

## **WEST VIRGINIA**

# HIGHWAY SAFETY IMPROVEMENT PROGRAM

**2019 ANNUAL REPORT** 

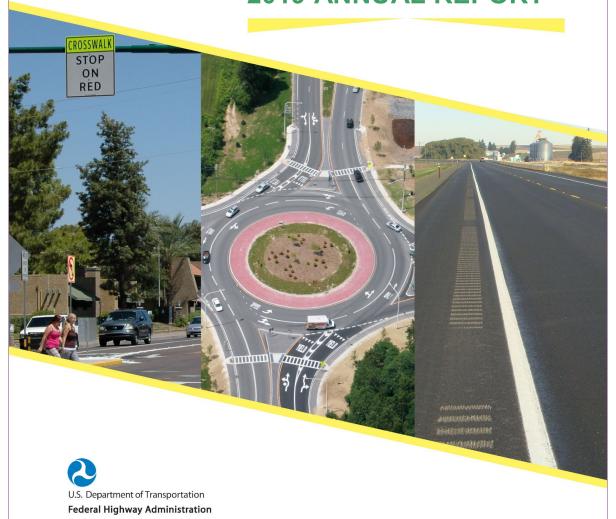


Photo source: Federal Highway Administration

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

## **Executive Summary**

The 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 annual 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, 2018 through June 30, 2019, and satisfies the requirements of 23 U.S.C. 148(h) and 23 CFR 924.15. The established format consist of five sections: program structure, project implementation, safety performance, evaluation, and compliance assessment.

In 2007, West Virginia developed it's first Strategic Highway Safety Plan, which focused on nine specific emphasis areas. At that 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. In 2014, the fatality number was 272 which met the primary goal of the 2007 SHSP. Working with several internal and external members, West Virginia began a revision of their SHSP that was completed in 2017. The new SHSP has five specific emphasis areas: Road Departure, Alcohol and Drug Impaired Driving, Occupant Protection, Speeding and Aggressive Driving, and Improving Highway Safety Data. Each emphasis area includes action plans that utilize the four E's of Safety to guide the implementation. WVDOH represents the engineering phase and is lead on infrastructure improvements. These improvements make up the majority of the HSIP projects and are mainly focused on reducing road departure crashes.

In the 10 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 93% 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 guarantee the state's safety needs are being addressed.

The Railway Highway Crossing Report will be submitted as a separate document and is not including in any discussions 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 the Mobility and Safety Section of the WVDOH's Traffic Engineering Division. The Section 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, and the collection of any other information found appropriate to evaluate the proposed project. Most projects are supported by the Strategic Highway Safety Plan. However, good projects that improve safety in West Virginia are evaluated even if they do not fall under any of the emphasis areas in the current SHSP.

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. Once a project is selected for the HSIP, the Section is responsible for selecting an HSIP funding category for the project, submitting appropriate programming documents where HSIP funds are encumbered and projects are assigned the State's Statewide Transportation Improvement Program (STIP). The Mobility and Safety Section remains responsible for monitoring and balancing the use of HSIP funds, and evaluating the effectiveness of a project following its completion. The annual HSIP for West Virginia is approximately \$27.4 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-five percent (95%) 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 request safety funds for a project, they would need to contact the Mobility and Safety Section of the WVDOH's Traffic Engineering Division or their local MPO. They would need to provide what the proposed improvement would be and the estimated cost. The local roads listed in question #32 are all local roads, and not just 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.

The Mobility and Safety Section coordinate with every division within WVDOT. Any division or district within DOH can recommend a location for safety improvements by contacting Mobility and Safety. The Traffic Safety Planning and Analysis section provides all divisions and districts with crash data. The Mobility and Safety Section will then review the crash data and determine whether a safety concern exists. 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 the concern is identified, and countermeasures are determined, an estimate to implement the countermeasures is prepared. The Mobility and Safety Section shall perform a benefit/cost ratio to see if project is eligible for HSIP funding. Mobility and Safety is the lead for all infrastructure SHSP related projects that are identified as HSIP eligible. Other subjects like non-motorist concerns such as pedestrians and bicyclist are handled by DOH's Planning Division. All projects utilizing HSIP funds must be reviewed, approved and programmed by Mobility and Safety. The Mobility and Safety Section will provide Design Division with all recommendations, and will coordinate with all divisions/districts throughout the multiple phases of a project.

