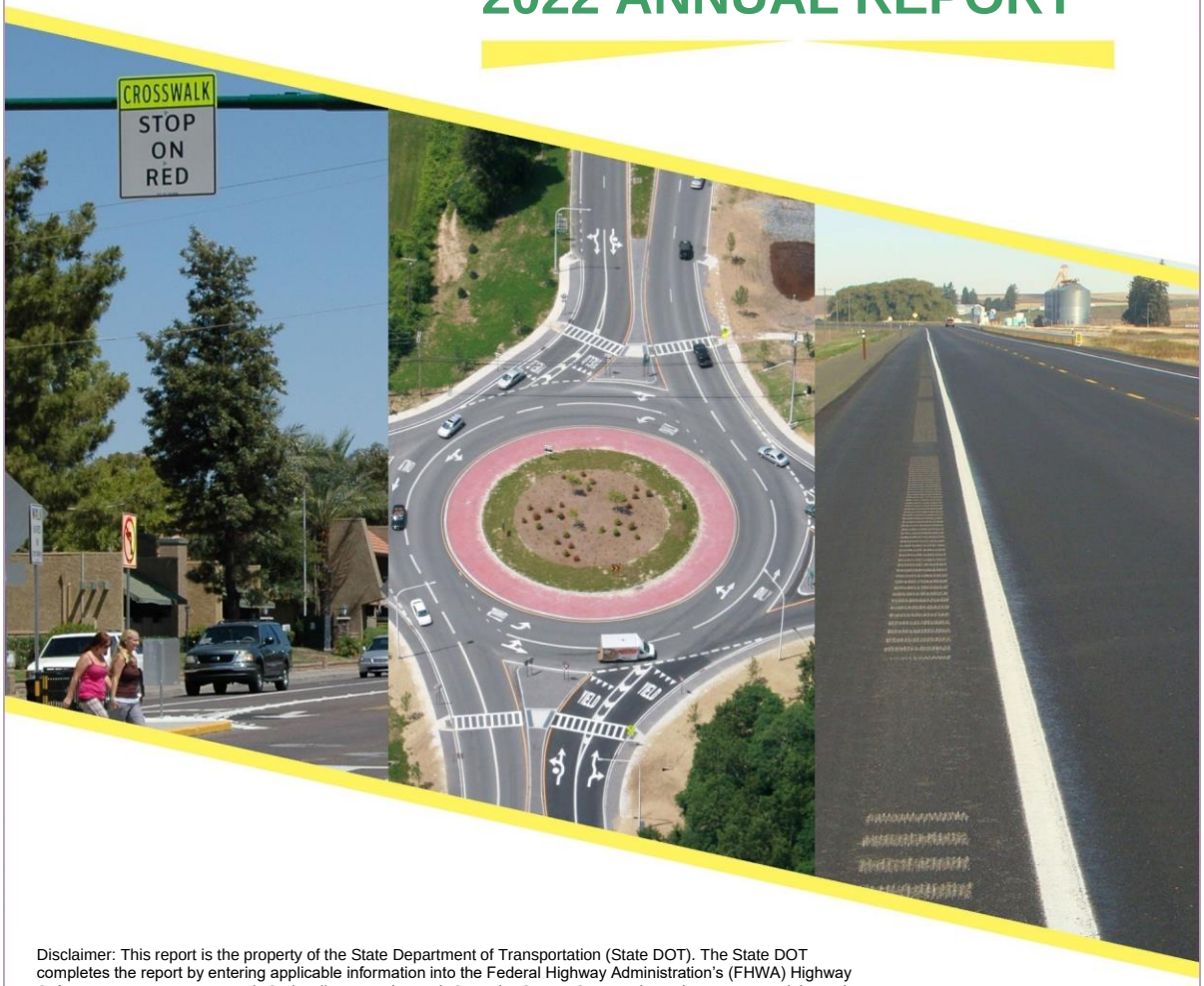
WEST VIRGINIA

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2022 ANNUAL REPORT



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Protection of Data from Discovery Admission into Evidence

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

23 U.S.C. 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 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 924.14, states are required to report annually on the progress being made to advance HSIP implementation and evaluation efforts. This report describes West Virginia's implementation and effectiveness of its Highway Safety Improvement Program from July 1, 2021 through June 30, 2022 and satisfies the requirements of 23 U.S.C 148(h) and 23 CFR 924.14. The established formal report consists of five sections: emphasizing program administration, progress in implementing projects, progress in achieving safety performance targets, assessment of the effectiveness of the improvements, and compliance assessment.

In 2007, West Virginia developed it's first Strategic Highway Safety Plan, which focused on nine specific emphasis areas. At the time West Virginia had 432 fatalities and 5,994 serious injuries. Since then, the HSIP has primarily focused on emphasis areas identified in the SHSP.

Working through the Safety Management Task Force, West Virginia revised the SHSP in 2017. The 2017 SHSP had five specific emphasis areas: Road Departure, Impaired Driving, Occupant Protection, Speeding and Aggressive Driving, and Improving Highway Safety Data. Each emphasis area included action plans that utilized the four E's of Safety to guide the implementation.

The 2022 SHSP builds upon the success and lessons learned of previous plans and will serve as the state's safety plan from 2022 through 2026. The Plan includes eight emphasis areas; Four of these are Statewide in nature: Speeding and Aggressive Driving, Roadway Departure, Occupant Protection, Older Driver Involved, and Impaired Driving. While roadway departure still remains a significant issue in West Virginia the percent of fatalities and serious injuries falling within that category have decreased significantly. As such, we have the opportunity to be proactive in some other areas that are not at the same concern as the other four but are trending upward. While not trending statewide, two emphasis areas were selected to be regionally focused; Intersections and Pedestrians. To ensure support of the SHSP, the HSIP and integrating safety into the DOT programmatically another emphasis area was selected: Improving Highway Safety Data to continue a strong concentration of effort in this area.

WVDOH has members on all emphasis area teams but is lead on infrastructure improvements. These improvements make up the majority of this HSIP projects and are mainly focused on reducing road departure crashes; however, infrastructure projects are planned which fall within the pedestrian and intersection emphasis areas too.

In the 15 years since the SHSP was adopted, West Virginia has experienced a significant drop in fatalities and serious injuries. The 25% decline in fatalities was across all road classifications and HSIP funded projects throughout the state. Even though WVDOH maintains 94% of the state's system including local roads, all routes of the system are evaluated for HSIP funding. WVDOH works with local governments as well as Metropolitan Planning Organizations to ensure the State's safety needs are being addressed.

The Railway Highway Crossing Report will be submitted as a separate document and as such is not included in within this report.

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.

West Virginia's Highway Safety Improvement Program (HSIP) is coordinated by Traffic Engineering Division. The Division is responsible for reviewing and evaluating any project that is a candidate for highway safety funds. The initial review and evaluation of a potential project will include the analysis of crash data for the location, a field review of the site (as appropriate), and the collection of any other information found appropriate to evaluate the proposed project. All projects are supported by the Strategic Highway Safety Plan and were selected using a data driven process.

Once a positive safety benefit is determined to exist for a project, the methodology discussed later is used to select the prioritize projects for the State's HSIP. Upon project selection for the HSIP, the Traffic Engineering Division is responsible for selecting an HSIP funding category for the project, submitting appropriate programming documents where HSIP funds are encumbered, and projects are assigned within the State's Statewide Transportation Improvement Program (STIP). Traffic Engineering Division monitors the use of HSIP funds and evaluating the effectiveness of a project following its completion. The annual apportionment for HSIP for West Virginia in fiscal year 2022 was approximately $33.8 million. These funds can be used either for stand-alone projects or in conjunction with other funding to partially fund the safety enhancement portion of a larger project.

