accuracy of the data and priority of proposed improvements, 4) submits an annual report to the FHWA Division.

Emphasis on Maryland’s highways is placed on improving the safety of intersections, sections and ramps that are identified as Candidate Safety Improvement Locations (CSILs) or through Road Safety Audits, on implementing proven blanket safety improvements on a systematic basis, and on applying systemic approach to identify and improve areawide locations with low-cost, proven countermeasures proactively. Safety improvements include the installation of rumble strips and median barriers; upgrading signs, signals, and markings; improving lighting; improving geometrics; and highway and bridge widening, resurfacing, rehabilitation, and reconstruction.

The processes used to identify locations, referred to in the HSIP as hazardous locations, which have abnormal accident experience. Those locations, referred to herein as Candidate Safety Improvement Locations (CSILs), include intersections, spots and sections where the combination of accident frequencies and/or rates are significantly higher than those at similar locations. The identification of CSILs is based on all police reported collisions, i.e., those crashes reported by law enforcement agencies across Maryland to the Maryland State Police. Information from these reports is entered into a statewide accident database for analysis.

The Maryland Department of Transportation State Highway Administration (MDOT SHA) typically identifies CSILs only on the state maintained highway system. Several local jurisdictions use the accident data, which MDOT SHA provides to all of the jurisdictions annually, to identify similar location on their road systems.

The principal objective of Maryland's Fund 76 Safety and Spot Improvement Program is: on an annual basis, to identify those highway locations that contain safety deficiencies based on abnormal collision experience and, as quickly as possible, implement safety improvements to reduce or eliminate these deficiencies. Locations identified by the District Engineers as having a combined safety/capacity problem although not necessarily qualifying as Candidate Safety Improvement Locations, also can be included as candidate Fund 76 Program projects. The MDOT SHA Administrator makes the final project selection.

Maryland's Fund 76 Spot Improvement Program was developed under the guidelines set forth in 23 CFR 924, and was designed to address the most critical highway safety problems statewide through a systematic and

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unbiased approach. The Fund 76 Program is under the direction of the MDOT SHA's Deputy Administrator/Chief Engineer for Operations, with program development and assistance from the Office of Traffic and Safety.

Through the Fund 76 process, accident data for all State highways is reviewed annually, and all sections and intersections experiencing abnormally high accident rates are studied to determine what countermeasures are applicable. In addition, listings of accidents on local roads are sent to the local governments for their use.

Systemic countermeasures are applied in the Fund 76 Program. In addition, MDOT SHA is developing a Systemic Approach Program following the FHWA Systemic Safety Project Selection Tool. We identified statewide focus crash types and risk factors, screened and prioritized candidate locations, selected corresponding countermeasures, and prioritized systemic improvement projects for each facility type. The systemic projects are currently under review and will start to be implemented in the near future.

In Maryland about ¼ fatalities and serious crashes occurred on roadways maintained by local agencies and HSIP fund need to be allocated to them to improve traffic safety on local roadways. MDOT SHA developed the HSIP Local Fund Program and started the application in FFY2021. Multiple projects from various Counties in Maryland were reviewed and selected by MDOT SHA. Starting from FFY2022, local projects will be implemented with support from HSIP in Maryland.

### **Where is HSIP staff located within the State DOT?**

Other-Planning and Engineering

### **How are HSIP funds allocated in a State?**

- Central Office via Statewide Competitive Application Process

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

MDOT SHA developed the HSIP Local Fund Program in FFY2021. Draft Guideline and application forms were provided to local agencies. Eligible Counties must have a Local Road Safety Plan (LRSP). Cities and municipalities can also participate through their county. For the first 1~2 years of the new program, we would support systemic improvement only and spot improvement will be eligible in later years. The application was due by July 1 each year and MDOT SHA reviewed and selected projects based on systemwide data, with emphasis on characteristics frequently present in severe crashes, and identified and prioritized locations across the roadway network for implementation. The selected local project will be supported with HSIP fund in the next federal fiscal year starting from October 1.

### **Identify which internal partners (e.g., State departments of transportation (DOTs) Bureaus, Divisions) are involved with HSIP planning.**

- Districts/Regions
- Governors Highway Safety Office
- Planning
- Traffic Engineering/Safety
- Other-Maryland State Highway District Offices

### **Describe coordination with internal partners.**

Within the Maryland Department of Transportation (MDOT) the State Highway Administration (MDOT SHA) Office of Traffic and Safety (OOTS) and Office of Planning and Preliminary Engineering (OPPE) along with the

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Motor Vehicle Administration (MVA) Maryland Highway Safety Office (MHSO) provided leadership, support, and coordination for Maryland's highway safety projects in CY 2019. Part of MDOT SHA and MVA's responsibility is to work with other State agencies to address highway safety issues. This effort results in a multi-agency approach which includes the Maryland Transportation Authority, the Maryland Institute for Emergency Medical Services and others that have roles in highway safety problems. The seven MDOT SHA District Offices also provide a network of field personnel willing to coordinate and provide technical assistance to local agencies.

### **Identify which external partners are involved with HSIP planning.**

- Academia/University
- FHWA
- Law Enforcement Agency
- Local Government Agency
- Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
- Other-External partners including MPOs, local government, police agencies and academic organizations were included in the 2016-20 SHSP planning process

### **Describe coordination with external partners.**

As stated in the 2021-2025 SHSP (Maryland Strategic Highway Safety Plan), stakeholder groups which included HSIP external partners participated in the development of the SHSP to identify, develop, and finalize strategies for the 2021-2025 SHSP. Stakeholder groups have coordinated in the collection and maintaining of safety data for all public roads and processes for advancing the State's capabilities for safety data collection and analysis through the Traffic Records Coordinating Committee's (TRCC).

## ***Program Methodology***

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

Yes

The HSIP manual is currently a draft and it is being updated to include process for funding local agencies.

### **Select the programs that are administered under the HSIP.**

- Bicycle Safety
- Horizontal Curve
- Intersection
- Left Turn Crash
- Low-Cost Spot Improvements
- Median Barrier
- Pedestrian Safety
- Right Angle Crash
- Roadway Departure
- Rural State Highways
- Segments
- Sign Replacement And Improvement
- Skid Hazard



**Program: Bicycle Safety**

***Date of Program Methodology:1/1/2010***

***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></ul>	<ul style="list-style-type: none"><li>• Volume</li><li>• Other-Highway mileage</li></ul>	

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

- Crash frequency
- Crash rate
- Relative severity index

***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).***

**Relative Weight in Scoring**

Other-safety:60

Other-Congestion / Operations:30

Other-Support / Opportunity:10

Total Relative Weight:100

**Program: Horizontal Curve**

***Date of Program Methodology: 1/1/2010***

***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**

- Volume
- Other-Highway mileage

**Roadway**

- Functional classification

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

- Crash frequency
- Crash rate
- Relative severity index

***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).***

**Relative Weight in Scoring**

Other-Safety:60

Other-Congestion / Operations:30

Other-Support / Opportunity:10

Total Relative Weight:100

**Program: Intersection**

***Date of Program Methodology:1/1/2010***

***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

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

- Crash frequency
- Relative severity index

***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).***

Relative Weight in Scoring

Other-Safety:60

Other-Congestion / Operations:30

Other-Support / Opportunity:10

Total Relative Weight:100

**Program: Left Turn Crash**

***Date of Program Methodology:1/1/2010***

***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

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

- Crash frequency
- Relative severity index

***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).***

**Relative Weight in Scoring**

Other-Safety:60

Other-Congestion / Operations:30

Other-Support / Opportunity:10

Total Relative Weight:100

**Program: Low-Cost Spot Improvements**

***Date of Program Methodology:1/1/2010***

***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**

- Volume
- Other-Highway mileage

**Roadway**

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

- Crash frequency
- Crash rate
- Relative severity index

***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).***

**Relative Weight in Scoring**

Other-Safety:60

Other-Congestion / Operations:30

Other-Support / Opportunity:10

Total Relative Weight:100

**Program: Median Barrier**

***Date of Program Methodology:1/1/2010***

***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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Competes with all projects

### ***What data types were used in the program methodology?***

#### **Crashes**

- All crashes

#### **Exposure**

- Volume
- Other-Highway mileage

#### **Roadway**

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

- Crash frequency
- Crash rate
- Relative severity index

### ***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).***

#### **Relative Weight in Scoring**

Other-Safety:60

Other-Congestion / Operations:30

Other-Support / Opportunity:10

Total Relative Weight:100

### **Program: Pedestrian Safety**

***Date of Program Methodology:1/1/2012***

### ***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**

- Volume
- Other-Highway mileage

**Roadway**

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

- Crash frequency
- Crash rate
- Relative severity index

***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).***

**Relative Weight in Scoring**

Other-Safety:60  
Other-Congestion / Operations:30  
Other-Support / Opportunity:10  
Total Relative Weight:100