## 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 their internal partners. The Safety Management Task Force (SMTF) is the governing body of the SHSP implementation. The HSMT is chaired by Traffic Safety Planning and Analysis but members of Mobility and

Safety work on different emphasis areas. Through the SMTF the Mobility and Safety 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 Mobility and Safety Section directly, the MPO can request possible HSIP funding. The Road Safety Audit (RSA) is another key element that Mobility and Safety works with the MPO. Their expertise and knowledge of the area is often sought, and the MPO has been good to help 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

FileName:

WV HSIP Process.docx

Attached is a copy of our Program Elements and Process Flow Chart. West Virginia has been working with FHWA for Roadway Departure plan. Once that is complete, West Virginia will rewrite our process at a future date.

### 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 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: 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?

Crasnes	Exposure	Roadway
All crashes	Traffic	Functional classification
All Clashes	Hallic	FullClional 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** 

**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 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

**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 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

## 2019 West Virginia Highway Safety Improvement Program 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** 

**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?

### 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: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
 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

What percentage of HSIP funds address systemic improvements?

40

## 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 three safety projects programmed dealing with ITS technologies. The first two projects provides funds to install dynamic message signs along I-64 and I-68. The third project provides funds to upgrade ITS and traffic control devices throughout the state.

The total cost for the three projects is \$8,402,306 which uses \$5,237,082 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 run off the road crash rate and the top US and State routes are currently being reviewed by several consultants for appropriate countermeasures. Once that process is complete, the county routes will be reviewed in a similar method. 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)	\$187,355,419	\$140,680,089	75.09%
HRRR Special Rule (23 U.S.C. 148(g)(1))	\$1,488,000	\$0	0%
Penalty Funds (23 U.S.C. 154)	\$13,208,322	\$13,158,342	99.62%
Penalty Funds (23 U.S.C. 164)	\$0	\$0	0%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	\$0	\$0	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	\$0	\$0	0%
State and Local Funds	\$0	\$0	0%
Totals	\$202,051,741	\$153,838,431	76.14%

The HSIP Funding includes SAFETEA-LU, MAP 21 and FAST ACT funding.

## 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 these routes have had a crash history that is above state average.

## How much funding is programmed to non-infrastructure safety projects? \$25,048,648

## How much funding is obligated to non-infrastructure safety projects? \$20,213,648

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.

West Virginia has observed an impediment to obligating Highway Safety Improvement Program funds. Even though the Mobility and Safety Section is responsible for monitoring and balancing the use of HSIP funds, they do not handle the design of the project. We have found that people who are responsible for the design of the project have too much work. Often these people have other projects from other core programs.

To overcome this, members of the Mobility and Safety Section are keeping contact with people who are responsible for the design during the entire process and checking with their workload before assigning the design of the project to them.

In 2016, West Virginia became a focus state for run off the road accidents. FHWA will make available resources to try to reduce the number of run off the road accidents. FHWA contracted TTI to review West Virginia's crash data and develop a plan for 2018-2019 funding.

In 2017, West Virginia initiated an accelerated safety program. 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. Additionally West Virginia has identified US and West Virginia routes that have a roadway departure rate higher than the statewide average. West Virginia has hired several consultants to assess these roads and propose various improvements to these routes. Safety funds were then used to fund these improvements.

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 Planning and Analysis Section is working on a system outside of OASIS to provide accurate data.

