DELAWARE

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2017 ANNUAL REPORT

U.S. Department of Transportation
Federal Highway Administration

Photo source: Federal Highway Administration

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Protection of Data from Discovery Admission into Evidence

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

23 U.S.C. 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 Delaware Department of Transportation (DelDOT) has prepared this Annual Report for state fiscal year 2017 (July 1, 2016 - June 30, 2017) to demonstrate the success of their safety program. Crash statistics reported in this Annual Report are for calendar year 2016 (January 1, 2016 - December 31, 2016). During the 2017 reporting period, DelDOT continued its successful core HSIP programs - Hazard Elimination Program (HEP), Highway Rail-Grade Crossing Program (HRGX), and Strategic Highway Safety Plan (SHSP) as well as its systemic safety program. As part of the systemic program, DelDOT continued installation of longitudinal rumble strips and installed high-friction pavement surface treatments at selected locations. Also, DelDOT continued reviewing signing and pavement markings at all horizontal curves for MUTCD-compliance to identify low-cost improvements at these locations.

On an annual basis, HEP sites are selected using the Critical Ratio methodology to identify high crash locations for all HSIP components. The Critical Ratio method (also known as the Rate Quality Control Method) uses a statistical test to determine whether the crash rate at a particular location is significantly higher than a predetermined average crash rate for locations of similar characteristics. A total of 15 corridors were studied under the HEP and 2 highway-grade crossings were studied under HRGX. Both programs continued to identify both low-cost remedial improvements and long-term safety improvement needs. Short-term and long-term improvements identified by two pedestrian safety audits completed in 2015 are in the design and implementation phase. The success of these programs is demonstrated by the combined number of fatalities and serious injuries (based on 5-year rolling averages) gradually decreasing from 2010 to 2013. In 2014, the total number of fatalities and serious injuries increased slightly (less than 2 percent); however, remained below 2012 values. In 2015, the total number of fatalities and serious injuries decreased to their lowest levels since 2009 and 2016 saw a continuation of this trend. DelDOT led efforts, in conjunction with Delaware’s Office of Highway Safety, to identify Delaware’s first iteration of safety performance measure targets, which are included in this report. In addition, DelDOT continued working on improvements and enhancements to its Crash Analysis Reporting System (CARS) and implementation of safety projects developed from the HSIP.

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.

DelDOT's Traffic Section leads the HSIP with support from both internal and external partners. The HSIP is comprised of several programs (and subprograms) that are designed to prioritize resources that target the most critical safety improvement opportunities as identified through data-driven approaches. The following programs are included in Delaware's HSIP:

- Hazard Elimination Program (HEP)
- Highway-Rail Grade Crossing (HRGX)
- Systemic Safety Improvement Programs
    - Longitudinal Rumble Strips
    - Freeway Median Barrier
    - High Friction Surface Treatment
- Strategic Highway Safety Plan (SHSP)

For the HEP, fifteen spot locations throughout the state are chosen for safety studies each year. Sites are selected using the Critical Ratio methodology to identify high crash locations. For each site selected, DelDOT's Traffic Section reviews crash data, performs a field review, and identifies potential safety improvement alternatives. For candidate locations where improvements are in project development, design, or construction, a safety audit is performed to confirm that the proposed improvements will address the identified crash problem. The HEP committee, which includes representatives from DelDOT (Traffic, Planning, Project Development, and the Maintenance Districts), Delaware State Police, FHWA, MPOs, and the counties and municipalities, meets to reach a consensus on the recommended safety improvements. Traffic control device improvements (i.e., signing, striping, lighting, and traffic signal upgrades) are then designed by DelDOT's Traffic Section and implemented by DelDOT's maintenance forces and/or on-call contractors. Projects requiring detailed design, public involvement, or resulting in right-of-way or environmental impacts are forwarded to DelDOT's Project Development section for prioritization and inclusion in the Capital Transportation Program (CTP).

For the HRGX, DelDOT uses FRA's GradeDec.NET software to calculate benefit/cost ratios for all of Delaware's public highway-rail grade crossings. The benefit/cost ratios take into account the most recent five years of crash data, train speeds, the number of trains per day, and AADT, in addition to several other factors. The benefit/cost ratios at each crossing are then calculated for various upgrade alternatives. Then, all at-grade

crossings statewide are ranked according to their benefit/cost ratios to identify candidate locations for safety upgrades.

Each of Delaware's systemic safety improvement programs use a data-driven approach based on a number of factors, including traffic volumes, roadway characteristics, functional class, and crash history to identify and prioritize locations for implementing proven countermeasures. Before/after crash analysis has indicated the success of the high-friction surface treatment program.

Delaware's SHSP is a statewide-coordinated safety plan that provides a comprehensive framework, identifies specific goals and objectives, and integrates the four E's - engineering, education, enforcement and emergency medical services (EMS). Delaware's SHSP core agencies include DelDOT, Office of Highway Safety (OHS), and Delaware State Police (DSP). Additionally, several other stakeholders (e.g., Federal Highway Administration, National Highway Traffic Safety Administration, Federal Motor Carrier Safety Administration, Delaware Department of Motor Vehicles, Delaware Department of Justice, Delaware Office of Emergency Medical Services, Delaware Transit Commission, WILMAPCO, Dover/Kent County MPO, City of Wilmington, and Delaware T2/LTAP Center) provide input and expertise towards the development of the SHSP. Together, the SHSP core agencies and stakeholders review fatal and serious injury crash data to identify emphasis areas to focus resources with the goal of reducing fatalities and serious injuries. Additionally, working groups consisting of representatives from the relevant core agencies and stakeholders, meet to discuss implementation plans for specific emphasis areas.

Where is HSIP staff located within the State DOT?

Engineering

Enter additional comments here to clarify your response for this question or add supporting information.

HSIP staff are located in DelDOT's Division of Transportation Solutions - Traffic Section.

How are HSIP funds allocated in a State?

Other-Central Office via Formula

Enter additional comments here to clarify your response for this question or add supporting information.

DelDOT Central Office distributes HSIP funds to cover general HSIP program activities, the installation of low-cost countermeasures (signing, marking, signals, etc.) identified through the HSIP, and HSIP projects being design through DelDOT's Project Development group.

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

All roadways throughout the state are eligible for safety funding; however, the calculations used to identify high crash locations for the Hazard Elimination Program (HEP) include state roadways in DelDOT's road inventory where traffic volumes are available. Based on a review of statewide crash data on all public roadways from 2009 to 2011, only 4 percent of fatal and incapacitating injury crashes occur on subdivision streets and municipal roadways, indicating that crashes reported on these roadways would not likely meet the minimum crash criteria for the various HSIP elements.

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

Traffic Engineering/Safety
Design
Planning
Maintenance
Operations
Districts/Regions

Enter additional comments here to clarify your response for this question or add supporting information.

Describe coordination with internal partners.

Representatives from DelDOT's Traffic, Planning, Project Development, and Maintenance and Operations divisions participate in the HSIP as part of the HEP and SHSP committees.

Identify which external partners are involved with HSIP planning.

Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
Governors Highway Safety Office
Local Technical Assistance Program
Local Government Agency
Law Enforcement Agency
FHWA
Other-National Highway Traffic Safety Administration
Other-Delaware State Police
Other-Department of Justice
Other-Delaware Office of Emergency Medical Services
Other-Federal Motor Carrier Safety Administration

Enter additional comments here to clarify your response for this question or add supporting information.

Describe coordination with external partners.

Representatives from DelDOT's external partners participate in the HSIP via the HEP and/or SHSP committees. Together, DelDOT and these agencies work together to focus resources with the goal of reducing fatalities and serious injuries.

Have any program administration practices used to implement the HSIP changed since the last reporting period?

No

Are there any other aspects of HSIP Administration on which the State would like to elaborate?

Yes

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

During FY 2017 (July 1, 2016 - June 30, 2017), components of Delaware's HSIP included the Strategic Highway Safety Plan (SHSP), the Hazard Elimination Program (HEP), and the Highway-Rail Grade Crossing Safety Program (HRGX). In addition, significant advances in DelDOT's systemic safety programs continued during the FY 2017 period. DelDOT continued installation of longitudinal rumble strips and began installation of high-friction pavement surface treatment at high-ranking locations. DelDOT continued its evaluation of horizontal curves throughout the state for MUTCD-compliant signing and pavement markings and initiated a new pedestrian safety study along a corridor exhibiting high pedestrian crash histories corridors. DelDOT continued enhancements to CARS and began a pilot program to install rectangular rapid flashing beacons (RRFBs) at several crossing locations throughout the state. In addition, DelDOT worked toward developing statewide guidelines for barrier end treatment maintenance and repair and an Approved Products List (APL) for temporary and permanent barrier end treatments.

Program Methodology

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

No

Enter additional comments here to clarify your response for this question or add supporting information.

Select the programs that are administered under the HSIP.

Median Barrier
Horizontal Curve
Pedestrian Safety
Segments
Other-Longitudinal Rumble Strips
Other-High Friction Surface Treatment

Enter additional comments here to clarify your response for this question or add supporting information.

Program: Horizontal Curve

Date of Program Methodology: 7/1/2016

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

2017 Delaware Highway Safety Improvement Program

What is the funding approach for this program? [Check one]

Other-Competes with HSIP projects

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
		Horizontal curvature

What project identification methodology was used for this program? [Check all that apply]

Probability of specific crash types
Other-All horizontal curves to be evaluated.

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?

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

How are projects under this program advanced for implementation?

Other-Prioritized based on functional classification

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

Rank of Priority Consideration

Available funding : 1

Enter additional comments here to clarify your response for this question or add supporting information.

Program: Median Barrier

Date of Program Methodology: 7/1/2016

2017 Delaware Highway Safety Improvement Program

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Other-Competes with HSIP projects

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
Other-All roadway departure crashes, head-on crashes, and cross-median crashes	Volume Other-Roadway Miles	Median width Horizontal curvature Functional classification Roadside features

What project identification methodology was used for this program? [Check all that apply]

Crash frequency
Relative severity index
Crash rate

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?

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

How are projects under this program advanced for implementation?

Other-Based on prioritization and funding availability

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

Relative Weight in Scoring

Available funding : 50
Ranking based on net benefit : 50

2017 Delaware Highway Safety Improvement Program

Total Relative Weight : 100

Enter additional comments here to clarify your response for this question or add supporting information.

Program: Pedestrian Safety

Date of Program Methodology: 7/1/2015

What is the justification for this program? [Check all that apply]

What is the funding approach for this program? [Check one]

What data types were used in the program methodology? [Check all that apply]

Crashes	**Exposure**	**Roadway**
Other-All pedestrian crashes		Functional classification

What project identification methodology was used for this program? [Check all that apply]

Crash frequency
Probability of specific crash types

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

No

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

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

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).

2017 Delaware Highway Safety Improvement Program
Relative Weight in Scoring

Available funding : 34
Ranking based on net benefit : 33
Cost Effectiveness : 33

Total Relative Weight : 100

Enter additional comments here to clarify your response for this question or add supporting information.

Program: Segments

Date of Program Methodology: 7/1/2016

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Competes with all projects

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
All crashes	Volume Other-Roadway Miles	Other-Roadway Type

What project identification methodology was used for this program? [Check all that apply]

Critical rate

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?

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

How are projects under this program advanced for implementation?

2017 Delaware Highway Safety Improvement Program

selection committee

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

Relative Weight in Scoring

Ranking based on B/C : 25
Available funding : 25
Ranking based on net benefit : 25
Cost Effectiveness : 25

Total Relative Weight : 100

Enter additional comments here to clarify your response for this question or add supporting information.

Program: Other-Longitudinal Rumble Strips

Date of Program Methodology: 7/1/2016

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Other-Competes with HSIP projects

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
Other-All roadway departure crashes	Volume Other-Roadway Miles	Horizontal curvature Functional classification Roadside features

What project identification methodology was used for this program? [Check all that apply]

Probability of specific crash types

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

2017 Delaware Highway Safety Improvement Program
No

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

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

How are projects under this program advanced for implementation?

