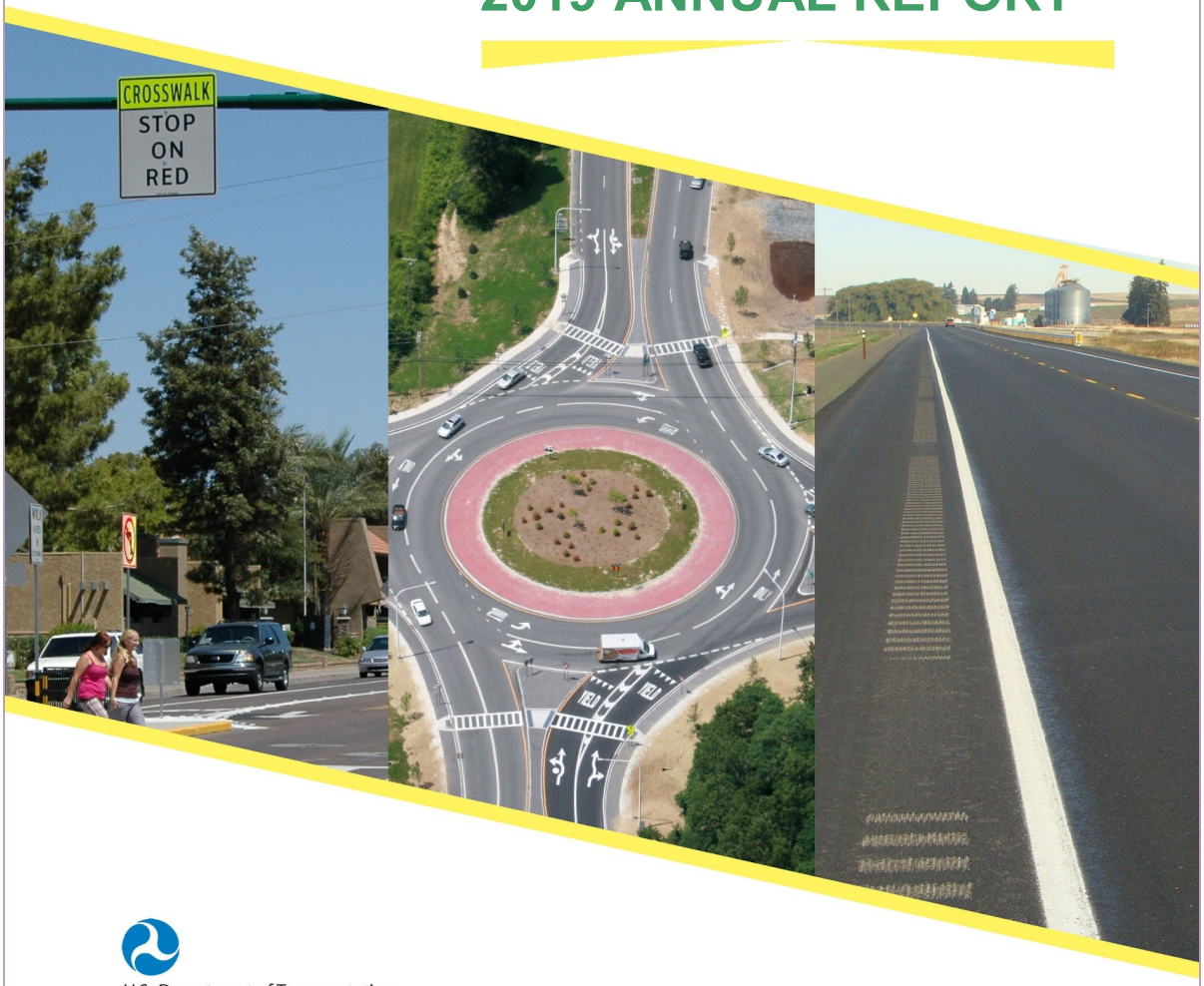
PENNSYLVANIA

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2019 ANNUAL REPORT



U.S. Department of Transportation
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 Pennsylvania Department of Transportation is pleased to present this 2019 Annual Report of our progress with the Highway Safety Improvement Program. In 2018, 1,190 people lost their lives on Pennsylvania's roadways. This was an increase from 2017's record low of 1,137 fatalities. Some areas where fatal crash increases were noticed include drivers over 65, pedestrians, impaired driver crashes, and signalized intersection crashes. To reach our ultimate goal of zero deaths on our roads, our journey includes ongoing work on both the behavioral side of crash causations as well as continuing to improve our highway infrastructure.

Since the last Annual Report, we have maintained our progress on several key initiatives. Pennsylvania is still using HSM based network screening to identify locations for safety improvement projects in all 67 counties. To increase our evaluation abilities PennDOT worked with Penn State University to develop new Safety Performance Functions (SPFs) for suburban/urban collector roads. PennDOT has also completed calibration for the AASHTO 2014 HSM supplement for freeways. Currently freeway segments and ramp terminals are completed. The calibration for speed change lanes, ramp segments, and ramp terminals will conclude later this year. Once the calibrations are completed these new analysis options will be included in PennDOT's highway safety network screening. The ISATe tool is currently under calibration study. The ISATe tool will be fully calibrated to Pennsylvania by October 2020 pending the completion of the calibration effort mentioned earlier. PennDOT will begin its next round of network screening in 2020. PennDOT currently has spreadsheets and maps that plot our highway safety network screening locations based on excess expected yearly crash frequencies also referred to as Potential for Safety Improvement (PSI).

The Pennsylvania regionalized SPFs are the main analytical part of the Pennsylvania specific HSM analytical tool. Over the last few years PennDOT has provided several Pennsylvania specific HSM trainings. The PennDOT HSM classes cover not only the Highway Safety Manual, but also different tools to use and when to use them. This class gives practical examples and then allows attendees to use the PennDOT HSM analysis tool to perform safety analysis. With the new crash prediction models for urban collectors, freeways and ramps, these trainings will need to be updated for future offerings. PennDOT intends to update the existing HSM analysis tools with these new SPFs and calibration factors.

PennDOT updated its Publication 638, The District Highway Safety Guidance Manual, to include the FAST Act rules for HSIP funding criteria, updates to our crash data reporting tools, and new District safety planning. PennDOT now requires a 1.0 benefit cost ratio for spot location projects. PennDOT continues to update several other publications to incorporate the concepts of the Highway Safety Manual into our policies and practices. PennDOT created and published its new Publication 638A, Pennsylvania Safety Predictive Analysis Methods Manual or P-SPAMM in May 2018. This relatively new manual is intended for people that attended the PennDOT HSM training to use when completing safety analysis. The P-SPAM manual will undergo an update over the next two years to incorporate the new suburban/urban SPFs and calibration factors for Freeways and Ramps.

Many of our engineering districts completed projects associated with the Intersection Safety Implementation and Roadway Departure Safety Implementation Plans. In 2016 PennDOT worked with the FHWA to complete the Speed Management Action Plan (SMAP). The SMAP assessments and strategies is another tool to use in reducing speed related injury crashes. PennDOT took analysis from the Speed Management Action Plan and evaluated over 3,500 signalized intersection with approach speeds of 40 an/or 45 mph. These locations were studied in detail to provide safety improvement options where the safety data shows potential for safety improvements.

PennDOT continues to use the SharePoint application website to ensure better tracking of HSIP funding applications from the engineering districts and the regional planning partners. Since the adoption of the HSIP Share Point site there have been a few MPO/RPOs that have submitted projects for approval. The HSIP

SharePoint application program went live in January 2017. PennDOT just went through an update process for the HSIP website. These updates will help process new applications for the new PennDOT set aside projects that will be submitted August 1st through September 30th. Project will be reviewed from October 1st to December 31st. Selected projects will be announced in early 2020.

The HSM is now required for design exceptions, POAs, and (soon) Purpose and Need. This required working with PennDOT staff that doesn't traditionally deal with safety analysis issues in depth.

While a lot of work remains to reach our goal of reducing highway fatalities to zero by 2050, we remain encouraged by the progress that has been made in certain areas and the opportunities for the future.

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.

HSIP projects are identified by using data driven safety analysis which includes crash data, predictive analysis methods, or by implementing known systemic safety improvements identified by the Highway Safety & Traffic Operations Division. Project locations and systemic project scopes are developed by the Engineering Districts and /or the regional planning partners. These project proposals are then sent to PennDOT's Highway Safety & Traffic Operations Division (HSTOD) for a technical review and then to the Center for Program Development and Management for funding and fiscal review. Then projects receive final approval from the FHWA Division office. Projects are selected for implementation based on the projected safety benefit of the safety countermeasures and the allowable funding. Projects are then developed and designed by the Engineering Districts. The Engineering Districts let the construction projects (Letting is the day construction project bids are received for the project and the lowest bidder is shown), provide construction inspection and oversight. As part of the annual HSIP report, HSTOD evaluates projects before and after the project was constructed to determine a perceived net benefit based the reduction of fatal, injury, and property damage only crashes. PennDOT also tracks the implementation of systemic improvements like rumble strips, High Friction Surface treatments, and High Tension Cable Median Barrier. A network analysis of these systemic improvements is completed when there is enough data in a given time span. PennDOT has also implemented a minimum BCR of 1.0 for spot location safety projects.

PennDOT also has a biennial set aside program. Every odd numbered year PennDOT allows the eleven engineering Districts and planning partners apply for HSIP funds to complete safety projects. The projects must use a systemic safety approach and include a HSM analysis and benefit cost analysis. Every year $35 million is set aside and every competitive set aside period covers $70 million HSIP funds. Pennsylvania's local municipalities may apply for a project through their MPO/RPO. This set aside program is now a policy in PennDOT Publication 638.

Where is HSIP staff located within the State DOT?

Other-Engineering and Planning

How are HSIP funds allocated in a State?

- Central Office via Statewide Competitive Application Process
- Formula via MPOs

Details on how the HSIP funds are distributed in Pennsylvania are available in the May 2019 edition of PennDOT's Publication 638 chapter 6. Publication 638 is available on PennDOT's website.

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

Local highways (those not owned and maintained by the Commonwealth) make up two-thirds of the approximately 120,000 miles of highways in Pennsylvania. These roads are owned by the 2,561 municipalities across the state. In 2018 17% of highway fatalities occurred on the local road network. Local highway fatalities increased to 202 in 2018 from 182 in the 2017. Local road fatalities have hovered above or below 200/year over the past two decades with the highest total of 279 in the year 2007 and the lowest count of 163 in the year 2002.

To more accurately determine local roads safety needs, PennDOT was able to create local road cluster lists for each municipality. Each list has the street name and how many fatalities and injury crashes occurred on that local road within that municipality. Specific locations on local roads could not be provided on the list since segmenting local roads has not been completed yet. PennDOT does have plans to collect more traffic data on local roads. Soon local roads will be segmented to help pin point crash locations. PennDOT has already started to collect more local road traffic volumes to help expand HSM based network screening efforts. Also, PennDOT PCIT tool allows the public to see where crashes occurred on a local road through a new map feature. These new local cluster lists were provided to LTAP and the PennDOT Engineering districts to determine better locations for local safety improvements.

PennDOT is currently working with LTAP and the Pennsylvania State Association of Township Supervisors (PSATS) to conduct technical reviews on local roads which can result in a low-cost safety project. PennDOT provides direction for the studies which are conducted by LTAP staff. The studies result in a report that has an itemized list of safety countermeasures ready for a construction contract or force account work. Other local safety studies have been conducted or they are in process in other parts of the state for future local safety projects. LTAP also provides training to municipalities for a variety of subjects including safety.

PennDOT plans to work closely with the FHWA PA Division office over the next year to implement force account safety work on local roads.

Locals remain engaged in the enforcement, education and emergency response side of highway safety through NHTSA grants. These behavioral safety efforts are detailed in the Pennsylvania HSP report submitted to NHTSA every year.

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

- Design
- Districts/Regions
- Maintenance
- Operations
- Planning
- Traffic Engineering/Safety
- Other-Engineering Districts, Planning Organizations, Program Center

Describe coordination with internal partners.

Design – Designers manage safety projects through the design contract process out to construction

Districts – Districts implement highway safety projects selected for construction

Governors Highway Safety Office- In Pennsylvania this falls under PennDOT and combines its behavioral efforts with Safety Engineering efforts

Maintenance – Maintenance helps to select projects and then has the task to maintain the projects. In Pennsylvania Highway Safety falls under the Bureau of Maintenance and Operations

Operations – Highway Safety is part of the Bureau of Maintenance and Operations. As we move forward with autonomous vehicles and vehicle to infrastructure technologies this group will play a bigger role in safety.

Planning – Programs funding for safety projects and manages the obligation of safety funds.

Traffic Engineering/Safety – Lead Division that manages the HSIP program across the state (HSTOD).

Identify which external partners are involved with HSIP planning.

- Academia/University
- FHWA
- Governors Highway Safety Office
- Law Enforcement Agency
- Local Government Agency
- Local Technical Assistance Program
- Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
- Other-MAST Team - See Question 8 for description

Pennsylvania has a Multi-Agency Safety Team (MAST) which consists of participants from FHWA, NHTSA, Liquor Control Board, State Police and the Departments of Health, Education and Drug/Alcohol Programs. MAST is a key component in the development, implementation and evaluation of the Strategic Highway Safety Plan.

Describe coordination with external partners.

PennDOT works with Universities (Academia) to produce research into safety programs. Some recent work involved the development of urban collector roadway SPFs and research into the effectiveness of adaptive traffic signal control.

FHWA is involved in the HSIP program in all aspects. They provide final approval on HSIP funded projects, national guidance for the HSIP funding program, and participate in monthly coordination for all safety related topics.

Gov. Highway Safety Office deals with driver behavior and research aspects of highway safety. This office supports the NHTSA grant funded programs.

Law enforcement & public education partners are involved in many Behavioral safety programs such as reducing Impaired driving, increasing seatbelt use, speed enforcement, aggressive driving enforcement, reducing districted driving, mature driver safety, motorcycle safety training, young & inexperienced driver training, enhancing safety on local roads, and several other topics.

Local Government Agencies like PSATS and PSABS help provide safety training to municipalities. This is done through the Pennsylvania LTAP which uses consultant staff. The LTAP program is administered through a contract with PSATS.

Regional Planning Organizations help to implement HSIP funded projects.

Describe HSIP program administration practices that have changed since the last reporting period.

We have updated our Publication 638. One of the major updates was a new HSIP chapter that now requires more detailed safety analysis to justify a safety project. The May 2019 edition of Publication 638 is available on PennDOT's website under forms and publications.

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

The HSIP Program fully aligns with the 2017 Pennsylvania Strategic Highway Safety Plan (SHSP).

PennDOT will update its network screening in all 67 counties in 2020 expanding to urban collector roadways and Freeways and Ramps. The network screening is discussed in more detail in other parts of this report.

Program Methodology

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

Yes
FileName:
Pub638_Final_signed.pdf

Guidance for HSIP is in PennDOT's District Highway Safety Guidance Manual (Publication 638) and Publication 638A, Pennsylvania Safety Predictive Analysis Methods Manual (SPAMM). Publication 638 was updated in May 2019 and now includes a new HSIP chapter that describes the planning, implementation and evaluation processes.

