Highway Safety Improvement Program

Data Driven Decisions

Pennsylvania
Highway Safety Improvement Program
2016 Annual Report

Prepared by: PA

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."

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Executive Summary

The Pennsylvania Department of Transportation is pleased to present this Annual Report of our progress with the Highway Safety Improvement Program.

In 2015, 1,200 people lost their lives on Pennsylvania's roadways - an increase of five fatalities since last year's record low since record keeping began in the 1920s. But we have miles to go to reach our ultimate goal of zero deaths on our roads, and 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 completed research for Regionalized SPFs in January 2016. These new SPFs have been added to a Pennsylvania specific HSM analytical tool. PennDOT is currently in the process of updating Publication 638, *The District Highway Safety Guidance Manual*, to include these new SPFs along with the new FAST Act rules for HSIP funding criteria and updates to our crash data reporting tools. We will also be working to update several publications to incorporate the concepts of the Highway Safety Manual into our policies and practices. PennDOT has began holding Pennsylvania specific Highway Safety Manual training courses which cover not only the manual but also different tools to use and when to use them. This class gives practical examples and then allows attendees to use the revised PennDOT tool to perform HSM analysis. As shown later in this report, many of our engineering districts are planning and completing projects associated with the Intersection Safety Implementation and Roadway Departure Safety Implementation Plans. PennDOT is working on a new sharepoint application process to ensure better tracking of HSIP funding applications from the engineering districts and soon the Area Planning partners. This will help ensure applications are complete and reviewed by both PennDOT and its area planning partners. The new HSIP application program is expected to go live by the end of 2016. PennDOT is also in the process of creating a new SHSP for 2016. A Safety Summit meeting was held early in 2016 to kick the SHSP process off. Steering committees, which include a wide variety of safety stakeholders, are ongoing to determine new goals and targets for Pennsylvania. The new 2016 SHSP will be completed by December 2016.

While there remains much work required to reach our goal of reducing highway fatalities by half by 2030, we remain encouraged by the progress that has been made 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 MAP-21 Reporting Guidance dated February 13, 2013 and consists of four sections: program structure, progress in implementing HSIP projects, progress in achieving safety performance targets, and assessment of the effectiveness of the improvements.

Program Structure

Program Administration

How are Highway Safety Improvement Program funds allocated in a State?

Other-Central and District offices, along with area planning partners

Describe how local roads are addressed as part of Highway Safety Improvement Program.

Local roadways – 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 recent years, 16.6% of fatalities and 25% of reportable crashes have occurred on the local road network. While local road fatalities have been generally decreasing over the last decade (see chart below), the fatality numbers have recently held steady just above 200/year and addressing safety issues on these roads will be an integral part of meeting our highway safety goals.

PennDOT is currently expanding programs to address safety on local roads. Basic guidance for local road safety is provided in Section 2.11 of Publication 638. This PennDOT document primarily refers stakeholders to the Department's Local Technical Assistance Program (LTAP), which offers free support to municipalities. In addition to training and on-call technical assistance, LTAP administers three location-specific safety programs:

- The Local Safe Roads Communities Program (LSRCP) involves the examination of roadway safety issues within a community. This is followed up by a report with suggested options for future detailed studies.
- The Walkable Communities Program followed a similar procedure to the LSRCP but was focused on pedestrian safety within the municipality. This program is no longer being funded and has been closed by LTAP since December 31, 2015. However the completed reports are still available for municipalities to implement safety recommendations.
- The new PennDOT Directed Technical Assistance Program will identify targeted municipalities and analyze crash data to identify locations within the targeted municipality where opportunities for low cost safety improvements exist. This program in many cases will be a follow up to the LSRCP reports. The final report for the technical assists will result in itemized safety countermeasures ready for a

construction contract that can then be bid on by contractors. (This pilot program started January 1, 2016.)

The aforementioned programs are free to municipalities who choose to participate. LTAP has completed 112 Local Safe Road Communities Reports, 40 Walkable Communities Reports, and 2 PennDOT Directed Technical Assist Reports to date. Safety projects on local roads are eligible for HSIP funding and can follow the same selection criteria as state-owned roads. The recommendations from the Local Safe Road Communities & Walkable Communities programs are eligible. The implementation of the safety countermeasures recommended by these reports has been limited in the past due to the contract administration difficulties associated with federal-aid municipal projects, absence of local funds, or limitations on Department staffing resources to support local road project delivery.

Local roads make up a significant portion of the Commonwealth's highway mileage and experience a large fraction of the fatalities, injuries and reportable crashes. In order to reach our highway safety goals of reducing fatalities and serious injuries by half by the year 2030, Pennsylvania will need to incorporate local road safety into our planning and project selection.

OPTIONS:

Several options were identified for increasing the consideration of local roads in the planning of safety projects. The following two options were determined to be the best options since both can use HSIP funds:

- Create District-wide or regional contracts for local road improvements similar to the Intersection Safety Implementation Plan (ISIP) and Roadway Departure Implementation Plan RDIP packaged projects Districts have already completed on State routes. The Local Safe Road Communities & Walkable Communities Reports will be utilized to determine the project locations. PennDOT Directed Technical Assistance Reports will then be used to determine itemized, specific low cost safety improvements. The detailed quantities from the PennDOT Directed Technical Assist reports will be used to create a biddable contract in ECMS.
- Create site-specific contacts to address significant safety issues at local road locations.

CURRENT DIRECTION:

Proceed with district-wide or regional contracts that will implement several low cost safety improvements at many different locations based on recommendations from PennDOT Directed Technical Assist Reports. Hire a consultant to develop contract documents and work with the Engineering Districts to obtain necessary project clearances such as ROW, utilities, and environmental.

Identify which internal partners are involved with Highway Safety Improvement Program planning.

Design
Planning
Maintenance
Operations
Governors Highway Safety Office
Other-Engineering Districts, Planning Organizations, Program Center

Briefly describe coordination with internal partners.

PennDOT Engineering Districts utilize a data-driven analysis process to identify eligible projects and collaborate with regional Planning Organizations to develop a program of safety infrastructure projects. This process was designed to improve highway safety using data-driving project development methods and to fulfill the requirements of Section 148 of MAP-21. The Engineering Districts and regional planning partners are required to submit HSIP project applications to PennDOT's central Highway Safety Section for review and approval. Each District, in coordination with area planning partners, is required to utilize the following three step selection process in programming Section 148 (HSIP) projects:

1. Select projects that contain locations listed on the Statewide High Crash Locations (SHCL) priority ranking. Low cost to high cost improvement options can be considered at these locations.

2. Systematic implementation of proven low cost countermeasures.

- OR -

A project location listed in the Intersection Safety Implementation Plan (ISIP) or Roadway Departure Safety Implementation Plan (RDIP)

- OR -

A District may program locations identified on the Planning Organization lists. The Planning Organization Lists are developed from the same methodology as the Statewide High Crash Location Lists but with lower crash thresholds to allow for the identification of 25 locations overall in each Planning Organization.

3. Projects not meeting the above criteria may be programmed, but first must be approved by the Highway Safety Section Chief & The Center for Program Development & Management. Such approval requests must include the following information:
1) Project Information such as scope, costs and estimated completion dates.
2) The projected safety benefit of the proposed project using data driven safety analysis such as the Highway Safety Manual or B/C methods.

Identify which external partners are involved with Highway Safety Improvement Program planning.