## 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
WV 28 / WV 956 (CON)	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Numbers	\$814836	\$814836	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	7,700	40	State Highway Agency	Spot	Data	
River Road Guardrail	Roadside	Barrier- metal	1	Miles	\$108913	\$108913	HSIP (23 U.S.C. 148)	Rural	Major Collector	1,300	55	State Highway Agency	Spot	Roadway Departure	
Cooper Rock / Goshen (CON)	Roadside	Barrier - cable	14	Miles	\$9197320	\$10219244	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial- Interstate	46,500	70	State Highway Agency	Spot	Roadway Departure	
Harts Run / Princeton (CON)	Roadside	Barrier - cable	8	Miles	\$6378460	\$6378460	HSIP (23 U.S.C. 148)	Rural	Principal Arterial- Interstate	39,000	70	State Highway Agency	Spot	Roadway Departure	
Piedmont / Scary Guardrail (CON)	Roadside	Barrier - cable	15	Miles	\$9381239	\$9381239	HSIP (23 U.S.C. 148)	Rural	Principal Arterial- Interstate	30,100	70	State Highway Agency	Spot	Roadway Departure	
2017 D1 Guardrail (CON)	Roadside	Barrier - other	1	District	\$2353924	\$2615471	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
Edens Fork Lighting +1 (ENG)	Lighting	Site lighting - interchange	2	Interchanges	\$90000	\$100000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial- Interstate	0	70	State Highway Agency	Spot	Data	
Traffic Operations Safety Studies	Non- infrastructure	Transportation safety planning	1	Study	\$280000	\$350000	HSIP (23 U.S.C. 148)	N/A	N/A	0		State Highway Agency	Spot	Data	
Charles Town Turn Lane	Intersection geometry	Auxiliary lanes - extend existing right-turn lane	1	Intersections	\$651105	\$723450	HSIP (23 U.S.C. 148)	Urban	Principal Arterial- Other	36,000	45	State Highway Agency	Spot	Data	
District 7 HFST +6	Roadway	Pavement surface - high friction surface	7	Locations	\$481599	\$535110	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0		State Highway Agency	Spot	Roadway Departure	
Roadway Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	\$1181356	\$1312618	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
Roadway Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	\$1360299	\$1511443	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	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
Roadway Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	\$1313695	\$1459661	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
Roadway Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	\$1677496	\$1863884	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
Roadway Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	\$1660136	\$1844596	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
Roadway Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	\$1074577	\$1193974	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
Roadway Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	\$1325810	\$1473122	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
Roadway Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	\$1181618	\$1312909	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
Roadway Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	\$1358462	\$1509402	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
Roadway Striping	Roadway delineation	Longitudinal pavement markings - remarking	1	District	\$1607293	\$1785881	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
US 33 Signing	Roadway signs and traffic control	Roadway signs (including post) - new or updated	1	Project	\$2098745	\$4197490	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	2,900	55	State Highway Agency	Spot	Roadway Departure	
I-79 Signing Renovation	Roadway signs and traffic control	Roadway signs (including post) - new or updated	1	Project	\$714405	\$1428810	HSIP (23 U.S.C. 148)	Rural	Principal Arterial- Interstate	0		State Highway Agency	Spot	Roadway Departure	
DMS Retrofit I-64	Advanced technology and ITS	Dynamic message signs	1	Numbers	\$44982	\$49980	Penalty Funds (23 U.S.C. 154)	Urban	Principal Arterial- Interstate	86,494	60	State Highway Agency	Spot	Data	
Roadway Departure Assessment A	Non- infrastructure	Transportation safety planning	1	Numbers	\$135000	\$150000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
Roadway Departure Assessment B	Non- infrastructure	Transportation safety planning	1	Numbers	\$135000	\$150000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	

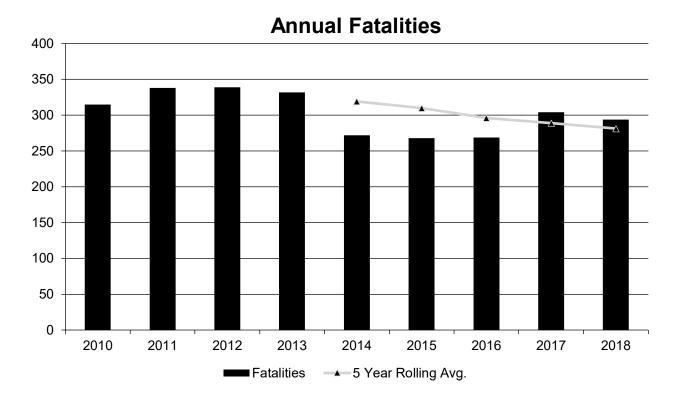
PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA SHSP STRA	ATEGY
Edens Fork Lighting +1 (CON)	Lighting	Site lighting - interchange	2	Interchanges	\$2290313	\$2544792	HSIP (23 U.S.C. 148)	Rural	Principal Arterial- Interstate	0	70	State Highway Agency	Spot	Data	
2019 RPM	Roadway delineation	Raised pavement markers	4	Districts	\$486221	\$486221	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Systemic	Roadway Departure	
Cabella - Elm Grove HFST	Roadway	Pavement surface - high friction surface	1	Miles	\$823991	\$915546	HSIP (23 U.S.C. 148)	Urban	Principal Arterial- Interstate	48,764	70	State Highway Agency	Spot	Roadway Departure	
Traffic Operations Safety Studies	Non- infrastructure	Transportation safety planning	1	Studies	\$315000	\$350000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0		State Highway Agency	Spot	Data	