Other-Based on prioritization and funding availability

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
Ranking based on net benefit : 1

Enter additional comments here to clarify your response for this question or add supporting information.

Program:	Other-High Friction Surface Treatment
Date of Program Methodology:	7/1/2016

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Funding set-aside

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
Other-All wet weather roadway departure crashes	Volume Other-Roadway Miles	

What project identification methodology was used for this program? [Check all that apply]

Crash frequency
Crash rate

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?

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

How are projects under this program advanced for implementation?

Other-Based on prioritization and funding availability

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 net benefit : 1

Enter additional comments here to clarify your response for this question or add supporting information.

What percentage of HSIP funds address systemic improvements?

25

HSIP funds are used to address which of the following systemic improvements? Please check all that apply.

Cable Median Barriers
Rumble Strips
Install/Improve Signing
Install/Improve Pavement Marking and/or Delineation
Horizontal curve signs
High friction surface treatment

Enter additional comments here to clarify your response for this question or add supporting information.

What process is used to identify potential countermeasures? [Check all that apply]

Engineering Study
Road Safety Assessment
Crash data analysis
SHSP/Local road safety plan
Data-driven safety analysis tools (HSM, CMF Clearinghouse, SafetyAnalyst, usRAP)
Stakeholder input

Enter additional comments here to clarify your response for this question or add supporting information.

Does the State HSIP consider connected vehicles and ITS technologies?

No

Enter additional comments here to clarify your response for this question or add supporting information.

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.

DelDOT uses the HSM to compare alternatives under consideration for its HEP.

Have any program methodology practices used to implement the HSIP changed since the last reporting period?

No

Are there any other aspects of the HSIP methodology on which the State would like to elaborate?

Yes

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

Please see attachment for the methodology for the Hazard Elimination Program (HEP) site selection process.

Project Implementation

Funds Programmed

Reporting period for HSIP funding.

State Fiscal Year

Enter additional comments here to clarify your response for this question or add supporting information.

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	$10,731,600	$2,282,745	21.27%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$0	$2,358,257	0%
Penalty Funds (23 U.S.C. 154)	$2,369,000	$2,590,040	109.33%
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)	$5,889,500	$253,638	4.31%
State and Local Funds	$0	$425,000	0%
HRRRP (SAFET_LU)	$190,100	$0	0%
Totals	$19,180,200	$7,909,680	41.24%

Enter additional comments here to clarify your response for this question or add supporting information.

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

$0

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

$0

Enter additional comments here to clarify your response for this question or add supporting information.

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

$252,348

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

$252,348

Enter additional comments here to clarify your response for this question or add supporting information.

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

Enter additional comments here to clarify your response for this question or add supporting information.

Discuss impediments to obligating HSIP funds and plans to overcome this challenge in the future.

No impediments at this time.

Does the State want to elaborate on any other aspects of it's progress in implementing HSIP projects?

No

General Listing of Projects

List the projects obligated using HSIP funds for the reporting period.

													RELATIONSHIP TO SHSP	
PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
2016 HEP Studies Program	Non-infrastructure	Road safety audits	15	Locations	$186139.97	$186139.97	HSIP (23 U.S.C. 148)	Varies	0		State Highway Agency	Spot	Various	
Signing equipment for various locations	Roadway signs and traffic control				$12526.83	$12526.83	HSIP (23 U.S.C. 148)	Varies	0		State Highway Agency		Various	
Pre-approved products List (consultant work)	Roadside	Barrier end treatments (crash cushions, terminals)			$58099.41	$58099.41	Penalty Funds (23 U.S.C. 154)	Varies	0		State Highway Agency		Various	
End treatment repair guidelines (consultant work)	Non-infrastructure	Training and workforce development			$30829.89	$30829.89	Penalty Funds (23 U.S.C. 154)		0				Roadway Departure	
HEP before, after crash analysis	Non-infrastructure	Transportation safety planning			$45502.69	$45502.69	Penalty Funds (23 U.S.C. 154)	Varies	0		State Highway Agency		Various	
Left Exit design services	Intersection traffic control				$26665.76	$26665.76	Penalty Funds (23 U.S.C. 154)	Varies	0		State Highway Agency		Older Drivers, Aggressive Driving	
CARS Enhancements	Non-infrastructure	Data/traffic records			$49940.98	$49940.98	Penalty Funds (23 U.S.C. 154)		0		State Highway Agency		Data	
SR1 @ Bay Crossing Blvd Intersection Improvements	Intersection geometry	Intersection geometry - other	1	Intersections	$300000	$300000	Penalty Funds (23 U.S.C. 154)	Urban Principal Arterial - Other	58,700	45	State Highway Agency		Intersections	
US13 @ MLK Jr. Blvd	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$203292.2	$203292.2	HSIP (23 U.S.C. 148)	Urban Minor Arterial	29,800	50	State Highway Agency		Intersections	
Hazletville Road Pole Relocation	Roadside	Removal of roadside objects (trees, poles, etc.)	1	Locations	$7850	$7850	HSIP (23 U.S.C. 148)	Urban Major Collector	16,200	45	State Highway Agency		Roadway Departure	
High Friction Surface Treatment	Roadway	Pavement surface - high friction surface	29044	Numbers	$575219.71	$575219.71	HRRR Special Rule (23 U.S.C. 148(g)(1))	Varies	0		State Highway Agency	Systemic	Roadway Departure	
Inspection of turned down guardrail	Roadside	Barrier- metal			$19534.59	$19534.59	Penalty Funds (23 U.S.C. 154)	Varies	0		State Highway Agency		Roadway Departure	
Inspection of Rumble Strips	Roadway	Rumble strips - unspecified or other			$762.02	$762.02	Penalty Funds (23 U.S.C. 154)	Varies	0		State Highway Agency		Roadway Departure	
Signing equipment for various locations	Roadway signs and traffic control				$2119.54	$2119.54	Penalty Funds (23 U.S.C. 154)	Varies	0		State Highway Agency		Various	
2017 HEP Studies Program	Non-infrastructure	Road safety audits	15	Locations	$894423.4	$894423.4	HSIP (23 U.S.C. 148)	Varies	0		State Highway Agency	Spot	Various	
SR2 @ E Cleveland	Intersection traffic control	Intersection traffic control - other	1	Intersections	$12592	$12592	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	39,500	35	State Highway Agency		Intersections	

													RELATIONSHIP TO SHSP	
PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
Ave/Woodlawn Ave														
Signalized Median Crossover Contract Documents	Roadway signs and traffic control	Roadway signs and traffic control - other	433	Intersections	$12783.54	$12783.54	Penalty Funds (23 U.S.C. 154)	Multi-Lane Divided Highways	0		State Highway Agency	Spot	Intersections	
SHSP Studies Consultant	Non-infrastructure	Transportation safety planning			$115921.58	$115921.58	HSIP (23 U.S.C. 148)		0				Various	
SR141 Spur and West Park	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	1	Intersections	$2475.9	$2475.9	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	20,700	35	State Highway Agency		Intersections	
SR2 @ Kirkwood Plaza	Pedestrians and bicyclists	Install new crosswalk	1	Intersections	$122952.36	$122952.36	Penalty Funds (23 U.S.C. 154)	Urban Principal Arterial - Other	43,900	40	State Highway Agency	Spot	Pedestrians, Intersections	
SR2 and Duncan	Pedestrians and bicyclists	Install new crosswalk	1	Intersections	$25254.15	$25254.15	Penalty Funds (23 U.S.C. 154)	Urban Principal Arterial - Other	43,900	40	State Highway Agency	Spot	Pedestrians, Intersections	
Workzone Safety Campaign	Non-infrastructure	Educational efforts			$24324.47	$24324.47	State and Local Funds		0				Work Zones	
Safety Outreach Trailer and Highway Safety Brochure	Non-infrastructure	Educational efforts			$4196.81	$4196.81	State and Local Funds		0				Various	
US40 & Church (Lighting)	Lighting	Continuous roadway lighting	0.2	Miles	$198708.2	$198708.2	HSIP (23 U.S.C. 148)		0					
HEP Pavement Markings	Roadway delineation	Roadway delineation - other			$92765.69	$92765.69	HSIP (23 U.S.C. 148)	Varies	0		State Highway Agency		Various	
SR2 @ SR41/62 APS	Pedestrians and bicyclists	Pedestrian signal - audible device	1	Intersections	$17734.01	$17734.01	Penalty Funds (23 U.S.C. 154)	Urban Principal Arterial - Other	49,200	40	State Highway Agency		Pedestrians	
OHS Crosswalk Campaign	Non-infrastructure	Educational efforts			$57500	$57500	Penalty Funds (23 U.S.C. 154)		0				Pedestrians	
RRFB at Bayhealth Campus Dover	Pedestrians and bicyclists	Pedestrian beacons	1	Locations	$155000	$155000	Penalty Funds (23 U.S.C. 154)	Urban Minor Arterial	10,000	25	State Highway Agency		Pedestrians	
Purchase of truck mounted VMS boards	Non-infrastructure	Training and workforce development			$81233.5	$81233.5	State and Local Funds		0					
US13 @ Wildel Ave	Pedestrians and bicyclists	Pedestrian signal	1	Intersections	$14158	$14158	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	34,900	35	State Highway Agency		Pedestrians, Intersections	
South Walnut Street Guide Signs	Roadway signs and traffic control	Roadway signs and traffic control - other	1	Locations	$17403.75	$17403.75	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	31,500	50	State Highway Agency			
North Dover Back Plates Governors	Intersection traffic control	Modify traffic signal - add backplates	1	Intersections	$28919.49	$28919.49	HSIP (23 U.S.C. 148)	Urban Minor Arterial	11,400	25	State Highway Agency		Intersections	
RRFB South (Beach Area)	Pedestrians and bicyclists	Pedestrian beacons	1	Locations	$42700.51	$42700.51	Penalty Funds (23 U.S.C. 154)	Urban Major Collector	10,000	40	State Highway Agency	Spot	Pedestrians	

													RELATIONSHIP TO SHSP	
PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
SR58 & Cavaliers Lighting	Lighting	Intersection lighting	1	Intersections	$17000	$17000	Penalty Funds (23 U.S.C. 154)	Urban Minor Arterial	19,600	40	State Highway Agency		Intersections	
SR273 Roadway Lighting	Lighting	Intersection lighting	2	Intersections	$111899.9	$111899.9	Penalty Funds (23 U.S.C. 154)	Urban Principal Arterial - Other	32,600	50	State Highway Agency		Pedestrians, Intersections	
Smyrna LED Lighting Installation	Lighting	Continuous roadway lighting	0.5	Miles	$49185.76	$49185.76	HSIP (23 U.S.C. 148)	Urban Minor Arterial	27,500	45	State Highway Agency		Pedestrians, Intersections	

Enter additional comments here to clarify your response for this question or add supporting information.