Where is HSIP staff located within the State DOT?

Other-Traffic Engineering

How are HSIP funds allocated in a State?

- Central Office via Statewide Competitive Application Process
- SHSP Emphasis Area Data

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

West Virginia Department of Transportation maintains approximately ninety-four percent (94%) of the roads in the State, including all secondary or county routes. As such, all HSIP funds are typically used for highway safety projects on the State Highway System. Very few of the State's municipalities own city streets. These are typically lower volume and do not have significant numbers of fatal or serious injury crashes occurring on them; however, should a safety concern exist on a municipal street, the project would be eligible to compete for available HSIP funds. All routes, including locally owned routes, are included when annual ranking lists are

made. Ranking is based on classification so the lower AADT routes are not competing against higher multilane routes. Only routes that are higher than the state average for crashes are evaluated for countermeasures.

If a city requests safety funds for a project, it would need to contact the IMS Section of the WVDOH's Traffic Engineering Division or its local MPO. The city would need to provide the general scope of the proposed improvement and an estimated cost. The local roads listed in question #32 are all local roads include those owned by local municipalities.

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

Describe coordination with internal partners.

To develop, implement and review all aspects needed to maintain a successful HSIP, Traffic Engineering Division coordinates with every division within WVDOT. Any division or district can recommend a location for safety improvements. The Traffic Engineering Division also provides all divisions and districts with crash data. The Traffic Engineering Division also provides a cursory review of the crash data to identify safety concerns and trends. This review may include performing a mini-Road Safety Audit (RSA) that can be performed either at district level or a full-scale RSA involving multiple disciplines (internal and external partners). Once concerns are identified, and countermeasures are determined, an estimate to implement the countermeasures is prepared. The Traffic Engineering Division performs a benefit/cost ratio to see if project is eligible for HSIP funding. SHSP related infrastructure projects that are identified as HSIP eligible are prioritized, and preliminary coordination occurs to obtain all information needed for project programming. All projects utilizing HSIP funds must be reviewed, approved, and programmed within the Traffic Engineering Division for program consistency. As the HSIP coordinator, the Traffic Engineering Division is involved at some level in the planning, design, and construction of all projects within the program and provides safety analysis expertise and guidance to direct the program appropriately.

Identify which external partners are involved with HSIP planning.

- Academia/University
- FHWA
- Law Enforcement Agency
- Local Government Agency
- Local Technical Assistance Program
- Regional Planning Organizations (e.g. MPOs, RPOs, COGs)

Describe coordination with external partners.

For the HSIP to be productive, Traffic Engineering Division (TED) must work with several external partners as well as its internal partners. The Safety Management Task Force (SMTF) is the governing body of the SHSP implementation. The SMTF is chaired by the Traffic Engineering Division with each of its technical sections participating in work on different emphasis areas. Through the SMTF the DOH works closely with Governor's

Highway Safety Program (GHSP), FHWA, Metropolitan Planning Organizations (MPO), WVU's Local Technical Assistance Program (LTAP), Law Enforcement, and several others. TED has partnered with different universities to perform research on several emphasis areas identified in the SHSP. In addition, LTAP has been instrumental in helping TED get their Traffic Incident Management (TIM) program off the ground and provides training on DOH's behalf.

The MPO's are another external partner that TED works with closely. The MPO have been helpful in identifying potential projects throughout their urban areas. Either working through WVDOH's Planning Section, the appropriate District or contacting the TED directly, the MPO can request possible HSIP funding. The Road Safety Audit (RSA) is another key element that TED works with the MPO. Their expertise and knowledge of the area is often sought, and the MPO helps coordinate with local enforcement and officials.

Program Methodology

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

Yes

Attached is a copy of our Program Elements and Process Flow Chart. West Virginia has been working with FHWA for Roadway Departure plan and plans to incorporate it into our new processes. WVDOH was waiting until after SHSP action plans were completed to make changes.

Select the programs that are administered under the HSIP.

- HRRR
- HSIP (no subprograms)
- Low-Cost Spot Improvements
- Median Barrier
- Roadway Departure
- Rural State Highways
- Skid Hazard

Program: HRRR

Date of Program Methodology:9/1/2014

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- FHWA focused approach to safety

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

Roadway

- Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Crash rate

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?

- 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

Ranking based on B/C:1
Available funding:2

Program: HSIP (no subprograms)

Date of Program Methodology:9/1/2014

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- FHWA focused approach to safety

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	• Traffic	• Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Crash rate

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?

- 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

Ranking based on B/C:1
Available funding:2

Program: Low-Cost Spot Improvements

Date of Program Methodology:10/1/2016

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- FHWA focused approach to safety

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

Roadway

- Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Crash rate

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?

- 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

Ranking based on B/C:1
Available funding:2

Program: Median Barrier

Date of Program Methodology:10/1/2016

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- FHWA focused approach to safety

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

Roadway

- Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Crash rate

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?

- 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

Ranking based on B/C:1
Available funding:2

Program: Roadway Departure

Date of Program Methodology:9/1/2014

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- FHWA focused approach to safety

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	• Traffic	• Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Crash rate

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?

- 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

Available funding:1

Program: Rural State Highways

Date of Program Methodology:9/1/2014

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- FHWA focused approach to safety

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	• Traffic	• Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Crash rate

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?

- 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

Ranking based on B/C:1
Available funding:2

Program: Skid Hazard

Date of Program Methodology:9/1/2014

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- FHWA focused approach to safety

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

Roadway

- Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Crash rate

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?

- 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

Ranking based on B/C:1
Available funding:2

What percentage of HSIP funds address systemic improvements?

37

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

- Add/Upgrade/Modify/Remove Traffic Signal
- Cable Median Barriers
- High friction surface treatment
- Horizontal curve signs
- Install/Improve Lighting
- Install/Improve Pavement Marking and/or Delineation
- Install/Improve Signing
- Pavement/Shoulder Widening
- Rumble Strips
- Safety Edge
- Traffic Control Device Rehabilitation
- Upgrade Guard Rails

What process is used to identify potential countermeasures?

- Crash data analysis
- Engineering Study
- Road Safety Assessment
- SHSP/Local road safety plan
- Stakeholder input

Does the State HSIP consider connected vehicles and ITS technologies?

Yes

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

The WVDOH currently has two safety projects programmed dealing with ITS technologies. The first project provides funds to upgrade ITS and traffic control devices throughout the state. The second provides funds for technical service support for ITS.

The total cost for the two projects is $8,554,800 which uses $1,809,977 in safety funds.

No funding has been programmed for CV/AV Technologies.

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.

In cases when the WVDOH is considering several solutions to a safety concern, the WVDOH will use the Highway Safety Manual to see what solution should give the best reduction in fatalities and injury crashes.

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

The overall purpose of the HSIP is to achieve a significant reduction in traffic fatalities and incapacitating injuries through the implementation of infrastructure related highway safety improvements. Components of West Virginia's HSIP include the Strategic Highway Safety Program (SHSP), the Highway Safety Improvement Program (HSIP), and the Railway-Highway Grade Crossing Program. All routes in West Virginia are eligible for HSIP funding including the local routes not under WVDOH control.

FAST ACT removed the requirement for a formal set aside for High Risk Rural Roads, and the funding was absorbed by the larger HSIP. Roads that were traditionally reviewed in the HRRR Program are still being reviewed and ranked in the HSIP. Rural collectors or rural local roads generally correlate to the county route highway class and WVDOH maintains all of the State's more than 28,000 miles in county routes. The State has been able to allocate HSIP funds to the routes that have a crash rate higher than state average for that classification.