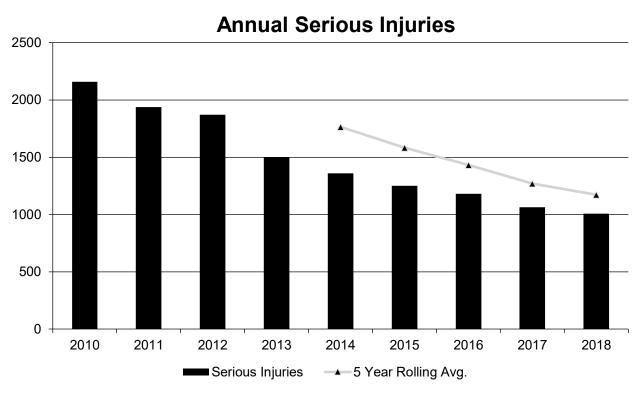
## **Safety Performance**

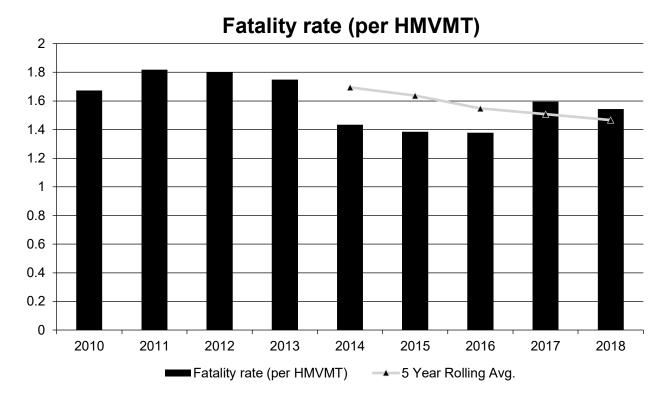
## General Highway Safety Trends

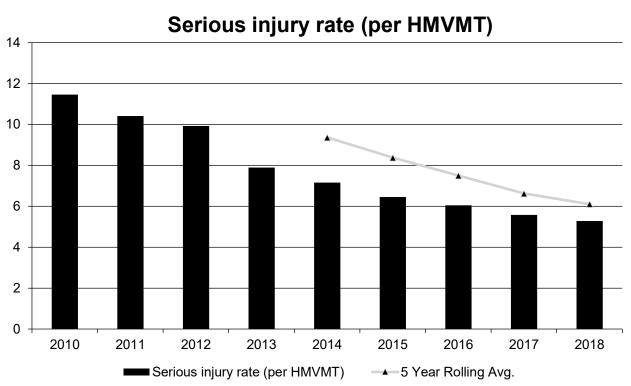
## Present data showing the general highway safety trends in the State for the past five years.