Select the programs that are administered under the HSIP.

- Bicycle Safety
- Horizontal Curve
- HRRR
- HSIP (no subprograms)
- Intersection
- Left Turn Crash
- Local Safety
- Low-Cost Spot Improvements
- Median Barrier
- Pedestrian Safety
- Roadway Departure
- Rural State Highways
- Safe Corridor
- Shoulder Improvement
- Skid Hazard

- Wrong Way Driving
- Other-Older Drivers

Program: Bicycle Safety

Date of Program Methodology:5/30/2019

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes		Horizontal curvature Roadside features

What project identification methodology was used for this program?

- Crash frequency

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?

No

Describe the methodology used to identify local road projects as part of this program.

Local roads do not have as much detail as state owned roads.

How are projects under this program advanced for implementation?

- Competitive application process
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

Program: Horizontal Curve

Date of Program Methodology:10/1/2012

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?

Other-HSIP regional, HSIP set Aside, and State 715 Safety Funds

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes		Horizontal curvature Roadside features

What project identification methodology was used for this program?

- Crash frequency

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
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

Program: HRRR

Date of Program Methodology:6/26/2017

What is the justification for this program?

- Other-Old Surface Transportation Act requirement no longer required by FAST Act

What is the funding approach for this program?

Other-FAST Act Penalty

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes		Functional classification

What project identification methodology was used for this program?

- Other-Number of crashes

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
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

Pennsylvania's definition of a High Risk Rural Road:

A roadway functionally classified as either a rural major/minor collector or a rural local road, with roadway segments having at least 2 crashes per mile or 1 crash per intersection within the most recent five-year time period of available crash data.

Program: HSIP (no subprograms)

Date of Program Methodology:12/1/2014

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?

Other-HSIP

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes		

What project identification methodology was used for this program?

- Crash frequency

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
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Available funding:1

Program: Intersection

Date of Program Methodology:5/13/2019

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?

Other-HSIP regional, HSIP set Aside, and State 715 Safety Funds

What data types were used in the program methodology?

Crashes	Exposure	Roadway	
All crashes	Traffic Volume	Functional classification Roadside features	

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Excess expected crash frequency using SPFs
- Excess expected crash frequency with the EB adjustment

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
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Ranking based on B/C:1
Available funding:3
Other-Potential for Improvement based on Crash History:2

PennDOT is currently working to reduce crashes at signalized intersections with speed limit approaches of 40 and/or 45 mph. This is based on action items found in the Speed Management Action plan and evaluations of intersection safety projects constructed since 2013.

Program: Left Turn Crash

Date of Program Methodology:5/13/2019

What is the justification for this program?

- Other-ISIP

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes		

What project identification methodology was used for this program?

- Crash frequency

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
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

Program: Local Safety

Date of Program Methodology:5/13/2019

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes		Functional classification

What project identification methodology was used for this program?

- Crash frequency

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?

No

Describe the methodology used to identify local road projects as part of this program.

We have establish local road high crash locations from ranking each street name by fatal/injury crashes. Spreadsheets were completed for every municipality using 5 year crash data.

How are projects under this program advanced for implementation?

- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

Program: Low-Cost Spot Improvements

Date of Program Methodology:5/13/2019

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes		

What project identification methodology was used for this program?

- Crash frequency
- Excess expected crash frequency with the EB adjustment

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?

- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Ranking based on B/C:1
Available funding:3
Other-Potential for Improvement based on Crash History:2

The May 2019 edition of Publication 638 now requires spot locations to have a minimum BCR of 1.00.

Program: Median Barrier

Date of Program Methodology:5/13/2019

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		Median width Functional classification Roadside features Other-median slopes/cross-section

What project identification methodology was used for this program?

- Crash frequency

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

No

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

How are projects under this program advanced for implementation?

- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

Program: Pedestrian Safety

Date of Program Methodology:5/13/2019

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes		

What project identification methodology was used for this program?

- Crash frequency

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
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

Program: Roadway Departure

Date of Program Methodology:5/13/2019

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?

Other-HSIP funds and State 715 safety funds

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes	Volume	Horizontal curvature Functional classification Roadside features

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Other-Exhibit 3-15 from AASHTO's 2004, A Policy on Geometric Design of Highways and Streets.
- Other-MUTCD Table 2C.05

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
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

Program: Rural State Highways

Date of Program Methodology:5/13/2019

What is the justification for this program?

- Other-Old Surfaec Transportation Act

What is the funding approach for this program?

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes		

What project identification methodology was used for this program?

- Crash frequency

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?

- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

Program: Safe Corridor

Date of Program Methodology:5/13/2019

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Other-Program set up by PA Act 229

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes		Functional classification

What project identification methodology was used for this program?

- Other-Process to identify these locations is in PennDOT Publication 638 Chapter 5

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?

No

Describe the methodology used to identify local road projects as part of this program.

We have establish local road high crash locations from ranking each street name by fatal/injury crashes. Spreadsheets were completed for every municipality using 5 year crash data.

How are projects under this program advanced for implementation?

- Competitive application process
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Cost Effectiveness:2
Other-Potential for Improvement based on Crash History:1

Program: Shoulder Improvement

Date of Program Methodology:5/13/2019

What is the justification for this program?

- Other-Maintenace and Highway 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		Roadside features

What project identification methodology was used for this program?

- Crash frequency

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

No

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

How are projects under this program advanced for implementation?

- Competitive application process
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

PennDOT created a lane and shoulder width CMF tool based on HSM methodology for determining the optimal lane and shoulder widths.

Program: Skid Hazard

Date of Program Methodology:5/13/2019

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 Other-Wet road, SVROR and HFO		Roadside features Other-Skid testing

What project identification methodology was used for this program?

- Crash frequency

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

No

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

How are projects under this program advanced for implementation?

- Competitive application process
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

Program: Wrong Way Driving

Date of Program Methodology:6/2/2014

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?

Other-HSIP regional allocations, HSIP set aside, and state 715 safety funds

What data types were used in the program methodology?

Crashes	Exposure	Roadway

All Fatal crashes only	crashes	Other-none	Functional classification

What project identification methodology was used for this program?

- Crash frequency

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

No

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

How are projects under this program advanced for implementation?

- Competitive application process
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Program: Other-Older Drivers

Date of Program Methodology:5/13/2019

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Other-(FAST) Act Special Rule

What data types were used in the program methodology?

Crashes	Exposure	Roadway

Fatal and serious injury crashes only

What project identification methodology was used for this program?

- Crash frequency

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
- selection committee

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Rank of Priority Consideration

Available funding:2
Other-Potential for Improvement based on Crash History:1

What percentage of HSIP funds address systemic improvements?

25

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
- Rumble Strips
- Wrong way driving treatments

PennDOT just updated our HSIP funding allocations. We removed the required percentages for different systemic improvements. PennDOT does several systemic safety improvements every year. The percentage of systemic work varies every year.

What process is used to identify potential countermeasures?

- Crash data analysis
- Data-driven safety analysis tools (HSM, CMF Clearinghouse, SafetyAnalyst, usRAP)
- Engineering Study
- Road Safety Assessment
- SHSP/Local road safety plan
- Stakeholder input
- Other-RDIP, ISIP, and other specific countermeasure crash lists that include high tension cable median barriers and wrong way crash lists
- Other-Speed Management Action Plan

Does the State HSIP consider connected vehicles and ITS technologies?

Yes

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

As a state that has always been at the forefront of innovation and industry, it should come as no surprise that Pennsylvania is at the very epicenter of the rise in connected and automated vehicle technology.

The Pennsylvania Department of Transportation (PennDOT) supports the advancement of automation through various ways including the deployment of Dedicated Short-Range Communication (DSRC) Roadside Units (RSUs) at select signalized intersections to enable communications between the vehicles and the infrastructure. Currently, there are 54 connected intersections, including 8 in Harrisburg and 24 in Pittsburgh, with plans to install an additional 205 by 2021. In 2016, PennDOT formed both the Pennsylvania AV Policy Task Force and the Smart Belt Coalition, to ensure Pennsylvania aligns with industry and national best practices. The Task Force is made up of a diverse and comprehensive set of stakeholders, including representatives from federal, state and local government, law enforcement, technology companies, higher education, manufacturers, motorists and trucking groups, and academic research institutions. The Smart Belt Coalition is a a first-of-its-kind collaboration between PennDOT, PTC, Ohio DOT, the Ohio Turnpike, and Michigan DOT and universities in Pennsylvania, Ohio, and Michigan with a focus on automated and connected vehicle initiatives.

PennDOT has also been active in national efforts to develop uniform standards and practices for automated vehicles. With the pace of automated vehicle innovation accelerating, Transportation Secretary Leslie S. Richards challenged PennDOT to take action to sustain Pennsylvania’s leadership in automated vehicle research, while simultaneously ensuring that public safety remains the paramount priority as HAVs are tested on the roadways. After meeting with numerous stakeholders including more than a dozen automated vehicle testers, PennDOT issued Highly Automated Vehicle (HAV) Testing Guidelines on July 24, 2018. Aligning with NHTSA direction, the guidelines focus on the human safety driver and training and not the operation of the vehicle.

In Spring 2018, PennDOT, the Pennsylvania Turnpike Commission, and Penn State University have partnered to develop PennSTART, a state-of-the-art training and testing facility to address the transportation safety and operational needs of Pennsylvania and the Mid-Atlantic Region. PennSTART will address safety training and research needs in six key areas: traffic incident management (TIM); connected and automated vehicles; tolling and intelligent transportation systems (ITS) technology; work zones; commercial vehicles; and transit vehicles.

Connected and automated vehicle technologies will change the transportation decision-making process throughout Pennsylvania. To ensure Pennsylvania stays at the forefront, PennDOT is actively working to educate key stakeholders and the public about the impact and benefits of this emerging technology. PennDOT has arrange for connected and automated vehicle demonstrations to key transportation and Legislative officials. Over 200 riders had an opportunity to experience first-hand the capabilities of connected and automated vehicles, including Governor Tom Wolf, members of the Pennsylvania House and Senate Transportation Committees, PennDOT Secretary Leslie Richards, and various local officials. The demonstration allowed participants to develop an understanding of how technological advances are being adapted and implemented in this rapidly advancing field here in Pennsylvania. In April 2018 PennDOT organized in Pittsburgh its second summit for HAVs. There were 400+ attendees with topics focusing on three themes: safety, infrastructure planning, workforce & economic development. The two overarching goals were to encourage interchange and collaboration between stakeholders and long-term public acceptance of vehicle automation

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 May 2017 PennDOT published Publication 638A, Pennsylvania Safety Predictive Analysis Methods Manual , or SPAMM . This new publication is available on PennDOT's website for anyone to view. The manual is intended to be a reference for someone that attended a PennDOT HSM class and is now ready to perform safety analysis. The SPAMM covers most of Pennsylvania's regionalized SPFs. PennDOT, in conjunction with Penn State University, completed the development of suburban/urban SPFs. We are also in the process of completing calibration of the AASHTO 2014 HSM supplement for Freeways and ramps. These new analysis options will be included in a first revision to Publication 638A. The Manual provides clear definitions for common HSM terms and then displays every PA regionalized SPF Formula separated by highway facility type in easy to use tables.

In March 2018 PennDOT released its first HSM based County Network Screening Analysis spreadsheets and GIS maps. These spreadsheets evaluated segments and intersections located in all 67 counties. There are two spreadsheets for each county. One covers intersections and the other covers segments. Each spreadsheet has two tabs. One for "Rural" segments or intersections and one for "Urban" segments or intersections. While a fair number of counties have a balance of rural and urban segment and intersection locations, some counties may only have urban (Philadelphia) and others only have rural (Forest) locations based on demographics. The goal was to have about 120 segments and 160 intersections evaluated in each county (Urban & Rural combined). Some counties due to their rural nature will be below that number. Other counties due to their vast highway network will be above the 120 and 160 number. Currently the County Network Screening Analysis for segments and intersections does not include freeways, ramps, ramp terminals and roundabouts since Pennsylvania does not have Freeway SPFs or calibration factors for the AASHTO HSM SPFs. In 2020 PennDOT will expand the network screening to include urban collector roadway segments and intersections and the newly calibrated freeways and ramps. At this time, roundabouts will likely be left out of our next network screening since we have not had time to assess NCHRP Report 888. We will likely need to calibrate the new SPFs to Pennsylvania. The segment and intersection locations have been sorted to show the locations' "Excess" value based on total yearly crash frequency, also known as Potential for Safety Improvement (PSI). This value is the "Expected crash frequency value" minus the "Predicted crash frequency value". Any location above zero shows the location has a higher crash frequency than the predicted models for a similar roadway facility type. A higher positive PSI value shows a location has more potential for safety improvement than a location with a lower value. Any location with a value below zero shows the location has a crash frequency below the predicted model. In 2020 we will expand the network screening to assess F&I crash frequencies along with PDO crash frequencies. PennDOT will assign a weight to those F&I and PDO excess values for a weighted excess value based on costs per crash of the predicted average annual crash frequencies.

The Network Screenings do not show what countermeasure(s) should be used for any specific segment or intersection location. A more in-depth traffic engineering and safety study is required to determine the crash trends and the suitable safety improvements. The Intersection and segment network screening lists and maps should be used when evaluating highway locations for safety. These network screenings are not limited to only aiding in HSIP and LCSIP project selection. The network screening lists and maps can and are used the same way a location's crash rate is compared to Homogenous crash rates for studies, HOPs, standard design projects safety assessments, and other such uses. This is a big step forward in highway safety for Pennsylvania.

PennDOT developed a new ICE policy in 2018. With this development, a tool similar to the national SPICE tool was developed for Pennsylvania. The ICE tool utilizes the HSM in other phases of the project development

process including Design Exceptions, Point of Access studies, and Purpose & Need Statements.

The new HSIP project application process added a new HSM analysis requirement for all spot location projects. Systemic projects must reference applicable CMFs for the specific countermeasure. The details of this new requirement are in the May 2019 Publication 638 Chapter 6.

Finally, PennDOT continues to offer a PennDOT specific HSM class. The class is 1 ½ days long. The class is taught by national experts from Kittelson Associates. The class teaches both the national and state SPF models and provides an entire afternoon of hands on use of PennDOT's HSM analysis tool.

PennDOT will continue to encourage and enhance the use of the Highway Safety Manual.

Describe program methodology practices that have changed since the last reporting period.

PennDOT has re-written its HSIP project application policy. There have been several changes. The new requirements are in the May 2019 Edition of PennDOT Publication 638 in chapter 6. Some of the major changes are:
- A minimum Benefit Cost Ratio (BCR) of 1.00 for spot specific safety projects
-No more specific percentages for certain systemic safety improvements
-HSM analysis for projects is required when the highway facility type and other safety data make the analysis possible
-The actual HSIP application process in PennDOT's HSIP website is now documented in our Publication 638.
-The policy now allows for MPOs/RPOs to directly submit HSIP project applications.

The May 2019 edition of Publication 638 can be viewed on PennDOT's website under Forms and Publications. https://www.penndot.gov/_layouts/pa.penndot.formsandpubs/formsandpubs.aspx

Project Implementation

Funds Programmed

Reporting period for HSIP funding.