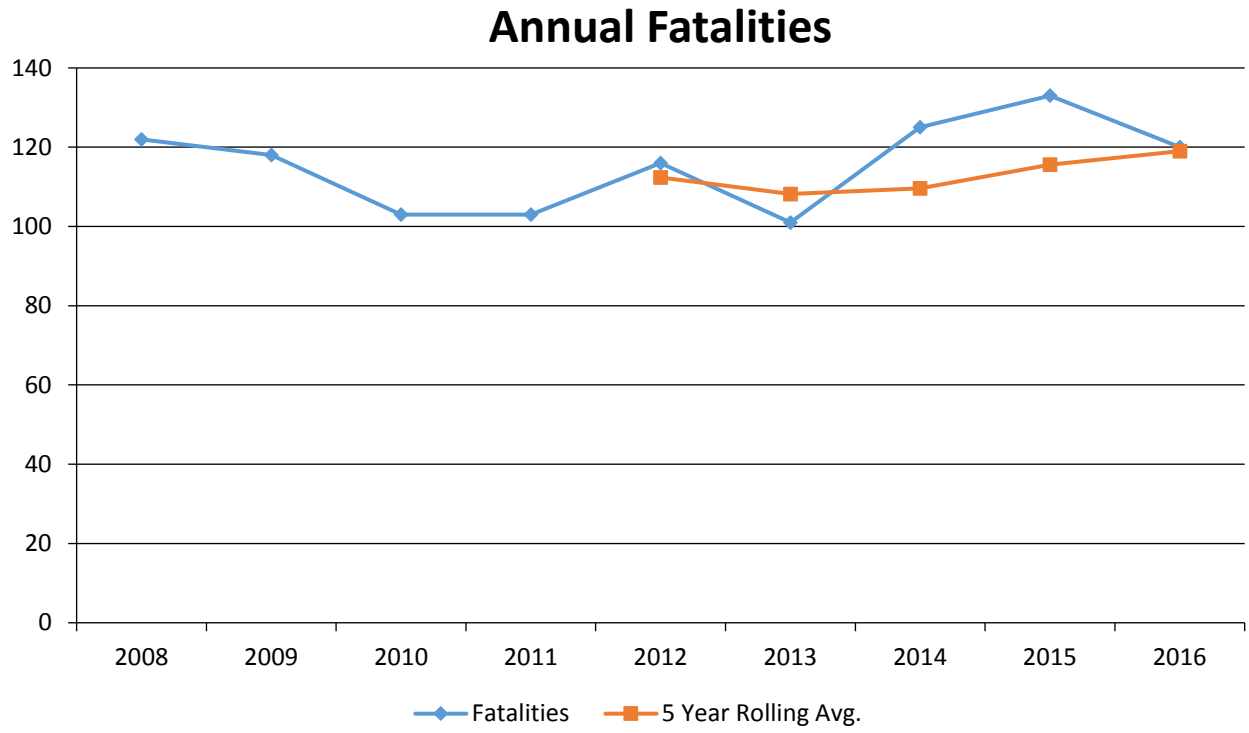
The reported total project costs and HSIP costs shown are the costs for the reporting period (i.e., FY 2017).

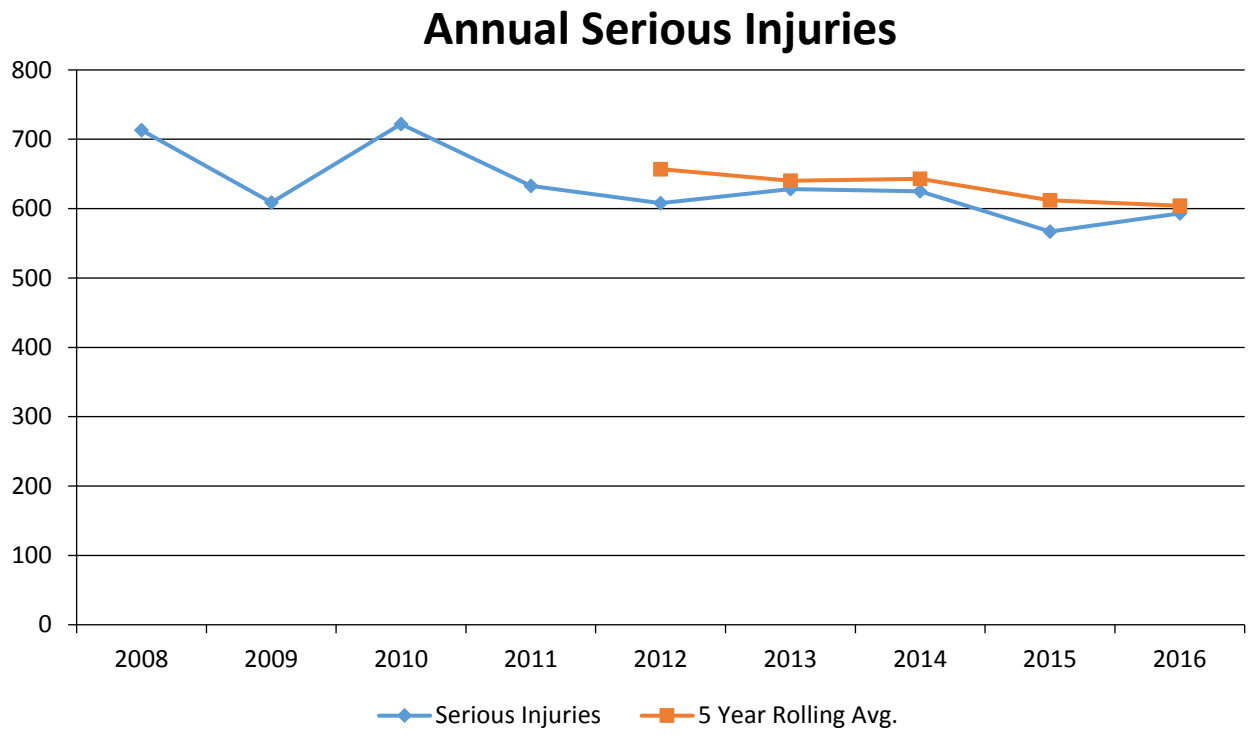
Safety Performance

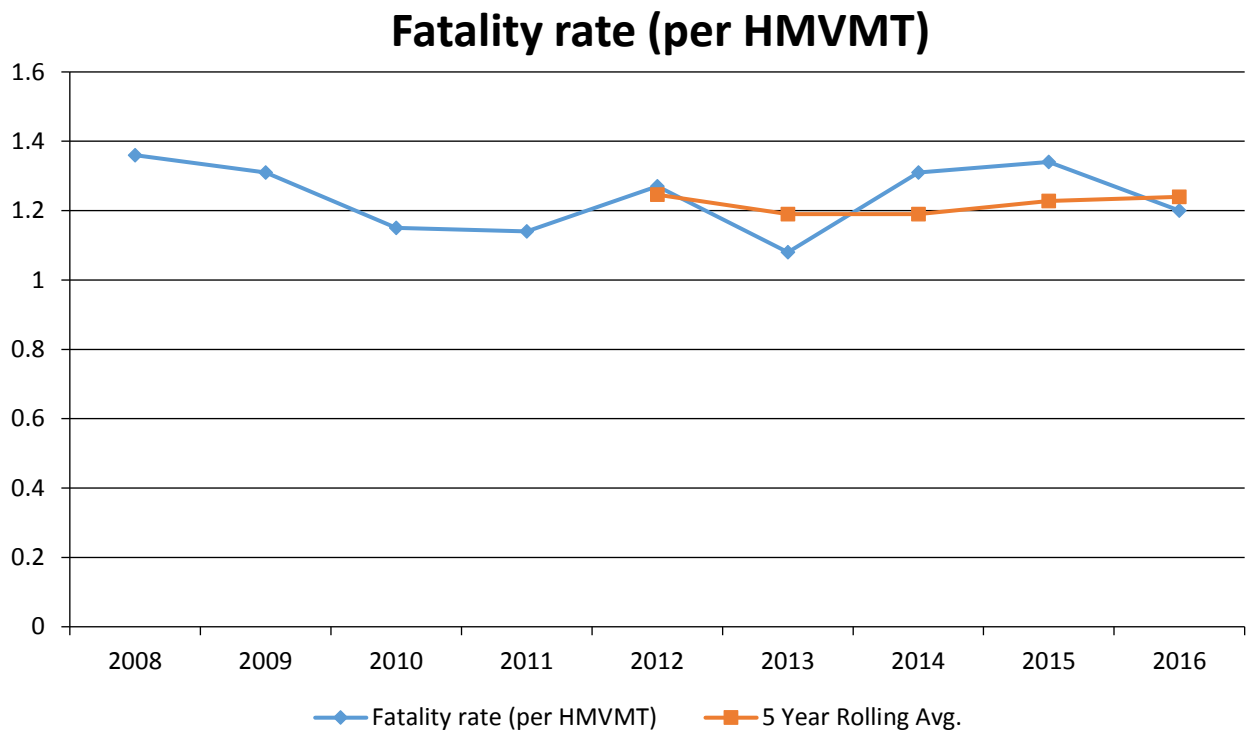
General Highway Safety Trends

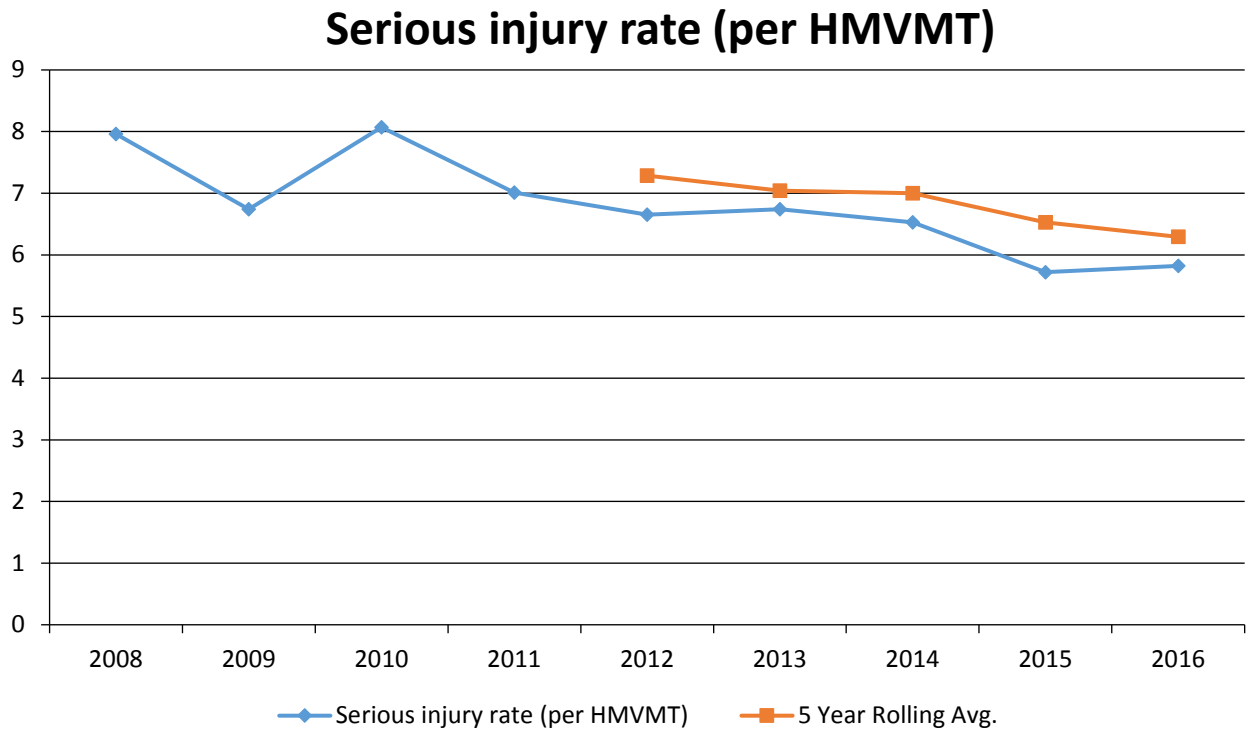
Present data showing the general highway safety trends in the State for the past five years.