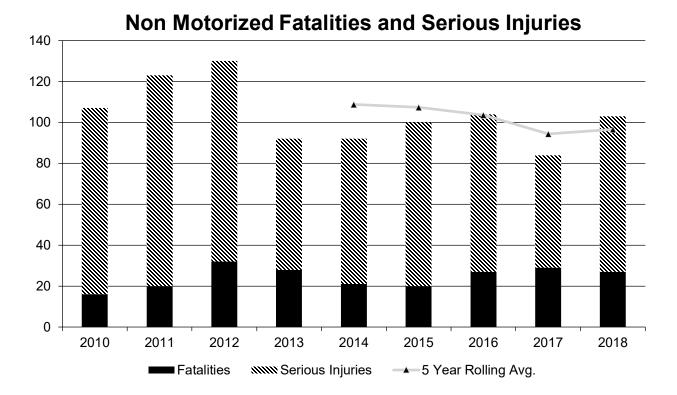
PERFORMANCE MEASURES	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fatalities	315	338	339	332	272	268	269	304	294
Serious Injuries	2,159	1,936	1,871	1,498	1,358	1,251	1,180	1,063	1,007
Fatality rate (per HMVMT)	1.672	1.819	1.799	1.749	1.433	1.384	1.377	1.594	1.542
Serious injury rate (per HMVMT)	11.462	10.417	9.927	7.889	7.157	6.459	6.039	5.574	5.280
Number non-motorized fatalities	16	20	32	28	21	20	27	29	27
Number of non- motorized serious injuries	91	103	98	64	71	80	77	55	76











### Describe fatality data source.

**FARS** 

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

### Year 2018

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	19.2	43	0.75	1.78
Rural Principal Arterial (RPA) - Other Freeways and Expressways	0	0	0	0
Rural Principal Arterial (RPA) - Other	49	142.2	2.09	5.93
Rural Minor Arterial	29	116.2	1.95	7.73
Rural Minor Collector	7.6	31.6	2.04	8.39
Rural Major Collector	57.4	232.6	2.3	9.2
Rural Local Road or Street	29.6	96.6	3.01	9.84

Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Urban Principal Arterial (UPA) - Interstate	22.4	42.8	0.69	1.28
Urban Principal Arterial (UPA) - Other Freeways and Expressways	0.6	2.2	0.71	2.63
Urban Principal Arterial (UPA) - Other	25.6	111.2	9.06	5.21
Urban Minor Arterial	24.2	108.2	1.24	5.41
Urban Minor Collector	4.4	0.2	15.35	0.73
Urban Major Collector	5	38.2	0.62	4.72
Urban Local Road or Street	6.8	19.8	1.94	6.22

#### Year 2018

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	274.2	1,070.6	1.63	6.26
County Highway Agency				
Town or Township Highway Agency				
City or Municipal Highway Agency	4.2	94		
State Park, Forest, or Reservation Agency				
Local Park, Forest or Reservation Agency				
Other State Agency	3	16.4		
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 2020 Targets \*

Number of Fatalities: 267.0

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

WV'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

2019 West Virginia Highway Safety Improvement Program calculated for each year. Annually, the targets are adjusted based upon the most current five-year average number of fatalities available (currently 2014-2018) while keeping the 2030 goal the same as it was when the SHSP was adopted.

#### Number of Serious Injuries:1120.0

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

WV'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. 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 serious injuries available (currently 2014-2018) while keeping the 2030 goal the same as it was when the SHSP was adopted.

#### Fatality Rate: 1.482

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

WV'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 five-year number of fatalities and an assumed 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 assumed VMT growth previously described. Annually, the targets are adjusted based upon the most current five-year average number of fatalities available (currently 2014-2018) while keeping the 2030 goal the same as it was when the SHSP was adopted

#### Serious Injury Rate: 5.360

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

WV'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 five-year average number of serious injuries and an assumed annual VMT growth of 0.44%. 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 serious injuries available (currently 2014-2018) while keeping the 2030 goal the same as it was when the SHSP was adopted.

#### Total Number of Non-Motorized Fatalities and Serious Injuries:78.6

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

To decrease pedestrian fatalities by 12.5 percent from 23 (2013-2017 average to 20 (2016-2020 average) and to maintain bicyclist fatalities at one (2013-2017 average) through the 2016-2020 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 and Serious Injuries. This 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 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.