State Fiscal Year

The State fiscal year starts in July and ends in June.

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	$93,587,106	$69,852,791	74.64%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$5,766,894	$6,090,088	105.6%
Penalty Funds (23 U.S.C. 154)	$0	$0	0%
Penalty Funds (23 U.S.C. 164)	$0	$0	0%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	$0	$0	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	$0	$0	0%
State and Local Funds	$10,000,000	$10,000,000	100%
Totals	$109,354,000	$85,942,879	78.59%

We track HSIP/HRRR Programmed amounts by federal fiscal year and Obligated amounts by state fiscal year (same as question #29). This resulted in an obligation rate of over 100% since the federal/state fiscal years do not line up exactly.

The NTSHA penalty funds and the RHCP funds are reported on in different reports. Those programmed and obligated fund numbers can be found in those respective reports.

We are also unable to provide an answer for "other federal funds" for safety projects due to limitations of query tools.

Pennsylvania sets aside $10 million dollars of state transportation maintenance funds every year for low cost safety improvements on state highways.

How much funding is programmed to local (non-state owned and operated) or tribal safety projects?

$221,000

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

$221,000

The $221,000 is obligated under project 109652 which includes the installation of signage, delineation, and pavement markings on various local roads in Armstrong, Butler, Clarion, Indiana, and Jefferson Counties.

$500,000 HSIP funds were obligated in Jan 2018 for the PA LTAP program and display in last year's report. Since the funds were not obligated during the last state fiscal year (7/1/18-6/30/19) they will not officially be part of this year's funding but they were used by the Pennsylvania LTAP program throughout 2018-19 to conduct safety studies on local roads to determine safety improvements. The funds are used to complete "PennDOT Directed Technical Assist Reports" which produce an itemized list of contract ready low cost countermeasures. These reports and the project items can be used to create the construction contracts or set up a force account construction project. The LTAP program also uses this money for training expenses and municipal on-demand support activities.

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

$1,239,200

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

$1,239,200

HSIP funds for non-infrastructure projects include:

$23,200 for Traffic Incident Management Responder Training

$360,000 to conduct RSA's on District 11 and District 9 safety priority roadways.

$150,000 for a safety study along the SR 58 corridor in Mercer and Greenville Boroughs along with Jefferson, Coolspring and Delaware Townships, Mercer County to identify future safety improvements.

$556,000 for a safety study on Woodbury Pike (PA 36/PA 164) from the Leamersville Interchange to Pine Heights Street in Blair, Freedom, and Taylor Townships and Roaring Spring Borough, Blair County.

$150,000 for a safety study along the SR 62 corridor in the Cities of Sharon and Hermitage and Jefferson, Lackawonnock and French Creek Townships and terminating in Mercer Borough to identify future safety improvements.

We also set aside $2 million to start collecting traffic counts for the MIRE effort but that has been postponed and will not be programmed or obligated this year.

$500,000 HSIP funds were obligated in Jan 2018 for the PA LTAP program and display in last year's report. Since the funds were not obligated during the last state fiscal year (7/1/18-6/30/19) they will not officially be part of this year's funding but they were used by the Pennsylvania LTAP program throughout 2018-19 to conduct safety studies on local roads to determine safety improvements. The funds are used to complete "PennDOT Directed Technical Assist Reports" which produce an itemized list of contract ready low cost countermeasures. These reports and the project items can be used to create the construction contracts or set up a force account construction project. The LTAP program also uses this money for training expenses and municipal on-demand support activities.

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.

There are a few Engineering Districts that have struggled in the project development of HSIP funded safety projects. This results in several projects missing let dates and HSIP funds not being used for those projects in the planned years. To overcome these project delivery issues, the Highway Safety Section is working with PennDOT's Bureau of Project Delivery to track the milestones of HSIP projects to ensure design project managers stay on schedule to deliver good safety improvement projects on time. A District's past project delivery track record has become part of a weighted criteria for HSIP set aside project selection. PennDOT may also pursue a different HSIP funding allocation based less on regional boundaries and more based on competitive safety needs.

Local projects using HSIP funds are difficult to deliver in Pennsylvania due to legal agreements that need to be created for allowing work to be completed on local roads, maintenance responsibility, right to know laws, and the lack of an HSIP force account option. Many municipal governments also lack the ability to develop a project or construct safety projects. Implementing systemic projects on local levels usually results in very low cost projects that are hard to bid and requires adding several municipalities that might cross Engineering District boundaries to have a large enough project that contractors will bid on and have a reasonable price. This adds to the difficulty in project development. PennDOT is exploring options to better address safety concerns on local roads where there are known fatal and serious injuries. Right now PennDOT is pursuing the option of using force account to have safety improvements completed on locally owned roads.

Describe any other aspects of the State's progress in implementing HSIP projects on which the State would like to elaborate.

PennDOT is now rating location specific projects based on the perceived benefit to cost ratio using a net present value calculation and benefit to cost ratio. This has led to more partially funded HSIP projects than in previous years. Any new projects submitted for a spot location must now have a BCA completed that show a 1:1 or better B/C ratio. This will also allow HSIP funds to be used on other projects where partial funding can be used to implement safety improvements. We are also updating our HSIP project selection policy through our updates to PennDOT Publication 638. The changes will force more predictive analysis when selecting projects. At a minimum, CMFs will need to be used to show the expected benefits.

The Department created network screening for all 67 counties in Pennsylvania. These highway safety priority lists will be developed using the Highway Safety Manual's analysis method of Excess Expected Average Crash Frequency with Empirical Bayes (EB) adjustments also known as Potential for Safety Improvement (PSI). This method will use the calculated Expected crashes for a location and subtract the Predicted crashes for that same location to produce a value. All locations will have that calculated difference value ordered highest to lowest. Any value above zero shows a potential for safety improvement over the state's predicted annual crashes for that category of roadway or intersection. Locations that have a value below zero will be marked with black cells with white text on the final display on the final analysis lists. The Department uses the

Pennsylvania Regionalized Safety Performance Functions (SPFs) and cluster lists to develop the following types of lists:

- Urban Intersections
- Rural intersections
- Urban Segments
- Rural Segments

The lists previously excluded ramps, ramp terminal locations and freeways. In March 2019 PennDOT completed creating SPFs for suburban/urban collector roadways. In addition, calibration factors for freeways, speed change lanes, ramps, and ramp terminals are nearly completed. The new network screenings will include these highway facility types. The initial network screenings only used SPFs for all crashes. The next round of network screening will include fatal and injury crash excess values along with PDO excess values. These values will be weighted based on crash costs for the crash severities. Future network screenings will include

- Freeway segments
- Ramps segments
- Ramp terminals
- Urban Collector segments and intersections

The work is being completed with Department staff and consultant support. In some situations, a county may not have extensive cluster lists for one of the four categories due to the location's demographics. An example is Philadelphia. We would not expect to have rural classifications for most highways in Philadelphia. Nor would we expect to have many urban highways in a rural county like Cameron County.

The information needed to calculate accurate predicted and expected crash frequencies are in the Pennsylvania State University's Regionalized Safety Performance Functions final report from January 2016 and the March 2019 Regionalized Urban-suburban Collector Road SPF final reports. Roadway data is obtained from PennDOT databases like ITMS, video log, and other readily available PennDOT resources. The Department is also using Google Earth for gathering some roadway data like driveway densities. Curve data is obtained from PennDOT's new horizontal curve database developed by J.D. Kronicz. Since traffic volumes are necessary for the HSM evaluations, PennDOT has contracts with a consultant to collect traffic volumes for several locally and privately owned roads where traffic volume is unknown.

This detailed network screening is used to help select the best locations for HSIP funded safety projects. In total this network screening covers about 20,000 locations. Future screening will greatly increase the number of screened locations.

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
Lewistown Signal Reconstruction	Intersection traffic control	Modify traffic signal timing - signal coordination	0.81	Miles	$100000	$525000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	8,449	25	State Highway Agency	Systemic	Intersections	4689
PA 68/Dolby Street Intersection	Intersection geometry	Intersection geometry - other	1.79	Miles	$5359700	$16990002	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	10,316	40	State Highway Agency	Spot	Intersections	24890
PA 28/US 322 Brookville Intersection	Intersection geometry	Intersection geometry - other	0.53	Miles	$556000	$9107155	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	7,319	35	State Highway Agency	Spot	Intersections	26064
Nyes/Dvnshre Hts Safety	Intersection geometry	Intersection geometry - other	0.23	Miles	$15000	$5186203.67	HSIP (23 U.S.C. 148)	Urban	Major Collector	10,978	35	State Highway Agency	Spot	Intersections	47521
Baltimore Pk Optimizat(C)	Intersection traffic control	Systemic improvements - signal-controlled	3.89	Miles	$200000	$5911000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	19,241	35	State Highway Agency	Systemic	Intersections	48168
Kennedy Drive/County Road	Intersection traffic control	Intersection traffic control - other	0.05	Miles	$1000	$4101750	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	7,584	35	State Highway Agency	Spot	Intersections	57706
Milford to Matamoras Bet	Roadway	Pavement surface - miscellaneous	2.88	Miles	$1792680	$8297329.01	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	15,291	35	State Highway Agency	Systemic	Lane Departure	57765
SR 183/4016 (Schaeffers)	Intersection geometry	Auxiliary lanes - add right-turn lane	1.27	Miles	$2419252	$5654255	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural	Minor Arterial	12,749	45	State Highway Agency	Spot	Intersections	57840
SR61 / 209 Intersection	Roadway delineation	Roadway delineation - other	3.65	Miles	$71500	$3397955	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	10,561	50	State Highway Agency	Systemic	Lane Departure	72466
SR 12 Elizabeth Avenue	Shoulder treatments	Widen shoulder - paved or other	1.66	Miles	$750000	$11630000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	18,939	40	State Highway Agency	Spot	Lane Departure	79467
Martins RdtoChristians Rd	Roadside	Barrier - concrete	2.03	Miles	$11631	$1198000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	10,692	55	State Highway Agency	Systemic	Lane Departure	82869
PA-283/I-76 Interchange	Interchange design	Improve intersection radius at ramp terminus	2.94	Miles	$351600	$13652716.88	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	26,462	55	State Highway Agency	Systemic	Intersections	84548

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
Blackman St SB Ramp	Interchange design	Installation of new lane on ramp	0.48	Miles	$450000	$7462500	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	29,347	55	State Highway Agency	Spot	Intersections	85008
AlleghnyAv:Ridge-Aramingo (F)	Pedestrians and bicyclists	Pedestrian signal	7.33	Miles	$310000	$9400000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	13,732	30	State Highway Agency	Systemic	Pedestrians	85417
SR 339 from West St to Smith Hollow Rd	Shoulder treatments	Shoulder treatments - other	3.59	Miles	$1548980	$6681177	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	4,271	35	State Highway Agency	Spot	Lane Departure	87882
US6 ov Tb Charleston Crk	Roadway	Roadway widening - add lane(s) along segment	0.54	Miles	$1280043	$3521610	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	8,636	45	State Highway Agency	Spot	Lane Departure	87923
222 Median Barrier	Roadside	Barrier - cable	8.18	Miles	$907534	$1284024	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	13,712	45	State Highway Agency	Systemic	Lane Departure	89244
Post & Cable Guide Rail	Roadside	Barrier - cable	18.18	Miles	$151385	$4143037.84	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	10,262	55	State Highway Agency	Systemic	Lane Departure	90318
PA 272 Intersection Impvt	Intersection traffic control	Intersection traffic control - other	1.78	Miles	$306742	$5767443	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	9,986	55	State Highway Agency	Systemic	Intersections	90490
US222/322 Interchange Imp	Interchange design	Interchange design - other	5.12	Miles	$126109	$13232937.08	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	27,985	65	State Highway Agency	Spot	Intersections	90491
N Waterford Improvements	Intersection geometry	Intersection geometry - other	0.6	Miles	$474290	$6253605	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	13,947	45	State Highway Agency	Spot	Intersections	91394
I-99 17th St-Grazierville	Roadway delineation	Roadway delineation - other	132.4	Miles	$826000	$35880753	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Interstate	8,653	70	State Highway Agency	Systemic	Lane Departure	91533
SR 73/662 Corridor Safety	Intersection traffic control	Modify control - modifications to roundabout	0.89	Miles	$6433408	$9728328	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	10,744	55	State Highway Agency	Spot	Intersections	92921
US220&SR 405 Intersection	Intersection traffic control	Intersection traffic control - other	1.15	Miles	$1883186	$5136045	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	9,752	40	State Highway Agency	Spot	Intersections	93016
Philipsburg Add Center Ln	Roadway	Roadway widening - add lane(s) along segment	1.47	Miles	$575672	$12115037	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	16,121	45	State Highway Agency	Systemic	Lane Departure	93329
Lock Haven Signal Improvement	Intersection traffic control	Modify traffic signal - modernization/replacement	0.16	Miles	$700000	$1932319	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	11,440	35	State Highway Agency	Spot	Intersections	93343

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
PA 287 to West Fourth Street	Intersection traffic control	Intersection traffic control - other	12.14	Miles	$1608896	$56127000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	13,367	40	State Highway Agency	Systemic	Intersections	93732
SR 348 Intersection Imp	Intersection traffic control	Systemic improvements - signal-controlled	0.24	Miles	$80000	$3985500	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	10,470	40	State Highway Agency	Systemic	Infrastructure Improvements	94567
17th/Vly View/Pleas Vly	Interchange design	Interchange design - other	2	Miles	$1131	$5290000	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	17,954	45	State Highway Agency	Spot	Intersections	94670
SR 739 Should / Widening	Roadway	Rumble strips - edge or shoulder	1.86	Miles	$515000	$5956500	HSIP (23 U.S.C. 148)	Rural	Major Collector	880	35	State Highway Agency	Systemic	Lane Departure	94686
SR 11 Shoulder / ELRS	Roadway	Rumble strips - edge or shoulder	2.59	Miles	$256183.89	$3338000	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural	Major Collector	1,190	45	State Highway Agency	Systemic	Lane Departure	94740
94 & 394 Intersection Imp	Intersection traffic control	Modify control - modifications to roundabout	1.04	Miles	$1740000	$2876050	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural	Multiple/Varies	8,964	40	State Highway Agency	Spot	Intersections	94894
US422 Safety Project	Roadway signs and traffic control	Roadway signs and traffic control - other	2.27	Miles	$82000	$3152682.08	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	14,241	45	State Highway Agency	Spot	Infrastructure Improvements	94936
Mount Hope Intrscn Improv	Intersection traffic control	Intersection traffic control - other	0.51	Miles	$1089000	$4384533	HSIP (23 U.S.C. 148)	Rural	Major Collector	1,788	40	State Highway Agency	Spot	Intersections	96506
Colebrook Road Improvemt	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	3.55	Miles	$195532	$6486365	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	9,155	45	State Highway Agency	Systemic	Infrastructure Improvements	96783
SR220/SR2027 Intersection	Roadway	Rumble strips - edge or shoulder	0.76	Miles	$5020	$3085760	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	7,625	40	State Highway Agency	Systemic	Lane Departure	97972
PA 837/33rd St to Smithfield	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	4.65	Miles	$9515100	$19853338	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	18,232	35	State Highway Agency	Systemic	Intersections and Pedestrians	98085
Atherton Street Phase II	Roadway	Pavement surface - miscellaneous	2.76	Miles	$1101606	$19717914	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	20,952	35	State Highway Agency	Spot	Lane Departure	98126
US 40:PA 917 to Maiden St	Roadway	Pavement surface - miscellaneous	4.41	Miles	$10559.5	$4493600	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	5,014	40	State Highway Agency	Spot	Lane Departure	98362