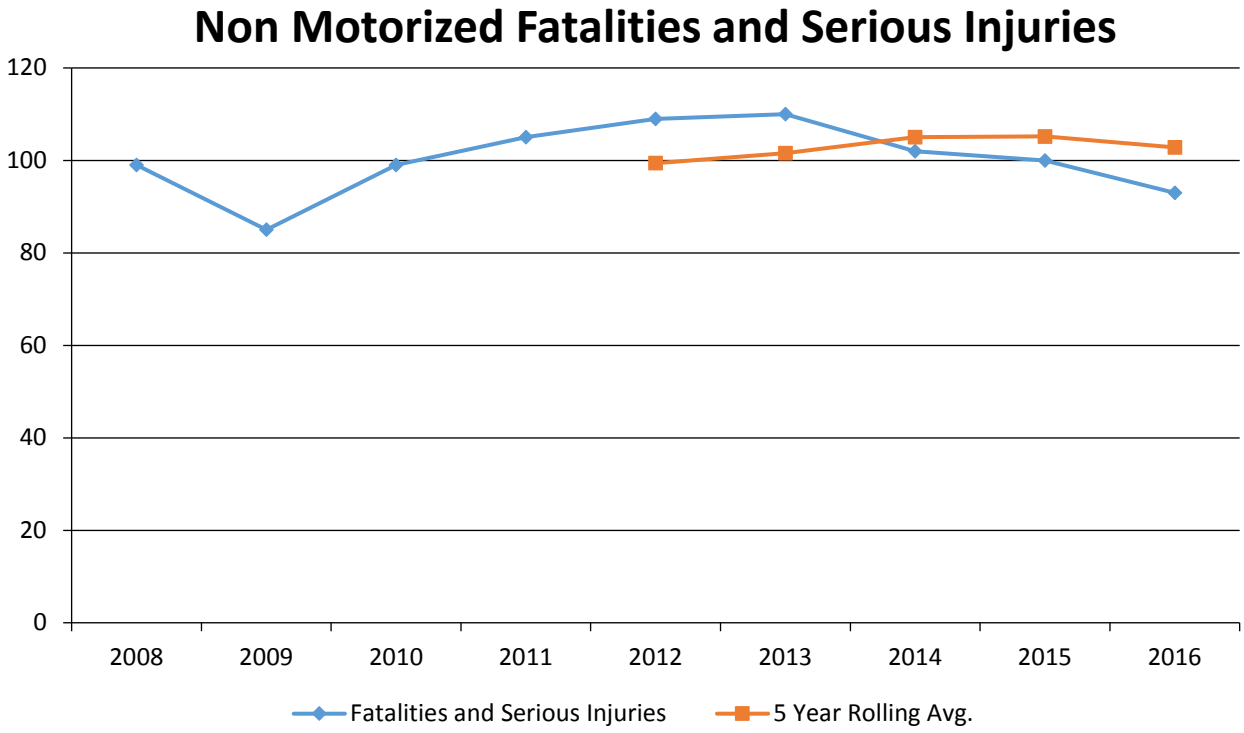
PERFORMANCE MEASURES	2008	2009	2010	2011	2012	2013	2014	2015	2016
Fatalities	122	118	103	103	116	101	125	133	120
Serious Injuries	713	609	722	633	608	628	625	567	593
Fatality rate (per HMVMT)	1.360	1.310	1.150	1.140	1.270	1.080	1.310	1.340	1.200
Serious injury rate (per HMVMT)	7.960	6.740	8.070	7.010	6.650	6.740	6.530	5.720	5.820
Number non-motorized fatalities	28	21	25	19	34	28	30	39	29
Number of non-motorized serious injuries	71	64	74	86	75	82	72	61	64


Annual Fatalities
140
120
100
80
60
40
20
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
800
700
600
500
400
300
200
100
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
9
8
7
6
5
4
3
2
1
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



Enter additional comments here to clarify your response for this question or add supporting information.

At the time of reporting, annual vehicle miles traveled (VMT) data is unavailable for calendar year 2016. As such, 2016 fatality and serious injury rates were calculated based on projected 2016 VMT values. 2016 VMT was projected from known 2015 VMT using FHWA's VMT forecasting growth rates (May 2016 release), which indicates a 0.92% annual growth rate for the 20-year period from 2014-2014 for "baseline economic growth". For the purposes of this reporting, state data was used for both the number of fatalities and serious injuries.

Describe fatality data source.

State Motor Vehicle Crash Database

Enter additional comments here to clarify your response for this question or add supporting information.

For the purposes of reporting the most recent statewide crash data trends, crash data from Delaware's Crash Analysis Reporting System (CARS) was used. It should be noted that safety performance measure targets (and the trend line analyses to derive the targets) relied on FARS data as required by the SPM Final Rule.

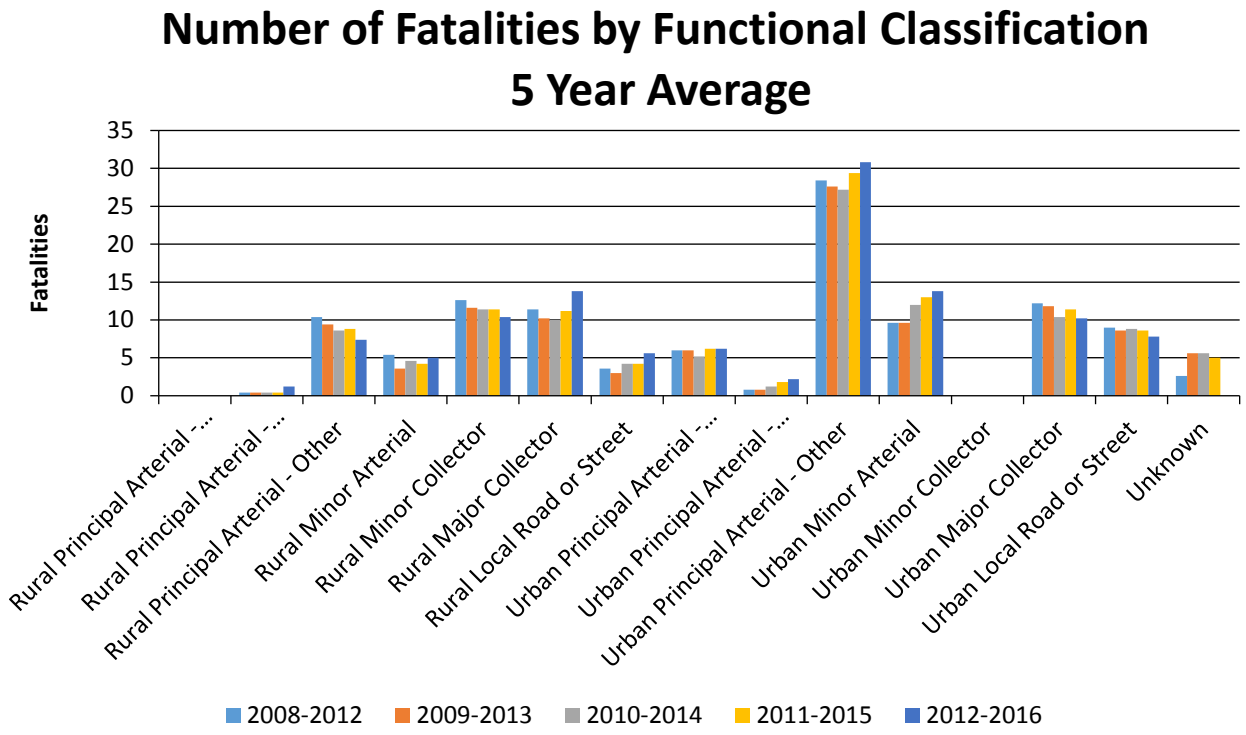
To the maximum extent possible, present this data by functional classification and ownership.

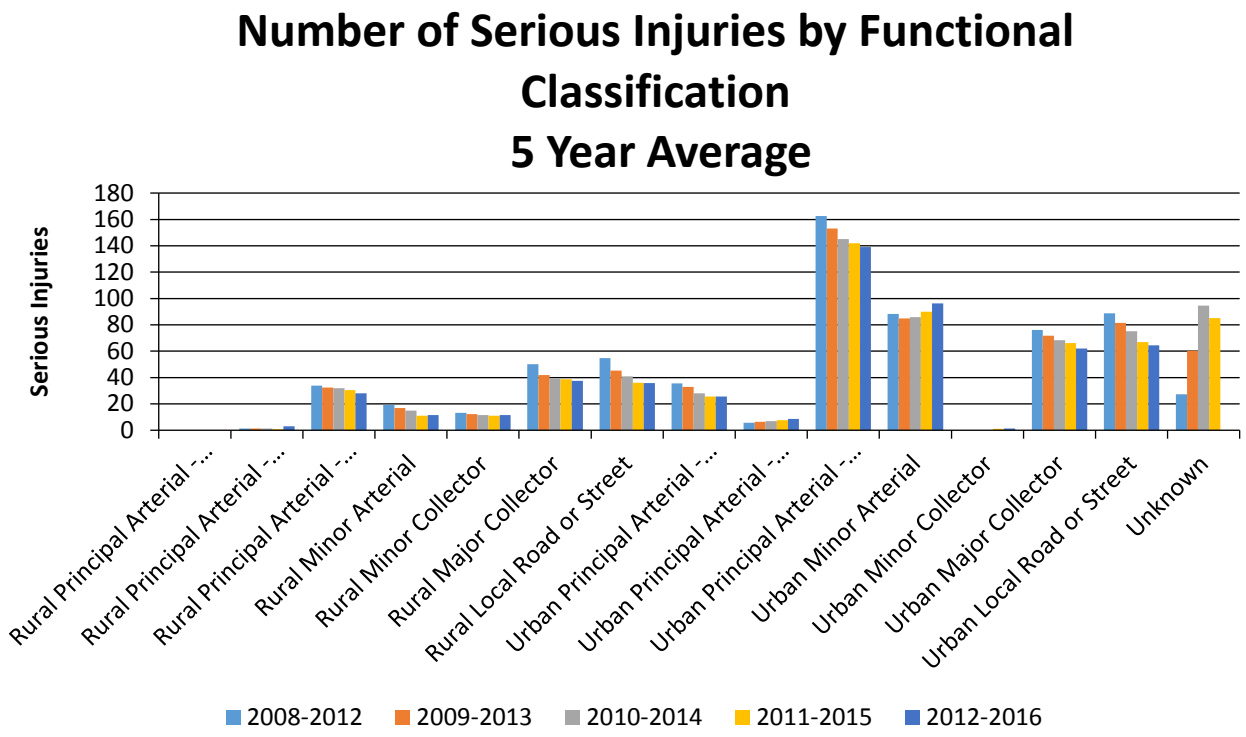
Year 2016

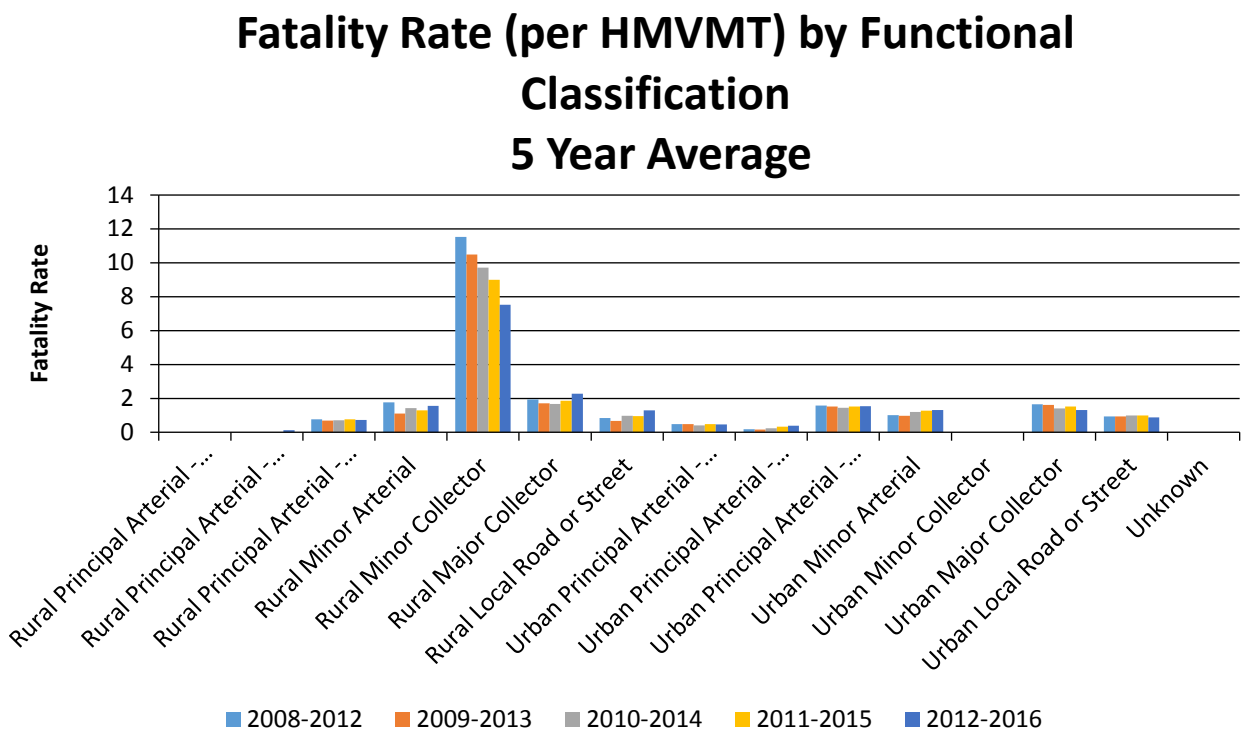
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial - Interstate	0	0	0	0
Rural Principal Arterial - Other Freeways and Expressways	1.2	3	0.13	0.39
Rural Principal Arterial - Other	7.4	28	0.72	2.73
Rural Minor Arterial	5	11.6	1.55	3.56
Rural Minor Collector	10.4	11.6	7.52	8.27
Rural Major Collector	13.8	37.6	2.28	6.16
Rural Local Road or Street	5.6	35.8	1.29	8.06
Urban Principal Arterial - Interstate	6.2	25.6	0.47	1.94
Urban Principal Arterial - Other Freeways and Expressways	2.2	8.6	0.38	1.52
Urban Principal Arterial - Other	30.8	139	1.54	6.96
Urban Minor Arterial	13.8	96.2	1.32	9.21
Urban Minor Collector	0	1.2	0	2.53
Urban Major Collector	10.2	62	1.32	8.08
Urban Local Road or Street	7.8	64.4	0.88	7.24