Metropolitan Planning Organizations
Governors Highway Safety Office
Other-MAST Team - See Question 8 for description
Other-FHWA PA Division Office

Identify any program administration practices used to implement the HSIP that have changed since the last reporting period.

Other-MAST meets quarterly to track SHSP implementation and discuss highway safety related topics including the HSIP. MAST includes PennDOT, FHWA, State Police, Liquor Control Board, Dept of Health, Dept of Education and Dept of Drug-Alcohol Programs.

Describe any other aspects of Highway Safety Improvement Program Administration on which you would like to elaborate.

The HSIP Program fully aligns with the 2012 Pennsylvania Strategic Highway Safety Plan (SHSP). Within this Plan, Infrastructure Improvements are identified as the third of seven "Vital Safety Focus Areas". Key components of this effort are to:

- Reduce Head-On and Cross-Median Crashes
- Improve Intersection Safety
- Reduce Run-Off-Road Crashes
- Reduce the Severity and Frequency of Hit Fixed Object Crashes

Note that the Pennsylvania SHSP is currently being revised this calendar year and is expected to be implemented in December 2016. The strategies and targets in the new SHSP will be discussed in next year's HSIP report.

Program Methodology

Select the programs that are administered under the HSIP.

Median Barrier	Intersection	Horizontal Curve
Bicycle Safety	Rural State Highways	Skid Hazard
Roadway Departure	Low-Cost Spot Improvements	Local Safety
Pedestrian Safety	Left Turn Crash	Shoulder Improvement

Program: **Median Barrier**
Date of Program Methodology: **2/1/2009**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes		Median width
		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

How are highway safety improvement projects 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
Potential for Improvement based on Crash History	1

Program: **Intersection**
Date of Program Methodology: **9/1/2009**

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
If yes, are local road projects identified using the same methodology as state roads?
Yes

How are highway safety improvement projects 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
Potential for Improvement based on Crash History	1

Program: **Horizontal Curve**
Date of Program Methodology: **2/1/2009**

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?
Yes
If yes, are local road projects identified using the same methodology as state roads?
Yes

How are highway safety improvement projects 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

Potential for Improvement based on Crash History	1

Program: **Bicycle Safety**
Date of Program Methodology: **2/1/2009**

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
If yes, are local road projects identified using the same methodology as state roads?
Yes

How are highway safety improvement projects 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
Potential for Improvement based on Crash History	1

Program: **Rural State Highways**
Date of Program Methodology: **10/1/2012**

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
If yes, are local road projects identified using the same methodology as state roads?
Yes

How are highway safety improvement projects 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
Potential for Improvement based on Crash History	1

Program: **Skid Hazard**
Date of Program Methodology: **2/1/2009**

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
If yes, are local road projects identified using the same methodology as state roads?
Yes

How are highway safety improvement projects 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
Potential for Improvement based on Crash History	1

Program: **Roadway Departure**
Date of Program Methodology: **2/1/2009**

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
If yes, are local road projects identified using the same methodology as state roads?
Yes

How are highway safety improvement projects 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).

Available funding	2
Potential for Improvement based on Crash History	1

Program: **Low-Cost Spot Improvements**
Date of Program Methodology: **2/1/2009**

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

If yes, are local road projects identified using the same methodology as state roads?

Yes

How are highway safety improvement projects 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
Potential for Improvement based on Crash History	1

Program: **Local Safety**

Date of Program Methodology: **2/1/2009**

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

If yes, are local road projects identified using the same methodology as state roads?

Yes

How are highway safety improvement projects 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
Potential for Improvement based on Crash History	1

Program: **Pedestrian Safety**
Date of Program Methodology: **2/1/2009**

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
If yes, are local road projects identified using the same methodology as state roads?
Yes

How are highway safety improvement projects 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
Potential for Improvement based on Crash History	1

Program: **Left Turn Crash**
Date of Program Methodology: **2/1/2009**

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
If yes, are local road projects identified using the same methodology as state roads?
Yes

How are highway safety improvement projects 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
Potential for Improvement based on Crash History	1

Program: **Shoulder Improvement**
Date of Program Methodology: **2/1/2009**

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
If yes, are local road projects identified using the same methodology as state roads?
Yes

How are highway safety improvement projects 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).

Available funding	2
Potential for Improvement based on Crash History	1

What proportion of highway safety improvement program funds address systemic improvements?

25%

Highway safety improvement program funds are used to address which of the following systemic improvements?

Cable Median Barriers
Rumble Strips
Traffic Control Device Rehabilitation
Pavement/Shoulder Widening
Install/Improve Signing
Install/Improve Pavement Marking and/or Delineation
Upgrade Guard Rails
Clear Zone Improvements
Safety Edge
Add/Upgrade/Modify/Remove Traffic Signal

What process is used to identify potential countermeasures?

Engineering Study
Road Safety Assessment

Other-RDIP, ISIP, and other specific countermeasure crash lists that include high tension cable median barriers and wrong way crash lists

Identify any program methodology practices used to implement the HSIP that have changed since the last reporting period.

Highway Safety Manual

Describe any other aspects of the Highway Safety Improvement Program methodology on which you would like to elaborate.

Research is complete for the Regionalized Safety Performance Functions. PennDOT is currently in the process of updating our *Highway Safety Guidance Manual*,(Publication 638) to reflect the new SPFs. These new SPFs cover 15 different types of intersections and segments. we are also finishing work for Interstate SPFs. PennDOT is working with Penn State University and the PA Turnpike to develop the interstate SPFs. The regionalized SPFs will therefore provide more accurate results.

The Pennsylvania-specific HSM workbook has been developed and has been introduced through the HSM training sessions and STIC innovation days. While not yet a formal requirement for projects, staff in the engineering districts and the regional planning partners (MPOs) have been using the worksheet and providing feedback.

While the HSM initiatives have not yet reached the level of implementation that will allow us to realize direct results, we are optimistic that in the coming years we will begin to see an improvement in safety numbers and the types and quality of safety projects coming through the programs.

Progress in Implementing Projects

Funds Programmed

Reporting period for Highway Safety Improvement Program funding.

State Fiscal Year

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

Funding Category	Programmed*		Obligated	
HSIP (Section 148)	$92,485,000.00	90 %	$90,149,800.31	90 %
HRRRP (SAFETEA-LU)	$0.00	0 %	$0.00	0 %
HRRR Special Rule	$0.00	0 %	$0.00	0 %
Penalty Transfer - Section 154	$0.00	0 %	$0.00	0 %
Penalty Transfer – Section 164	$0.00	0 %	$0.00	0 %
Incentive Grants - Section 163	$0.00	0 %	$0.00	0 %
Incentive Grants (Section 406)	$0.00	0 %	$0.00	0 %
State and Local Funds	$10,000,000.00	10 %	$10,000,000.00	10 %
Totals	$102,485,000.00	100%	$100,149,800.31	100%

How much funding is programmed to local (non-state owned and operated) safety projects?
$500,000.00
How much funding is obligated to local safety projects?
$0.00

How much funding is programmed to non-infrastructure safety projects?
0 %
How much funding is obligated to non-infrastructure safety projects?
0 %

How much funding was transferred in to the HSIP from other core program areas during the reporting period?
0 %
How much funding was transferred out of the HSIP to other core program areas during the reporting period?
0 %

Discuss impediments to obligating Highway Safety Improvement Program funds and plans to overcome this in the future.