**Program: Right Angle Crash**

***Date of Program Methodology:1/1/2010***

***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?***

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### Crashes

- All crashes

### Exposure

### Roadway

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

- Crash frequency
- Relative severity index

### ***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).***

#### **Relative Weight in Scoring**

Other-Safety:60

Other-Congestion / Operations:30

Other-Support / Opportunity:10

Total Relative Weight:100

### **Program: Roadway Departure**

***Date of Program Methodology:1/1/2010***

### ***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

- Volume

#### Roadway



- Other-Highway mileage

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

- Crash frequency
- Crash rate
- Relative severity index

***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).***

**Relative Weight in Scoring**

Other-Safety:60

Other-Congestion / Operations:30

Other-Support / Opportunity:10

Total Relative Weight:100

**Program: Rural State Highways**

***Date of Program Methodology:1/1/2010***

***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**

- All crashes

**Exposure**

- Volume

**Roadway**

- Roadside features

- Other-Highway mileage

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

- Crash frequency
- Crash rate
- Relative severity index

***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).***

**Relative Weight in Scoring**

Other-Safety:60

Other-Congestion / Operations:30

Other-Support / Opportunity:10

Total Relative Weight:100

**Program: Segments**

***Date of Program Methodology:1/1/2010***

***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**

- Volume

**Roadway**

- Functional classification

- Other-Highway mileage

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

- Crash frequency
- Crash rate
- Relative severity index

***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).***

**Relative Weight in Scoring**

Other-Safety:60

Other-Congestion / Operations:30

Other-Support / Opportunity:10

Total Relative Weight:100

**Program: Sign Replacement And Improvement**

***Date of Program Methodology:10/20/2020***

***What is the justification for this program?***

***What is the funding approach for this program?***

***What data types were used in the program methodology?***

Crashes

Exposure

Roadway

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

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

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

***How are projects under this program advanced for implementation?***

***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: Skid Hazard**

***Date of Program Methodology:1/1/2012***

***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></ul>	<ul style="list-style-type: none"><li>• Volume</li><li>• Other-Highway mileage</li></ul>	

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

- Crash frequency
- Crash rate
- Relative severity index

***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?***

## 2021 Maryland Highway Safety Improvement Program

- 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).**

### Relative Weight in Scoring

Other-Safety:60  
Other-Congestion / Operations:30  
Other-Support / Opportunity:10  
Total Relative Weight:100

### What percentage of HSIP funds address systemic improvements?

27

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

- Install/Improve Lighting
- Install/Improve Pavement Marking and/or Delineation
- Install/Improve Signing
- Other-Raised Pavement Markings
- Other-Roadway line striping
- Other-Sidewalk Upgrades
- Other-Traffic Barrier Upgrades
- Upgrade Guard Rails

### What process is used to identify potential countermeasures?

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

### Does the State HSIP consider connected vehicles and ITS technologies?

Yes

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

We have a Connected & Automated Vehicle (CAV) program in Maryland. Various CAV projects were evaluated for HSIP eligibility and several projects will be supported by HSIP fund in FFY2022.

### Does the State use the Highway Safety Manual to support HSIP efforts?

Yes

### Please describe how the State uses the HSM to support HSIP efforts.

The Highway Safety Manual is used in site specific studies as part of the HSIP Planning Process.

## Project Implementation

### *Funds Programmed*

Reporting period for HSIP funding.

Calendar Year

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	\$24,873,399	\$24,873,399	100%
HRRR Special Rule (23 U.S.C. 148(g)(1))	\$0	\$0	0%
Penalty Funds (23 U.S.C. 154)	\$0	\$0	0%
Penalty Funds (23 U.S.C. 164)	\$0	\$0	0%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	\$0	\$0	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	\$97,626,413	\$97,626,413	100%
State and Local Funds	\$0	\$0	0%
Totals	\$122,499,812	\$122,499,812	100%

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%

MDOT SHA developed a HSIP Local Fund Program in FFY2021. Several local safety projects were submitted to MDOT SHA by various Counties in FFY2021. MDOT reviewed and selected local projects eligible for HSIP. The selected local safety projects will be implemented with HSIP fund in FFY 2022.

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

0%

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

0%

2021 Maryland Highway Safety Improvement Program

**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.**

none at this time

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
ADA Sidewalk Upgrades in Baltimore and Harford Counties	Pedestrians and bicyclists	ADA curb ramps			\$212000		HSIP (23 U.S.C. 148)			0		State Highway Agency		Pedestrians	
Traffic Barrier Upgrades at Various Location in Caroline, Cecil, Kent, Queen Anne's and Talbot Counties	Roadside	Barrier - other			\$1253286.9		HSIP (23 U.S.C. 148)			0		State Highway Agency		Roadway Departure	
Removal, Replacing, and New Installation of Raised Pavement Markings at Various Location in Anne Arundel, Calvert, Charles, and St. Mary's Counties	Roadway delineation	Raised pavement markers			\$1253967		HSIP (23 U.S.C. 148)			0		State Highway Agency		Roadway Departure	
Install and/or Replace RPM's in Allegany, Garrett & Washington Counties – Various Locations	Roadway delineation	Raised pavement markers			\$881452		HSIP (23 U.S.C. 148)			0		State Highway Agency		Roadway Departure	
Roadway Line Striping in Carroll, Frederick, and Howard Counties	Roadway delineation	Roadway delineation - other			\$2609006.4		HSIP (23 U.S.C. 148)			0		State Highway Agency		Roadway Departure	
MOD/INSTALL/RECON OF LIGHTING - DO, SO, WI, WO, CO, CE, KE, QA, TA, BA, HA	Lighting	Lighting - other			\$423360		HSIP (23 U.S.C. 148)			0		State Highway Agency		Roadway Departure	
I-195 at MD 295 and MD170 Interchange Lighting Reconstruction	Lighting	Interchange lighting			\$4121889.77		HSIP (23 U.S.C. 148)			0		State Highway Agency		Roadway Departure	
Phase I: MD 210 from MD 228 to Old Fort Road	Roadway signs and traffic control	Roadway signs and traffic control - other			\$1466930.61		HSIP (23 U.S.C. 148)			0		State Highway Agency		Roadway Departure	
MD 210 from Swan Creek Road/Livingston Road to Palmer Road/Livingston Road – Traffic Control Device Safety Enhancements – Phase II	Roadway signs and traffic control	Roadway signs and traffic control - other			\$1112622.9		HSIP (23 U.S.C. 148)			0		State Highway Agency		Roadway Departure	
MD 147 at Joppa Road	Intersection geometry	Intersection geometry - other			\$3870564.92		HSIP (23 U.S.C. 148)			0		State Highway Agency		Roadway Departure	
MD 43 at Honeygo Boulevard	Intersection geometry	Intersection geometry - other			\$4836607.89		HSIP (23 U.S.C. 148)			0		State Highway Agency		Intersections	



2021 Maryland 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
MD 223 (Woodyard Road) from 1000' South of Victoria Drive to 265' North of Sherwood Drive	Pedestrians and bicyclists	Install sidewalk			\$2831710.73		HSIP (23 U.S.C. 148)			0		State Highway Agency		Pedestrians	
Pavement Marking Corridor Line Striping at Various Locations in Dorchester, Somerset, Wicomico and Worcester Counties	Roadway delineation	Longitudinal pavement markings remarking	-			\$1079790	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Thermoplastic Thinline Striping at Various Locations in Montgomery and Prince George's Counties	Roadway delineation	Longitudinal pavement markings remarking	-			\$1055199.42	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Thermoplastic Thinline Striping at Various Locations in Montgomery and Prince George's Counties	Roadway delineation	Longitudinal pavement markings remarking	-			\$1055199.42	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Line Striping at Various Locations in Montgomery and Prince George's Counties	Roadway delineation	Longitudinal pavement markings remarking	-			\$1140150	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Line Striping at Various Locations in Montgomery and Prince George's Counties	Roadway delineation	Longitudinal pavement markings remarking	-			\$1140150	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Waterborne Paint Striping at Various Locations in Anne Arundel, Calvert, Charles and St. Mary's Counties	Roadway delineation	Longitudinal pavement markings remarking	-			\$346775	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Waterborne Paint Striping at Various Locations in Anne Arundel, Calvert, Charles and St. Mary's Counties	Roadway delineation	Longitudinal pavement markings remarking	-			\$346775	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Pavement Marking Corridor Line Striping at Various Locations in Allegany and Garrett Counties	Roadway delineation	Longitudinal pavement markings remarking	-			\$1636100	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	