Since Road Departure is the #1 cause of death and serious injury in West Virginia, it has been the focus of the HSIP. All routes in West Virginia were ranked based on their runoff the road crash rate and the top US and State routes were divided into two phases. Phase 1 countermeasures were developed and bid in 2017-2020, and were constructed during 2021. Consultants have been chosen for Phase 2. These consultants will develop plans for the US and State routes along with with specified county routes. Construction is scheduled for 2023. Two consultants have been hired to guarantee consistency and provide guidance on plan preparation. In addition, projects dealing with other focus areas of the SHSP are reviewed and funded if funds are available and the benefit/cost ratio is above 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)	$14,027,359	$12,703,459	90.56%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$691,200	$0	0%
Penalty Funds (23 U.S.C. 154)	$2,524,723	$2,524,723	100%
Penalty Funds (23 U.S.C. 164)	$5,045,896	$5,045,896	100%
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	$0	$0	0%
Totals	$22,289,178	$20,274,078	90.96%

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

WVDOH owns the majority of the roads in WV which includes local county routes. The few local owned routes are eligible for HSIP funding. However, none of thes routes have had a crash history that is above state average.

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

21%

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

21%

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.

In 2016, West Virginia became a focus state for run off the road accidents. FHWA contracted TTI to review West Virginia's crash data and develop a plan for 2018-2019 funding. This plan complimented the route selection West Virginia used in 2017 to develop the run off the road projects currently being developed and constructed.

In 2017, West Virginia initiated a program focused on reducing road departure crashes. With this program, West Virginia used available safety funds to upgrade existing cable guardrail to high tension four strand, install new cable guardrail, fund guardrail IDIQ projects, install high friction throughout the state, fund ITS, and install new lighting at interchanges and intersections.

The WVDOH made a commitment to be able to do system analysis and evaluation encompassing the entire state-owned highway network. When this commitment was made, it was under the assumption that the OASIS system would be fully functional and operating at full capacity. While the OASIS did go live in 2014 and was functioning properly, it was discovered that there was some major crash mapping and data quality issues that needed to be remedied. At launch, there were approximately 60% of the crashes statewide that were able to be mapped. This means that all of the data analysis as well as network screening (sliding window analysis) were inlay able to utilize 60% of the total crashes. Traffic's Safety Administration Section, working with FHWA, has acquired a system outside of OASIS to provide accurate data. The new system is scheduled to be operational in 2022.

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
Corbitt Hill Road Turn Lane (ROW)	Intersection geometry	Add/modify auxiliary lanes	1	Intersections	$54000	$60000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	9,700	55	State Highway Agency	Spot	Intersections	
Corbitt Hill Road Turn Lane (CON)	Intersection geometry	Add/modify auxiliary lanes	1	Intersections	$1431246	$1590274	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	9,700	55	State Highway Agency	Spot	Intersections	
US 22 WB HFST (ENG)	Roadway	Pavement surface – high friction surface	.5	Miles	$9000	$10000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	34,200	60	State Highway Agency	Spot	Roadway Departure	
Deerwalk Hwy HFST	Roadway	Pavement surface – high friction surface	1.03	Miles	$560448	$622720	HSIP (23 U.S.C. 148)	Rural	Major Collector	700	55	State Highway Agency	Spot	Roadway Departure	
Childers Run - Kesling	Intersection traffic control	Modify control – new traffic signal	2	Interchanges	$613319	$613319	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	15,500	65	State Highway Agency	Spot	Intersections	
Talbott Hill HFST	Roadway	Pavement surface – high friction surface	0.69	Miles	$743374	$825971	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	9,100	65	State Highway Agency	Spot	Roadway Departure	
Corridor H Hardy Aestetic	Roadside	Barrier- metal	23.31	Miles	$4684032	$4684032	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	3,000	65	State Highway Agency	Systemic	Roadway Departure	
Walton HFST	Roadway	Pavement surface – high friction surface	.23	Miles	$194576	$216195	HSIP (23 U.S.C. 148)	Rural	Major Collector	1,400	55	State Highway Agency	Spot	Roadway Departure	
US 340 Left Turn Lane	Intersection geometry	Add/modify auxiliary lanes	1	Intersections	$1303810	$1303810	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	22,900	60	State Highway Agency	Spot	Intersections	
East River Mountain - US 460	Roadside	Barrier – cable	8.22	Miles	$8953625	$8953625	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	24,200	70	State Highway Agency	Spot	Roadway Departure	
Interstate 81 Lighting	Lighting	Interchange lighting	26	Miles	$1140242	$20825215	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	58,700	70	State Highway Agency	Systemic	Roadway Departure	
Interstate 81 Lighting	Lighting	Interchange lighting	26	Miles	$4305475	$20825215	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial-Interstate	58,700	70	State Highway Agency	Systemic	Roadway Departure	
Tabler Station Interchange	Interchange design	Acceleration / deceleration / merge lane	1	Interchanges	$544250	$5742484	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	61,300	70	State Highway Agency	Spot	Roadway Departure	

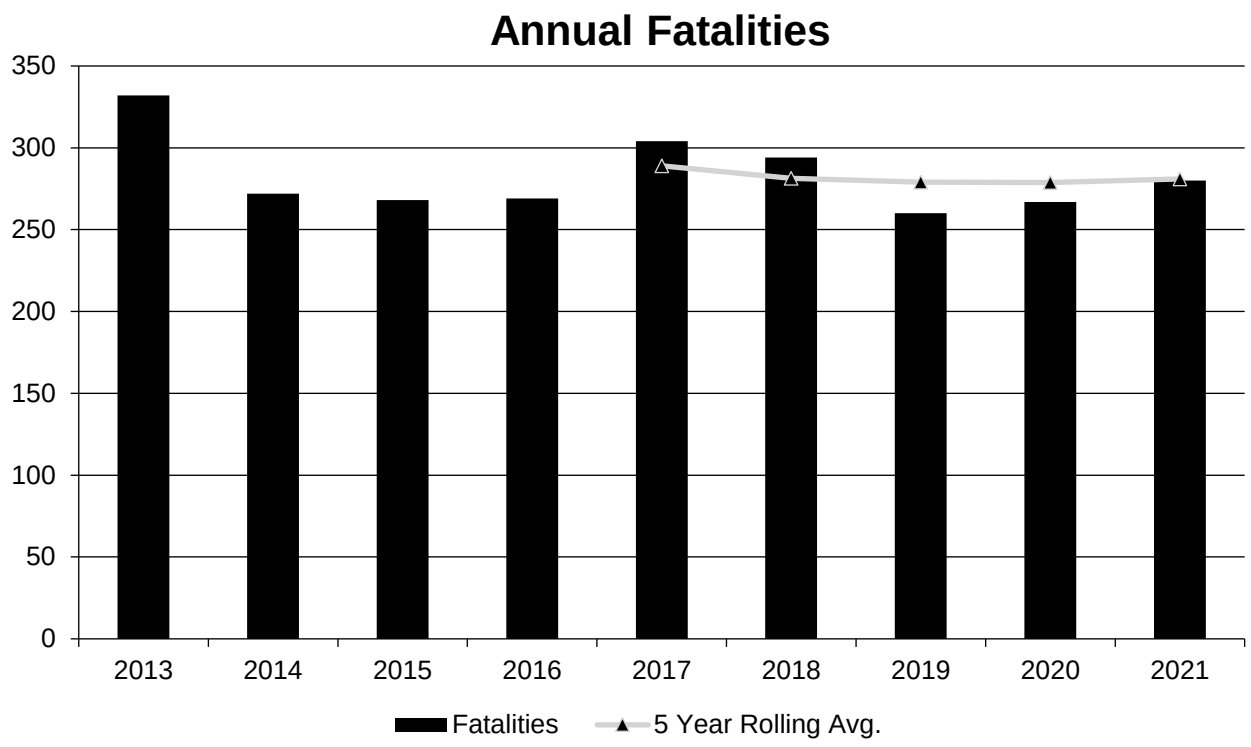
PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
Daniel Road	Alignment	Horizontal curve realignment	0.15	Miles	$302888	$302888	HSIP (23 U.S.C. 148)	Urban	Local Road or Street	1,500	45	State Highway Agency	Spot	Roadway Departure	
Safety Management System	Advanced technology and ITS	Advanced technology and ITS - other	1	system	$1800000	$2000000	HSIP (23 U.S.C. 148)	N/A	N/A	0		State Highway Agency	Systemic	Data	
2022 RPM	Roadway delineation	Raised pavement markers	4	Districts	$921834	$921834	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
District 1 Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	$1291400	$1844857	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
District 6 Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	$1054995	$1507135	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
District 8 Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	$1077381	$1539116	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
District 10 Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	$1495018	$2135740	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
SHSP 2022 Update	Miscellaneous	SHSP Development	1	Report	$360000	$401000	HSIP (23 U.S.C. 148)	N/A	N/A	0		State Highway Agency	Systemic	Data	