There are a few Engineering Districts that have struggled in the project development of HSIP funded safety project. This results in several projects missing let dates and HSIP funds not being used for those projects in the planned years. We then rush to find other projects that other Engineering Districts can develop quickly and let for construction. 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 mangers stay on schedule to deliver good safety improvement projects on time. A District's past project delivery track record may also become part of a weighted criteria for HSIP set aside project selection.

Describe any other aspects of the general Highway Safety Improvement Program implementation progress on which you would like to elaborate.

Research is complete for Pennsylvania's Regionalized Safety Performance Functions. PennDOT is currently in the process of updating our *Highway Safety Guidance Manual*,(Publication 638) to reflect the new regional SPFs. These new SPFs cover 15 different types of intersections and segments. We are also finishing work for Interstate SPFs. PennDOT is working with Penn State University and the PA Turnpike to develop the interstate SPFs. Penn State's research shows the regionalized SPFs will provide more accurate analysis results than the AASHTO HSM in Pennsylvania.

The Pennsylvania-specific HSM workbook has been developed and has been introduced through the Pennsylvania Specific HSM training sessions and STIC innovation days. While not yet a formal requirement for projects, staff in the engineering districts and the regional planning partners (MPOs) have been using the workbook and providing feedback. PennDOT also encourages the Districts and Planning Partners to use other HSM tools available at the National HSM website like IHSDM and ISATe. As a member state of the HSM-PFS, Pennsylvania also looks forward to using the new HSM Safety Performance for Intersection Control Evaluation (SPICE) tool that is in development and should be completed in late 2017 or early 2018. This SPICE tool will focus specifically on intersection operations and how they affect safety. The tool will be similar to CAP-X which is used for high level capacity analysis. The SPICE tool will allow PennDOT to do a high level evaluations of intersections for safety along with capacity evaluations and choose the best options to pursue early in the planning & programing process.

PennDOT is also looking at creating a new way to develop priority location lists using HSM methodologies from Chapter 4 for the AASHTO HSM. This involves evaluating new crash data systems from various vendors. This process is under way.

While the HSM initiatives have not yet reached the level of implementation that will allow us to realize direct results, we are optimistic that in the coming years we will begin to see an improvement in safety numbers and the types and quality of safety projects coming through the programs.

General Listing of Projects

List each highway safety improvement project obligated during the reporting period.

Project	Improvement Category	Output	HSIP Cost	Total Cost	Funding Category	Functional Classification	AADT	Speed	Roadway Ownership	Relationship to SHSP	
										Emphasis Area	Strategy
US 6 Center Turn Lane	Intersection geometry Auxiliary lanes - add two-way left-turn lane	0.67 Miles	1209000	2980860	HSIP (Section 148)	Rural Principal Arterial - Other	10662	45	State Highway Agency	Intersections	
Philipsburg Add Center Ln	Intersection geometry Auxiliary lanes - add two-way left-turn lane	1.47 Miles	724436	1087718	HSIP (Section 148)	Urban Principal Arterial - Other	9305	40	State Highway Agency	Intersections	
SR 26/45 Shingletown Intersection	Interchange design Interchange design - other	1.45 Miles	50000	500000	HSIP (Section 148)	Urban Minor Arterial	6466	45	State Highway Agency	Intersections	
SR 118 & Idetown Rd.	Interchange design Interchange design - other	0.08 Miles	20000	1630819	HSIP (Section 148)	Urban Minor Arterial	6448	55	State Highway Agency	Intersections	

US22 Frankstown Intrsctns	Interchange design Interchange design - other	1.42 Miles	3719263	7692040	HSIP (Section 148)	Rural Principal Arterial - Other	5982	35	State Highway Agency	Intersections	
Hamot Rd/Oliver Rd Intersection	Interchange design Interchange design - other	0.23 Miles	300000	300000	HSIP (Section 148)	Urban Minor Collector	5528	40	State Highway Agency	Intersections	
SR 64/550 Intersection Improvement	Interchange design Interchange design - other	0.38 Miles	300000	300000	HSIP (Section 148)	Urban Minor Arterial	6588	55	State Highway Agency	Intersections	
Big "I" Roundabout	Interchange design Interchange design - other	1.22 Miles	500000	500000	HSIP (Section 148)	Urban Principal Arterial - Other	5902	45	State Highway Agency	Intersections	
PA 68/Dolby Street Intersection	Intersection geometry Intersection geometry - other	0.75 Miles	360000	975000	HSIP (Section 148)	Rural Principal Arterial - Other	5240	40	State Highway Agency	Intersections	
Nyes/Dvnshre Hts Safety	Intersection geometry Intersection geometry - other	0.18 Miles	300000	400000	HSIP (Section 148)	Urban Minor Collector	11699	40	State Highway Agency	Intersections	
SR 183/4016 (Schaeffers)	Intersection geometry Intersection	0.88 Miles	433192	2308343	HSIP (Section 148)	Rural Minor Arterial	12681	45	State Highway Agency	Intersections	

	geometry - other										
Blaktwn Rd/Irshtwn Rd/208	Intersection geometry Intersection geometry - other	1.02 Miles	28355.14	1617852	HSIP (Section 148)	Rural Minor Arterial	9191	45	State Highway Agency	Intersections	
SR 222 - 863 Early Action	Intersection geometry Intersection geometry - other	1.15 Miles	282594	762594	HSIP (Section 148)	Rural Major Collector	1143	40	State Highway Agency	Intersections	
PA 116 and Oxford Ave	Intersection geometry Intersection geometry - other	0.2 Miles	620780	1138280	HSIP (Section 148)	Urban Minor Collector	6565	35	State Highway Agency	Intersections	
US11 & PA997 Intersection	Intersection geometry Intersection geometry - other	2.08 Miles	1100000	1595226	HSIP (Section 148)	Urban Minor Arterial	10051	40	State Highway Agency	Intersections	
US119/PA 310 Intersection	Intersection geometry Intersection geometry - other	0.69 Miles	1908	1696177	HSIP (Section 148)	Urban Minor Arterial	4748	35	State Highway Agency	Intersections	
Hbg. Pike/ Dillerville Rd	Intersection geometry Intersection geometry - other	3.73 Miles	3145933	3900933	HSIP (Section 148)	Urban Minor Arterial	15851	40	State Highway Agency	Intersections	
US222/322	Intersection	1.19	500000	575000	HSIP	Urban	1485	35	State	Intersection	