2021 Maryland 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
Pavement Marking Corridor Line Striping at Various Locations in Allegany and Garrett Counties	Roadway delineation	Longitudinal pavement markings remarking -				\$1636100	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Thermoplastic Thinline Striping at Various Locations in Washington County	Roadway delineation	Longitudinal pavement markings remarking -				\$1387713.7	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 140 (Reisterstown Road) from Stocksdales Avenue to Pleasant Hill Road 16 Inch & 20 Inch Water Transmission Main and Resurfacing	Roadway	Pavement surface - other				\$346781.4	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 5 from Curtis drive to North of Suitland Parkway & MD 637 from MD 5 to North of Suitland Parkway Urban Reconstruction	Roadway	Pavement surface - other				\$681288.35	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 5 Point Lookout Road from the Causeway to South of Camp Brown Road - WIDENING AND REHABILITATION	Roadway	Roadway widening - travel lanes				\$139923.4	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Thermo Thinline Paint Stripping at Various Locations in Anne Arundel, Calvert, Charles and St. Mary's Counties	Roadway delineation	Longitudinal pavement markings remarking -				\$770000	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Thermo Thinline Paint Stripping at Various Locations in Anne Arundel, Calvert, Charles and St. Mary's Counties	Roadway delineation	Longitudinal pavement markings remarking -				\$770000	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
US 50 from Table Roack Road to the West Virginia State Line - Safety and Resurfacing	Roadway	Pavement surface - other				\$235554.5	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 169 from Hammonds Ferry Road to MD 648E - Safety and Resurfacing	Roadway	Pavement surface - other				\$27956.3	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	

2021 Maryland 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
MD 695A Broening Highway from Maryland Avenue to East of Ralls Avenue - SAFETY AND RESURFACE	Roadway	Pavement surface - other				\$366087	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Traffic Barrier Upgrades at Various Locations in District 4	Roadside	Barrier - other				\$1613250	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Traffic Barrier Upgrades at Various Locations in District 4	Roadside	Barrier - other				\$1613250	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
I-70 Eisenhower Memorial Highway 0.44 Miles East of Boyd Road to Ashton Road - Safety and Resurfacing	Roadway	Pavement surface - other				\$597457.5	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Guard Rail Upgrades at Various Locations in Montgomery and Prince George's Counties	Roadside	Barrier- metal				\$1516419	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Guard Rail Upgrades at Various Locations in Montgomery and Prince George's Counties	Roadside	Barrier- metal				\$758209.5	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Guard Rail Upgrades at Various Locations in Montgomery and Prince George's Counties	Roadside	Barrier- metal				\$758209.5	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 213 from Mill Stream Branch to Gravel Run - Safety and Resurfacing	Roadway	Pavement surface - other				\$89467	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 26 at Old Annapolis Road/Water Street Road -Geometric Improvements	Intersection geometry	Intersection geometry - other				\$305988.1	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Intersections	

2021 Maryland 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
MD 261 from 9th Street to the Anne Arundel County Line - 2 Lane Reconstruction	Roadway	Roadway - other				\$64818	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
I-70 Washington County Line to Grindstone Run Structure No. 10135 - RESURFACE & REHABILITATION	Roadway	Pavement surface - other				\$999328.5	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 32 (Sykesville Road) at Johnsville Road and Bennett Road - GEOMETRIC IMPROVEMENTS	Intersection geometry	Intersection geometry - other				\$319505.03	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Intersections	
IS 68 Westbound from US 40 Alt. (Baltimore Avenue) to Maryland Avenue -Widen and Resurface	Roadway	Roadway widening - travel lanes				\$2582885	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Areawide Traffic Barrier Upgrades in District 7	Roadside	Barrier - other				\$2516637.94	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Areawide Traffic Barrier Upgrades in District 7	Roadside	Barrier - other				\$1193482.76	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Modification/Installation/Reconfiguration of Signing in District 3, 4 & 5	Roadway signs and traffic control	Roadway signs and traffic control - other				\$2254430.54	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Modification/Installation/Reconfiguration of Signing in District 3, 4 & 5	Roadway signs and traffic control	Roadway signs and traffic control - other				\$5236695.34	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Mod/Install/Recon of Traffic Signals at Various Locations in District 4	Intersection traffic control	Modify traffic signal –other				\$1300026.27	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	

2021 Maryland 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
Mod/Install/Recon of Traffic Signals at Various Locations in District 4	Intersection traffic control	Modify traffic signal –other				\$349650.35	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Mod/Install/Recon of Traffic Signals at Various Locations in District 4	Intersection traffic control	Modify traffic signal –other				\$4053669.9	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Mod/Install/Recon of Traffic Signals at Various Locations in Districts 6 & 7	Intersection traffic control	Modify traffic signal –other				\$1280162	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Mod/Install/Recon of Traffic Signals at Various Locations in Districts 6 & 7	Intersection traffic control	Modify traffic signal –other				\$4101021	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Mod/Install/Recon of Traffic Signals in Districts 1 & 2	Intersection traffic control	Modify traffic signal –other				\$1382718.6	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Mod/Install/Recon of Traffic Signals in Districts 1 & 2	Intersection traffic control	Modify traffic signal –other				\$3961857.56	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Modification/Installation/Reconstruction of Traffic Signals in District 3	Intersection traffic control	Modify traffic signal –other				\$2485035.84	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Modification/Installation/Reconstruction of Traffic Signals in District 3	Intersection traffic control	Modify traffic signal –other				\$5534390.73	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
US 29 from St. Andrews Way to Stewart Lane - Safety and Resurfacing	Roadway	Pavement surface - other				\$611915.75	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	

2021 Maryland 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
US 219 Garrett Highway at Mosser Road - Geometric Improvements	Intersection geometry	Intersection geometry - other				\$319505.03	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Intersections	
MD 198 Sandy Spring Road from Van Dusen Road to 8th Street - Safety and Resurfacing	Roadway	Pavement surface - other				\$284746.1	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Mod/Install/Recon of Traffic Signals - Statewide	Intersection traffic control	Modify traffic signal –other				\$1941747.34	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Mod/Install/Recon of Traffic Signals - Statewide	Intersection traffic control	Modify traffic signal –other				\$6158316.47	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 132 W. Belair Ave from MD 462 to US 40 - Safety and Resurfacing with Minor Drainage and ADA Upgrades	Roadway	Pavement surface - other				\$639908.4	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Mod/Install/Recon of Lighting in Districts 6 & 7	Lighting	Lighting - other				\$1230217.54	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Mod/Install/Recon of Lighting in Districts 6 & 7	Lighting	Lighting - other				\$3599437.34	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
US 40 Dual Highway from Walnut Street to Eastern Blvd Sidewalks - Phase 1	Pedestrians and bicyclists	Install sidewalk				\$739440.89	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Pedestrians	
Traffic Barrier Upgrades at Various Locations in Allegany, Garrett, and Washington Counties	Roadside	Barrier - other				\$5213076.91	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	

2021 Maryland 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
I-68 National Freeway at Greene Street SAFETY/OPERATIONAL IMPROVEMENTS AND RESURFACE	Roadway	Pavement surface - other				\$825922.84	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 68 (Lappans Road) from MD 65 to Barnes Road - Safety and Resurfacing	Roadway	Pavement surface - other				\$393872.6	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 32 Patuxent Parkway at Dorsey Run Road Interchange - Safety and Resurfacing	Roadway	Pavement surface - other				\$246582.6	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 32 from Guilford Road to Middle Patuxent River – Safety and Resurface	Roadway	Pavement surface - other				\$1401239.4	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Modification, Installation, and Reconstruction of Signals & Lighting in District 5 – Areawide	Lighting	Lighting - other				\$1513282.53	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Modification, Installation, and Reconstruction of Signals & Lighting in District 5 – Areawide	Lighting	Lighting - other				\$4205331.35	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
MD 32 Main Street to Macbeth Way - Geometric Improvements	Intersection geometry	Intersection geometry - other				\$319505.03	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Intersections	
I-95 from Baltimore/Howard County Line to MD 100 Ramps - Safety and Resurfacing	Roadway	Pavement surface - other				\$2287834	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
US 301 from MD 290 to Kent County Line - Safety and Resurfacing	Roadway	Pavement surface - other				\$690297	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	

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
Modification, Installation, and Reconstruction of Lighting in District 3 – Areawide	Lighting	Lighting - other				\$1069868.33	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	
Modification, Installation, and Reconstruction of Lighting in District 3 – Areawide	Lighting	Lighting - other				\$2904256.55	Other Federal-aid Funds (i.e. STBG, NHPP)			0		State Highway Agency		Roadway Departure	