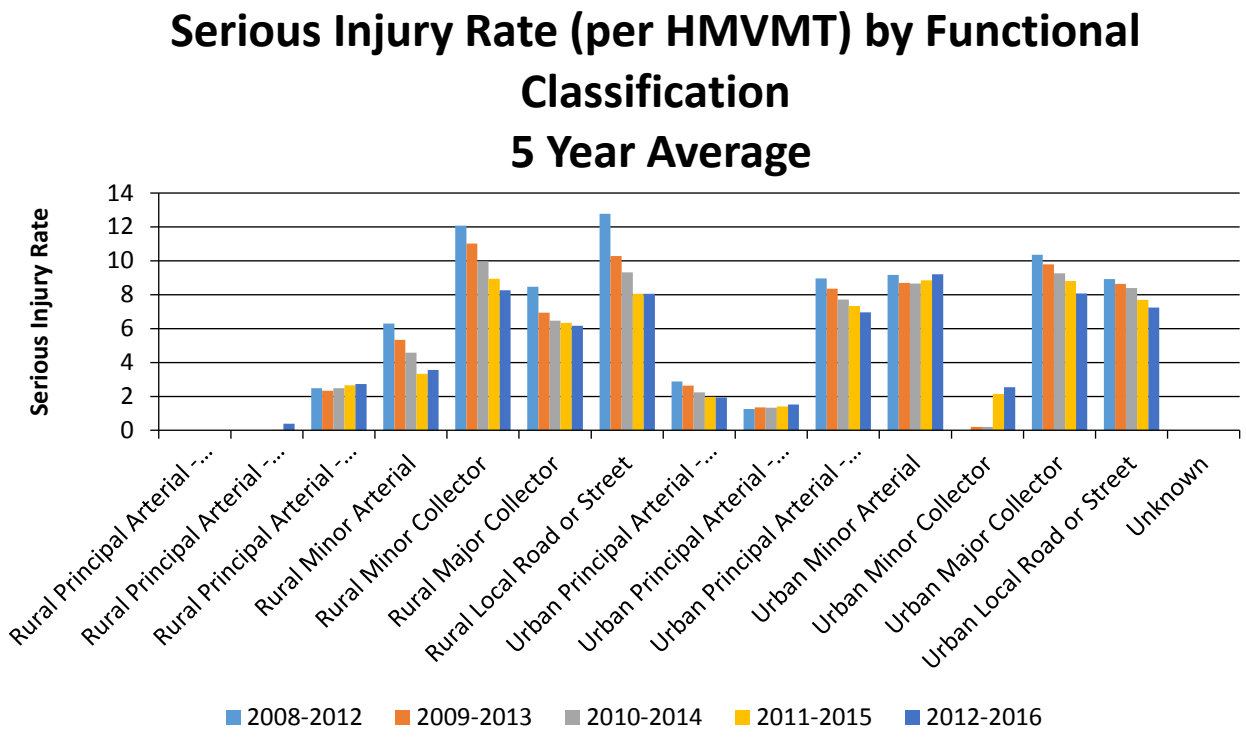
Year 2016

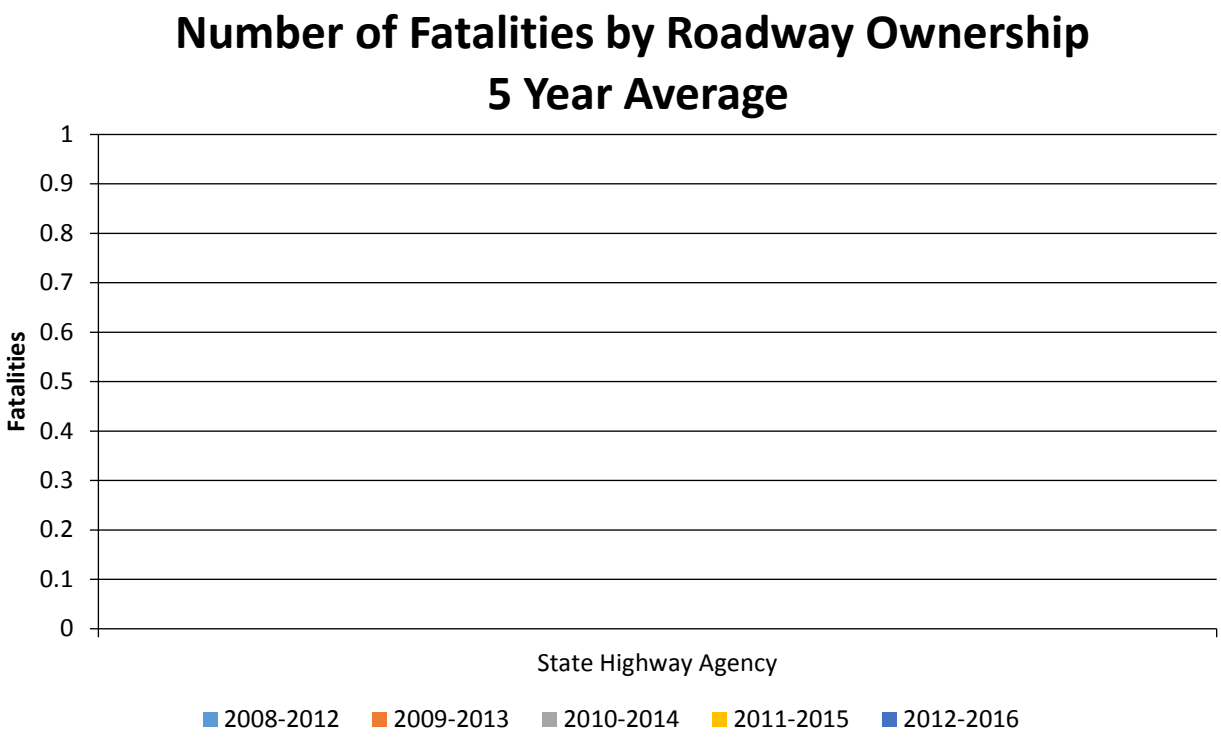
Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency	0	0	0	0
County Highway Agency				
Town or Township Highway Agency				
City of Municipal Highway Agency				
State Park, Forest,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

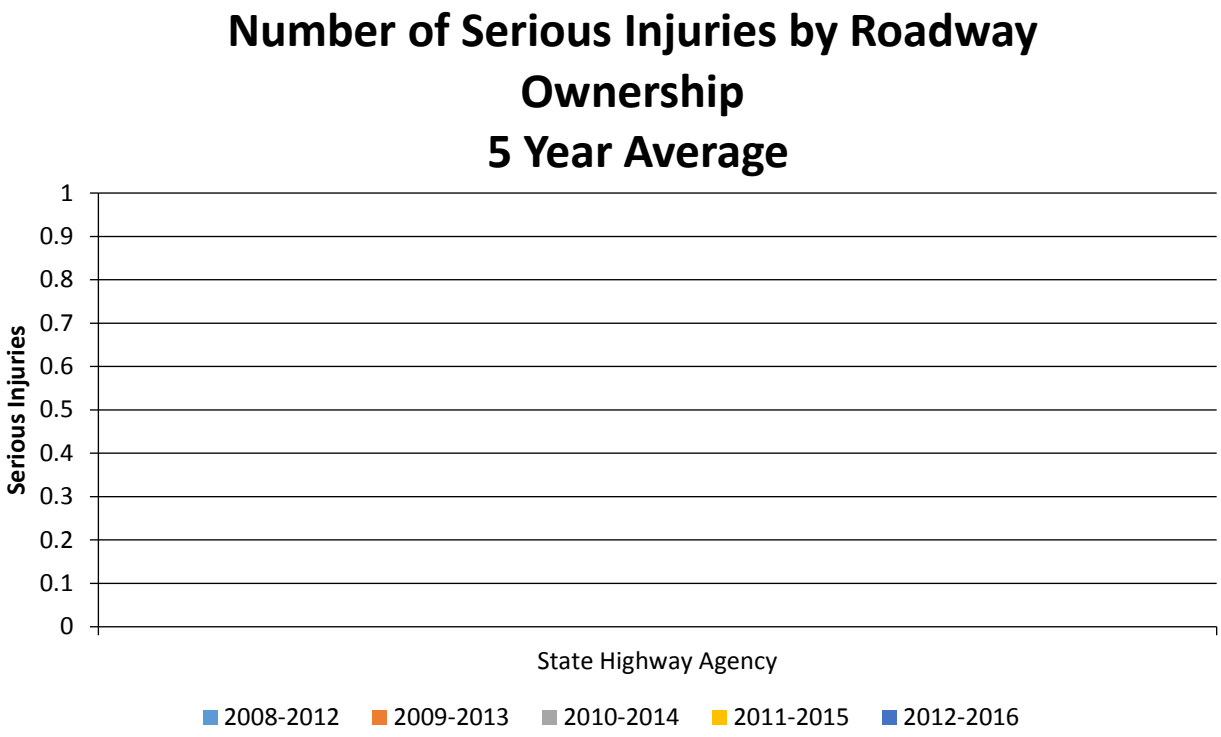

Number of Fatalities by Functional Classification
5 Year Average
Fatalities
35
30
25
20
15
10
5
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial - Other
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
Unknown
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016