Interchange Imp	geometry Intersection geometry - other	Miles			(Section 148)	Principal Arterial - Other	8		Highway Agency	s	
SR 73/662 Corridor Safety	Intersection geometry Intersection geometry - other	1.34 Miles	202500	2163501	HSIP (Section 148)	Urban Minor Arterial	8084	40	State Highway Agency	Intersection s	
PA 145 and SR 329	Intersection geometry Intersection geometry - other	0.6 Miles	1722250	2371475	HSIP (Section 148)	Urban Principal Arterial - Other	9836	55	State Highway Agency	Intersection s	
US220/SR4018 Intersection	Intersection geometry Intersection geometry - other	0.25 Miles	1153600	1153600	HSIP (Section 148)	Urban Principal Arterial - Other	1228 8	40	State Highway Agency	Intersection s	
US220 & PA199 Int	Intersection geometry Intersection geometry - other	0.22 Miles	900000	2390000	HSIP (Section 148)	Urban Minor Arterial	2638	45	State Highway Agency	Intersection s	
873 & Best Station Road	Intersection geometry Intersection geometry - other	0.21 Miles	114165	307318	HSIP (Section 148)	Urban Principal Arterial - Other	7443	55	State Highway Agency	Intersection s	
ISIP Open End Project	Intersection geometry Intersection geometry -	0 Miles	1575000	4782337	HSIP (Section 148)	Various	0	0	State Highway Agency	Intersection s	

	other										
DW ISIP Signal Impr-2015	Intersection geometry Intersection geometry - other	0 Miles	1681785	1382633	HSIP (Section 148)	Various	0	0	State Highway Agency	Intersections	
SR 11/SR 3023& Birch, SR 11& Hickory, SR 3023& Elm	Intersection geometry Intersection geometry - other	0.26 Miles	617174	804029	HSIP (Section 148)	Urban Principal Arterial - Other	8698	25	State Highway Agency	Intersections	
SR 89 & SR 430 Intersection	Intersection geometry Intersection geometry - other	0.44 Miles	90000	90000	HSIP (Section 148)	Rural Minor Arterial	2299	55	State Highway Agency	Intersections	
Dunmore Signal Network	Intersection traffic control Intersection traffic control - other	1.22 Miles	324338	1074927 5	HSIP (Section 148)	Urban Principal Arterial - Other	1817 1	25	State Highway Agency	Intersections	
SR61/209 Intersection	Intersection traffic control Intersection traffic control - other	3.65 Miles	185000	462155	HSIP (Section 148)	Urban Principal Arterial - Other	9654	50	State Highway Agency	Intersections	
PA268/SR1038 Intersection	Intersection traffic control	0.37 Miles	839	3594690	HSIP (Section 148)	Urban Principal Arterial -	1296 4	45	State Highway Agency	Intersections	

	Intersection traffic control - other					Other					
248/946 Intersctn Impr Berlinsville	Intersection traffic control Intersection traffic control - other	0.14 Miles	145300	2060033	HSIP (Section 148)	Urban Principal Arterial - Other	10216	40	State Highway Agency	Intersections	
Mount Zion Rd Improvement	Intersection traffic control Intersection traffic control - other	2.76 Miles	841600	1129600	HSIP (Section 148)	Urban Principal Arterial - Other	14896	35	State Highway Agency	Intersections	
SR 248 and Walnut Drive	Intersection traffic control Intersection traffic control - other	0.12 Miles	782180	1416905	HSIP (Section 148)	Urban Principal Arterial - Other	10267	40	State Highway Agency	Intersections	
422 & Ramona Rd Intersect	Intersection traffic control Intersection traffic control - other	1.07 Miles	430000	2693109	HSIP (Section 148)	Urban Principal Arterial - Other	14739	45	State Highway Agency	Intersections	
SR 19: 5 Leg Intersection	Intersection traffic	0.69 Miles	16000	1687232	HSIP (Section	Rural Minor Arterial	6348	35	State Highway	Intersections	

	control Intersection traffic control - other				148)				Agency		
Mount Hope Intrscn Improv	Intersection traffic control Intersection traffic control - other	0.39 Miles	500000	500000	HSIP (Section 148)	Rural Major Collector	1843	35	State Highway Agency	Intersections	
PA462 Signal Improvements	Intersection traffic control Intersection traffic control - other	7.59 Miles	125000	125000	HSIP (Section 148)	Urban Principal Arterial - Other	14896	35	State Highway Agency	Intersections	
SR2016 at RiverAve Signal	Intersection traffic control Intersection traffic control - other	0.03 Miles	443210	595000	HSIP (Section 148)	Urban Minor Arterial	8930	35	State Highway Agency	Intersections	
Carson Valley ITS Improve	Intersection traffic control Intersection traffic control - other	2.17 Miles	300500	300500	HSIP (Section 148)	Urban Principal Arterial - Other	5496	45	State Highway Agency	Intersections	

ISIP Signals Project	Intersection traffic control Intersection traffic control - other	0.13 Miles	2139156	2139156	HSIP (Section 148)	Urban Minor Arterial	7272	35	State Highway Agency	Intersections	
District Signal Upgrades	Intersection traffic control Intersection traffic control - other	0.59 Miles	675800	725800	HSIP (Section 148)	Urban Principal Arterial - Other	13654	30	State Highway Agency	Intersections	
SR 18/Rutledge Rd Intersection	Intersection traffic control Intersection traffic control - other	3.12 Miles	100000	100000	HSIP (Section 148)	Rural Principal Arterial - Other	5122	55	State Highway Agency	Intersections	
US 62/State St Intersection	Intersection traffic control Intersection traffic control - other	2.16 Miles	650000	650000	HSIP (Section 148)	Urban Principal Arterial - Other Freeways and Expressways	2875	40	State Highway Agency	Intersections	
PA 98/Sterrettania Rd Intersection	Intersection traffic control Intersection traffic	1.9 Miles	180000	180000	HSIP (Section 148)	Rural Major Collector	1952	55	State Highway Agency	Intersections	

	control - other										
2018 ISIP Signalized Intersections	Intersection traffic control Intersection traffic control - other	0.54 Miles	30000	30000	HSIP (Section 148)	Rural Minor Arterial	3560	20	State Highway Agency	Intersections	
SR 18/Edgewood Dr Intersection	Intersection traffic control Intersection traffic control - other	0.68 Miles	90000	90000	HSIP (Section 148)	Urban Principal Arterial - Other	4558	45	State Highway Agency	Intersections	
SR 18 & SR 518 Intersection	Intersection traffic control Intersection traffic control - other	0.19 Miles	70000	70000	HSIP (Section 148)	Urban Principal Arterial - Other	9141	40	State Highway Agency	Intersections	
PA 88/51 Brdge/Safety Imp	Miscellaneous	1.25 Miles	195000	11289899	HSIP (Section 148)	Urban Principal Arterial - Other	13121	40	State Highway Agency	Infrastructure	
B&C TO STOCKPILE	Miscellaneous	0.52 Miles	160	4343994	HSIP (Section 148)	Rural Principal Arterial - Other	7691	45	State Highway Agency	Infrastructure	
Slipery Rock Rd/Swamp Run	Miscellaneous	0.13 Miles	2000	1717673	HSIP (Section	Rural Minor Arterial	3308	40	State Highway	Infrastructure	

					148)				Agency		
SR 61 ov Susquehanna Rvr	Miscellaneous	1.24 Miles	59700	1659200	HSIP (Section 148)	Urban Principal Arterial - Other	3720	40	State Highway Agency	Infrastructure	
Dist 12-15-RSA	Miscellaneous	19.26 Miles	497262	497262	HSIP (Section 148)	Rural Minor Arterial	2622	50	State Highway Agency	Infrastructure	
New Falls Rd HSIP	Pedestrians and bicyclists Miscellaneous pedestrians and bicyclists	2.72 Miles	630000	630000	HSIP (Section 148)	Urban Minor Arterial	12843	35	State Highway Agency	Pedestrians	
Robbins Ave ISIP	Pedestrians and bicyclists Miscellaneous pedestrians and bicyclists	7.93 Miles	175000	1318582	HSIP (Section 148)	Urban Principal Arterial - Other	6849	25	State Highway Agency	Pedestrians	
Cottman Ave ISIP	Pedestrians and bicyclists Miscellaneous pedestrians and bicyclists	6.7 Miles	280000	1255000	HSIP (Section 148)	Urban Principal Arterial - Other	9779	30	State Highway Agency	Pedestrians	