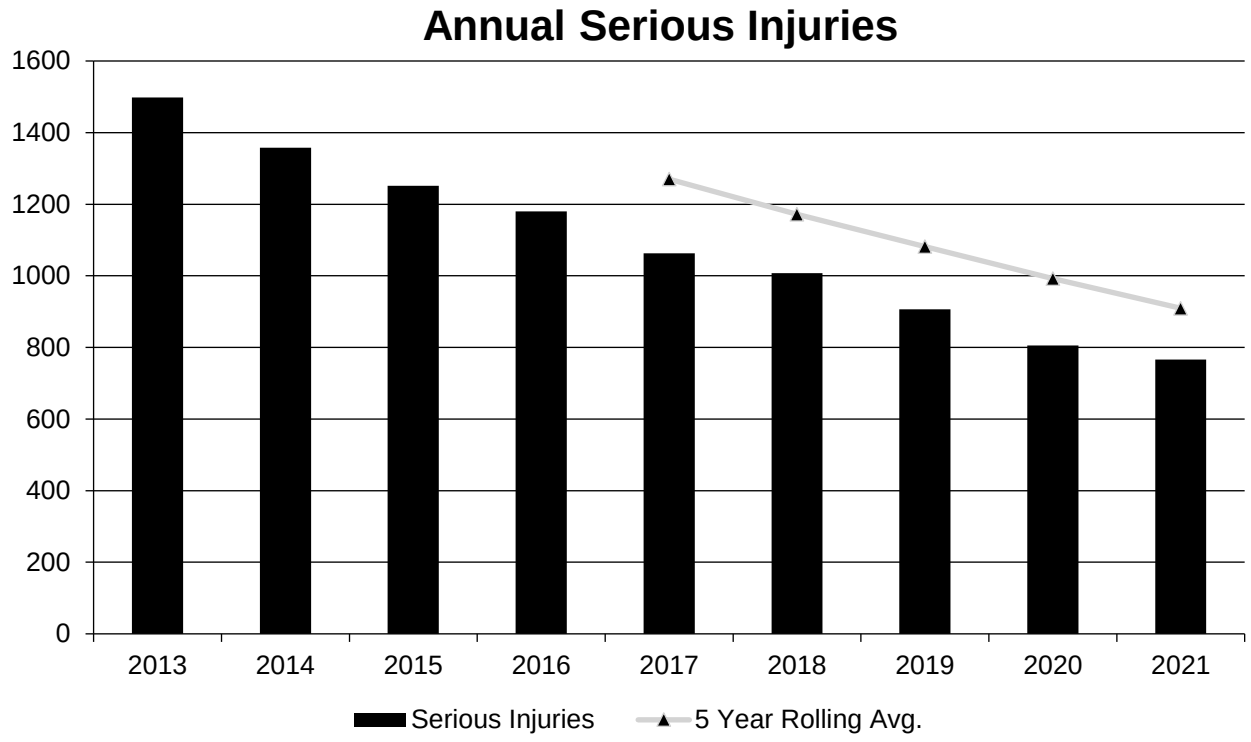
Safety Performance

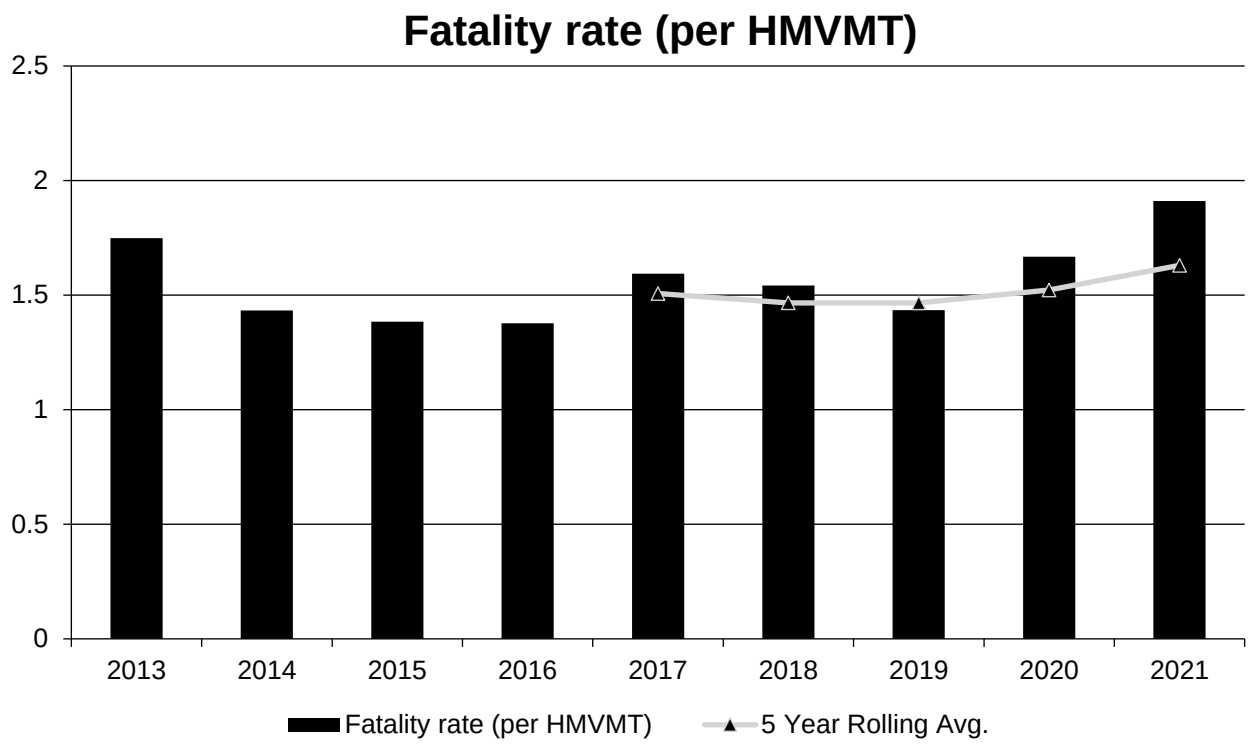
General Highway Safety Trends

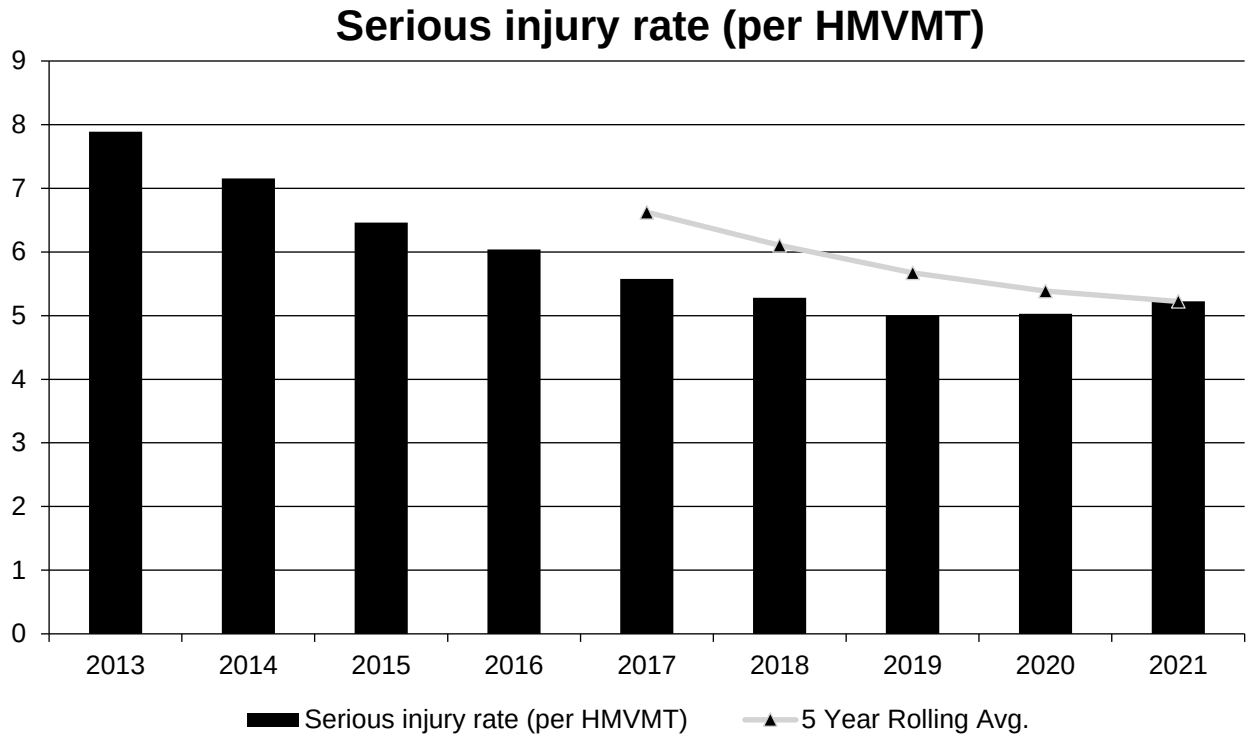
Present data showing the general highway safety trends in the State for the past five years.

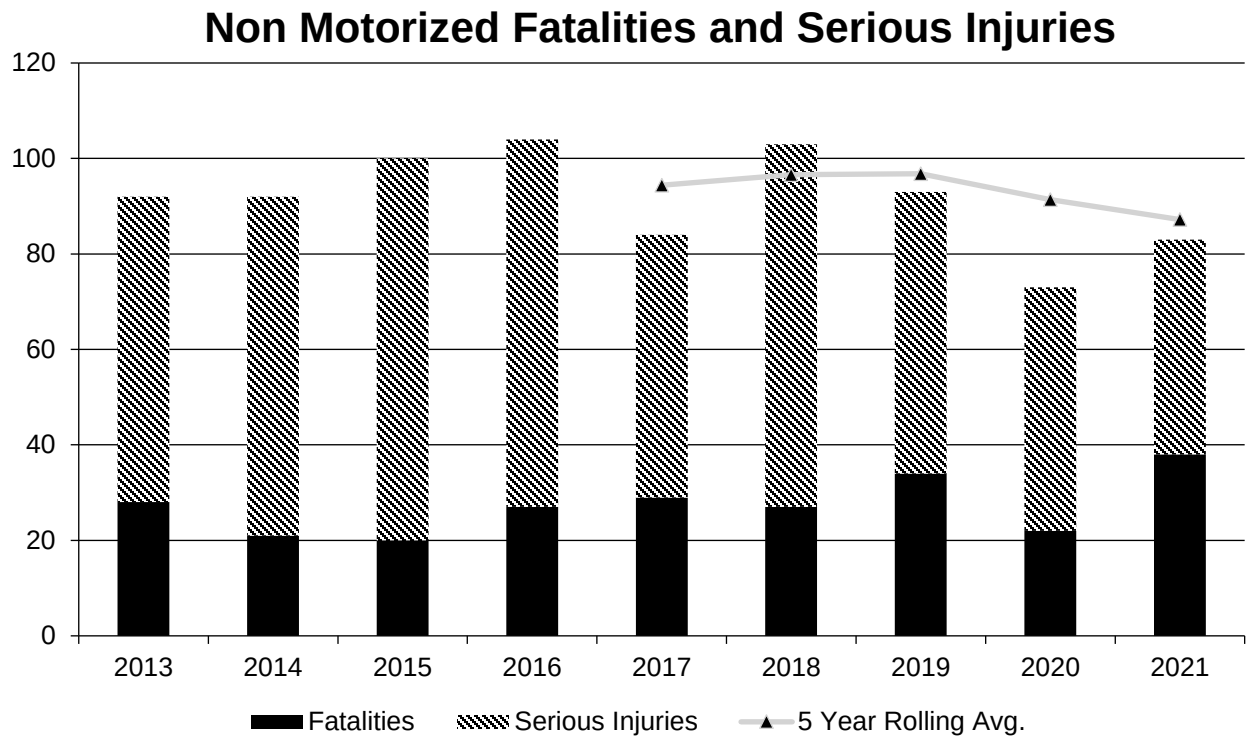
PERFORMANCE MEASURES	2013	2014	2015	2016	2017	2018	2019	2020	2021
Fatalities	332	272	268	269	304	294	260	267	280
Serious Injuries	1,498	1,358	1,251	1,180	1,063	1,007	906	805	766
Fatality rate (per HMVMT)	1.749	1.433	1.384	1.377	1.594	1.542	1.435	1.668	1.910
Serious injury rate (per HMVMT)	7.889	7.157	6.459	6.039	5.574	5.280	5.000	5.028	5.226
Number non-motorized fatalities	28	21	20	27	29	27	34	22	38
Number of non-motorized serious injuries	64	71	80	77	55	76	59	51	45


Annual Fatalities
350
300
250
200
150
100
50
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
1600
1400
1200
1000
800
600
400
200
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
2.5
2
1.5
1
0.5
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
9
8
7
6
5
4
3
2
1
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



Describe fatality data source.