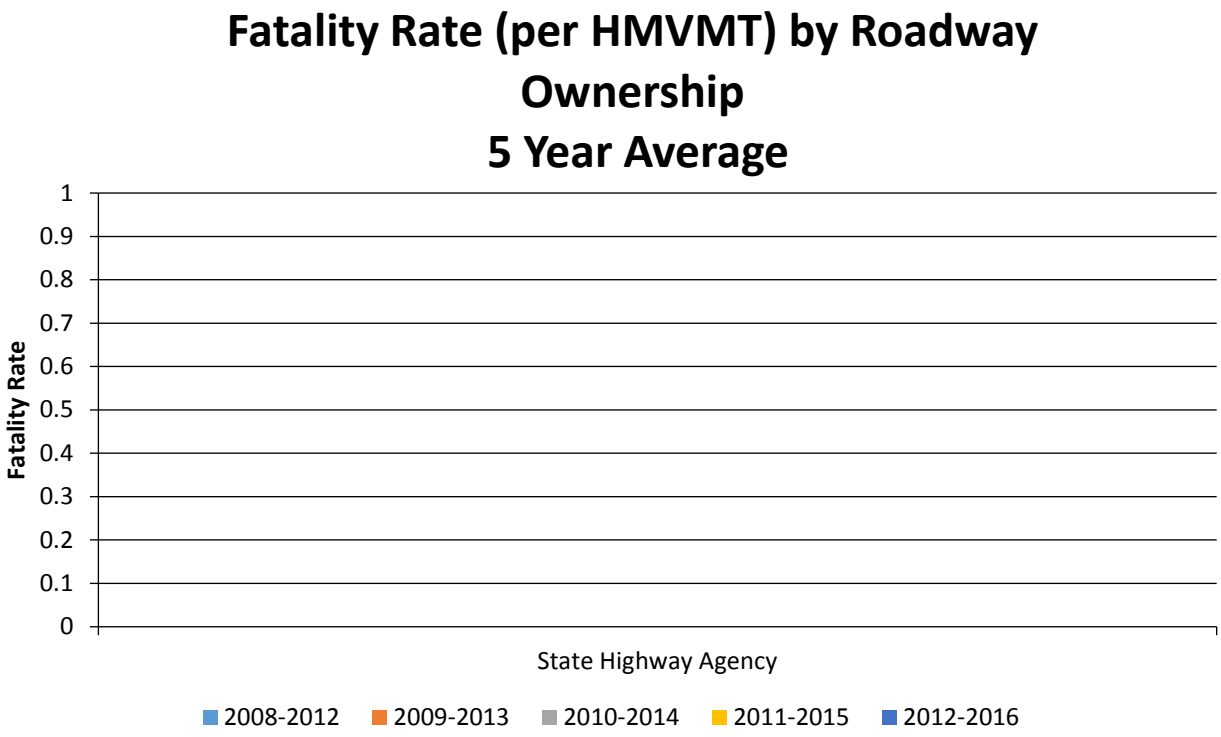

Number of Serious Injuries by Functional Classification
5 Year Average
Serious Injuries
180
160
140
120
100
80
60
40
20
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
Unknown
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016

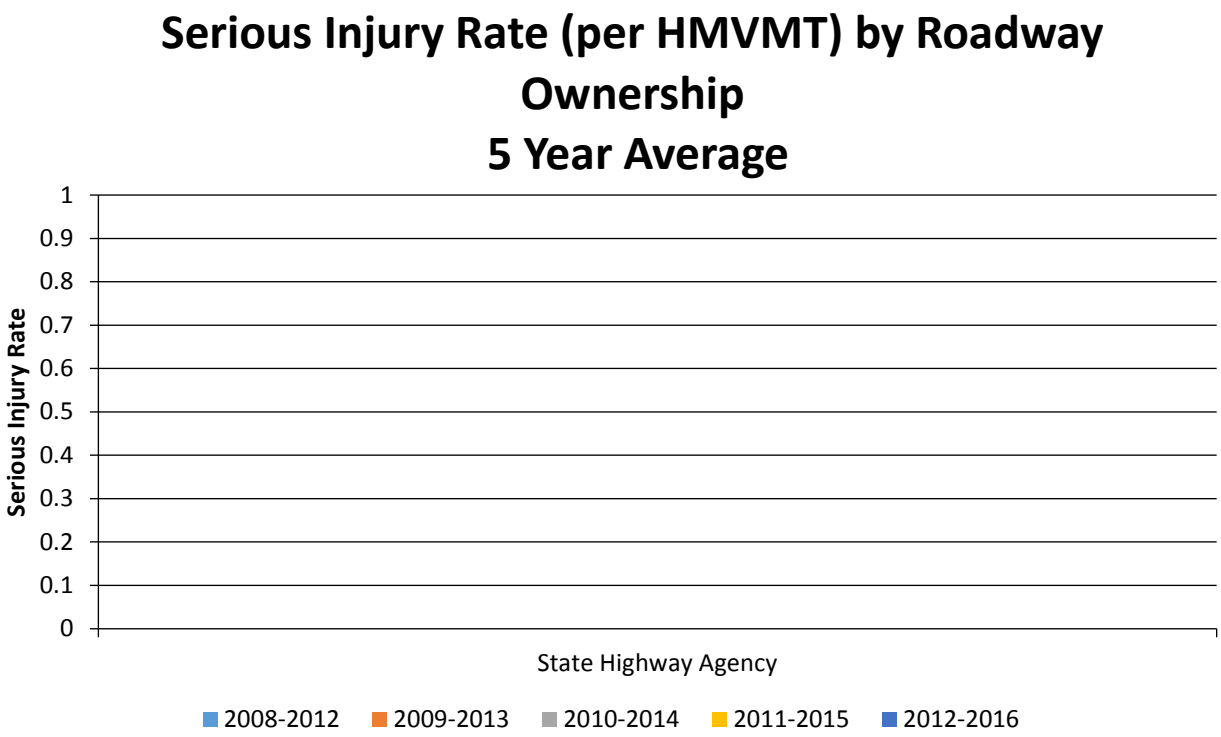

Fatality Rate (per HMVMT) by Functional Classification
5 Year Average
Fatality Rate
14
12
10
8
6
4
2
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
Unknown
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Serious Injury Rate (per HMVMT) by Functional Classification
5 Year Average
Serious Injury Rate
14
12
10
8
6
4
2
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
Unknown
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Fatalities by Roadway Ownership
5 Year Average
Fatalities
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
State Highway Agency
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Serious Injuries by Roadway Ownership
5 Year Average
Serious Injuries
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
State Highway Agency
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Fatality Rate (per HMVMT) by Roadway Ownership
5 Year Average
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fatality Rate
State Highway Agency
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016



Enter additional comments here to clarify your response for this question or add supporting information.

At the time of reporting, annual vehicle miles traveled data is unavailable for calendar year 2016. As such, 2016 crash rates were calculated based on projected 2016 VMT values. 2016 VMT was projected from known 2015 VMT using FHWA's VMT forecasting growth rates (May 2016 release), which indicates a 0.92% annual growth rate for the 20-year period from 2014-2014 for "baseline economic growth". If needed, please see attached spreadsheet for the crash data. Additionally, functional classification data was updated/corrected for several roadways in 2014 throughout the state; therefore, comparing 2014 and 2015 crash data by functional classification should be done with caution. Data by roadway ownership is not available at this time.

Are there any other aspects of the general highway safety trends on which the State would like to elaborate?

Yes

Provide additional discussion related to general highway safety trends.

As shown, the combined number of fatalities and serious injuries (based on 5-year rolling averages) per year declined each year from 2010 through 2013. In 2014, there was an increase of less than one percent. The combined number of fatalities and serious injuries declined from 753 in 2014 to 728 and 721 in calendar year 2015 and 2016, respectively. Statewide vehicle miles traveled (VMT); gradually decreased from 2008 to 2012 (based on 5-year rolling averages); however, has been increasingly since 2013. Fatalities per VMT (based on 5-year rolling averages) decreased in 2013 and 2014 when compared to 2012; however, 2015 and 2016 has seen an increase in the fatality rate. Serious injuries per VMT (based on 5-year rolling averages) have decreased since 2012 on an annual basis since 2010. The raw number of fatalities and serious injuries per year for the State of Delaware are relatively low; therefore, there is greater potential for larger fluctuations in fatality rates and serious injury rates as compared to other states and national rates, even though the raw number of fatalities and serious injuries may only differ by a few on a year-to-year basis.

Safety Performance Targets

Calendar Year 2018 Targets *

Number of Fatalities 120.2

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

During 2015, DelDOT, OHS, and other safety partners throughout the state worked to develop the 2015 Delaware Strategic Highway Safety Plan: Toward Zero Deaths, which provides a framework to reduce fatalities and serious injuries resulting from crashes on Delaware's roadways. The overall goal of the SHSP includes annual target reductions for fatalities and serious injuries. DelDOT and OHS performed extensive data and trendline analyses to identify potential methodologies for establishing Delaware's 2018 targets. DelDOT and OHS met with FHWA and NHTSA representatives in April 2017 to review the data and potential methodologies for establishing targets. In order to maintain consistency with the 2015 SHSP, DelDOT and OHS agreed to use the annual targets included in Delaware's 2015 SHSP as the basis for developing Delaware's 2018 five-year rolling average targets for each SPM. The number of fatalities and serious injuries in 2016 were reduced by 3 and 15 per year, respectively, to obtain target values for 2017 and 2018. The 2014 through 2018 values were then averaged to calculate the 2018 5-year rolling average target values. Consistent methodologies were applied to establish the target values for the rate of fatalities, rate of serious injuries, and combined number of non-motorized fatalities and serious injuries.

Number of Serious Injuries 578.6

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

See number of fatalities approach.

Fatality Rate 1.208

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

See number of fatalities approach.

Serious Injury Rate 5.822

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

See number of fatalities approach.

Total Number of Non-Motorized Fatalities and Serious Injuries 94.2

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

See number of fatalities approach.

Enter additional comments here to clarify your response for this question or add supporting information.

Between the time when safety performance measure targets were developed (and agreed upon by multiple stakeholders) and the time of this report, the number of serious injuries for calendar year changed slightly from 582 to 593, an increase of 11 serious injuries or less than two percent.

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

Following an April 2017 meeting between DelDOT, OHS, FHWA, and NHTSA, the draft agreed upon safety performance measures were distributed to statewide stakeholders for their comment via email. Members of Delaware's SHSP committee accounted for a majority of the stakeholders included in the distribution of the draft targets. This includes, but is not limited to, the representatives from Delaware's MPOs, Delaware State Police, and Delaware's Office of Emergency Medical Services. DelDOT did not receive any objections to the draft safety performance measure targets.

Does the State want to report additional optional targets?

No

Enter additional comments here to clarify your response for this question or add supporting information.

Applicability of Special Rules

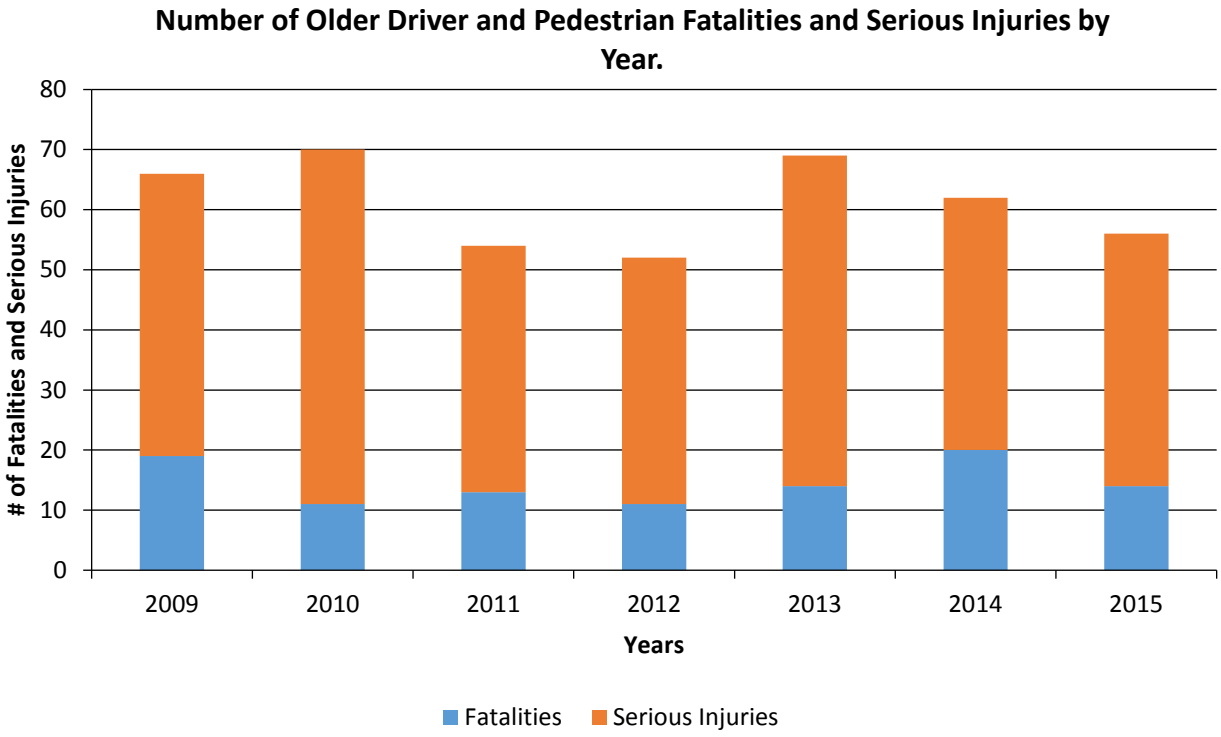
Does the HRRR special rule apply to the State for this reporting period?