Today, the Task Force continues this mission as its more than 30 members provide oversight of the SHSP, including plan development, implementation, and evaluation. Recently, they worked diligently on the update that responds to the current traffic safety problems facing West Virginia. Members of the SMTF include the Alcohol Beverage Control Administration, local law enforcement representatives, Department of Education, Department of Health and Human Resources, Division of Highways, Division of Motor Vehicles, Federal Highway Administration, Federal Motor Carrier Safety Administration, Governor's Highway Safety Program, National Highway Traffic Safety Administration, Office of the insurance Commissioner, Parkways Authority, Public Service Commission, state police, West Virginia Association of metropolitan Organization, West Virginia Commission of Drunk Driving Prevention, and West Virginia University Medicine.

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

No

Describe progress toward meeting the State's 2018 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.

West Virginia met many safety performance targets in 2017. In 2017, the safety performance target for fatalities was 288.8. That year, West Virginia had 289 fatalities. Similarly, the safety performance target for serious injuries was 1367.6. That year, West Virginia had 1257 serious injuries. West Virginia came close to the safety performance target in roadway departure fatalities. West Virginia had 180.2 actual roadway departure fatalities and the safety performance target was 179.8.

## 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	2012	2013	2014	2015	2016	2017	2018
Number of Older Driver and Pedestrian Fatalities		42	42	35	41	43	65
Number of Older Driver and Pedestrian Serious Injuries	123	135	124	104	99	100	114

#### **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.

WV 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

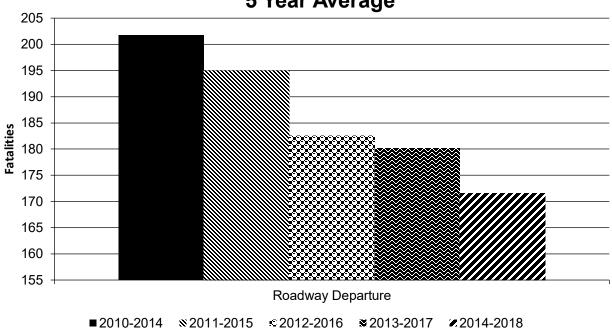
### Effectiveness of Groupings or Similar Types of Improvements

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

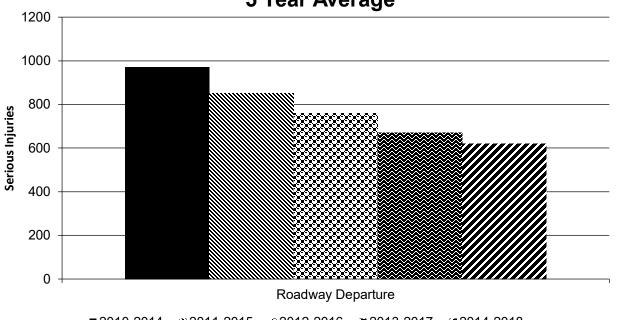
#### Year 2018

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	All	171.6	619.6	0.9	3.25

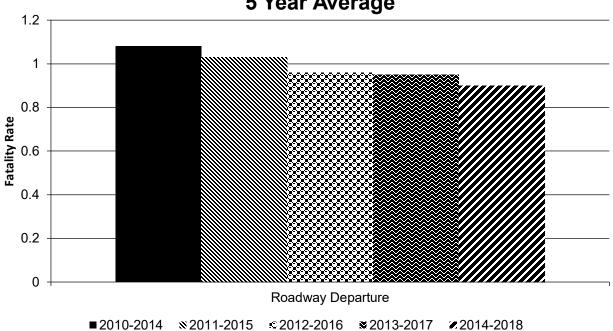
## Number of Fatalities 5 Year Average



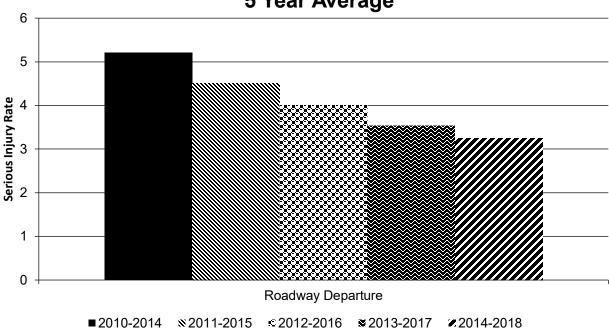
## Number of Serious Injuries 5 Year Average