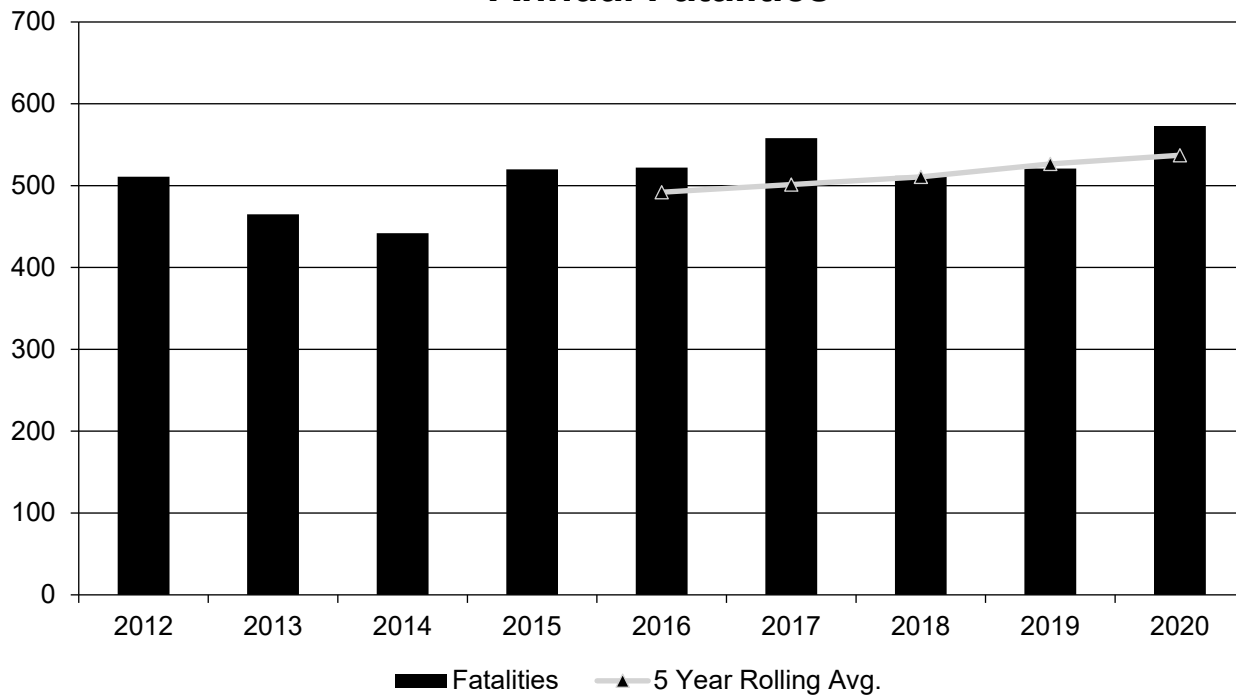
## Safety Performance

### *General Highway Safety Trends*

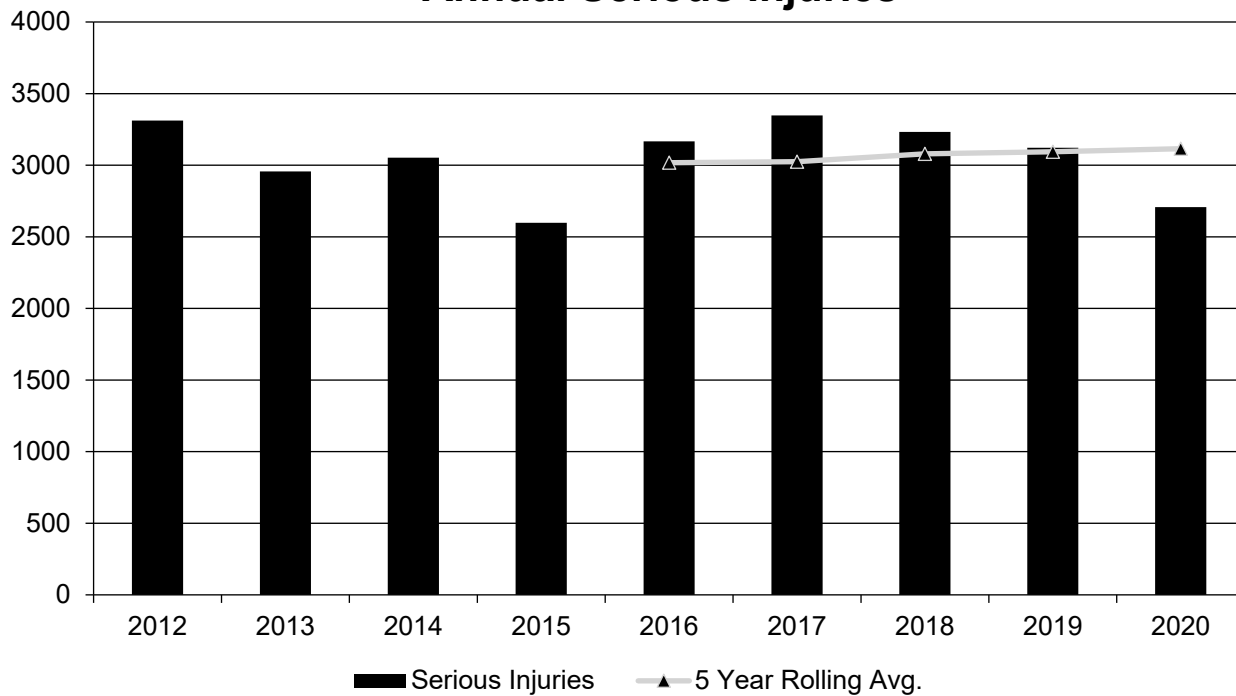
**Present data showing the general highway safety trends in the State for the past five years.**