FARS

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

Year 2021

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	15.2	28.4	0.71	1.29
Rural Principal Arterial (RPA) - Other Freeways and Expressways	0	0	0	0
Rural Principal Arterial (RPA) - Other	39.8	106	1.85	4.92
Rural Minor Arterial				
Rural Minor Collector	7.2	22.6	2.25	6.94
Rural Major Collector	58.6	184.4	2.66	8.04

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 Local Road or Street	22.4	71	2.45	7.75
Urban Principal Arterial (UPA) - Interstate	16.4	39.6	0.52	1.28
Urban Principal Arterial (UPA) - Other Freeways and Expressways	0.4	0.8	0.02	0.47
Urban Principal Arterial (UPA) - Other	32.6	74.4	12.8	34.14
Urban Minor Arterial	25.8	92.2	1.49	5.41
Urban Minor Collector	8.4	0.8	17.13	2.98
Urban Major Collector	8	36.4	1	4.4
Urban Local Road or Street	3.4	17.4	0.77	3.77

Year 2021

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	273.2	861.2	1.78	5.59
County Highway Agency				
Town or Township Highway Agency				
City or Municipal Highway Agency	6	48.4	1.94	14.62
State Park, Forest, or Reservation Agency				
Local Park, Forest or Reservation Agency				
Other State Agency	1.8		42.62	
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				

Safety Performance Targets

Safety Performance Targets

Calendar Year 2023 Targets *

Number of Fatalities:262.1

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

West Virginia's SHSP established the overall goal of cutting the 5-year average number of fatalities in half by the year 2030, using 2005-2009 as our baseline year. At the time of SHSP development, targets were calculated for each year. Annually, the targets are adjusted based upon the most current five-year average number of fatalities available (currently 2017-2021) while keeping the 2030 goal the same as it was when the SHSP was adopted.

Number of Serious Injuries:854.8

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

West Virginia's SHSP established the overall goal of cutting the 5-year average number of serious injuries to one third of baseline number by the year 2030, using 2009-2013 as our baseline year. At the time SHSP development, targets were calculated for each year. Annual, the targets are adjusted based upon the most current five-year average number of serious injuries available (currently 2017-2021) while keeping the 2030 goal the same as it was when the SHSP was adopted.

Fatality Rate:1.692

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

West Virginia's SHSP established the overall goal of cutting the 5-year average number of fatalities in half by the year 2030, using 2005-2009 as our baseline year. It also established a target fatality rate based on the goal of five-year number of fatalities and an assume annual VMT growth of 0.44%. At the time of SHSP development, targets were calculated for each year with target fatality rates being calculated from target 5-year average numbers of fatalities and the assume VMT growth previously described. Annual, the targets are adjusted based upon the most current five-year average number of fatalities available (currently 2017-2021) while keeping the 2030 goal the same as it was when the SHSP was adopted.

Serious Injury Rate:5.972

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

West Virginia's SHSP established the overall goal of cutting the 5 year average number of serious injuries to one third of baseline numbers by the year 2030, using 2009-2013 as our baseline year. It also established a target serious injury rate based on the goal based on the goal five-year average number of serious injuries and an assumed annual VMT growth of 0.44%. At the time SHSP development, targets were calculated for each year. Annually, the targets are adjusted based upon the most current five-year average number of serious injuries available (currently 2017-2021) while keeping the 2030 goal the same as it was when the SHSP was adopted.

Total Number of Non-Motorized Fatalities and Serious Injuries:74.9

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

To decrease pedestrian fatalities by 4 percent from 23 (2013-2017) to 22 (2017-2021) and to maintain bicyclist fatalities at one 2013-2017 average through the 2017-2021 average, non-motorized crashes are not an emphasis area within West Virginia's SHSP. Safety performance targets for this area have been established in the same manner that targets for fatalities of serious injuries. The baseline 5-year average for this was 2009-2013 and the goal was to cut them to one third of that average. We adjust them annually, just as we do for fatalities and serious injuries keeping the 2030 goal the same.

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

In the mid-1990's, various officials with highway safety responsibilities in West Virginia recognized the value of banding together to advance highway safety. This resulted in the creation of the State's first Highway Safety Management Task Force. After a brief hiatus, the renamed Safety Management Task Force (SMTF) reconvened in late 2001 and met regularly to coordinate highway safety-related activities and programs and allowed participants to speak with one voice for greater safety impacts. The Task Force continued this mission as its more than 30 members provided oversight in the plan development, implementation, and evaluation of the State's current SHSP as they will again as we begin the required 2022 update.

An effort to revitalize and expand the Task Force is underway as a kick-off to the 2022 SHSP. More than 50 members have been invited to provide oversight of the new SHSP, including plan development, implementation and evaluation. This update will be a continuation of the work to address the State's current traffic safety issues that task force members have continued to diligently perform and coordinate in spite of the difficulties in officially meeting together that the past few years have brought. Members of the SMTF include the Division of Highways, Division of Motor Vehicles, Governor's Highway Safety Section, West Virginia State Police along with representatives from local law enforcement agencies, Department of Education, Alcohol Beverage Control Administration, Office of the Insurance Commissioner, West Virginia Parkways Authority, West Virginia Association of Metropolitan Organizations, West Virginia Commission of Drunk Driving Prevention, Federal Highway Administration, Federal Motor Carrier Safety Administration, National Highway Traffic Safety Administration, and many more highway safety minded agencies, organizations and commissions.

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	263.7	281.0
Number of Serious Injuries	1002.4	909.4
Fatality Rate	1.457	1.630
Serious Injury Rate	5.023	5.222
Non-Motorized Fatalities and Serious Injuries	86.2	87.2

West Virginia met its safety performance target in 2021 for the number of serious injuries. West Virginia came close to the safety target in number of fatalities, fatality rate, serious injury rate, and non-motorized fatalities and serious injuries. The five year average for number of fatalities, fatality rate, serious injury rate, and non-motorized fatalities and serious injuries as 281.0, 1.630, 5.222, and 87.2 and the target was 263.7, 1.457, 5.023, and 86.2 respectively.

Applicability of Special Rules

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

No

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

PERFORMANCE MEASURES	2015	2016	2017	2018	2019	2020	2021
Number of Older Driver and Pedestrian Fatalities	35	41	43	65	43	57	63
Number of Older Driver and Pedestrian Serious Injuries	97	89	104	117	95	98	90

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

- Benefit/Cost Ratio
- Change in fatalities and serious injuries
- Economic Effectiveness (cost per crash reduced)

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

West Virginia has focused on Road Departure with it's HSIP since it has the best chance of reducing the fatality and injury rates. However, other projects are evaluated if they meet the SHSP goals.