## Serious Injury Rate (per HMVMT) 5 Year Average



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

No

## 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)
Kanawha County I-77	Urban Principal Arterial (UPA) - Interstate	Roadside	Barrier- metal	40.00	64.00			5.00	7.00	20.00	13.00	65.00	84.00	
Fayette County US 19	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	8.00	4.00				2.00		1.00	8.00	7.00	
Putnam County US 60	Urban Minor Arterial	Intersection traffic control	Intersection flashers - add miscellaneous/other/unspecified	8.00	17.00			1.00	1.00	4.00	3.00	13.00	21.00	
Berkeley County I-81	Urban Principal Arterial (UPA) - Interstate	Roadside	Barrier- metal	47.00	104.00	2.00	1.00	6.00	5.00	11.00	17.00	66.00	127.00	
Webster County WV 20	Rural Major Collector	Roadside	Barrier - concrete		1.00								1.00	
Kanawha County WV 622	Urban Minor Arterial	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	6.00	10.00			2.00	1.00			8.00	11.00	
Kanawha County US 60	Urban Principal Arterial (UPA) - Other	Lighting	Continuous roadway lighting	64.00	54.00			10.00	8.00	18.00	28.00	92.00	90.00	
Monongalia County I-68	Urban Principal Arterial (UPA) - Interstate	Lighting	Continuous roadway lighting	6.00	9.00				2.00	3.00	2.00	9.00	13.00	
Mercer County WV 20	Urban Minor Arterial	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	7.00	12.00			5.00		6.00	8.00	18.00	20.00	

## **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?

2021

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

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	
		NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE		
ROADWAY SEGMENT	Segment Identifier (12)	100						100	95	100	95	
	Route Number (8)	100										
	Route/Street Name (9)	100										
	Federal Aid/Route Type (21)	100										
	Rural/Urban Designation (20)	100						100				
	Surface Type (23)	80						80				
	Begin Point Segment Descriptor (10)	100						100	95	100	95	
	End Point Segment Descriptor (11)	100						100	95	100	95	
	Segment Length (13)	100										
	Direction of Inventory (18)	100										
	Functional Class (19)	100						100		100		
	Median Type (54)	80										
	Access Control (22)	100										

ROAD TYPE	MIRE NAME (MIRE NO.)	NON LOCAL PAVED		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	
	One/Two Way Operations (91)	100									
	Number of Through Lanes (31)	100						100			
	Average Annual Daily Traffic (79)	100						100			
	AADT Year (80)	100									
	Type of Governmental Ownership (4)	100						100	50	100	50
INTERSECTION	Unique Junction Identifier (120)			50	50			,			
	Location Identifier for Road 1 Crossing Point (122)			50	50						
	Location Identifier for Road 2 Crossing Point (123)			50	50						
	Intersection/Junction Geometry (126)			50	50						
	Intersection/Junction Traffic Control (131)										
	AADT for Each Intersecting Road (79)			100							
	AADT Year (80)			100							
	Unique Approach Identifier (139)			100	100						
INTERCHANGE/RAMP	Unique Interchange Identifier (178)					100					
	Location Identifier for Roadway at Beginning of Ramp Terminal (197)										
	Location Identifier for Roadway at Ending Ramp Terminal (201)										
	Ramp Length (187)					100					

ROAD TYPE	MIRE NAME (MIRE	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
	NO.)	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	
	Roadway Type at Beginning of Ramp Terminal (195)					100					
	Roadway Type at End Ramp Terminal (199)					100					
	Interchange Type (182)										
	Ramp AADT (191)					100					
	Year of Ramp AADT (192)					100					
	Functional Class (19)					100					
	Type of Governmental Ownership (4)					100					
Totals (Average Percent Complete):		97.78	0.00	62.50	37.50	72.73	0.00	97.78	37.22	100.00	67.00

<sup>\*</sup>Based on Functional Classification

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.

Plans are moving forward to have West Virginia have complete access to the MIRE fundamental data elements on all public roads by September 30, 2026.

Did the State conduct an HSIP program assessment during the reporting period?

2019 West Virginia Highway Safety Improvement Program

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.