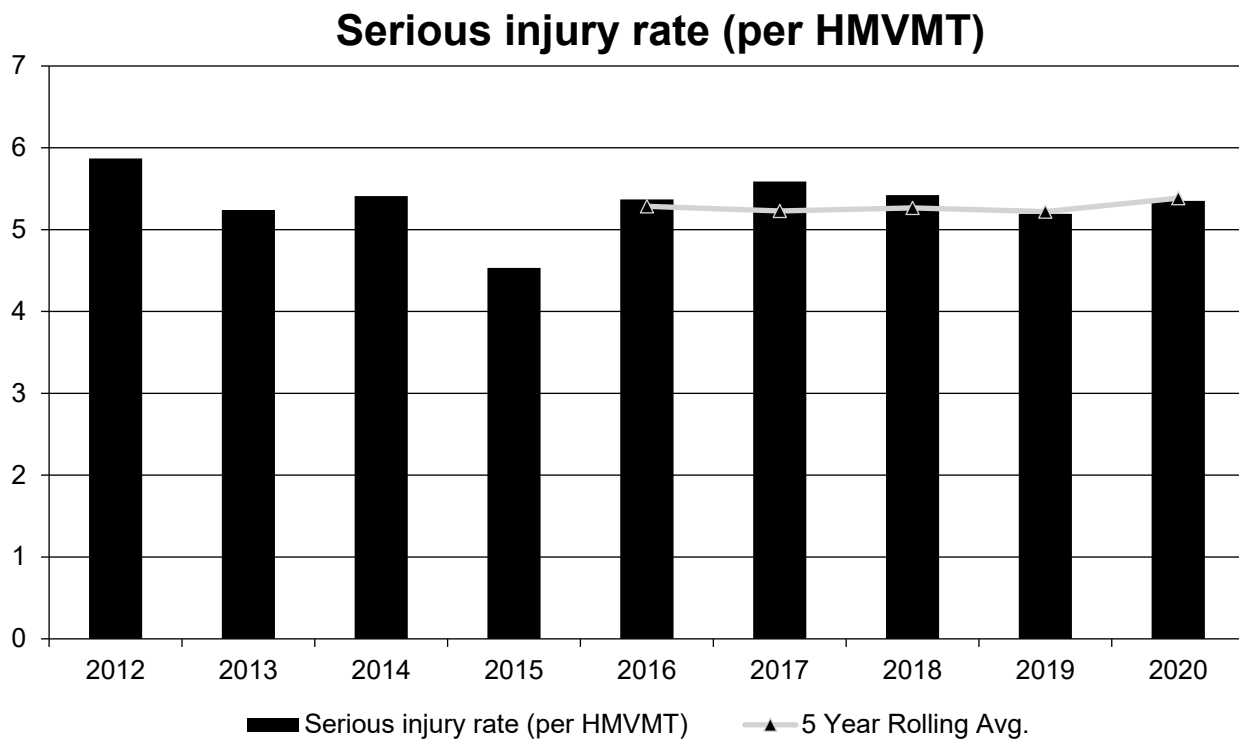
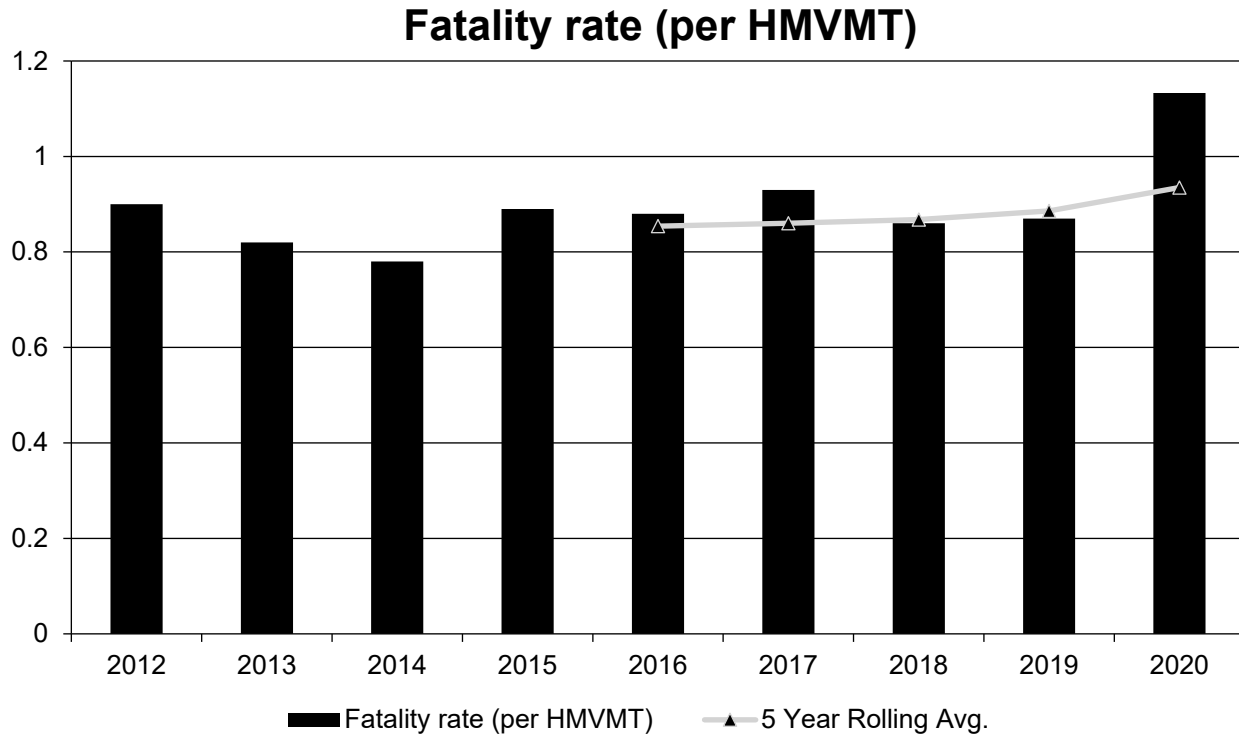
<b>PERFORMANCE MEASURES</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Fatalities	511	465	442	520	522	558	512	521	573
Serious Injuries	3,312	2,957	3,053	2,598	3,167	3,347	3,233	3,122	2,707
Fatality rate (per HMVMT)	0.900	0.820	0.780	0.890	0.880	0.930	0.860	0.870	1.133
Serious injury rate (per HMVMT)	5.870	5.240	5.410	4.533	5.370	5.588	5.422	5.193	5.351
Number non-motorized fatalities	102	114	106	108	124	128	137	133	146
Number of non-motorized serious injuries	402	396	432	372	486	563	527	506	426

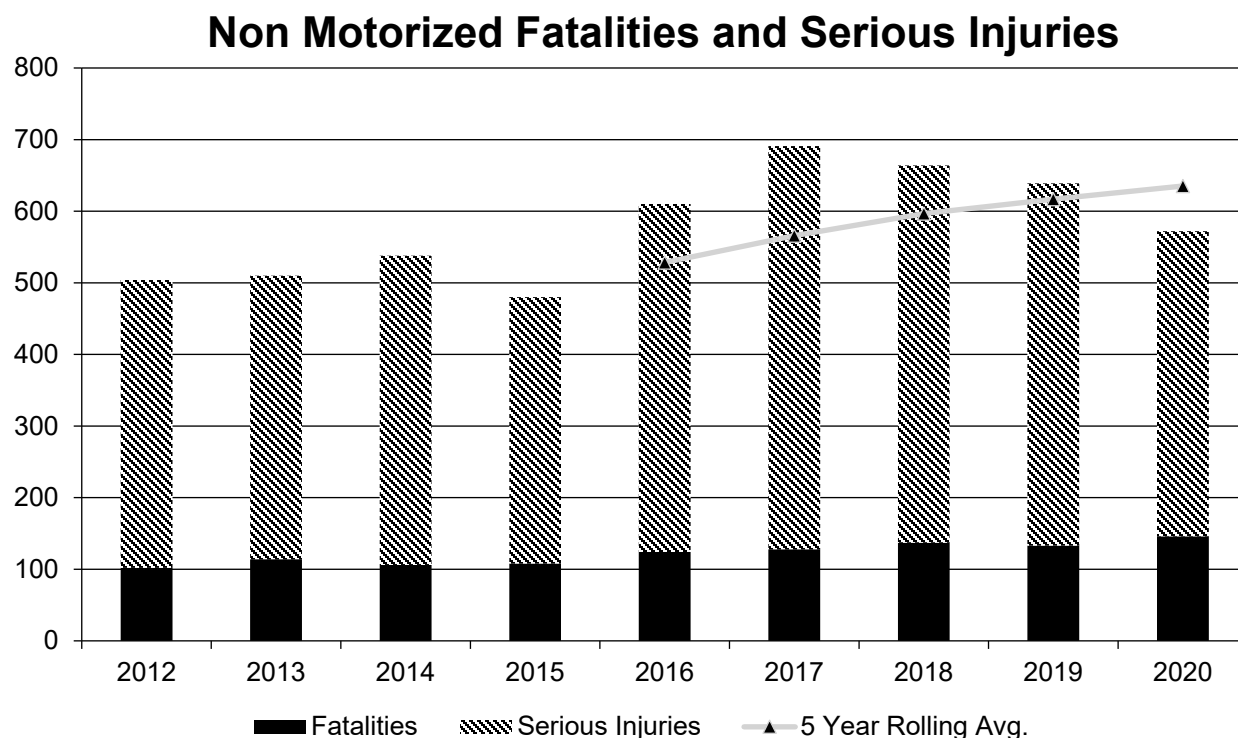
### Annual Fatalities



### Annual Serious Injuries







2012-2019 fatalities: FARS 2019 ARF

2020 fatality: State data

\*State includes pedestrian type/non-motorist types 01, 02, 03 only. (Benchmark Reports/Profiles).

### Describe fatality data source.

FARS

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

#### Year 2019

Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial (RPA) - Interstate	18.8	38.4	0.88	1.79
Rural Principal Arterial (RPA) - Other Freeways and Expressways				
Rural Principal Arterial (RPA) - Other	36.8	123	3.11	10.03
Rural Minor Arterial	38.8	139.2	2.18	7.81

## 2021 Maryland 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 Collector	11.4	55.4	1.37	6.75
Rural Major Collector	30.2	108.2	1.89	6.76
Rural Local Road or Street	17.8	76.8	1.05	4.52
Urban Principal Arterial (UPA) - Interstate	62.6	449.4	0.4	2.91
Urban Principal Arterial (UPA) - Other Freeways and Expressways	44.2	174.4	0.66	2.61
Urban Principal Arterial (UPA) - Other	167	874	1.54	8.05
Urban Minor Arterial	81.6	528	1.09	7.02
Urban Minor Collector				
Urban Major Collector	35.2	247.4	0.83	5.83
Urban Local Road or Street	28	236.2	0.88	7.38

## 2021 Maryland Highway Safety Improvement Program

### Year 2019

Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency	376.4	1,781		
County Highway Agency	106.8	738		
Town or Township Highway Agency				
City or Municipal Highway Agency	26.8	226.6		
State Park, Forest, or Reservation Agency				
Local Park, Forest or Reservation Agency				
Other State Agency	0	2.8		
Other Local Agency				
Private (Other than Railroad)				
Railroad				
State Toll Authority				
Local Toll Authority				
Other Public Instrumentality (e.g. Airport, School, University)	1.4	6.8		
Indian Tribe Nation				

2020 crash data were not finalized by the time we submitted the Annual Report to FHWA and 2019 crash data were applied as the latest crash data.