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

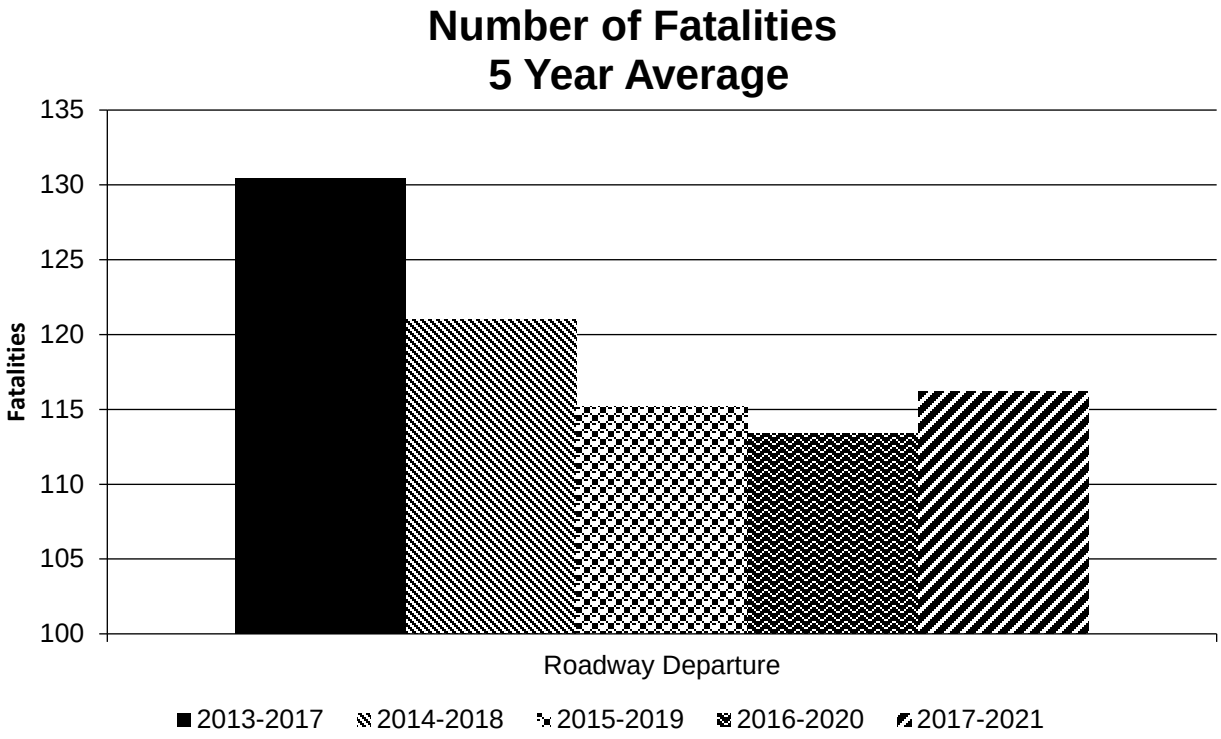
- HSIP Obligations
- More systemic programs

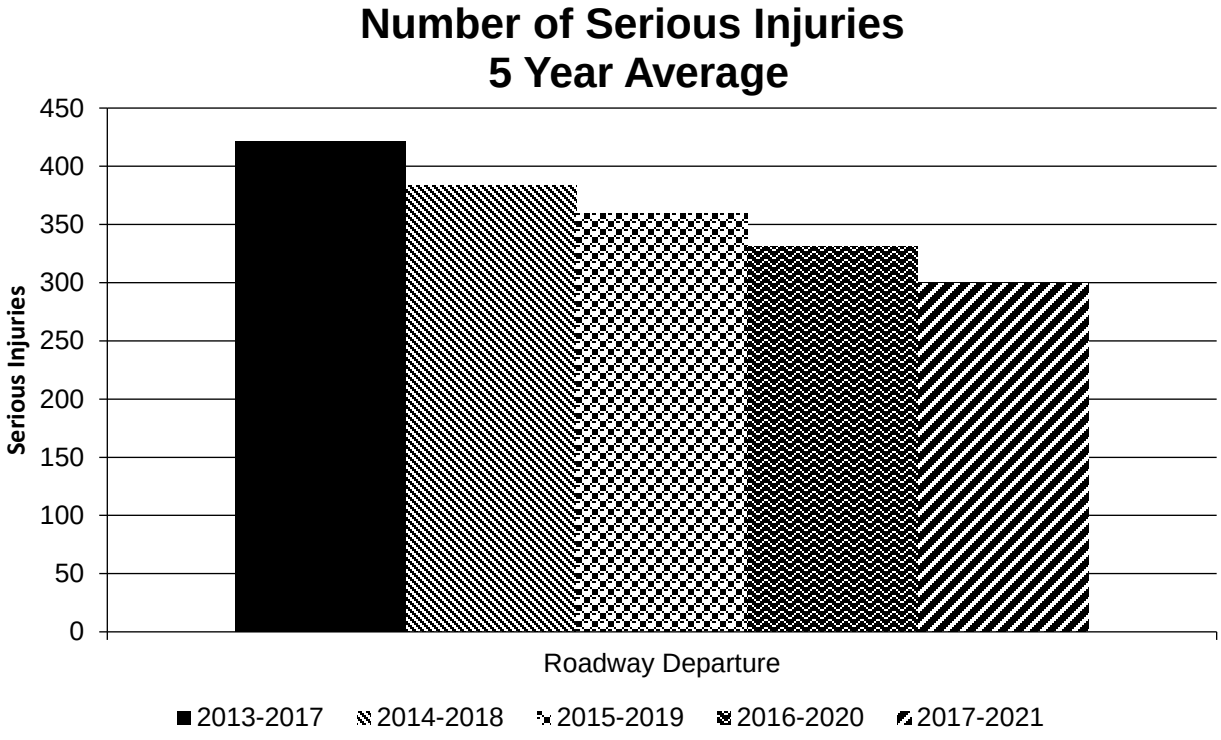
Effectiveness of Groupings or Similar Types of Improvements

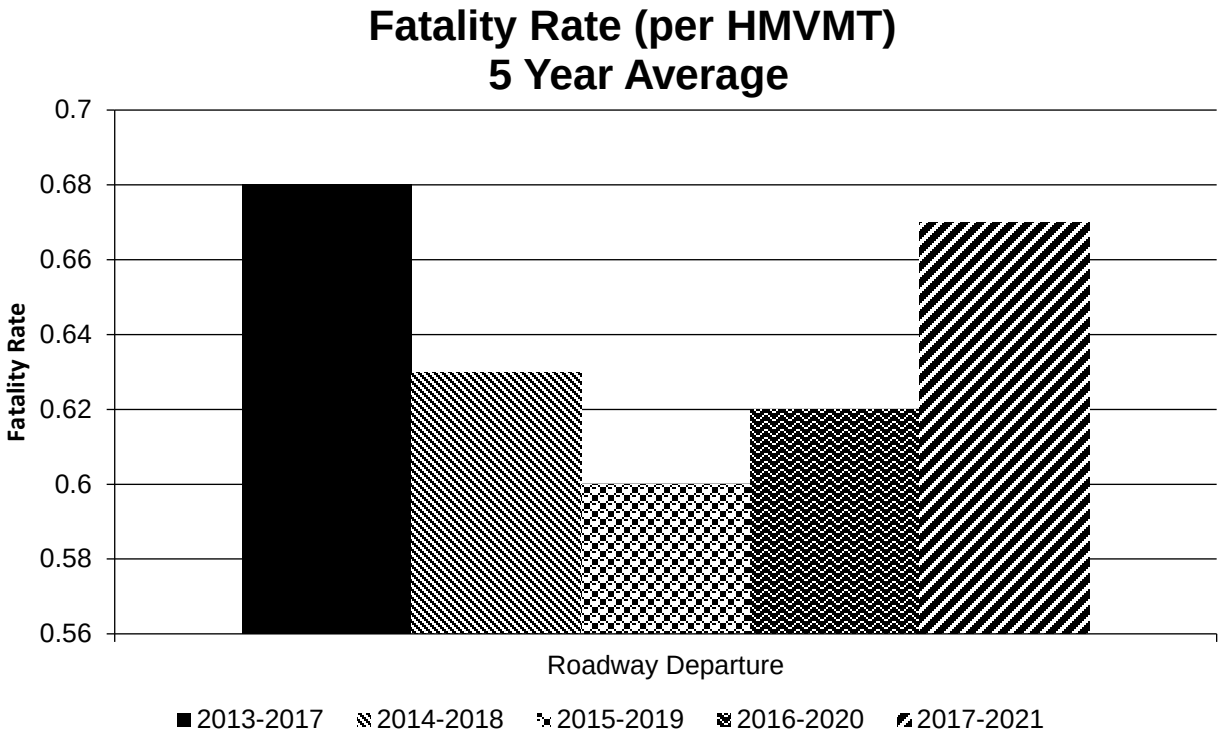
Present and describe trends in SHSP emphasis area performance measures.