Levick Street ISIP	Pedestrians and bicyclists Miscellaneous pedestrians and bicyclists	2.01 Miles	344050	1077486	HSIP (Section 148)	Urban Principal Arterial - Other	14751	25	State Highway Agency	Pedestrians	
Ridge Avenue ISIP	Pedestrians and bicyclists Miscellaneous pedestrians and bicyclists	1.63 Miles	420000	420000	HSIP (Section 148)	Urban Minor Collector	7586	35	State Highway Agency	Pedestrians	
Broad St. RR Grade Xing	Railroad grade crossings Railroad grade crossings - other	0 Miles	399000	959000	HSIP (Section 148)	Various	0	0	State Highway Agency	Vehicle-Train Safety	
Martins RdtoChristians Rd	Roadside Roadside - other	1.77 Miles	125000	1266100	HSIP (Section 148)	Urban Principal Arterial - Other	11840	55	State Highway Agency	Roadway Departure	
Post & Cable Guide Rail	Roadside Roadside - other	6.92 Miles	1111741	1236741	HSIP (Section 148)	Rural Minor Arterial	4886	40	State Highway Agency	Roadway Departure	
Post & Cable Guide Rail	Roadside Roadside - other	1.7 Miles	94734	231734	HSIP (Section 148)	Urban Minor Arterial	5497	40	State Highway Agency	Roadway Departure	

Cable Median Barrier	Roadside Roadside - other	13.63 Miles	18560	800000	HSIP (Section 148)	Urban Principal Arterial - Other Freeways and Expressways	10558	40	State Highway Agency	Roadway Departure	
PA 115 Edge Line Rumble Strips	Roadside Roadside - other	4.22 Miles	10000	10000	HSIP (Section 148)	Rural Minor Arterial	4917	55	State Highway Agency	Roadway Departure	
Mercer Tree Removal	Roadside Roadside - other	9.38 Miles	370036	370036	HSIP (Section 148)	Rural Principal Arterial - Interstate	11622	70	State Highway Agency	Roadway Departure	
Erie Tree Removal	Roadside Roadside - other	14.87 Miles	383525	383525	HSIP (Section 148)	Rural Principal Arterial - Interstate	9295	70	State Highway Agency	Roadway Departure	
Northwest Tree Removal	Roadside Roadside - other	18 Miles	436689	436689	HSIP (Section 148)	Rural Minor Arterial	1679	55	State Highway Agency	Roadway Departure	
I-90 Cable Median	Roadside Roadside - other	28.63 Miles	30000	1230000	HSIP (Section 148)	Rural Principal Arterial - Interstate	14612	65	State Highway Agency	Roadway Departure	
SR 0652 Shoulders / ELRS	Roadside Roadside - other	2.34 Miles	10000	412804	HSIP (Section 148)	Urban Minor Arterial	7051	50	State Highway Agency	Roadway Departure	
Dist. GuideRail Upgrade	Roadside Roadside - other	14 Miles	1000000	1000000	HSIP (Section 148)	Rural Minor Arterial	763	40	State Highway Agency	Roadway Departure	
Cable Guide Rail	Roadside	9.52	570000	570000	HSIP	Rural Major	916	35	State	Roadway	

Updates	Roadside - other	Miles			(Section 148)	Collector			Highway Agency	Departure	
D9 2015 HSIP CMB	Roadside Roadside - other	53.73 Miles	3843392	3843392	HSIP (Section 148)	Rural Principal Arterial - Other	10893	65	State Highway Agency	Roadway Departure	
District Cable Median Bar	Roadside Roadside - other	49.22 Miles	2950460	2830460	HSIP (Section 148)	Urban Principal Arterial - Other Freeways and Expressways	11047	65	State Highway Agency	Roadway Departure	
2015/2016 Cable GR Update	Roadside Roadside - other	20.08 Miles	525400	525400	HSIP (Section 148)	Rural Minor Collector	750	35	State Highway Agency	Roadway Departure	
Cable Guide Rail Removal	Roadside Roadside - other	15.79 Miles	700000	700000	HSIP (Section 148)	Rural Minor Arterial	1831	25	State Highway Agency	Roadway Departure	
SR 220 Cable Guide Rail	Roadside Roadside - other	0.6 Miles	78000	78000	HSIP (Section 148)	Urban Principal Arterial - Other Freeways and Expressways	8840	65	State Highway Agency	Roadway Departure	
SR 322 Cable Guide Rail	Roadside Roadside - other	0.61 Miles	75000	75000	HSIP (Section 148)	Rural Principal Arterial - Other	7589	55	State Highway Agency	Roadway Departure	
SR 322 Cable	Roadside	1.05	130000	130000	HSIP	Urban	7589	55	State	Roadway	

GuideRail II	Roadside - other	Miles			(Section 148)	Principal Arterial - Other Freeways and Expressways			Highway Agency	Departure	
Cable Med Barrier 15/16(F)	Roadside Roadside - other	20.27 Miles	1127000	1127000	HSIP (Section 148)	Urban Principal Arterial - Other	3427	55	State Highway Agency	Roadway Departure	
I-80 MCGR	Roadside Roadside - other	2.99 Miles	290310	390310	HSIP (Section 148)	Rural Principal Arterial - Interstate	18855	70	State Highway Agency	Roadway Departure	
RDIP-2015 GuideRail Upg	Roadside Roadside - other	0 Miles	542476	1542476	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	
Tioga US15 MCGR	Roadside Roadside - other	21.28 Miles	1323061	1333061	HSIP (Section 148)	Rural Principal Arterial - Other	6326	70	State Highway Agency	Roadway Departure	
D3 CGR Replacement	Roadside Roadside - other	0 Miles	468638	508638	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	
Lyco US15 MCGR	Roadside Roadside - other	28.33 Miles	650000	680000	HSIP (Section 148)	Rural Principal Arterial - Other	6443	65	State Highway Agency	Roadway Departure	
I-81 Median Barrier	Roadside Roadside - other	18.27 Miles	702983	702983	HSIP (Section 148)	Rural Principal Arterial - Interstate	15881	65	State Highway Agency	Roadway Departure	

I-80 Median Barrier	Roadside Roadside - other	102.74 Miles	1757860	2850441	HSIP (Section 148)	Rural Principal Arterial - Interstate	11663	65	State Highway Agency	Roadway Departure	
I-380 Median Barrier	Roadside Roadside - other	26.51 Miles	108570	227000	HSIP (Section 148)	Rural Principal Arterial - Interstate	14926	65	State Highway Agency	Roadway Departure	
Interstate 81 CMB	Roadside Roadside - other	9.68 Miles	619114	619114	HSIP (Section 148)	Rural Principal Arterial - Interstate	19539	65	State Highway Agency	Roadway Departure	
SR 6 Cable Median Barrier	Roadside Roadside - other	7.04 Miles	970000	970000	HSIP (Section 148)	Rural Principal Arterial - Other	7157	65	State Highway Agency	Roadway Departure	
Rumble Strips 2016	Roadside Roadside - other	13.62 Miles	484640	484640	HSIP (Section 148)	Rural Minor Arterial	5375	55	State Highway Agency	Roadway Departure	
NEPA Cable Guiderail #3	Roadside Roadside - other	27.14 Miles	877506	877506	HSIP (Section 148)	Rural Local Road or Street	318	45	State Highway Agency	Roadway Departure	
Tioga US15 MCGR 2	Roadside Roadside - other	9.13 Miles	550000	550000	HSIP (Section 148)	Rural Principal Arterial - Other	5923	70	State Highway Agency	Roadway Departure	
SR 12 Median Barrier	Roadside Roadside - other	3.02 Miles	44150	44150	HSIP (Section 148)	Urban Principal Arterial - Other Freeways and Expressway	10800	55	State Highway Agency	Roadway Departure	