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
Tioga US 15 MCGR3	Roadside	Barrier - other	6.55	Miles	$928955	$750000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	4,712	70	State Highway Agency	Systemic	Lane Departure	99162
PA462 Signal Improvements	Advanced technology and ITS	Advanced technology and ITS - other	6.52	Miles	$91959	$1787166.32	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	8,996	35	State Highway Agency	Systemic	Intersections	99506
US6 & PA660 Intersection	Intersection geometry	Intersection geometrics - realignment to increase cross street offset	0.28	Miles	$500000	$3725000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	6,289	55	State Highway Agency	Spot	Intersections	101292
Lewistown Safety Corridor	Intersection traffic control	Modify traffic signal timing - signal coordination	0.81	Miles	$2080000	$4415344	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	8,449	35	State Highway Agency	Systemic	Intersections	101959
SR 6 Safety Improvement	Roadway signs and traffic control	Roadway signs and traffic control - other	14.34	Miles	$75000	$2035000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	17,565	45	State Highway Agency	Systemic	Infrastructure Improvements	101991
Hamot Rd/Oliver Rd Intersection	Intersection traffic control	Modify control - modifications to roundabout	0.22	Miles	$300000	$3375000	HSIP (23 U.S.C. 148)	Urban	Major Collector	5,369	40	State Highway Agency	Spot	Intersections	102069
15th Street Corridor	Pedestrians and bicyclists	Pedestrian signal	0.7	Miles	$228570	$5297199	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	14,711	30	State Highway Agency	Spot	Intersections and Pedestrians	102155
SR 115 Corridor Imp-Effort	Intersection geometry	Auxiliary lanes - add left-turn lane	0.43	Miles	$898827	$4289762	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	10,262	45	State Highway Agency	Spot	Intersections	102167
Fed Aid Paving 4-18-FP2	Roadway	Pavement surface - miscellaneous	3.41	Miles	$299432	$1865456	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	10,938	45	State Highway Agency	Spot	Lane Departure	102555
SR 54 Corridor Safety Improvement	Intersection traffic control	Intersection traffic control - other	2.44	Miles	$357361	$21389862	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	10,764	45	State Highway Agency	Systemic	Intersections	103853
New Falls Rd HSIP	Pedestrians and bicyclists	Pedestrian signal	2.72	Miles	$63082	$1800000	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	12,937	40	State Highway Agency	Spot	Pedestrians	104365
Hanover Adaptive Signals	Intersection traffic control	Modify traffic signal - modernization/replacement	6.87	Miles	$15015	$3844630.68	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	11,318	45	State Highway Agency	Systemic	Intersections	104371
Wrong Way Entry Signs	Roadway signs and traffic control	Roadway signs (including post) - new or updated	14.62	Miles	$28315	$873069.77	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Interstate	2,698	35	State Highway Agency	Systemic	Infrastructure Improvements	104372
ISIP Signals Project	Intersection traffic control	Systemic improvements - signal-controlled	0.13	Miles	$1338.15	$2139156	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	7,007	35	State Highway Agency	Systemic	Intersections	104377

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222 & 100 Ramp Pre-emptn	Interchange design	Ramp metering	0.36	Miles	$34451	$37851	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	10,093	45	State Highway Agency	Spot	Intersections	104431
209 -Schafer School House	Intersection traffic control	Modify traffic signal - remove existing signal	4.3	Miles	$125200	$7183300	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	11,552	55	State Highway Agency	Spot	Intersections	104432
I-176 Median Barrier	Roadside	Barrier - cable	21	Miles	$1293944	$3062710	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Interstate	10,546	55	State Highway Agency	Systemic	Lane Departure	104435
33 Median Barrier-Northmp	Roadside	Barrier - cable	29.07	Miles	$56250	$3013487	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	24,193	65	State Highway Agency	Systemic	Lane Departure	104437
US 62/State St Intersection	Intersection traffic control	Modify control - modifications to roundabout	1.33	Miles	$300000	$5984400	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	5,795	40	State Highway Agency	Spot	Intersections and Pedestrians	105775
PA 98/Sterrettania Rd Intersection	Intersection geometry	Intersection geometrics - realignment to align offset cross streets	0.2	Miles	$67010	$709000	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural	Multiple/Varies	2,717	55	State Highway Agency	Spot	Intersections	105776
Advance Signal for SR 422 and 2077 Intersection	Intersection traffic control	Intersection signing - add enhanced advance warning (double-up and/or oversize)	0.16	Miles	$5800	$38840	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	19,365	55	State Highway Agency	Spot	Intersections	105962
SR 64/550 Intersection Improvement	Intersection geometry	Intersection geometrics - realignment to align offset cross streets	1.01	Miles	$160000	$4439000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	8,037	50	State Highway Agency	Spot	Intersections	106034
Lycoming HTMCGR	Roadside	Barrier - cable	7.22	Miles	$97000	$793500	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	13,367	55	State Highway Agency	Systemic	Lane Departure	106186
Bellefonte Interchange Safety	Interchange design	Interchange design - other	6.17	Miles	$784663	$1360663	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	15,289	55	State Highway Agency	Systemic	Intersections	106282
SR 12 Median Barrier	Roadside	Barrier - cable	3.02	Miles	$408340	$456781	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	18,261	55	State Highway Agency	Systemic	Lane Departure	106483
2018 Cable Median Barrier	Roadside	Barrier - cable	13.48	Miles	$3662773	$2450000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	14,904	55	State Highway Agency	Systemic	Lane Departure	106508
2018 RDIP/ISIP Signing and Ped	Pedestrians and bicyclists	Install new "smart" crosswalk	0.42	Miles	$150000	$160000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	591	40	State Highway Agency	Spot	Pedestrians	106512

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PA997 & SR2015 Intersection	Intersection geometry	Intersection geometry - other	1.68	Miles	$20000	$3400000	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	6,617	40	State Highway Agency	Spot	Intersections	106709
SR 18 & SR 518 Intersection (Bobby's Corner)	Intersection traffic control	Modify traffic signal timing - left-turn phasing (permissive to protected/permissive)	0.27	Miles	$63734	$762146	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	8,760	40	State Highway Agency	Spot	Intersections	106765
D11 Road Safety Audit Open End	Non-infrastructure	Road safety audits	0	Miles	$60000	$260000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Road Safety Audit	Data	106846
Districtwide CGR Upgrades	Roadside	Barrier - cable	0	Miles	$2451	$695000	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Lane Departure	106879
Districtwide Long Term UBE	Roadside	Barrier end treatments (crash cushions, terminals)	0	Miles	$378129	$875000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	1,189	35	State Highway Agency	Systemic	Lane Departure	106885
SR 0001 @ SR 0032 Interchange (F)	Roadway	Pavement surface - high friction surface	1.28	Miles	$250000	$2600000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	27,362	45	State Highway Agency	Spot	Lane Departure	106989
5th Street Signal Improvements (C)	Intersection traffic control	Systemic improvements - signal-controlled	0.27	Miles	$156612	$995372	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	21,501	40	State Highway Agency	Systemic	Intersections and Pedestrians	106991
2nd Street Signal Improvements (C)	Intersection traffic control	Pavement markings - miscellaneous/other/unspecified	0	Miles	$1228031	$1703031	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	0	0	State Highway Agency	Spot	Intersections and Pedestrians	106992
I-80 HTCMB from Susq Rv Br to Rest Area	Roadside	Barrier - cable	1.89	Miles	$300000	$1010000	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Interstate	15,404	70	State Highway Agency	Systemic	Lane Departure	107265
SR 652 Safety Improvement II	Shoulder treatments	Widen shoulder - paved or other	3.07	Miles	$782518	$867303	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	3,556	40	State Highway Agency	Systemic	Lane Departure	107484
I-80 HTCMB Phase 3	Roadside	Barrier - cable	3.35	Miles	$615000	$855000	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Interstate	15,903	70	State Highway Agency	Systemic	Lane Departure	108355
I-180, SR 147 , & SR 220 Ramps Wrong Way Signs	Roadway signs and traffic control	Roadway signs (including post) - new or updated	0	Miles	$245000	$250000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Systemic	Infrastructure Improvements	108942
Wrong Way Ramp Upgrades	Roadway signs and traffic control	Roadway signs (including post) - new or updated	0.09	Miles	$213121	$703751	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	7,186	20	State Highway Agency	Systemic	Infrastructure Improvements	109012
Local Road Enhancements	Roadway signs and traffic control	Roadway signs and traffic control - other	0	Miles	$221000	$261000	HSIP (23 U.S.C. 148)	Multiple/Varies	Local Road or Street	0	0	Town or Township	Systemic	Infrastructure Improvements	109652

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												Highway Agency			
US 6N and SR 98 Intersection	Intersection traffic control	Modify traffic signal - add backplates with retroreflective borders	0.17	Miles	$245727	$400000	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	5,225	55	State Highway Agency	Spot	Intersections	109857
US Route 22 High Friction Surface HSIP	Roadway	Pavement surface - high friction surface	3.11	Miles	$1204000	$1150000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	4,269	40	State Highway Agency	Systemic	Lane Departure	109871
SR 150 Lock Haven Signals	Intersection traffic control	Modify traffic signal timing - signal coordination	1.81	Miles	$500000	$3650000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	15,654	35	State Highway Agency	Spot	Intersections and Pedestrians	109872
Route 145 Safety Improvements	Intersection geometry	Auxiliary lanes - modify left-turn lane offset	1.15	Miles	$543896	$8225840	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	18,512	40	State Highway Agency	Spot	Intersections	109971
PA 8 and PA 77 Intersection	Intersection geometry	Intersection geometrics - modify skew angle	0.14	Miles	$340000	$1475000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	3,042	55	State Highway Agency	Spot	Intersections	109996
I-86 High Speed Ramp to I-90	Interchange design	Interchange design - other	2.15	Miles	$200000	$240000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	3,723	55	State Highway Agency	Spot	Intersections	109997
PA 36 Corridor Safety Improvement	Non-infrastructure	Transportation safety planning	3.87	Miles	$556000	$556000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	8,945	40	State Highway Agency	Safety Study	Data	110155
Mercer- PA 58 Safety Study	Non-infrastructure	Transportation safety planning	13.78	Miles	$150000	$150000	HSIP (23 U.S.C. 148)	Multiple/Varies	Minor Arterial	4,518	45	State Highway Agency	Safety Study	Data	110168
Mercer US 62 Safety Study	Non-infrastructure	Transportation safety planning	20.14	Miles	$150000	$150000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	7,790	40	State Highway Agency	Safety Study	Data	110218
PA 18/SR 4006 Intersection	Intersection geometry	Intersection geometrics - realignment to align offset cross streets	0.29	Miles	$200000	$1200000	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	2,884	40	State Highway Agency	Spot	Intersections	110234
SR 309 Signal Corridor	Intersection traffic control	Systemic improvements - signal-controlled	6.76	Miles	$345000	$2150000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	18,141	45	State Highway Agency	Systemic	Intersections	110327
LVTS High Friction Surface Treatments - 2018	Roadway	Pavement surface - high friction surface	1.33	Miles	$300000	$300001	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	6,072	40	State Highway Agency	Systemic	Lane Departure	110465
Wrong Way Safety	Roadway signs and traffic control	Roadway signs (including post) - new or updated	0	Miles	$250000	$3500000	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Other Freeways & Expressways	0	0	State Highway Agency	Systemic	Infrastructure Improvements	110469

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I-376, Fort Pitt Bridge to Edgewood	Roadway	Pavement surface - miscellaneous	14.75	Miles	$274732	$32244472	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	10,941	55	State Highway Agency	Spot	Lane Departure	110594
Interstate Delineation Project	Roadway delineation	Roadway delineation - other	0	Miles	$764822	$290000	HSIP (23 U.S.C. 148)	Multiple/Varies	Principal Arterial-Interstate	0	0	State Highway Agency	Systemic	Lane Departure	110769
10-2 SR 3021 Corridor Improvements	Roadway	Rumble strips - edge or shoulder	7.48	Miles	$117696	$7117696	HSIP (23 U.S.C. 148)	Urban	Major Collector	7,974	35	State Highway Agency	Systemic	Lane Departure	110783
PA 68 Zelienople Curve	Roadway	Roadway widening - curve	0.22	Miles	$286999	$1486999	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	5,307	35	State Highway Agency	Spot	Lane Departure	110826
Bayfront Parkway at 6th Street Intersection Impr.	Roadway signs and traffic control	Roadway signs and traffic control - other	1.83	Miles	$300000	$3550000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	6,712	45	State Highway Agency	Spot	Infrastructure Improvements	110836
CMB I-70 Town Hill to Tpike Ramps	Roadside	Barrier - cable	15.01	Miles	$2250000	$2650000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	7,823	55	State Highway Agency	Systemic	Lane Departure	110863
D9 2019 HSIP HFST	Roadway	Pavement surface - high friction surface	6.73	Miles	$1938734	$2138734	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	3,930	40	State Highway Agency	Systemic	Lane Departure	110865
PA 756 Roadway Safety Study	Non-infrastructure	Road safety audits	4.41	Miles	$300000	$300000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	7,376	35	State Highway Agency	Spot	Data	110866
Horseshoe Pike @ Manor Rd.	Intersection geometry	Auxiliary lanes - add left-turn lane	0.98	Miles	$435000	$722810	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	6,958	40	State Highway Agency	Spot	Intersections	110949
Macdade Blvd. Corridor	Intersection traffic control	Modify traffic signal - modernization/replacement	6.55	Miles	$525000	$3440416	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	15,226	35	State Highway Agency	Systemic	Intersections	110951
Castor Ave. Roundabout	Intersection traffic control	Modify control - modifications to roundabout	5.89	Miles	$632500	$1377900	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	5,870	35	State Highway Agency	Spot	Intersections	110958
Old Skippack Rd. Roundabout	Intersection traffic control	Modify control - modifications to roundabout	0.82	Miles	$633000	$1499500	HSIP (23 U.S.C. 148)	Urban	Major Collector	3,891	40	State Highway Agency	Spot	Intersections	110961
Manor Rd. Roundabout	Intersection traffic control	Modify control - modifications to roundabout	1.29	Miles	$10000	$1830000	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	6,692	45	State Highway Agency	Spot	Intersections	110963
Marshall Rd. Safety Improv	Intersection geometry	Auxiliary lanes - add right-turn lane	1.71	Miles	$435000	$3703817	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	12,344	40	State Highway Agency	Systemic	Intersections	110965