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

#### **Safety Performance Targets**

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

***Number of Fatalities:466.6***

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

Targets are derived from the 2021-2025 Strategic Highway Safety Plan (SHSP), which presented a new methodology to determine highway safety performance targets. Unlike the TZD design, annual targets for the new SHSP will be set using a two-pronged approach. Targets that are experiencing a decreasing trend over time are set using five-year rolling averages and an exponential trend line without a fixed endpoint to calculate future targets. By removing the fixed endpoint, it is anticipated that more practical performance measure targets will be computed by following historically decreasing data patterns. For those targets experiencing increasing trends, however, projections are based on a 2% decrease from the 2016-2020 five-year average, continuing with a 2% decrease for each successive five-year average.

Current targets through 2021-2025 are set using a baseline five-year average of 2004-2008, updated to include trend changes in 2015-2019, e.g., the 2021 target is the midpoint of the rolling five-year average target for 2019-2023; and the 2023 target is the midpoint of the rolling five-year average target for 2021-2025.

This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP.

***Number of Serious Injuries:2263.9***

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

Targets are derived from the 2021-2025 Strategic Highway Safety Plan (SHSP), which presented a new methodology to determine highway safety performance targets. Unlike the TZD design, annual targets for the new SHSP will be set using a two-pronged approach. Targets that are experiencing a decreasing trend over time are set using five-year rolling averages and an exponential trend line without a fixed endpoint to calculate future targets. By removing the fixed endpoint, it is anticipated that more practical performance measure targets will be computed by following historically decreasing data patterns. For those targets experiencing increasing trends, however, projections are based on a 2% decrease from the 2016-2020 five-year average, continuing with a 2% decrease for each successive five-year average.

Current targets through 2021-2025 are set using a baseline five-year average of 2004-2008, updated to include trend changes in 2015-2019, e.g., the 2021 target is the midpoint of the rolling five-year average target for 2019-2023; and the 2023 target is the midpoint of the rolling five-year average target for 2021-2025.

This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP.

***Fatality Rate:0.774***

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

Targets are derived from the 2021-2025 Strategic Highway Safety Plan (SHSP), which presented a new methodology to determine highway safety performance targets. Unlike the TZD design, annual targets for the new SHSP will be set using a two-pronged approach. Targets that are experiencing a decreasing trend over time are set using five-year rolling averages and an exponential trend line without a fixed endpoint to calculate future targets. By removing the fixed endpoint, it is anticipated that more practical performance measure targets will be computed by following historically decreasing data patterns. For those targets experiencing increasing trends, however, projections are based on a 2% decrease from the 2016-2020 five-year average, continuing with a 2% decrease for each successive five-year average.

Current targets through 2021-2025 are set using a baseline five-year average of 2004-2008, updated to include trend changes in 2015-2019, e.g., the 2021 target is the midpoint of the rolling five-year average target

## 2021 Maryland Highway Safety Improvement Program

for 2019-2023; and the 2023 target is the midpoint of the rolling five-year average target for 2021-2025.

This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP.

### ***Serious Injury Rate:3.815***

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

Targets are derived from the 2021-2025 Strategic Highway Safety Plan (SHSP), which presented a new methodology to determine highway safety performance targets. Unlike the TZD design, annual targets for the new SHSP will be set using a two-pronged approach. Targets that are experiencing a decreasing trend over time are set using five-year rolling averages and an exponential trend line without a fixed endpoint to calculate future targets. By removing the fixed endpoint, it is anticipated that more practical performance measure targets will be computed by following historically decreasing data patterns. For those targets experiencing increasing trends, however, projections are based on a 2% decrease from the 2016-2020 five-year average, continuing with a 2% decrease for each successive five-year average.

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This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP.

### ***Total Number of Non-Motorized Fatalities and Serious Injuries:554.7***

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

Targets are derived from the 2021-2025 Strategic Highway Safety Plan (SHSP), which presented a new methodology to determine highway safety performance targets. Unlike the TZD design, annual targets for the new SHSP will be set using a two-pronged approach. Targets that are experiencing a decreasing trend over time are set using five-year rolling averages and an exponential trend line without a fixed endpoint to calculate future targets. By removing the fixed endpoint, it is anticipated that more practical performance measure targets will be computed by following historically decreasing data patterns. For those targets experiencing increasing trends, however, projections are based on a 2% decrease from the 2016-2020 five-year average, continuing with a 2% decrease for each successive five-year average.

Current targets through 2021-2025 are set using a baseline five-year average of 2004-2008, updated to include trend changes in 2015-2019, e.g., the 2021 target is the midpoint of the rolling five-year average target for 2019-2023; and the 2023 target is the midpoint of the rolling five-year average target for 2021-2025.

This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP.

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

" To begin, the development team conducted one-on-one interviews with key traffic safety partners across Maryland. Safety partners included leaders from government agencies, education and outreach professionals, local law enforcement, and emergency services agencies. During the interviews, the team solicited insight into



## 2021 Maryland Highway Safety Improvement Program

the status of traffic safety initiatives and current and future safety priorities for Maryland roadways.”

“Information gathered from this safety partner survey helped refine goals, solicit new/updated action steps, identify emerging issues, and examine the progress of each SHSP Emphasis Area.”[1]

The list of stakeholder safety partner agencies is as follows:

Advocates for Highway and Auto Safety

AAA Mid-Atlantic

AAA Foundation for Traffic Safety

Baltimore County Police Department

Baltimore Metropolitan Council

BWI Airport

Calvert County Police Department

Carroll County Department of Health

Carroll County Department of Public Works

Cecil County Department of Public Works

Chesapeake Region Safety Council-NSC

Crash Center for Research and Education

Federal Highway Administration

Federal Motor Carrier Safety Administration

Harford County Sheriff's Office

Howard County Fire & Rescue

Howard County Government

Johns Hopkins University

MADD

Maryland Department of Agriculture

Maryland Department of Health

Maryland Department of Transportation

Maryland Farm Bureau

## 2021 Maryland Highway Safety Improvement Program

Maryland Highway Safety Office

MD Institute for Emergency Medical Services

Maryland Motor Vehicle Administration

Maryland State's Attorneys' Association

Maryland State Police

Maryland State Highway Administration

Maryland Transportation Authority Police

Montgomery County Engineering and Planning

Montgomery County Police Department

Morgan State University

National Highway Traffic Safety Administration

Prime Engineering

Prince George's County Dept. of Public Works

Prince George's County Fire & Rescue

University of MD Medical Center

University of Maryland National Study Center

Washington College

Washington Regional Alcohol Program [2]

[1] Maryland Strategic Highway Safety Plan 2021-25 PG 3

[2] Maryland Strategic Highway Safety Plan 2021-25 Appendix A

The process stakeholders from SHSP were consulted to establish safety performance targets

### **Does the State want to report additional optional targets?**

No

**Describe progress toward meeting the State's 2021 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	425.7	537.2
Number of Serious Injuries	3029.4	3115.2
Fatality Rate	0.750	0.935
Serious Injury Rate	5.372	5.385
Non-Motorized Fatalities and Serious Injuries	465.8	635.2

Motor vehicle crashes continue to present a major public health concern in the U.S. and in Maryland, representing a leading cause, or among the top ten causes, of death for all age groups under 65. Crash trends are largely attributable to corresponding fluctuations in vehicle miles traveled (VMT) resulting from economic upturns and downturns. For example, with increased Vehicle Miles Traveled (VMT) on Maryland roadways, the number of vehicles and drivers on the road creates greater exposure in environments, where risky driver behavior escalates negative outcomes.

Mirroring national trends in increased vehicle miles traveled, Maryland experienced an increase of fatalities for three straight years (2015–2017). In 2018, Maryland fatalities and VMT experienced a decrease; however 2019 reversed this trend with increased VMT and fatalities. In 2019, the state experienced 60.1 billion vehicle miles traveled, and with 535 fatalities that year the fatality rate was 0.89 deaths per every 100 million vehicle miles traveled. Maryland has experienced a downward trend in serious injuries for more than the past decade. Some reasons for the fluctuations in serious injury trends can be attributed to changes in how law enforcement is trained and submitting injury severity information on the Maryland crash report (ACRS). Year-to-year fluctuations are a challenging measure to track and comment on as most trends, whether positive or negative, occur over longer periods of time and are affected by changes in national, state, and local policies; transportation investments; safer vehicles and newer technologies; and shifts in generational and cultural norms.

Maryland is not alone, with increases in pedestrian fatalities also noted nationally, indicating a larger trend throughout the country that is reflected at the state and local level. Mirroring national trends, Maryland has steadily experienced increases in fatalities and serious injuries in its most vulnerable road users—non-motorists (pedestrians and bicyclists). While Maryland does not have an exposure measure to determine precisely an increase in road use by pedestrians and bicyclists, Maryland has increased pedestrian and bicyclist facilities year after year and is experiencing similar trends in changes in transportation mode use seen nationally.

MDOT monitors these fluctuations and works diligently to prevent injuries and fatalities by implementing the strategies in the Maryland Strategic Highway Safety Plan (SHSP).