						s					
Scotrun - Swiftwater	Roadway Roadway - other	4.57 Miles	6288.57	1553135 5	HSIP (Section 148)	Urban Minor Arterial	2511 8	45	State Highway Agency	Roadway Departure	
248 Barrier Install	Roadway Roadway - other	0.44 Miles	263628	263628	HSIP (Section 148)	Urban Principal Arterial - Other	8502	55	State Highway Agency	Roadway Departure	
Kennedy Drive/County Road	Roadway Roadway - other	0.05 Miles	20000	4070837	HSIP (Section 148)	Urban Minor Arterial	8044	35	State Highway Agency	Roadway Departure	
Exit 7 Improvements	Roadway Roadway - other	0.61 Miles	806218	2979184	HSIP (Section 148)	Rural Principal Arterial - Other	4893	65	State Highway Agency	Roadway Departure	
234 & 3001 Improvements	Roadway Roadway - other	2.44 Miles	252000	585000	HSIP (Section 148)	Rural Minor Arterial	5260	45	State Highway Agency	Roadway Departure	
PA 27/North St. Connector	Roadway Roadway - other	0.48 Miles	405000	9227600	HSIP (Section 148)	Urban Minor Arterial	1346 1	25	State Highway Agency	Roadway Departure	
222 & Shantz & 863 Improv	Roadway Roadway - other	0.24 Miles	1413112	7109518	HSIP (Section 148)	Rural Principal Arterial - Other	2191 3	55	State Highway Agency	Roadway Departure	
Beaver Run Curve	Roadway Roadway - other	0.47 Miles	1618000	2124500	HSIP (Section 148)	Rural Major Collector	1648	40	State Highway Agency	Roadway Departure	
Roosevelt Blvd. Phase2(C)	Roadway Roadway - other	21.08 Miles	731691.7 2	4910522	HSIP (Section 148)	Urban Principal Arterial - Other	2128 7	40	State Highway Agency	Roadway Departure	

Olney:Broad-Rising Sun(C)	Roadway Roadway - other	1.61 Miles	1509708	6582868	HSIP (Section 148)	Urban Principal Arterial - Other	10936	25	State Highway Agency	Roadway Departure	
AlleghnyAv:Ridge-Aramingo	Roadway Roadway - other	7.33 Miles	1155000	2345000	HSIP (Section 148)	Urban Minor Arterial	4212	25	State Highway Agency	Roadway Departure	
Erie Av: Broad St. - K St(C)	Roadway Roadway - other	2.47 Miles	4500000	6194510	HSIP (Section 148)	Urban Principal Arterial - Other	9733	30	State Highway Agency	Roadway Departure	
PA31 W Somrst Corridr Imp	Roadway Roadway - other	0.8 Miles	4413264	8272509	HSIP (Section 148)	Rural Principal Arterial - Other	7408	40	State Highway Agency	Roadway Departure	
Carlisle Pk/US 22 Signals	Roadway Roadway - other	25.02 Miles	417300	4956450	HSIP (Section 148)	Urban Principal Arterial - Other	11925	40	State Highway Agency	Roadway Departure	
United High School Curve	Roadway Roadway - other	1.36 Miles	4847090	10032300	HSIP (Section 148)	Rural Minor Arterial	4758	55	State Highway Agency	Roadway Departure	
Bull Road Improvement	Roadway Roadway - other	0.38 Miles	770000	1521000	HSIP (Section 148)	Urban Minor Arterial	8966	35	State Highway Agency	Roadway Departure	
PA 287 to West Fourth Street	Roadway Roadway - other	12.89 Miles	1419106	2512756	HSIP (Section 148)	Urban Principal Arterial - Other	13622	55	State Highway Agency	Roadway Departure	
209 Mt Nebo to Municipal	Roadway Roadway - other	2.47 Miles	191718	1325718	HSIP (Section 148)	Urban Minor Arterial	16020	35	State Highway Agency	Roadway Departure	

51 Safety/Midwood-Edgebro	Roadway Roadway - other	1.84 Miles	110100	1470100	HSIP (Section 148)	Urban Principal Arterial - Other	22444	25	State Highway Agency	Roadway Departure	
Colebrook Road Improvemt	Roadway Roadway - other	3.55 Miles	250000	330000	HSIP (Section 148)	Rural Major Collector	7670	45	State Highway Agency	Roadway Departure	
HATS Low Cost Safety	Roadway Roadway - other	2.21 Miles	825462	825462	HSIP (Section 148)	Rural Major Collector	3299	50	State Highway Agency	Roadway Departure	
PA 34 Low Cost Safety	Roadway Roadway - other	27.56 Miles	1255958	1255958	HSIP (Section 148)	Rural Minor Arterial	296	30	State Highway Agency	Roadway Departure	
Cameron St Low Cost Safe	Roadway Roadway - other	6.1 Miles	372002	822002	HSIP (Section 148)	Urban Principal Arterial - Other	13088	35	State Highway Agency	Roadway Departure	
SR 5: Grngarden-Chestnut	Roadway Roadway - other	3.58 Miles	99000	1539495	HSIP (Section 148)	Urban Principal Arterial - Other	10909	40	State Highway Agency	Roadway Departure	
RDIP Signs-Markings	Roadway Roadway - other	29.17 Miles	33302	781770	HSIP (Section 148)	Rural Minor Collector	624	45	State Highway Agency	Roadway Departure	
Erie ISIP/RDIP Systematic	Roadway Roadway - other	0 Miles	339072	439072	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	
Mercer ISIP/RDIP System	Roadway Roadway - other	0 Miles	252368	352368	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	
NW ISIP/RDIP Systematic	Roadway Roadway - other	0 Miles	302005	402005	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	

SR 115-Effort-Corridr Imp	Roadway Roadway - other	1.17 Miles	185620	185620	HSIP (Section 148)	Rural Minor Arterial	10214	40	State Highway Agency	Roadway Departure	
2005 Corridor Improvement	Roadway Roadway - other	2.06 Miles	626000	2822832	HSIP (Section 148)	Urban Principal Arterial - Other	11067	25	State Highway Agency	Roadway Departure	
SHRP2 TIM TtT	Roadway Roadway - other	0 Miles	160000	200000	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	
SR 6 and SR 191 HFSurface	Roadway Roadway - other	0.98 Miles	484545	484545	HSIP (Section 148)	Rural Minor Arterial	7849	45	State Highway Agency	Roadway Departure	
High Friction Surfaces(F)	Roadway Roadway - other	6.77 Miles	119682	2354682	HSIP (Section 148)	Rural Minor Collector	4291	40	State Highway Agency	Roadway Departure	
Curves b/t Tivoli & Glen Mawr	Roadway Roadway - other	0.74 Miles	10000	10000	HSIP (Section 148)	Rural Minor Arterial	3851	55	State Highway Agency	Roadway Departure	
RDIP Open End Project	Roadway Roadway - other	0 Miles	1575000	4759687	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	
High Friction Surfaces 2016(C)	Roadway Roadway - other	0 Miles	1943789	2793278	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	
Wrong Way Entry Signs	Roadway Roadway - other	14.87 Miles	741362	741362	HSIP (Section 148)	Urban Principal Arterial - Interstate	2807	35	State Highway Agency	Roadway Departure	
RDIP (CableGuiderailRepl)	Roadway Roadway - other	0 Miles	1143056	1143056	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	