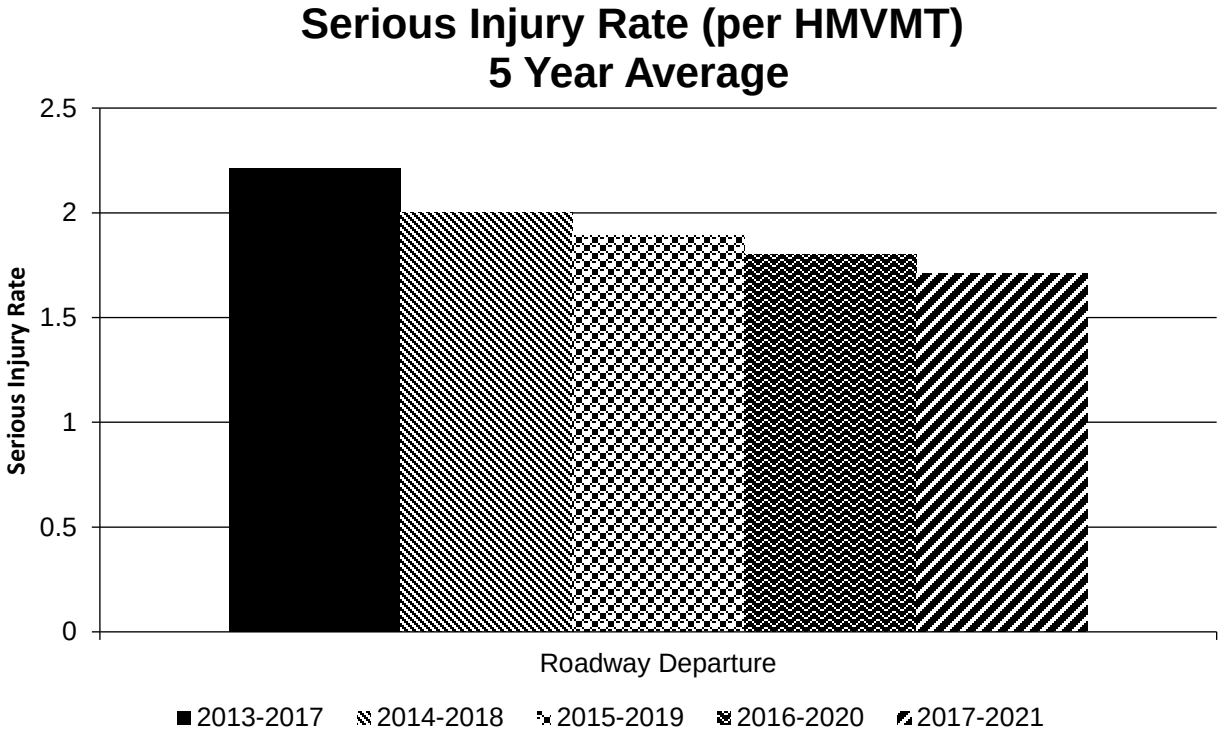
Year 2021

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		116.2	299	0.67	1.71


Number of Fatalities
5 Year Average
135
130
125
120
115
110
105
100
Fatalities
Roadway Departure
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Number of Serious Injuries
5 Year Average
450
400
350
300
250
200
150
100
50
0
Serious Injuries
Roadway Departure
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Fatality Rate (per HMVMT)
5 Year Average
0.7
0.68
0.66
0.64
0.62
0.6
0.58
0.56
Fatality Rate
Roadway Departure
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Serious Injury Rate (per HMVMT)
5 Year Average
2.5
2
1.5
1
0.5
0
Serious Injury Rate
Roadway Departure
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021

Project Effectiveness

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

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
Marion County US 250	Rural Minor Arterial	Intersection geometry	Add/modify auxiliary lanes	4.00	2.00					2.00		6.00	2.00	
Monongalia County US 119	Urban Minor Arterial	Roadway	Roadway widening - add lane(s) along segment	26.00	14.00				1.00	4.00	7.00	30.00	22.00	
Monongalia County WV 705	Urban Principal Arterial (UPA) - Other	Lighting	Continuous roadway lighting	41.00	8.00					12.00	5.00	53.00	13.00	
Monongalia County Interstate 68 south	Urban Principal Arterial (UPA) - Interstate	Roadway	Pavement surface – high friction surface	8.00						5.00		13.00		

Compliance Assessment

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

07/31/2017

What are the years being covered by the current SHSP?

From: 2017 To: 2021

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

2022

WVDOH has selected WRA as the consultant for the 2022 SHSP update. The draft has been completed and the final version is anticipated to be completed by the end of 2022.

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
	Route Number (8) [8]	100									
	Route/Street Name (9) [9]	100									
	Federal Aid/Route Type (21) [21]	100									
	Rural/Urban Designation (20) [20]	100						100			
	Surface Type (23) [24]	100						100			
	Begin Point Segment Descriptor (10) [10]	100						100	95	100	95
	End Point Segment Descriptor (11) [11]	100						100	95	100	95
	Segment Length (13) [13]	100									
	Direction of Inventory (18) [18]	100									
	Functional Class (19) [19]	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]	80									
	Access Control (22) [23]	100									
	One/Two Way Operations (91) [93]	100									
	Number of Through Lanes (31) [32]	100						100			
	Average Annual Daily Traffic (79) [81]	100						100			
	AADT Year (80) [82]	100									
	Type of Governmental Ownership (4) [4]	100						100	100	100	100
INTERSECTION	Unique Junction Identifier (120) [110]			50	50						
	Location Identifier for Road 1 Crossing Point (122) [112]			50	50						
	Location Identifier for Road 2 Crossing Point (123) [113]			50	50						
	Intersection/Junction Geometry (126) [116]			20	20						
	Intersection/Junction Traffic Control (131) [131]										
	AADT for Each Intersecting Road (79) [81]			50							
	AADT Year (80) [82]			50							
	Unique Approach Identifier (139) [129]			50	50						
INTERCHANGE/RAMP	Unique Interchange Identifier (178) [168]					100					
	Location Identifier for Roadway at					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					
	Ramp Length (187) [177]					100					
	Roadway Type at Beginning of Ramp Terminal (195) [185]					100					
	Roadway Type at End Ramp Terminal (199) [189]					100					
	Interchange Type (182) [172]										
	Ramp AADT (191) [181]					100					
	Year of Ramp AADT (192) [182]					100					
	Functional Class (19) [19]					100					
	Type of Governmental Ownership (4) [4]					100					
Totals (Average Percent Complete):		**98.89**	**0.00**	**40.00**	**27.50**	**90.91**	**0.00**	**100.00**	**43.33**	**100.00**	**78.00**

*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.

Based on the Safety Data Assessment performed in 2018, West Virginia ranked low in data quality and collection particularly in the area of Minimum Inventory of Roadway Elements (MIRE). As such, West Virginia has been selected as a pilot or focus state allowing for additional technical assistance. West Virginia staff has participated in a peer exchange and is developing a plan to prioritize key data element definitions and collections. Our Strategic Data Management and Technology Division as the Roadway Inventory manager and the Traffic Engineering Division as the primary user in managing highway safety analysis are coordination to ensure the MIRE FDE full meets or exceeds the national standard.

Optional Attachments

Program Structure:

WV HSIP Process.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.