In the 2019 report, the targets were based on Maryland 2016-2020 SHSP. In this report, we applied the 2021-2025 SHSP and the targets are updated to: Number of Fatalities - 466.6; Number of Serious Injuries - 2,263.9; Fatality Rate - 0.774; Serious Injury Rate - 3.815; Total Number of Non-Motorized Fatalities and Serious Injuries - 554.7.

### ***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>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Number of Older Driver and Pedestrian Fatalities	82	106	123	116	116	113	130
Number of Older Driver and Pedestrian Serious Injuries	235	258	172	263	279	248	265

2020 crash data were not finalized by the time we submitted the Annual Report to FHWA and 2019 crash data were applied as the latest crash data. If we got the chance, we will update the Report with 2020 crash data afterwards.

## Evaluation

### *Program Effectiveness*

#### **How does the State measure effectiveness of the HSIP?**

- Change in fatalities and serious injuries

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

2020 crash data were not finalized by the time we submitted the Annual Report to FHWA and 2019 crash data were applied as the latest crash data.

Program Type: Wet Surface Crashes

Target Crash Type: Wet Road

2017 Fatalities - 82

2018 Fatalities – 93

2019 Fatalities – 70

2017 Serious Injuries - 461

2018 Serious Injuries – 552

2019 Serious Injuries – 368

For Wet Surface crashes, the Fatalities decreased for 17% and Serious Injuries for 25% during the 2017-19 period.

Program Type: Left Turn Crashes

Target Crash Type: Left Turn

2017 Fatalities - 33

2018 Fatalities – 30

2019 Fatalities - 25

2017 Serious Injuries - 269

2018 Serious Injuries – 260

2019 Serious Injuries – 222

For Left Turn crashes, the Fatalities decreased for 32% and Serious Injuries for 21% during the 2017-19 period.

Program Type: Angle Crashes

Target Crash Type: Angle

2017 Fatalities - 76

2018 Fatalities - 77

2019 Fatalities - 73

2017 Serious Injuries - 618

2018 Serious Injuries – 576

2019 Serious Injuries – 538

For Angle crashes, the Fatalities decreased for 4% and Serious Injuries for 15% during the 2017-19 period.

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

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

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

Work continues on an updated process for project selection and evaluation for the HSIP program. An HSIP Implementation Plan is created to identify activities, strategies, and projects that would improve safety performance in Maryland.

In the past year much more safety projects were developed and start to be implemented. Various offices, including but not limited to OOTS Design Office, Planning Office, Federal Aid, Districts, meet regularly to track progress of HSIP projects and push the projects forward to meet the obligation goal.

In addition, following the HSIP Implementation Plan, MDOT SHA developed the HSIP Local Fund Program in FFY2021. Draft Guideline and application forms were provided to local agencies. Eligible Counties must have a Local Road Safety Plan (LRSP). Cities and municipalities can also participate through their county. For the first 1~2 years of the new program, we would support systemic improvement only and spot improvement will be eligible in future years. The application was due by July 1 each year and MDOT SHA reviewed and selected projects based on systemwide data, with emphasis on characteristics frequently present in severe crashes, and identified and prioritized locations across the roadway network for implementation. The selected local project will be supported with HSIP fund in the next federal fiscal year starting from October 1.

MDOT SHA is also developing a Systemic Approach Program following the FHWA Systemic Safety Project Selection Tool. We identified statewide focus crash types and risk factors, screened and prioritized candidate locations, selecting corresponding countermeasures, and prioritized systemic improvement projects for each facility type. The systemic projects are currently under review and will start to be implemented in the near future.

## Effectiveness of Groupings or Similar Types of Improvements

Present and describe trends in SHSP emphasis area performance measures.

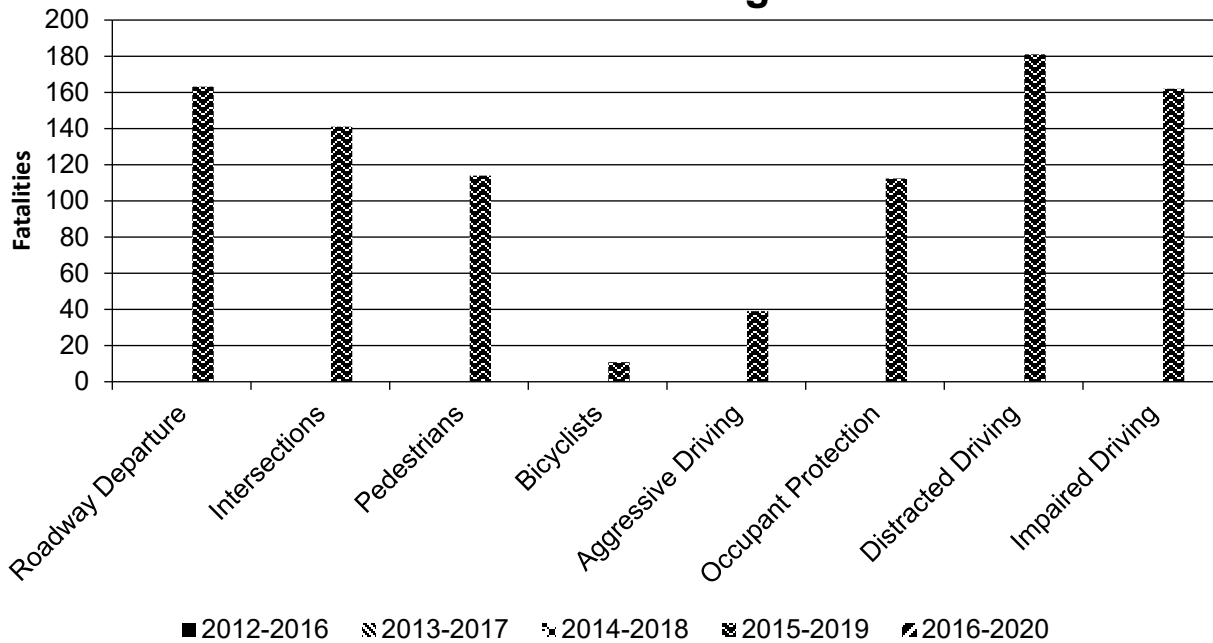
### Year 2019

SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Roadway Departure	Run-off-road	163.2	694.6	0.28	1.17
Intersections	Intersections	141	1,129.8	0.24	1.91
Pedestrians	Vehicle/pedestrian	114	422.2	0.19	0.71
Bicyclists	Vehicle/bicycle	10.8	68.2	0.02	0.11
Aggressive Driving	All	39	180.2	0.07	0.3
Occupant Protection	All	112.4	423	0.19	0.71

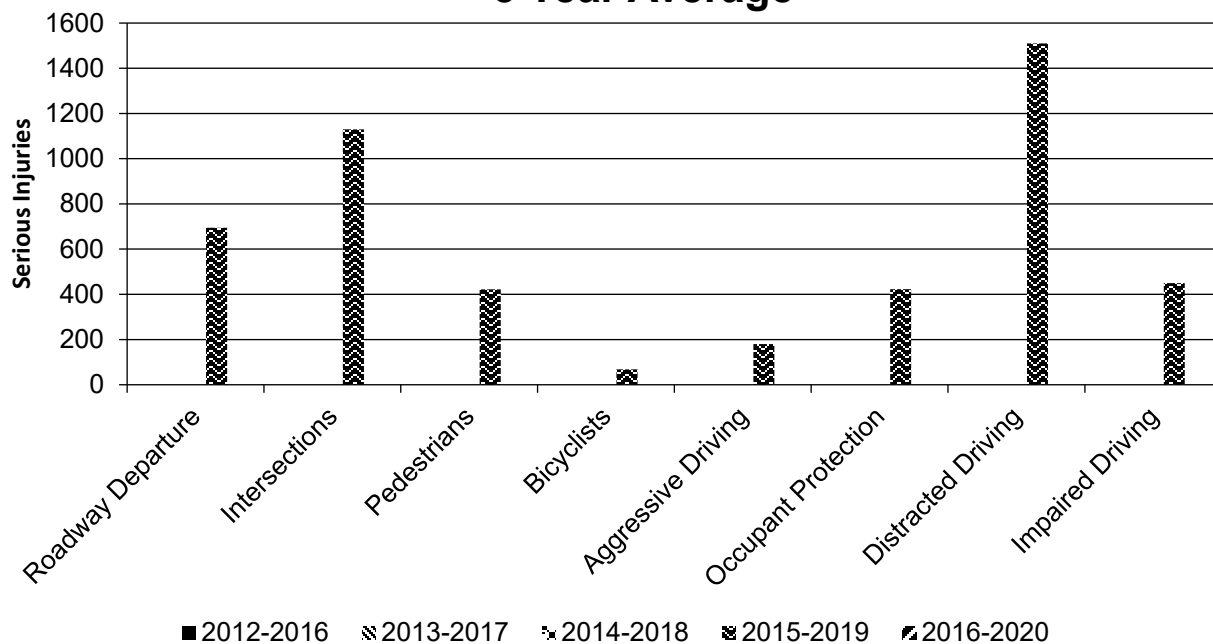
## 2021 Maryland Highway Safety Improvement Program