No

Enter additional comments here to clarify your response for this question or add supporting information.

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

PERFORMANCE MEASURES	2009	2010	2011	2012	2013	2014	2015
Number of Older Driver and Pedestrian Fatalities	19	11	13	11	14	20	14
Number of Older Driver and Pedestrian Serious Injuries	47	59	41	41	55	42	42



Enter additional comments here to clarify your response for this question or add supporting information.

As required, the number of fatalities is based on FARS data and the number of serious injuries is based on State data.

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

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

Enter additional comments here to clarify your response for this question or add supporting information.

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

See response to Question 33 for discussion of the change in fatalities and serious injuries.

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

miles improved by HSIP
More systemic programs
RSAs completed

Enter additional comments here to clarify your response for this question or add supporting information.

Are there any significant programmatic changes that have occurred since the last reporting period?

No

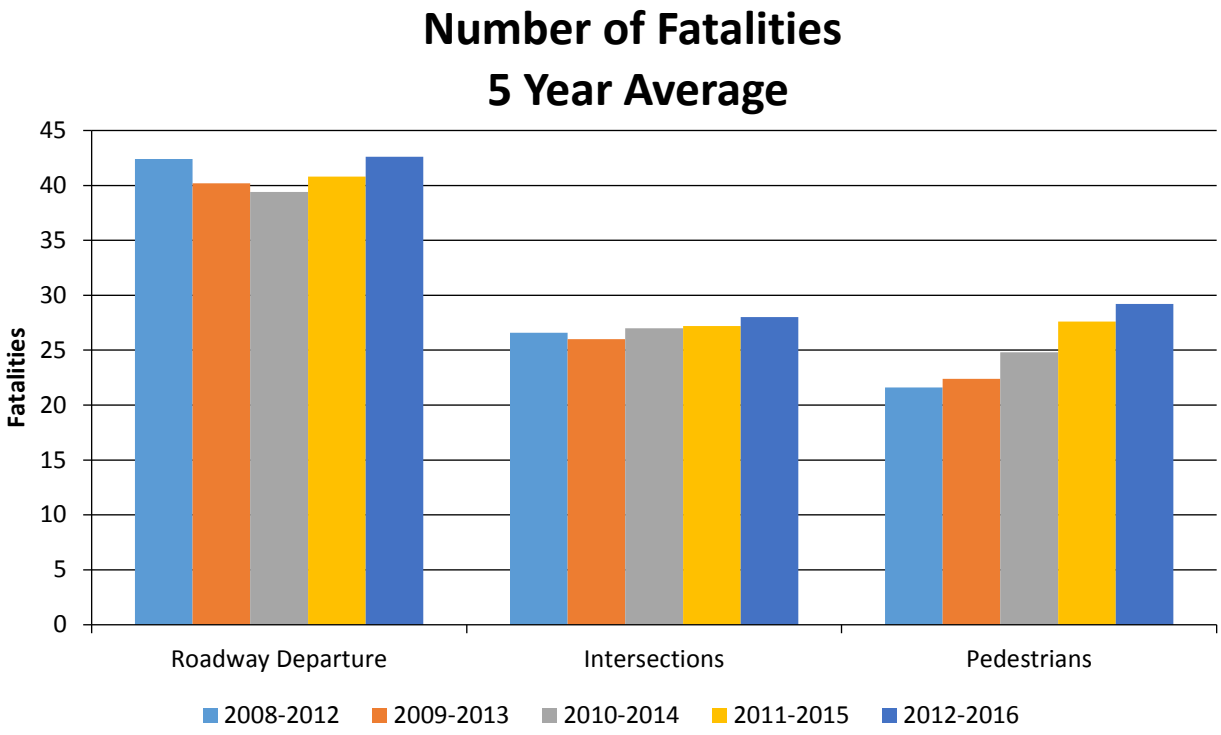
Effectiveness of Groupings or Similar Types of Improvements

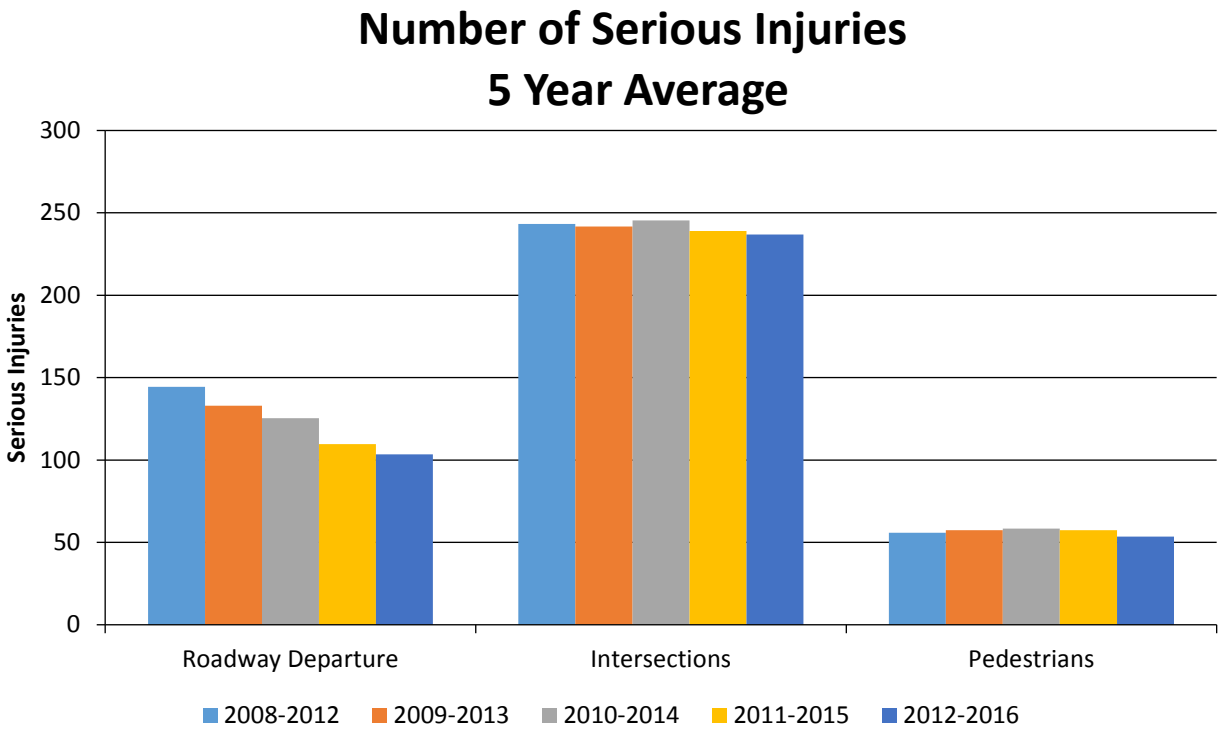
Present and describe trends in SHSP emphasis area performance measures.