Wrong Way Rmp Upgrades	Roadway Roadway - other	60.51 Miles	140700	140700	HSIP (Section 148)	Rural Principal Arterial - Interstate	7286	70	State Highway Agency	Roadway Departure	
D10-2015 Systematic RDIP	Roadway Roadway - other	0 Miles	216159	716159	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	
I-80 High Frict Surf Trt	Roadway Roadway - other	1.95 Miles	260000	260000	HSIP (Section 148)	Rural Principal Arterial - Interstate	12023	70	State Highway Agency	Roadway Departure	
I-80 High Frict Surf Trt	Roadway Roadway - other	2.01 Miles	465000	465000	HSIP (Section 148)	Rural Principal Arterial - Interstate	12030	65	State Highway Agency	Roadway Departure	
Kelly Drive Novachip(C)	Roadway Roadway - other	5.08 Miles	2082301	2082301	HSIP (Section 148)	Urban Principal Arterial - Other	13615	35	State Highway Agency	Roadway Departure	
Cobbs Creek HFS(C)	Roadway Roadway - other	3.41 Miles	720000	1218922	HSIP (Section 148)	Urban Principal Arterial - Other	17581	25	State Highway Agency	Roadway Departure	
Wrong Way Ramp Updates	Roadway Roadway - other	3.53 Miles	416750	426750	HSIP (Section 148)	Rural Principal Arterial - Other	407	00	State Highway Agency	Roadway Departure	
Int/Run-off-Road Saf Imp	Roadway Roadway - other	14.71 Miles	525550	525550	HSIP (Section 148)	Urban Principal Arterial - Other Freeways and	16524	55	State Highway Agency	Roadway Departure	

						Expressways					
US15 Wrong Way Ramps	Roadway Roadway - other	7.62 Miles	187800	217800	HSIP (Section 148)	Urban Principal Arterial - Other Freeways and Expressways	952	55	State Highway Agency	Roadway Departure	
D3 RDIP	Roadway Roadway - other	0 Miles	191756	271756	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	
Dist12-15RDIP-2	Roadway Roadway - other	0.24 Miles	780937	780937	HSIP (Section 148)	Rural Minor Arterial	5356	35	State Highway Agency	Roadway Departure	
Dist 12-15 RDIP-3	Roadway Roadway - other	1.55 Miles	1032460	1032460	HSIP (Section 148)	Rural Minor Arterial	4886	55	State Highway Agency	Roadway Departure	
DW Systematic Impr 2015	Roadway Roadway - other	0 Miles	2505056	3035441	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	
222 & 100 Ramp Pre-emptn	Roadway Roadway - other	0.36 Miles	2000	2000	HSIP (Section 148)	Urban Principal Arterial - Other	10953	45	State Highway Agency	Roadway Departure	
209 -Schafer School House	Roadway Roadway - other	4.3 Miles	350000	950000	HSIP (Section 148)	Rural Principal Arterial - Other	10319	55	State Highway Agency	Roadway Departure	
Advance Signal for SR 422 and 2077 Intersection	Roadway Roadway - other	0.16 Miles	8040	8040	HSIP (Section 148)	Urban Minor Arterial	4581	55	State Highway Agency	Roadway Departure	

Gordon Mountain Road Truck Signing	Roadway Roadway - other	2.26 Miles	87352	136321	HSIP (Section 148)	Rural Minor Collector	2054	45	State Highway Agency	Roadway Departure	
Bellefonte Interchange Safety Study	Roadway Roadway - other	6.16 Miles	151000	151000	HSIP (Section 148)	Rural Principal Arterial - Other	11435	45	State Highway Agency	Roadway Departure	
2018 RDIP/ISIP Signing and Ped	Roadway Roadway - other	0.64 Miles	10000	10000	HSIP (Section 148)	Rural Minor Arterial	2160	55	State Highway Agency	Roadway Departure	
Municipal Safety LTAP	Roadway Roadway - other	0 Miles	500000	500000	HSIP (Section 148)	Various	0	0	State Highway Agency	Roadway Departure	
SR 0739 Shld Widen / ELRS	Shoulder treatments Shoulder treatments - other	2.36 Miles	915500	7061000	HSIP (Section 148)	Rural Major Collector	3720	40	State Highway Agency	Roadway Departure	
SR 739 Should / Widening	Shoulder treatments Shoulder treatments - other	1.86 Miles	126000	645000	HSIP (Section 148)	Rural Major Collector	1114	35	State Highway Agency	Roadway Departure	
SR 11 Shoulder / ELRS.	Shoulder treatments Shoulder treatments - other	3.11 Miles	212945.65	751140	HSIP (Section 148)	Rural Major Collector	1865	45	State Highway Agency	Roadway Departure	

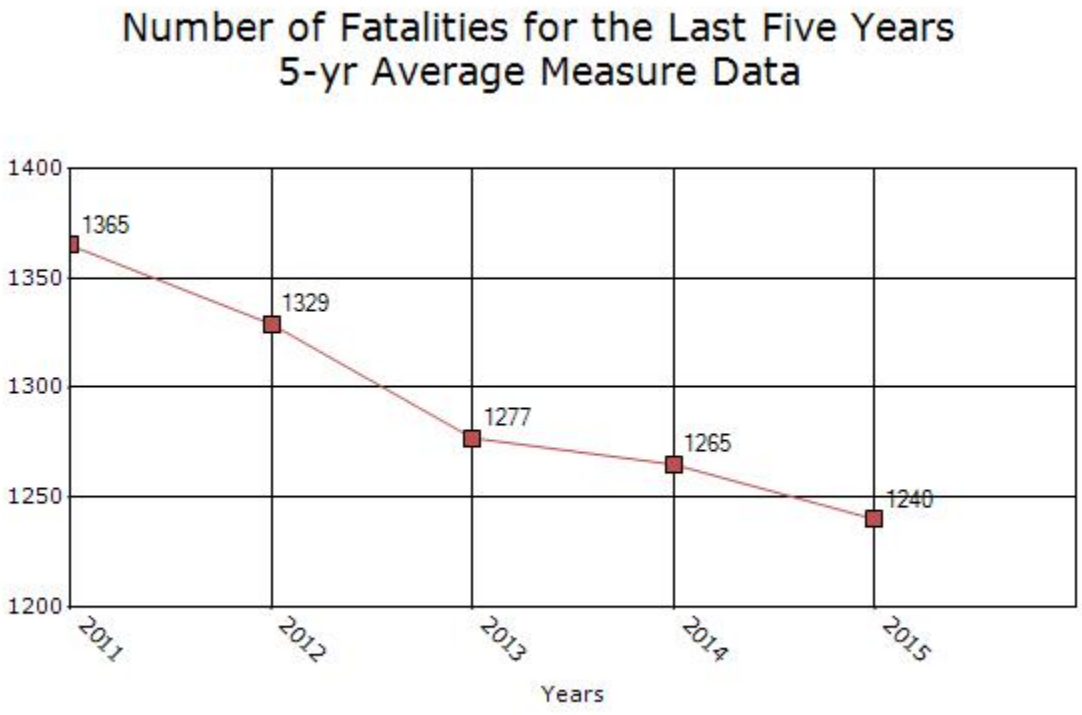
Progress in Achieving Safety Performance Targets