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)
Distracted Driving	All	181	1,509.8	0.3	2.55
Impaired Driving	All	162	449.8	0.27	0.76

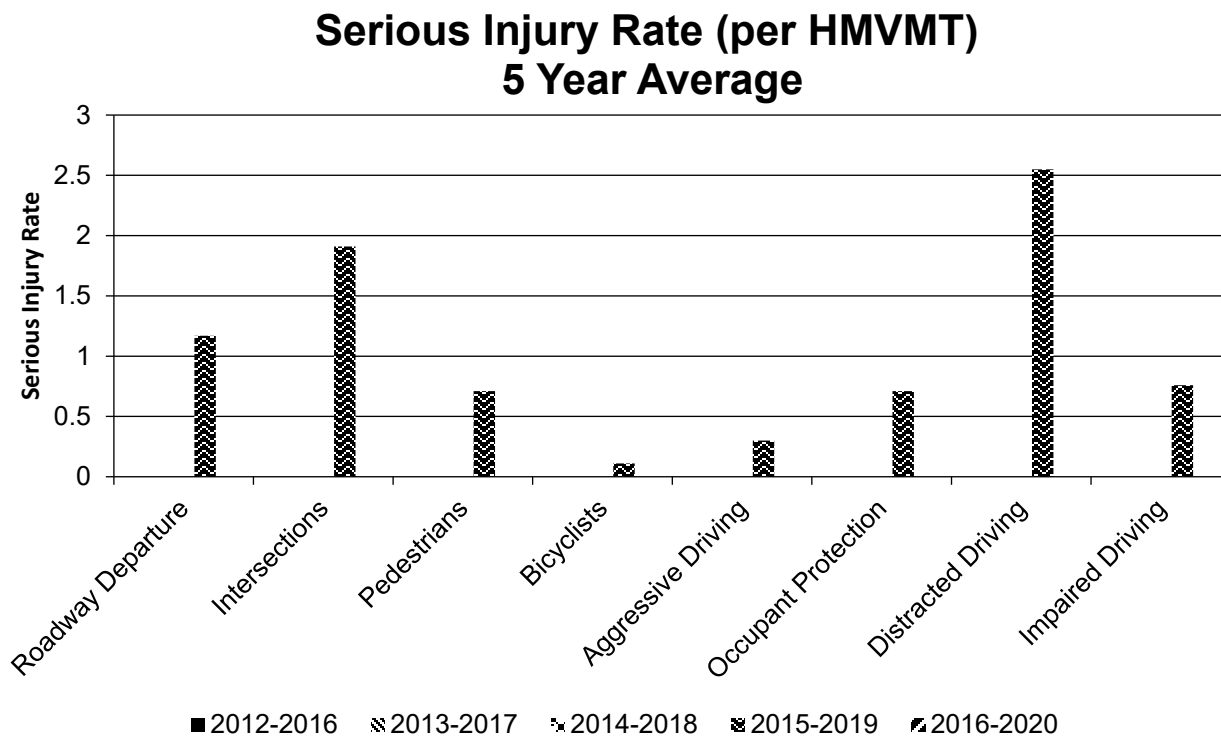
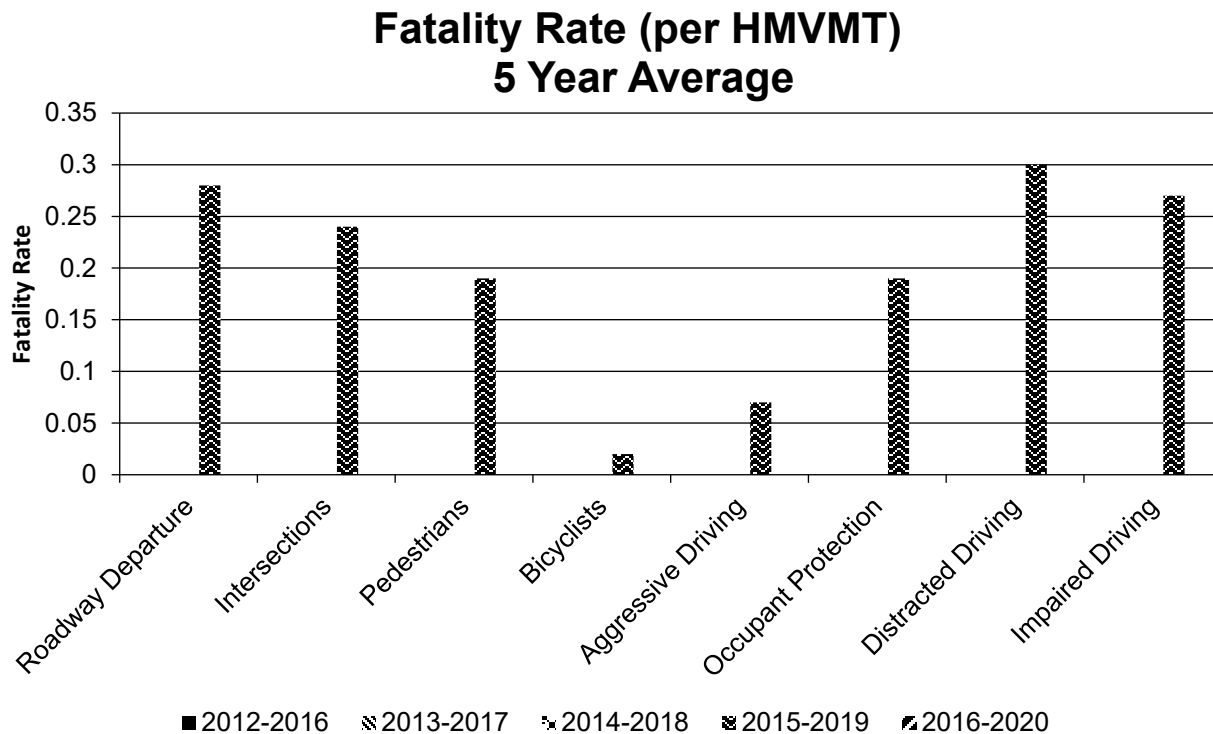
### Number of Fatalities 5 Year Average



### Number of Serious Injuries 5 Year Average







2020 crash data were not finalized by the time we submitted the Annual Report to FHWA and 2019 crash data were applied as the latest crash data.

***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?

01/31/2021

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

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	100		
	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]	100	100								
	Access Control (22) [23]	100	100								
	One/Two Way Operations (91) [93]	100	100								
	Number of Through Lanes (31) [32]	100	90					100	90		
	Average Annual Daily Traffic (79) [81]	100	98					50			
	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]			95	95						
	Intersection/Junction Traffic Control (131) [131]			50	50						
	AADT for Each Intersecting Road (79) [81]			35	35						
	AADT Year (80) [82]			25	25						
	Unique Approach Identifier (139) [129]			75	75						
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):		100.00	99.33	72.50	72.50	100.00	100.00	94.44	87.78	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.**

MDOT SHA has implemented Esri’s Roads and Highways (R&H) software to manage our GIS roadway and LRS data for HPMS submission. This year MDOT SHA used Roads and Highways for their HPMS submission. With the Intersection Manager tool, our ability to better manager intersection data, and data gaps, we will be able to be 100 percent compliant by 2026.

- In conjunction with the Esri R&H implementation, we also began the One Maryland, One Centerline (OMOC) program where MDOT SHA has met with all 23 counties, and Baltimore City, to discuss the sharing of data between jurisdictions via one common geometry, maintained by the appropriate authority. We have begun a pilot conflation process between MDOT SHA and two county jurisdictions to test process and develop the protocols that will be used for the integration of the remaining counties of Maryland. This geometry will be the base of the R&H data model. This data sharing and cooperation between the local and state jurisdictions will better allow us to identify and fill data gaps, with the appropriate, authoritative information.
- FHWA has authorized several pilots to investigate developing methodologies to more accurately calculate local AADTs for lower functionally classified roadways. MIRE FDEs require this type of data, while the local jurisdictions do not have the wherewithal nor need to completely capture and maintain this type of data. Therefore, the need to develop better proxies or models to better estimate these AADTs for local roads is an ongoing activity.

## **Optional Attachments**

Program Structure:

MDOT SHA HISP\_Version 3.0.docx

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.