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Old Lincoln/Hulmeville Int Improv	Intersection traffic control	Intersection traffic control - other	0.94	Miles	$433000	$736905	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	8,491	45	State Highway Agency	Spot	Intersections	110966
Bethel Rd. Roundabout	Intersection traffic control	Modify control - modifications to roundabout	1	Miles	$579000	$2188500	HSIP (23 U.S.C. 148)	Urban	Multiple/Varies	4,029	35	State Highway Agency	Spot	Intersections	111021
Chichester Ave. Safety	Intersection traffic control	Intersection traffic control - other	1.86	Miles	$330000	$1216366	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	13,325	35	State Highway Agency	Spot	Intersections and Pedestrians	111022
SR 924 / I-80 Median Barrier	Roadside	Barrier - other	3.91	Miles	$1131002	$1159020	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	6,698	45	State Highway Agency	Systemic	Lane Departure	111043
University Ave. Safety	Intersection geometry	Intersection geometrics - realignment to increase cross street offset	0.8	Miles	$100000	$2761549	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	18,357	30	State Highway Agency	Spot	Intersections and Pedestrians	111062
2018 High Friction Surf(Parent)(C)	Roadway	Pavement surface - high friction surface	32.7	Miles	$2433225	$2000000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	8,167	40	State Highway Agency	Systemic	Lane Departure	111063
2019 High Friction Surf(C)	Roadway	Pavement surface - high friction surface	0	Miles	$2020376	$2000000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Systemic	Lane Departure	111065
Lansdowne Ave. Safety Imp	Advanced technology and ITS	Advanced technology and ITS - other	3.23	Miles	$500000	$3460593	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	15,617	35	State Highway Agency	Spot	Infrastructure Improvements	111167
Castor Ave:Comly to Rhawn	Intersection geometry	Auxiliary lanes - add left-turn lane	4.7	Miles	$680000	$2558403	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	5,870	30	State Highway Agency	Spot	Intersections	111194
D12 Curve Signage 2018	Roadway signs and traffic control	Roadway signs and traffic control - other	0	Miles	$750000	$1500000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Systemic	Lane Departure	111233
SR 191 High Friction Surface	Roadway	Pavement surface - high friction surface	1.6	Miles	$10000	$499591	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	5,287	45	State Highway Agency	Systemic	Lane Departure	112162
Low Cost Safety Improvments 6-0	Intersection traffic control	Intersection traffic control - other	0	Miles	$550000	$6220000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Spot	Intersections	112524
2019 SHRP 2 Traff Incdnt Mgmt Responder Training	Non-infrastructure	Training and workforce development	0	Miles	$23200	$23200	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	State Highway Agency	Training	Data	113174

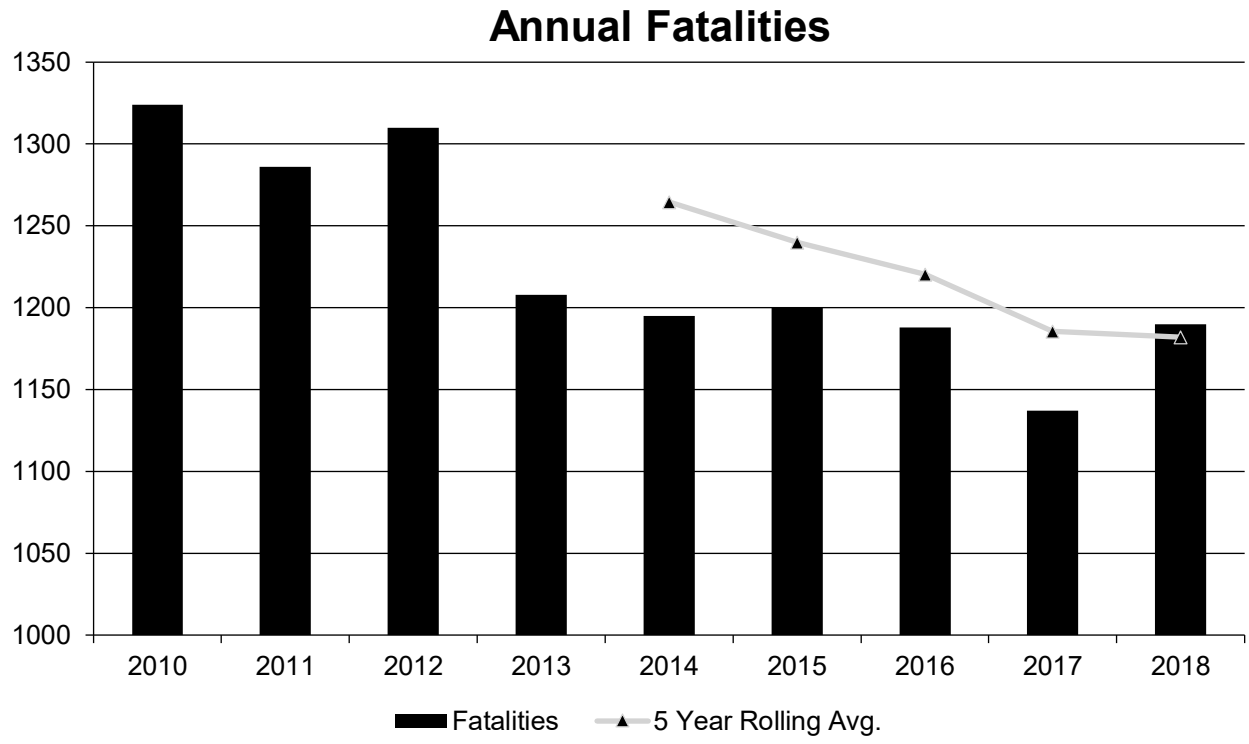
This list includes all of the projects that had any HSIP/HRRR funds obligated between 7/1/18 and 6/30/19.

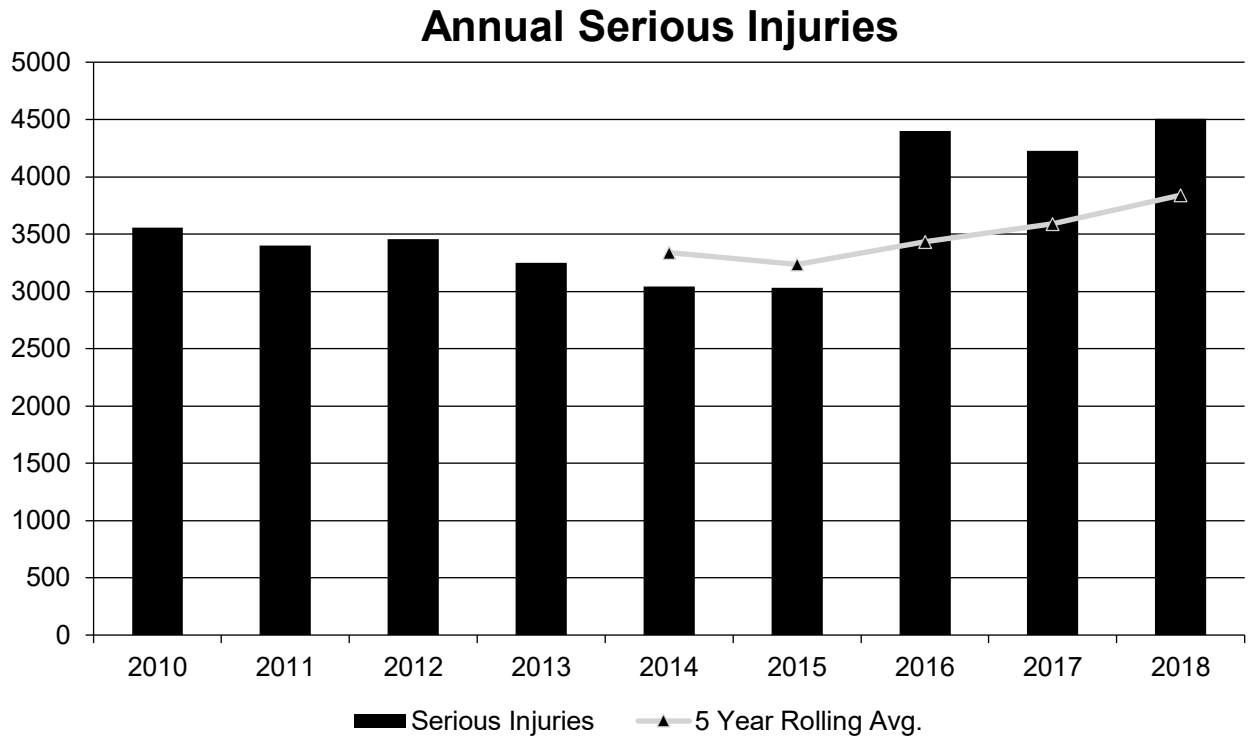
Safety Performance

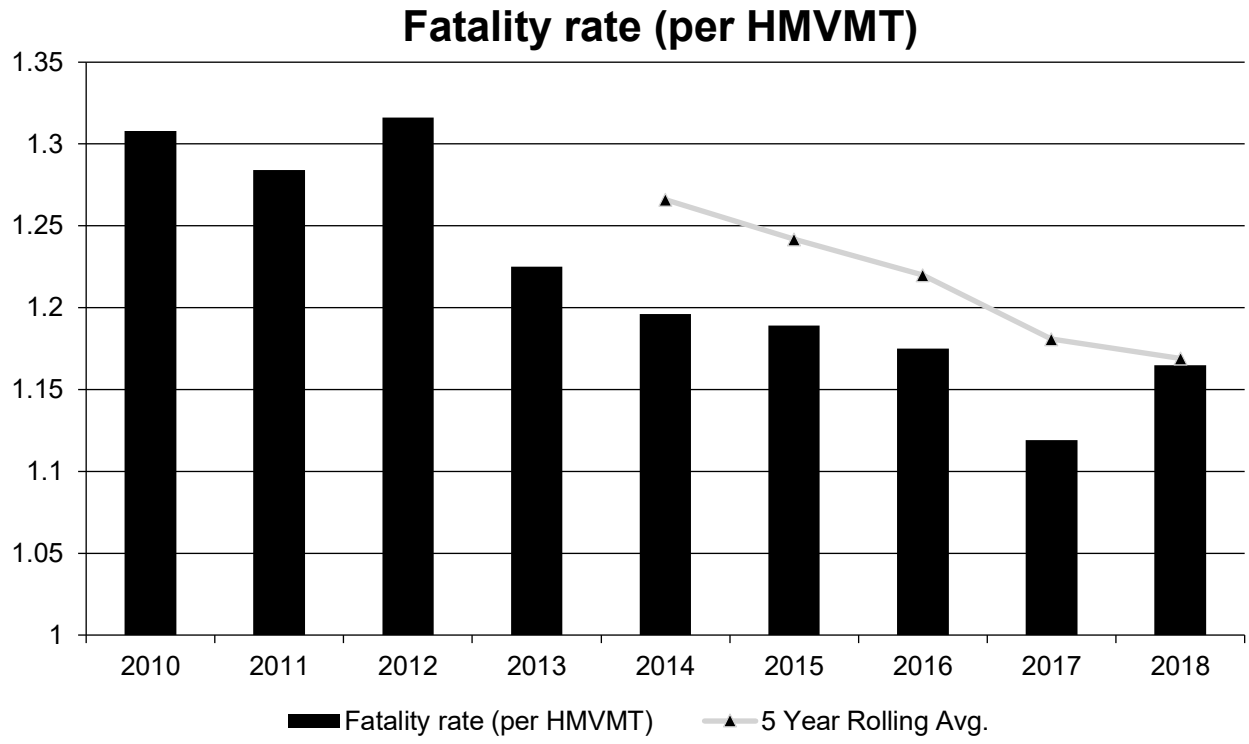
General Highway Safety Trends

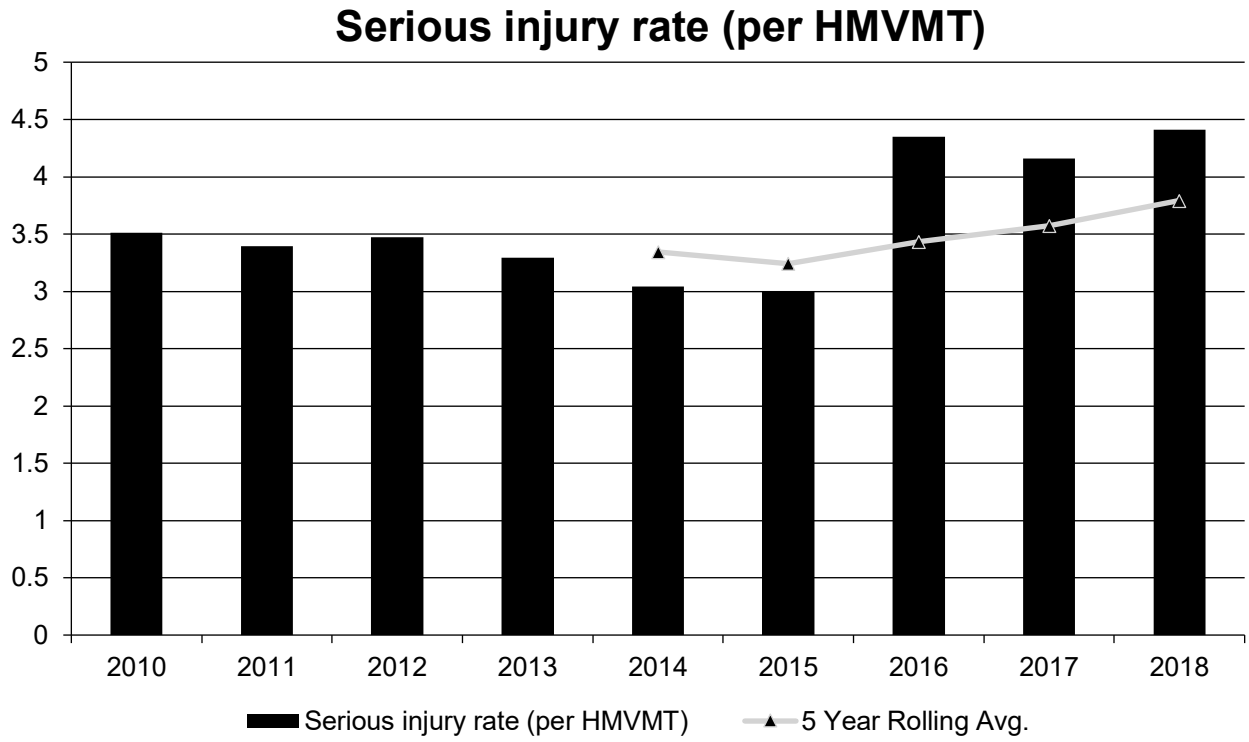
Present data showing the general highway safety trends in the State for the past five years.