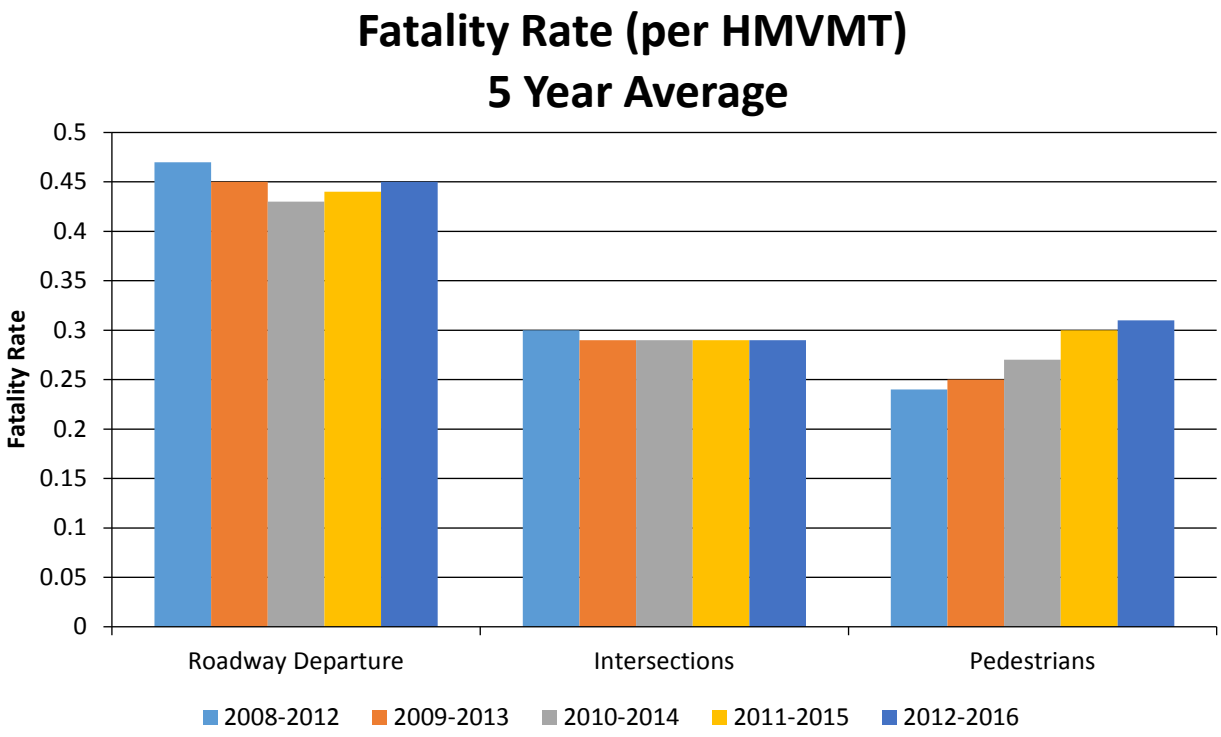
Year 2016

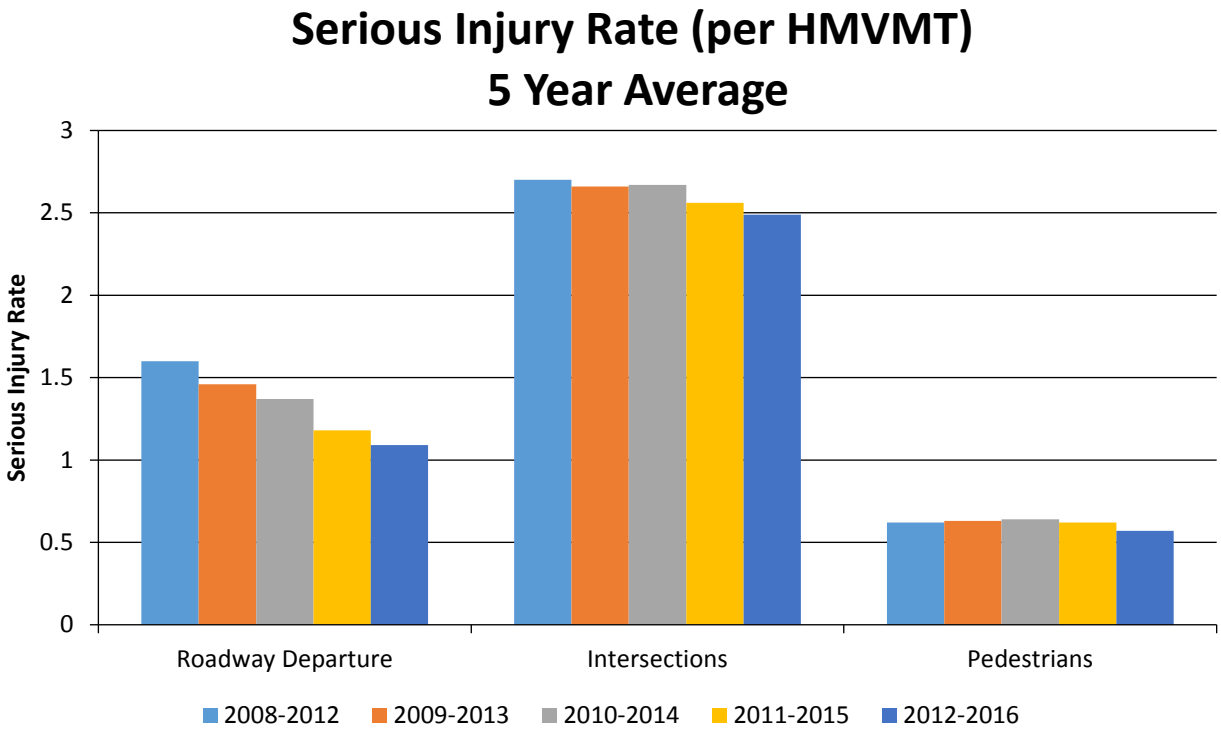
SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)	Other 1	Other 2	Other 3
Roadway Departure		42.6	103.4	0.45	1.09			

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)	Other 1	Other 2	Other 3
Intersections		28	236.8	0.29	2.49			
Pedestrians		29.2	53.6	0.31	0.57			


Number of Fatalities
5 Year Average
Fatalities
45
40
35
30
25
20
15
10
5
0
Roadway Departure
Intersections
Pedestrians
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Serious Injuries
5 Year Average
Serious Injuries
300
250
200
150
100
50
0
Roadway Departure
Intersections
Pedestrians
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016





Enter additional comments here to clarify your response for this question or add supporting information.

At the time of reporting, annual vehicle miles traveled (VMT) data is unavailable for calendar year 2016. As such, 2016 fatality and serious injury rates were calculated based on projected 2016 VMT values. 2016 VMT was projected from known 2015 VMT using FHWA's VMT forecasting growth rates (May 2016 release), which

indicates a 0.92% annual growth rate for the 20-year period from 2014-2014 for "baseline economic growth". Delaware's 2015 SHSP includes 7 data-driven emphasis areas. Crash statistics for emphasis areas related to driver behavior (i.e., Impaired Driving, Unrestrained Motorists, Speeding) are reported in Delaware's annual Highway Safety Plan.

As shown, the number of roadway departure fatalities (based on 5-year rolling averages) decreased from 2011 to 2014 and increased in 2015 and 2016; however, the number of roadway departure serious injuries has decreased from 2011 through 2016. The number of intersection fatalities has remained consistent from 2011 through 2016; however, the number of intersection serious injuries has generally decreased from 2011 through 2016. Pedestrian fatalities have increased since 2011 and pedestrian serious injuries have remained relatively consistent since 2011.

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

Yes

Please provide the following summary information for each countermeasure effectiveness evaluation.

CounterMeasures:	High Friction Surface Treatment
Description:	Install HFST at horizontal curves.
Target Crash Type:	Run-off-road
Number of Installations:	23
Number of Installations:	23
Miles Treated:	
Years Before:	11.05
Years After:	1.12
Methodology:	Simple before/after
Results:	Before/after crash data shows that roadway departure crashes decreased at 83% of the HFST locations and by an overall average of 56%. Benefit/cost analysis indicates an overall B/C ratio of 23.97.
File Name:	HFST Supporting Documentation.pdf

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 INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
Statewide	ALL	Roadway	Pavement surface - high friction surface	66.23	52.00							66.23	52.00	23.97

Enter additional comments here to clarify your response for this question or add supporting information.

For the HFST program, before/after crash data was categorized by total crashes, wet weather crashes, and roadway departure crashes - regardless of the crash severity. The values reported under the PDO category are the sum of the yearly average number of crashes at 23 different installation locations. However, additional information shows that the total number of wet-weather crashes per year decreased at 91% of the locations and by an overall average of 55%. The total number of crashes per year decreased at 70% of the locations and by an overall average of 21%. The total number of roadway departure crashes per year decreased at 83% of the locations and by an overall average of 56%. The overall benefit/cost for all locations where HFST was installed is 23.97 and 70 percent of the 23 locations experienced a benefit/cost ratio greater than 1.0. For additional details on Delaware's HFST program and the before/after crash analyses, please refer to the attached document included in Question 44. At all but one location, the number of wet-weather roadway departure crashes per year decreased.

Are there any other aspects of the overall HSIP effectiveness on which the State would like to elaborate?

No

Compliance Assessment

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

12/31/2015

What are the years being covered by the current SHSP?

From: 2016 To: 2020

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

2020

Enter additional comments here to clarify your response for this question or add supporting information.

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

	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
MIRE NAME (MIRE NO.)	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
ROADWAY SEGMENT										
Segment Identifier (12)	100	100					100	100	100	100
Route Number (8)	100	0								
Route/Street Name (9)	100	100								
Federal Aid/Route Type (21)	100	100								
Rural/Urban Designation (20)	100	100					100	80		
Surface Type (23)	100	0					100	0		
Begin Point Segment Descriptor (10)	100	100					100	100	100	100
End Point Segment Descriptor (11)	100	100					100	100	100	100
Segment Length (13)	100	100								
Direction of Inventory (18)	100	100								
Functional Class (19)	100	100					100	100	100	100
Median Type (54)	100	0								

MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
Access Control (22)	100	0								
One/Two Way Operations (91)	100	100								
Number of Through Lanes (31)	100	100					100	80		
Average Annual Daily Traffic (79)	100	100					100	100		
AADT Year (80)	100	0								
Type of Governmental Ownership (4)	100	100					100	100	100	100
INTERSECTION										
Unique Junction Identifier (120)			100	100						
Location Identifier for Road 1 Crossing Point (122)			100	100						
Location Identifier for Road 2 Crossing Point (123)			100	100						
Intersection/Junction Geometry (126)			100	100						
Intersection/Junction Traffic Control (131)			100	100						
AADT for Each Intersecting Road (79)			100	100						
AADT Year (80)			100	0						
Unique Approach Identifier (139)			100	100						
INTERCHANGE/RAMP										
Unique Interchange Identifier (178)					100	100				
Location Identifier for Roadway at Beginning of Ramp Terminal (197)					100	100				
Location Identifier for Roadway at Ending Ramp Terminal (201)					100	100				
Ramp Length (187)					100	100				
Roadway Type at Beginning of Ramp Terminal (195)					100	100				

MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
Roadway Type at End Ramp Terminal (199)					100	100				
Interchange Type (182)					0	100				
Ramp AADT (191)					100	100				
Year of Ramp AADT (192)					100	100				
Functional Class (19)					100	100				
Type of Governmental Ownership (4)					100	100				
Totals (Average Percent Complete):	**100.00**	**72.22**	**100.00**	**87.50**	**90.91**	**100.00**	**100.00**	**84.44**	**100.00**	**100.00**

Enter additional comments here to clarify your response for this question or add supporting information.

There are no non-state maintained interchanges/ramps in the state; therefore, the non-state maintained interchange/ramp section is not applicable. A value of 100 % was entered for the purposes of reporting.

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.

DelDOT is currently in the development stages of their Transportation System Data Management (TSDM) system which will incorporate the FDEs. Data collection to provide FDEs for state-maintained roads has occurred and was completed in October 2015. Delaware's Traffic Records Coordinating Committee (TRCC) is working towards meeting the FDE requirement by September 2026.

Provide the suspected serious injury identifier, definition and attributes used by the State for both the crash report form and the crash database using the table below. Please also indicate whether or not these elements are compliant with the MMUCC 4th edition criteria for data element P5. Injury Status, suspected serious injury.

CRITERIA	SUSPECTED SERIOUS INJURY IDENTIFIER(NAME)	MMUCC 4TH EDITION COMPLIANT *	SUSPECTED SERIOUS INJURY DEFINITION	MMUCC 4TH EDITION COMPLIANT *	SUSPECTED SERIOUS INJURY ATTRIBUTES(DESCRIPTORS)	MMUCC 4TH EDITION COMPLIANT *
Crash Report Form	Suspected Serious Injury	Yes	N/A	Yes	N/A	Yes
Crash Report Form Instruction Manual	Suspected Serious Injury	Yes	See MMUCC 4th Edition definition.	Yes	See MMUCC 4th Edition definition.	Yes
Crash Database	Suspected Serious Injury	Yes	N/A	Yes	N/A	Yes
Crash Database Data Dictionary	WORK IN PROGRESS	No	WORK IN PROGRESS	No	WORK IN PROGRESS	No

Please describe the actions the State is taking to become compliant by April 15, 2019.
Delaware's crash report form, crash report form instruction manual, and crash database are compliant with the MMUCC, 4th Edition name and definition for a suspected serious injury. DelJIS is currently working towards developing the crash database data dictionary, which will be compliant once completed.

Enter additional comments here to clarify your response for this question or add supporting information.

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

No

When does the State plan to complete it’s next HSIP program assessment.

2018

Enter additional comments here to clarify your response for this question or add supporting information.

DelDOT is continually assessing its HSIP as evident by the recent introduction of systemic-based improvement programs like its high-friction surface treatment, rumble strip, and median barrier programs. DelDOT anticipates completing a formal program assessment within the next year.

Optional Attachments

Program Structure:

2017 HSIP Annual Report HEP Site Selection.pdf

Project Implementation:

Safety Performance:

HSIP Q32 (Functional Class).xlsx
Evaluation:

HFST Supporting Documentation.pdf

Compliance Assessment:

Glossary

5 year rolling average	means the average of five individuals, consecutive annual points of data (e.g. annual fatality rate).
Emphasis area	means a highway safety priority in a State's SHSP, identified through a data-driven, collaborative process.
Highway safety improvement project	means strategies, activities and projects on a public road that are consistent with a State strategic highway safety plan and corrects or improves a hazardous road location or feature or addresses a highway safety problem.
HMVMT	means hundred million vehicle miles traveled.
Non-infrastructure projects	are projects that do not result in construction. Examples of non-infrastructure projects include road safety audits, transportation safety planning activities, improvements in the collection and analysis of data, education and outreach, and enforcement activities.
Older driver special rule	applies if traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65 in a State increases during the most recent 2-year period for which data are available, as defined in the Older Driver and Pedestrian Special Rule Interim Guidance dated February 13, 2013.
Performance measure	means indicators that enable decision-makers and other stakeholders to monitor changes in system condition and performance against established visions, goals, and objectives.
Programmed funds	mean those funds that have been programmed in the Statewide Transportation Improvement Program (STIP) to be expended on highway safety improvement projects.
Roadway Functional Classification	means the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide.
Strategic Highway Safety Plan (SHSP)	means a comprehensive, multi-disciplinary plan, based on safety data developed by a State Department of Transportation in accordance with 23 U.S.C. 148.
Systematic	refers to an approach where an agency deploys countermeasures at all locations across a system.
Systemic safety improvement	means an improvement that is widely implemented based on high risk roadway features that are correlated with specific severe crash types.
Transfer	means, in accordance with provisions of 23 U.S.C. 126, a State may transfer from an apportionment under section 104(b) not to exceed 50 percent of the amount apportioned for the fiscal year to any other apportionment of the State under that section.