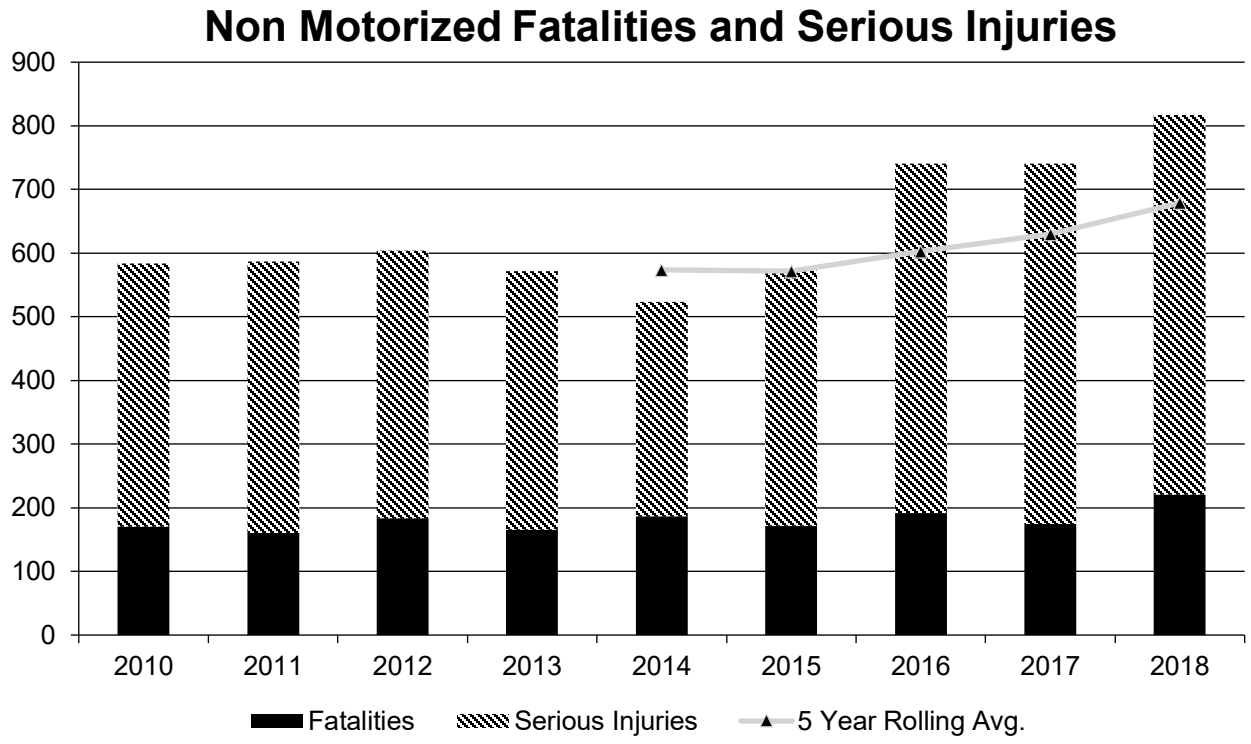
PERFORMANCE MEASURES	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fatalities	1,324	1,286	1,310	1,208	1,195	1,200	1,188	1,137	1,190
Serious Injuries	3,556	3,402	3,455	3,248	3,040	3,030	4,397	4,227	4,504
Fatality rate (per HMVMT)	1.308	1.284	1.316	1.225	1.196	1.189	1.175	1.119	1.165
Serious injury rate (per HMVMT)	3.513	3.396	3.471	3.293	3.044	3.002	4.349	4.160	4.411
Number non-motorized fatalities	171	160	184	166	187	172	192	175	221
Number of non-motorized serious injuries	413	427	420	406	336	401	549	566	596


Annual Fatalities
1350
1300
1250
1200
1150
1100
1050
1000
2010
2011
2012
2013
2014
2015
2016
2017
2018
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.35
1.3
1.25
1.2
1.15
1.1
1.05
1
2010
2011
2012
2013
2014
2015
2016
2017
2018
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



The number of serious injuries increased significantly after 2015 due to the change in definition/title from "Major Injury" to the MMUCC compliant "Suspected Serious Injury". This change also had a significant impact on the serious injury rate and non-motorized serious injury performance measures above.

Describe fatality data source.

State Motor Vehicle Crash Database

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	49.4	127	0.46	1.18
Rural Principal Arterial (RPA) - Other Freeways And Expressways	0	0	0	0
Rural Principal Arterial (RPA) - Other	92.2	200	2.24	4.86
Rural Minor Arterial	144.2	334.6	2.23	5.2
Rural Minor Collector	45.2	143.6	2.44	7.8

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 Major Collector	100.4	284.4	2.42	6.89
Rural Local Road Or Street	122.6	400	2.2	7.23
Urban Principal Arterial (UPA) - Interstate	68.4	171	0.45	1.11
Urban Principal Arterial (UPA) - Other Freeways And Expressways	32.8	97	0.46	1.36
Urban Principal Arterial (UPA) - Other	224.4	753.4	1.39	4.67
Urban Minor Arterial	130	484.8	1.08	4.03
Urban Minor Collector	0	0	0	0
Urban Major Collector	59	243.8	0.78	3.19
Urban Local Road Or Street	97.4	553.8	1.22	6.95
Other	0	0	0	0

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	968.6	2,927.6	1.25	3.77
County Highway Agency	7	17.6	0.04	0.11
Town or Township Highway Agency	0	0	0	0
City or Municipal Highway Agency	188.2	847.6	1.13	5.1
State Park, Forest, or Reservation Agency	0	0	0	0
Local Park, Forest or Reservation Agency	0	0	0	0
Other State Agency	0	0	0	0
Other Local Agency	0	0	0	0
Private (Other than Railroad)	1.6	6.8	0.02	0.04
Railroad	0	0	0	0
State Toll Authority	16.2	49.4	0.26	0.79
Local Toll Authority	0	0	0	0
Other Public Instrumentality (e.g. Airport, School, University)	0	0	0	0
Indian Tribe Nation	0	0	0	0

Pennsylvania does not classify crash data by "Rural Principal Arterial - Other Freeways and Expressways".

Also Urban Collector is not broken down by Major and Minor. Data for all Urban Collectors is reflected in the "Urban Major Collector" field.

Provide additional discussion related to general highway safety trends.

The number of Pennsylvania licensed drivers ages 65 and over have increased consistently since 2008 peaking in 2017. This increase has a significant impact on the number of Older Driver and Pedestrian Fatalities/Serious Injuries (Question #39). 2018 saw a slight decrease in licensed drivers for this age group but still the 2nd highest number on record. This age group's highway fatalities increased by 60 in 2018. People age 65 and older account for 15.6% of Pennsylvania's population based on US census data. However, fatal

crashes that involved a driver that was 65 years old or older accounted for 27.7% of total highway fatalities in 2018.

The number of serious injuries significantly increased after 2015 due to both the change in definition and the new title of this injury type. 2016 crash data included the change from "Major Injury" to the MMUCC compliant "Suspected Serious Injury". Based on this we would expect this trend to continue for the next 2 years. Some crashes that had injury severities less than serious (or major) based on the previous crash severity definitions are now considered suspected serious injuries.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2020 Targets *

Number of Fatalities:1171.9

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

In October 2016, the National Highway Traffic Safety Administration (NHTSA) committed to eliminate traffic deaths within 30 years. Pennsylvania's 2017 SHSP has adopted a goal to support this national effort. This ambitious timeline will rely heavily on the implementation of autonomous vehicle technology, anticipated between 2025 and 2030. Pennsylvania's current target is to reduce 2018 fatalities by one percent per year through 2020. The target shown above (1,171.9) is the five-year rolling average for 2016-2020. This goal was established in conjunction with our Federal partners based on a combination of reviewing Pennsylvania's historical data and observations of national trends and reduction in fatalities over the next 30 years will not be linear. This is based on actual fatal crash data from 2016 to 2018 and estimated fatal crash data in 2019 and 2020 assuming a 1% reduction each year.

Number of Serious Injuries:4400.3

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

Pennsylvania's current target is to reduce 2018 serious injuries by one percent per year through 2020. The target shown above (4,400.3) is the five-year rolling average for 2016-2020. This goal was established in conjunction with our Federal partners based on a combination of reviewing Pennsylvania's historical data and observations of national trends and reduction in serious injuries over the next 30 years will not be linear. This goal is affected by the required definition change in suspected serious injuries per the FAST Act. PA's first year using the new Suspected Serious injury criteria was 2016. In 2020 we will have the first year where all suspected serious injury crash data will be under the same definition rule.

Fatality Rate:1.148

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

The target shown above (1.148) is calculated using the 2016-2020 five-year rolling average for fatalities shown in the first metric and applying an estimated growth rate of .5% for vehicle miles traveled in 2019 and 2020.

Serious Injury Rate:4.309

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

The target shown above (4.309) is calculated using the 2016-2020 five-year rolling average for serious injuries shown in the second metric and applying an estimated growth rate of .5% for vehicle miles traveled in 2019 and 2020.

Total Number of Non-Motorized Fatalities and Serious Injuries:781.7

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

Pennsylvania's current target is to reduce 2018 non-motorized fatalities and serious injuries by one percent per year through 2020. The target shown above (781.7) is the five-year rolling average for 2016-2020. This goal was established in conjunction with our Federal partners based on a combination of reviewing Pennsylvania's historical data and observations of national trends.

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

Every SHSP cycle PennDOT works with dozens of safety partners across Pennsylvania. During this process MPOs are involved in setting strategies and action items. During the SHSP the safety partners and PennDOT establish targets based on the FHWA 148 regulations. After statewide targets are set, PennDOT contacts the MPOs & RPOs about setting the planning partners' targets and goals. This is accomplished by having many different in person, webinar, and conference calls to explain the HSIP program and the federal target requirements. After these meetings there is a letter sent to every MPO and RPO that details the State goals and how that would break down to each planning partner. The planning partners are then given a chance to adopt the statewide goals or develop their own. So far, all the planning partners have adopted the statewide goals. It is likely in coming years a few planning partners might start to set their own highway safety targets and goals.

The planning partners also work with PennDOT engineering districts to develop safety projects. The MPO/RPO can nominate locations for safety improvements and/or take a list the Districts develop and study options to improve safety. The projects are then entered into PennDOT's HSIP application portal and reviewed. Projects that meet safety merits are added to MPO/RPOs' transportation plans. The intention is that these projects will drive down the fatal and injury crashes and help the state and its planning partners reach our targets.

The Pennsylvania SHSO is a unit within PennDOT's Highway Safety Section. So behavioral safety efforts are well known to the engineering side of safety. The behavioral side of safety and the engineering side of safety work with each other every day. The Highway Safety Section Chief directs the behavioral, crash data, and engineering units. The Highway Safety Section Chief ensures all three units are working toward the same goals.

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.

Based on the 2014-2018 data, we made significant progress on two of the five targets (Number of Fatalities and Fatality Rate). For the three targets that did not make significant progress (Number of Serious Injuries, Serious Injury Rate, and Total Number of Non-Motorized Fatalities and Serious Injuries), please see question 34.

Applicability of Special Rules

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

The FHWA determined Pennsylvania must have the special rule applied. See question 41 for further details. Question 47 is locked from editing.

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	212	214	226	207	194	216	238
Number of Older Driver and Pedestrian Serious Injuries	262	271	284	252	420	422	472

These numbers reflect the count of drivers and pedestrians ages 65 and over and not all persons involved in the crash.

The number of Pennsylvania licensed drivers ages 65 and over have increased consistently since 2008 peaking in 2017. This increase has a significant impact on the number of Older Driver and Pedestrian Fatalities/Serious Injuries. 2018 saw a slight decrease in licensed drivers for this age group but still the 2nd highest number on record.

The number of serious injuries significantly increased after 2015 due to both the change in definition and the new title of this injury type. 2016 crash data included the change from "Major Injury" to the MMUCC compliant "Suspected Serious Injury".

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

- Benefit/Cost Ratio
- Change in fatalities and serious injuries
- Lives saved
- Other-3 FHWA Implementation Plans (ISIP, RDIP, SMAP)
- Other-Implementing proven systemic safety countermeasures

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

Pennsylvania estimates based on a basic before and after crash data analysis that 99 fatalities have been eliminated on Pennsylvania highways by implementing HSIP safety projects from 2002 through 2015. This also resulted in a 2.55:1 benefit/cost ratio for all crashes.

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

- # RSAs completed
- HSIP Obligations
- Increased awareness of safety and data-driven process
- Increased focus on local road safety
- More systemic programs
- Policy change
- Other-Reduced Fatal and serious injuries
- Other-Projects that result in a BCR over 1.0

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

We updated Publication 638 with new HSIP guidelines. Please refer to previous questions which discuss the new chapter 6 in Publication 638.

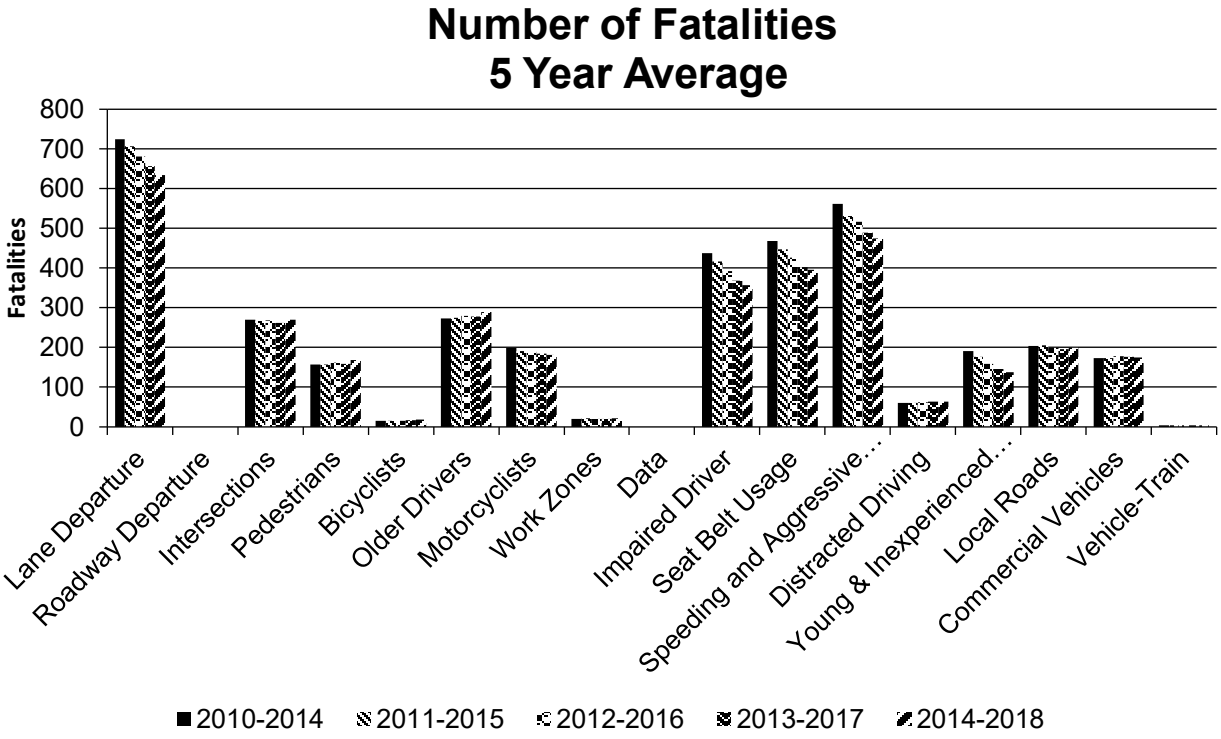
Effectiveness of Groupings or Similar Types of Improvements

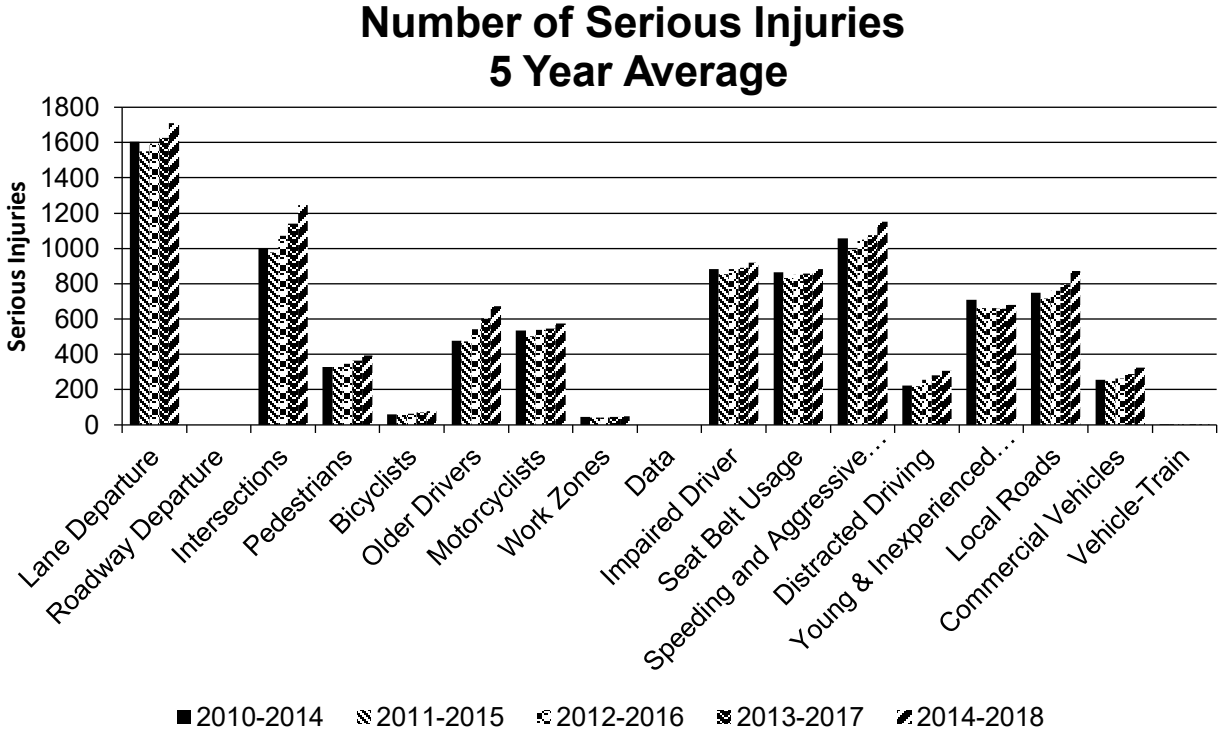
Present and describe trends in SHSP emphasis area performance measures.

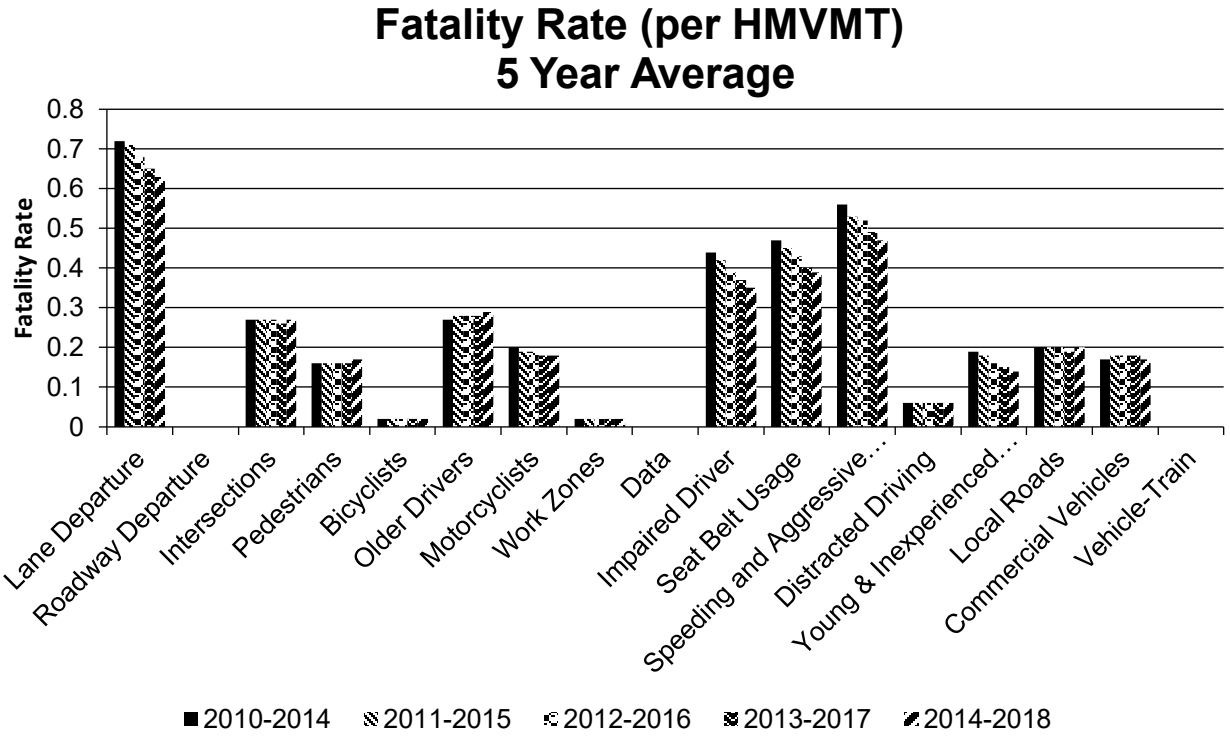
Year 2018

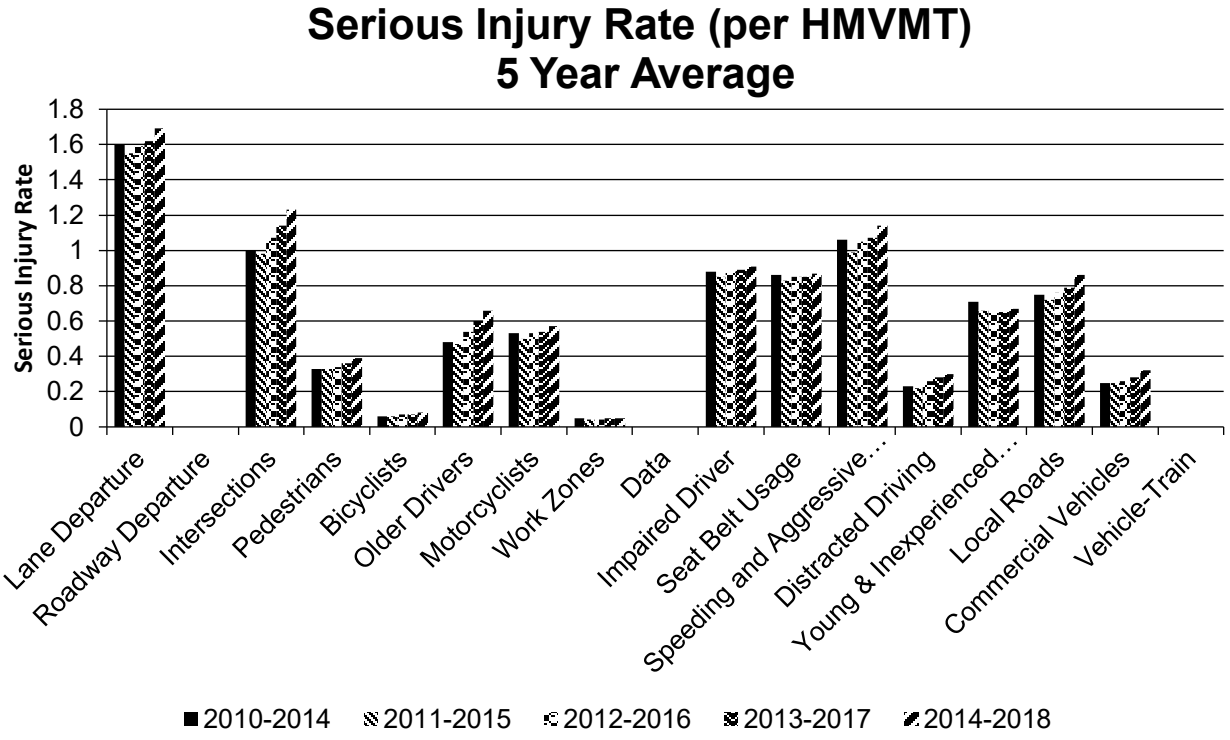
SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Lane Departure		634.6	1,708.4	0.63	1.69
Roadway Departure		0	0	0	0
Intersections		270.2	1,244	0.27	1.23

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)
Pedestrians		168.4	394	0.17	0.39
Bicyclists		18	78	0.02	0.08
Older Drivers		289.2	671.4	0.29	0.66
Motorcyclists		181.2	576.6	0.18	0.57
Work Zones		21.2	50.4	0.02	0.05
Data		0	0	0	0
Impaired Driver		356.6	917.8	0.35	0.91
Seat Belt Usage		396	883.2	0.39	0.87
Speeding and Aggressive Driving		475.2	1,152.2	0.47	1.14
Distracted Driving		63.6	306.8	0.06	0.3
Young & Inexperienced Drivers		138	681.6	0.14	0.67
Local Roads		199.6	871	0.2	0.86
Commercial Vehicles		174.2	323	0.17	0.32
Vehicle-Train		3.8	2.6	0	0


Number of Fatalities
5 Year Average
Fatalities
800
700
600
500
400
300
200
100
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
Impaired Driver
Seat Belt Usage
Speeding and Aggressive…
Distracted Driving
Young & Inexperienced…
Local Roads
Commercial Vehicles
Vehicle-Train
2010-2014
2011-2015
2012-2016
2013-2017
2014-2018


Number of Serious Injuries
5 Year Average
Serious Injuries
1800
1600
1400
1200
1000
800
600
400
200
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
Impaired Driver
Seat Belt Usage
Speeding and Aggressive…
Distracted Driving
Young & Inexperienced…
Local Roads
Commercial Vehicles
Vehicle-Train
2010-2014
2011-2015
2012-2016
2013-2017
2014-2018





These numbers include all persons in the crash.

Starting in 2016 the terminology "Suspected Serious Injury" was adopted as per the Federal FAST Act. Noticeable differences from previous years appear for this injury severity although the definition did not drastically change.

Starting in 2017, the Impaired Driver Crash flag began using drug test results in combination with alcohol and drug use suspicion to provide additional accuracy.

The numbers for "Older Drivers" reflect the count of all persons involved in a crash with a driver aged 65 or older. These numbers will differ from question #38. Young & Inexperienced Drivers includes drivers 16-20 years old. Speeding and Aggressive Driving includes numbers from Speeding Related (speeding, driving too fast for conditions, or police chase) crashes.

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

No

PennDOT does expect to complete some more countermeasure effectiveness evaluations in 2020. We are currently reviewing adaptive traffic signal controls for safety effects. The study will include 300 intersections and about 20 full corridors. The study should conclude in March 2020. PennDOT is also investigating all fatal and injury pedestrian crashes from 2015 to 2017 to determine the most appropriate safety countermeasures.

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)
0140-0173	Rural Minor Arterial	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	1.00	3.00			1.00		4.00		6.00	3.00	0.98:1
0140-INT	Rural Minor Arterial	Intersection traffic control	Modify traffic signal - modernization/replacement	3.00	9.00			1.00		13.00	8.00	17.00	17.00	0.68:1
0120-0197	Rural Minor Arterial	Roadway signs and traffic control	Curve-related warning signs and flashers	5.00	4.00		1.00			4.00	4.00	9.00	9.00	-29.76:1
0120-0090	Urban Principal Arterial (UPA) - Interstate	Roadside	Barrier - cable	88.00	124.00		3.00	3.00	4.00	89.00	110.00	180.00	241.00	-29.75:1
0210-0322	Rural Principal Arterial (RPA) - Other	Roadway	Roadway widening - add lane(s) along segment	9.00	8.00				1.00	12.00	5.00	21.00	14.00	0.02:1
0220-0080	Rural Principal Arterial (RPA) - Interstate	Roadway	Pavement surface - high friction surface	7.00	3.00	1.00			1.00	5.00	1.00	13.00	5.00	42.76:1
0230-0080	Rural Principal Arterial (RPA) - Interstate	Roadway	Pavement surface - high friction surface	26.00	9.00		2.00	1.00	3.00	21.00	14.00	48.00	28.00	-45.56:1
0230-0220	Urban Principal Arterial (UPA) - Other Freeways and Expressways	Roadside	Barrier - cable	1.00	2.00					6.00	5.00	7.00	7.00	0.52:1
0270-0322	Urban Principal Arterial (UPA) - Other Freeways and Expressways	Roadside	Barrier - cable	4.00	1.00		1.00			3.00	6.00	7.00	8.00	-88.70:1
0370-INT	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Intersection traffic control - other	2.00	3.00					8.00		10.00	3.00	0.48:1
0320-0015A	Rural Principal Arterial (RPA) - Other	Roadside	Barrier - concrete	1.00	1.00					3.00		4.00	1.00	0.06:1

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)
0340-0061	Rural Principal Arterial (RPA) - Other	Roadway	Roadway - other	6.00	17.00			2.00	1.00	24.00	23.00	32.00	41.00	-1.06:1
0380-1004	Rural Major Collector	Alignment	Horizontal curve realignment	2.00	1.00					5.00	2.00	7.00	3.00	-0.06:1
0320-0015B	Rural Principal Arterial (RPA) - Other	Roadside	Roadside - other											0.00:1
0320-0015C	Rural Principal Arterial (RPA) - Other	Roadside	Barrier - cable	73.00	73.00				1.00	51.00	42.00	124.00	116.00	-1.46:1
0840-0074	Urban Minor Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane	4.00	1.00			2.00	1.00	3.00	3.00	9.00	5.00	-0.18:1
0840-0425	Rural Minor Collector	Roadway	Roadway widening - travel lanes	3.00							1.00	3.00	1.00	-0.12:1
0920-2007	Urban Major Collector	Alignment	Horizontal and vertical alignment	4.00	6.00					13.00	6.00	17.00	12.00	0.16:1
1240-GDRL	Rural Minor Arterial	Roadside	Barrier- metal		104.00		3.00		5.00		93.00		205.00	19.11:1
0330-INT	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - add additional signal heads	4.00	3.00		1.00		4.00	11.00	16.00	15.00	24.00	-17.35:1
0800-RMBL	Urban Principal Arterial (UPA) - Other Freeways and Expressways	Roadway	Rumble strips - center	58.00	88.00	2.00	2.00	2.00	4.00	56.00	73.00	118.00	167.00	6.80:1
0800-HFST	Urban Major Collector	Roadway	Pavement surface - high friction surface	79.00	43.00				5.00	63.00	52.00	142.00	100.00	0.91:1
0300-HTCB	Urban Principal Arterial (UPA) - Other Freeways and Expressways	Roadside	Barrier - cable	93.00	108.00			1.00	2.00	60.00	66.00	154.00	176.00	-3.43:1
0300-HFST	Rural Minor Arterial	Roadway	Pavement surface - high friction surface	4.00	3.00				1.00	7.00	10.00	11.00	14.00	-0.55:1
0900-RDIP	Rural Major Collector	Roadway signs and traffic control	Curve-related warning signs and flashers	222.00	181.00	7.00	5.00	17.00	13.00	294.00	237.00	540.00	436.00	3.53:1

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)
0600-HTCB	Urban Principal Arterial (UPA) - Other Freeways and Expressways	Roadside	Barrier - cable	7.00	215.00	1.00	2.00	9.00	5.00	84.00	114.00	101.00	336.00	-8.66:1
0600-HFST	Urban Major Collector	Roadway	Pavement surface - high friction surface	134.00	96.00	1.00	1.00	7.00	4.00	237.00	191.00	379.00	292.00	3.27:1
0900-HFST	Rural Major Collector	Roadway	Pavement surface - high friction surface	23.00	16.00			2.00	1.00	21.00	5.00	46.00	22.00	4.36:1
0210-ISIP	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Intersection signing - miscellaneous/other/unspecified	6.00				2.00		1.00	1.00	9.00	1.00	13.67:1
0280-RMBL	Rural Minor Arterial	Roadway	Rumble strips - unspecified or other											0.00:1
0920-INT	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - modernization/replacement	10.00	11.00			1.00	1.00	15.00	6.00	26.00	18.00	3.79:1
1100-RAMP	Urban Principal Arterial (UPA) - Interstate	Roadway signs and traffic control	Roadway signs and traffic control - other	234.00	246.00	2.00		9.00	11.00	322.00	310.00	567.00	567.00	15.32:1
0120-INT	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	81.00	66.00		1.00			169.00	61.00	250.00	128.00	-0.25:1
0150-INT	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Intersection traffic control - other	6.00	2.00				1.00	5.00	6.00	11.00	9.00	-0.33:1
0220-INT	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Intersection traffic control - other	7.00	3.00				2.00	12.00	6.00	19.00	11.00	-0.32:1
0230-INT	Rural Principal Arterial (RPA) - Other	Interchange design	Interchange design - other	4.00	1.00	3.00		3.00		11.00		21.00	1.00	3.70:1
0420-0307	Urban Minor Arterial	Roadway	Rumble strips - edge or shoulder	6.00	6.00				1.00	12.00	20.00	18.00	27.00	-2.38:1
0530-0378	Urban Principal Arterial (UPA) - Other	Roadside	Barrier - cable	21.00	37.00			3.00	2.00	32.00	35.00	56.00	74.00	-0.69:1

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)
	Freeways and Expressways													
0820-0696	Rural Major Collector	Roadway	Pavement surface - miscellaneous	7.00	6.00					10.00	6.00	17.00	12.00	0.29:1
0830-0997	Urban Minor Arterial	Roadway	Pavement surface - miscellaneous	35.00	42.00			2.00	6.00	47.00	59.00	84.00	107.00	-50.26:1
0880-0072	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - modernization/replacement	10.00	11.00		1.00	1.00	2.00	17.00	22.00	28.00	36.00	-10.36:1
0870-INT	Urban Principal Arterial (UPA) - Other	Intersection geometry	Intersection geometry - other	12.00	20.00	1.00	1.00			38.00	35.00	51.00	56.00	0.26:1
0910-INT	Rural Major Collector	Interchange design	Interchange design - other	2.00	1.00					2.00		4.00	1.00	0.08:1
0940-0522	Rural Minor Arterial	Roadway	Roadway widening - curve	4.00	8.00				1.00	5.00	6.00	9.00	15.00	-0.86:1
1010-0422	Rural Principal Arterial (RPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	3.00	3.00	1.00		1.00		12.00	5.00	17.00	8.00	6.94:1
1050-INT	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Modify traffic signal - modernization/replacement	7.00	8.00				1.00	16.00	12.00	23.00	21.00	1.99:1
1110-0008	Urban Principal Arterial (UPA) - Other	Roadway	Roadway widening - add lane(s) along segment	25.00	18.00		1.00	2.00		48.00	20.00	75.00	39.00	-2.19:1
1120-0051	Urban Principal Arterial (UPA) - Other	Roadway	Pavement surface - miscellaneous	32.00	41.00	4.00	1.00	2.00	8.00	49.00	129.00	87.00	179.00	-6.80:1
0270-BRDG	Urban Principal Arterial (UPA) - Other Freeways and Expressways	Roadway	Pavement surface - miscellaneous	10.00	4.00	1.00				11.00	3.00	22.00	7.00	26.70:1
0530-INT	Urban Principal Arterial (UPA) - Other	Intersection geometry	Auxiliary lanes - add right-turn lane	71.00	79.00		2.00		4.00	95.00	135.00	166.00	220.00	-2.18:1

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)
1110-WDNG	Urban Principal Arterial (UPA) - Other Freeways and Expressways	Roadway	Roadway widening - add lane(s) along segment	51.00	63.00	1.00		1.00	1.00	62.00	55.00	115.00	119.00	3.99:1
0940-INT	Rural Minor Arterial	Intersection geometry	Intersection geometrics - modify intersection corner radius	1.00						1.00	1.00	2.00	1.00	0.14:1
0880-0422	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - modernization/replacement	177.00	233.00	3.00	1.00	10.00	11.00	318.00	274.00	508.00	519.00	15.79:1
0510-0183	Rural Minor Arterial	Intersection geometry	Intersection geometry - other	3.00	11.00	1.00		2.00		26.00	10.00	32.00	21.00	7.17:1
0870-INT	Urban Major Collector	Intersection geometry	Auxiliary lanes - add left-turn lane	4.00	2.00			1.00		11.00	3.00	16.00	5.00	0.74:1
0430-0118	Urban Minor Arterial	Intersection traffic control	Intersection traffic control - other	5.00	3.00					2.00	1.00	7.00	4.00	0.04:1
0820-INT	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - modernization/replacement	38.00	44.00					34.00	33.00	72.00	77.00	-0.27:1
0870-0741	Rural Major Collector	Intersection geometry	Intersection geometry - other	4.00	5.00			1.00		19.00	8.00	24.00	13.00	1.41:1
1050-INT	Urban Principal Arterial (UPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	13.00	7.00					14.00	14.00	27.00	21.00	-0.22:1
1110-0008	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - modernization/replacement	73.00	69.00	2.00	3.00	4.00	3.00	139.00	108.00	218.00	183.00	3.11:1
1110-INT	Urban Minor Arterial	Pedestrians and bicyclists	Modify existing crosswalk	73.00	43.00	1.00		5.00	3.00	135.00	76.00	214.00	122.00	17.51:1
0400-HFST	Urban Principal Arterial (UPA) - Other	Roadway	Pavement surface - high friction surface	21.00	13.00			2.00	2.00	37.00	15.00	60.00	30.00	5.04:1
0210-0099	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	10.00	12.00				1.00	6.00	8.00	16.00	21.00	10.59:1

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)
0330-0054	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	9.00	17.00			2.00	1.00	18.00	27.00	29.00	45.00	-1.26:1
0530-0100	Urban Minor Arterial	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	22.00	11.00			1.00	2.00	34.00	28.00	57.00	41.00	0.16:1
0640-INT	Urban Minor Arterial	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	33.00	29.00			2.00		41.00	51.00	76.00	80.00	0.14:1
1200-RMBL	Rural Major Collector	Roadway	Rumble strips - unspecified or other	41.00	48.00	2.00	5.00	4.00	8.00	68.00	76.00	115.00	137.00	-28.93:1
0320-0015	Rural Principal Arterial (RPA) - Other	Roadside	Roadside - other	15.00	23.00	3.00		2.00		9.00	13.00	29.00	36.00	6.00:1
0320-0015	Rural Principal Arterial (RPA) - Other	Roadside	Roadside - other	4.00	5.00	1.00		1.00		9.00	2.00	15.00	7.00	2.16:1
1120-0051	Rural Principal Arterial (RPA) - Other	Roadway	Pavement surface - miscellaneous	25.00	50.00	1.00	2.00	4.00	2.00	40.00	30.00	70.00	84.00	4.78:1
0810-0015	Rural Principal Arterial (RPA) - Other	Roadway	Pavement surface - miscellaneous	41.00	37.00	2.00		1.00	4.00	21.00	43.00	65.00	84.00	360.15:1
1110-INT	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	41.00	67.00	3.00	1.00	2.00	7.00	131.00	132.00	177.00	207.00	16.53:1
1040-0422	Rural Principal Arterial (RPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	10.00	7.00	1.00		1.00		14.00	8.00	26.00	15.00	7.40:1
0920-3013	Urban Minor Collector	Intersection geometry	Auxiliary lanes - add left-turn lane	9.00	7.00			1.00		27.00	7.00	37.00	14.00	0.80:1
0870-0222	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Intersection signing - miscellaneous/other/unspecified	4.00	5.00					9.00	3.00	13.00	8.00	-0.17:1
0140-0208	Urban Minor Arterial	Intersection traffic control	Intersection signing - miscellaneous/other/unspecified	14.00	14.00		1.00	1.00		31.00	27.00	46.00	42.00	-5.56:1
0850-INT	Urban Minor Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane	49.00	38.00	2.00	1.00	2.00	4.00	66.00	66.00	119.00	109.00	1.00:1
0140-SGNL	Urban Minor Arterial	Intersection traffic control	Modify traffic signal - modernization/replacement	35.00	38.00				2.00	59.00	37.00	94.00	77.00	-1.30:1

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)
1110-2040	Urban Principal Arterial (UPA) - Other	Roadway	Roadway - other	11.00	7.00			1.00		28.00	11.00	40.00	18.00	32.26:1
0290-INT	Rural Local Road or Street	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	10.00	11.00			1.00	3.00	11.00	12.00	22.00	26.00	-1.05:1
0850-3019	Urban Minor Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane	6.00	23.00			1.00	1.00	17.00	18.00	24.00	42.00	-0.17:1
0650-0001	Urban Principal Arterial (UPA) - Other	Pedestrians and bicyclists	Pedestrian signal - install new at intersection	186.00	226.00	23.00	31.00	35.00	35.00	1626.00	1698.00	1870.00	1990.00	-16.50:1
0650-0001	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - modernization/replacement	104.00	138.00	4.00	4.00	8.00	16.00	599.00	616.00	715.00	774.00	-3.08:1

Crash Costs are based on the FHWA report FHWA-SA-17-071 table 34 (page 63).

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

PennDOT completes projects on many high risk rural roadways. Pennsylvania has a vast network of rural roadways and has completed many safety projects on these roads which vary from systemic treatments to spot location enhancements.

Compliance Assessment

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

02/17/2017

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

Pennsylvania plans on starting our next SHSP update process in late 2020 to have a completed document by the end of 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							95	100	75
	Route Number (8)	100									
	Route/Street Name (9)	100									
	Federal Aid/Route Type (21)	100									
	Rural/Urban Designation (20)	100						100	100		
	Surface Type (23)	100						100	1		
	Begin Point Segment Descriptor (10)	100							95	100	75
	End Point Segment Descriptor (11)	100							95	100	75
	Segment Length (13)	100									
	Direction of Inventory (18)	100									
	Functional Class (19)	100						100	100	100	100
	Median Type (54)	100									
	Access Control (22)	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	
		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	5		
	Average Annual Daily Traffic (79)	100						100	10		
	AADT Year (80)	100									
	Type of Governmental Ownership (4)	100						100	100	100	100
INTERSECTION	Unique Junction Identifier (120)			100							
	Location Identifier for Road 1 Crossing Point (122)			100							
	Location Identifier for Road 2 Crossing Point (123)			100							
	Intersection/Junction Geometry (126)			100							
	Intersection/Junction Traffic Control (131)			8							
	AADT for Each Intersecting Road (79)			98							
	AADT Year (80)			98							
	Unique Approach Identifier (139)										
INTERCHANGE/RAMP	Unique Interchange Identifier (178)					100					
	Location Identifier for Roadway at Beginning of Ramp Terminal (197)					100					
	Location Identifier for Roadway at Ending Ramp Terminal (201)					100					
	Ramp Length (187)					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	
		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)					95					
	Year of Ramp AADT (192)					95					
	Functional Class (19)					100					
	Type of Governmental Ownership (4)					100					
Totals (Average Percent Complete):		**100.00**	**0.00**	**75.50**	**0.00**	**90.00**	**0.00**	**66.67**	**66.78**	**100.00**	**85.00**

*Based on Functional Classification

These percentages are reflected by Function Class and not Jurisdiction.

Segment Identifier - We have defined segments for 100% of Liquid Fuels local roads. We are working QA/QC on all 67 counties; as a county QA/QC is complete, we are segmenting non-liquid fuels roads. As of August 2019, nine counties are complete through segmentation, including all of District 9-0, five counties are in QA/QC process.

Urban Rural designation - This is collected for every state road segment. Local roads determine urban/rural based on the municipality code.

Intersection/ Junction Traffic Control - PennDOT's Traffic Signal Asset Management System (TSAMS) currently stores all signalized intersections in PA including the city of Philadelphia.

AADT/AADT Year - This is collected for 100% of the state roads. We have collected approximately 10% of this information for local roads.

Ramp AADT (191) – The majority of PA ramps are categorized as 8,000 routes (100% ADT collected). The remaining are 9,000 routes (approx 55% complete).

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.

PennDOT is using HSIP set-aside funds and consultant support to help meet the requirement including the collection of traffic volumes at approximately 4,000 local-state road intersections.

PennDOT is also progressing towards a linear referencing system for local roads. PennDOT’s local road network is complete for all 77,718 miles of liquid fuel payment eligible roads and has been linked to our oracle database. We are continuing to work on integrating the local roads that are ineligible for liquid fuel payments. We have 67 counties integrated within the database and are in process of QA/QC for the entire state.

PennDOT plans on completing this by September 2026. Since this mandate requires a large spectrum of different PennDOT bureaus/divisions and IT services, there is not a lead group established to implement this federal requirement. To just collect local roadway traffic volumes will cost at least $18 million. This does not include a recollection of traffic data which would add to the cost. Expanding the traffic counts on local roads is currently being funded with $2 million of

HSIP funds in FFY 20 and again in FFY 21. The additional cost for data integration and necessary IT upgrades to handle this FAST Act requirement are much higher. These costs could be around $50 million or higher. We are currently trying to find a way to fund this mandate over the next 7 years.

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

No

The last HSIP program assessment was completed in 2017. PennDOT provides yearly updates to the Pennsylvania FHWA Division office about areas identified for improvements. In addition PennDOT meets with the FHWA Pennsylvania division office monthly to discuss HSIP issues.

When does the State plan to complete its next HSIP program assessment.

2022

Optional Attachments

Program Structure:

Pub638_Final_signed.pdf
Project Implementation:

Safety Performance:

Evaluation:

Compliance Assessment:

Highway Safety Improvement Program PAR Final Report (MC) (26 July 2017) (Signed).pdf

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.