Overview of General Safety Trends

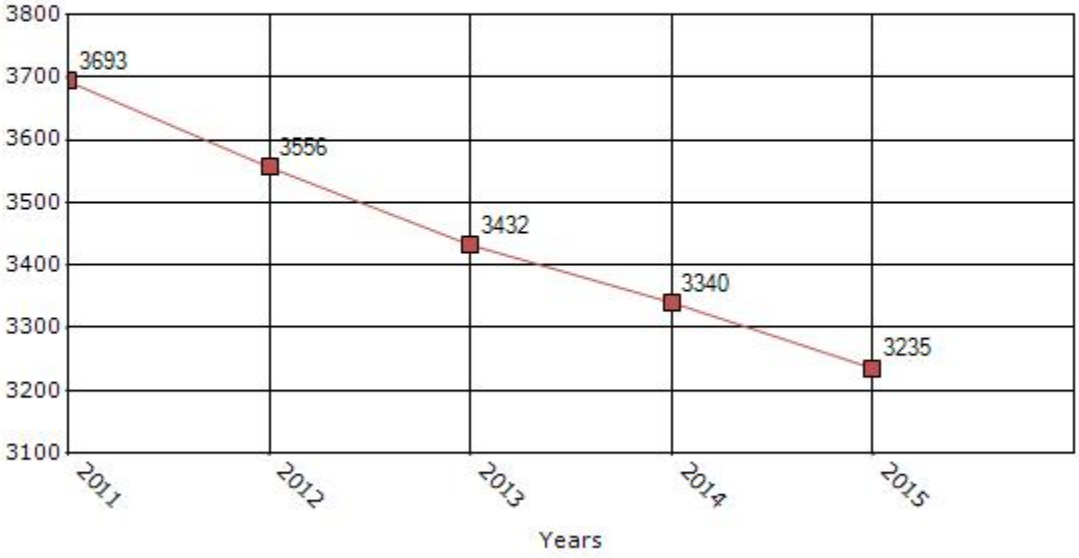
Present data showing the general highway safety trends in the state for the past five years.

Performance Measures*	2011	2012	2013	2014	2015
Number of fatalities	1365	1329	1277	1265	1240
Number of serious injuries	3693	3556	3432	3340	3235
Fatality rate (per HMVMT)	1.31	1.3	1.27	1.27	1.24
Serious injury rate (per HMVMT)	3.55	3.48	3.41	3.34	3.24

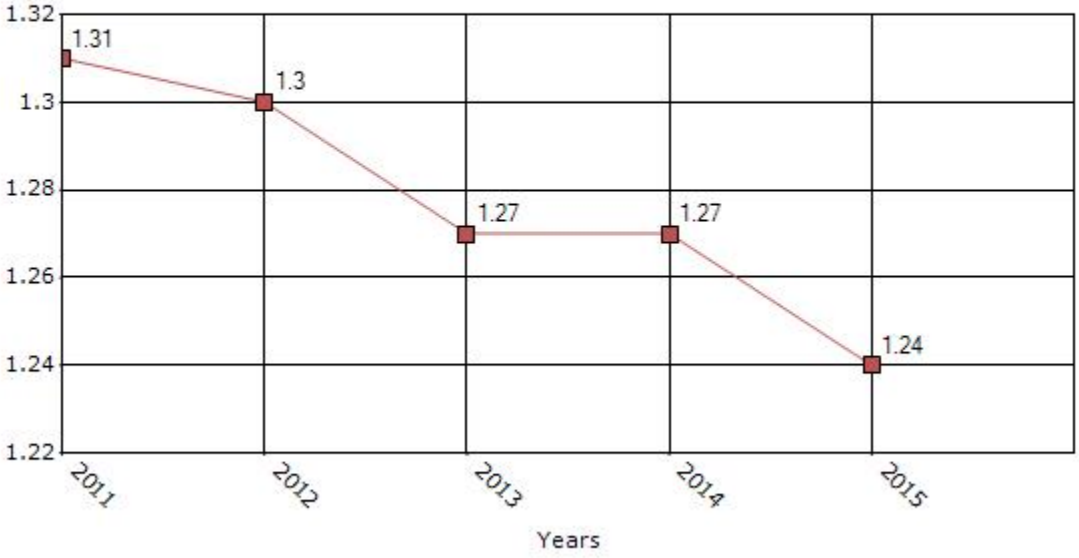
*Performance measure data is presented using a five-year rolling average.

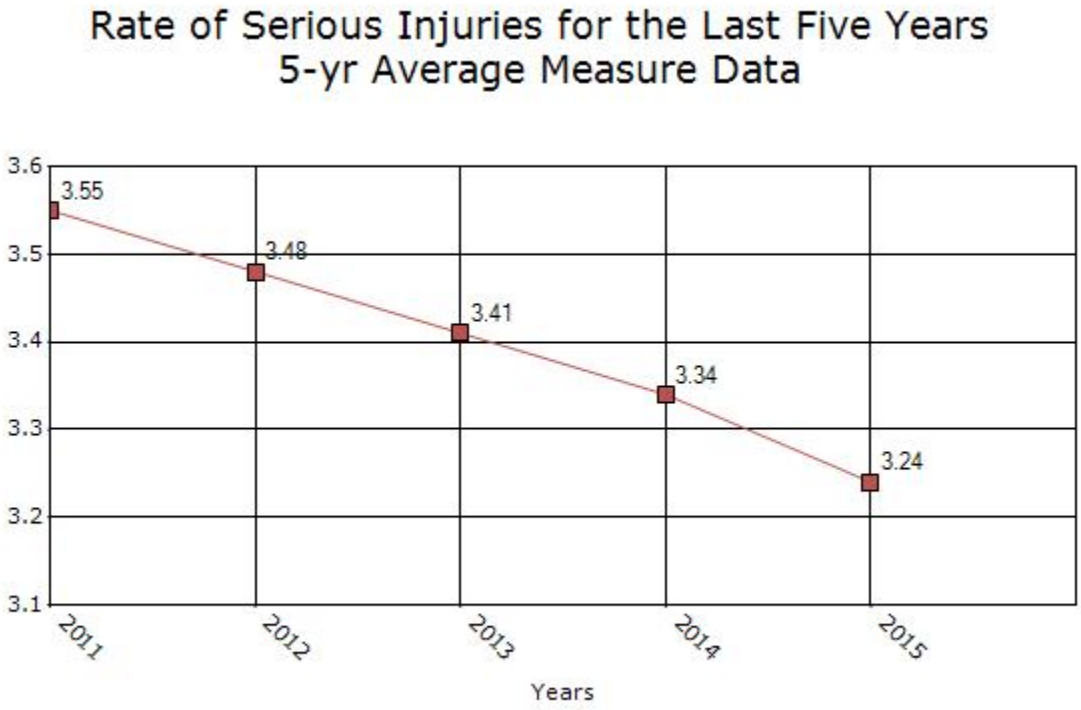


Number of Serious Injuries for the Last Five Years
5-yr Average Measure Data



Rate of Fatalities for the Last Five Years
5-yr Average Measure Data



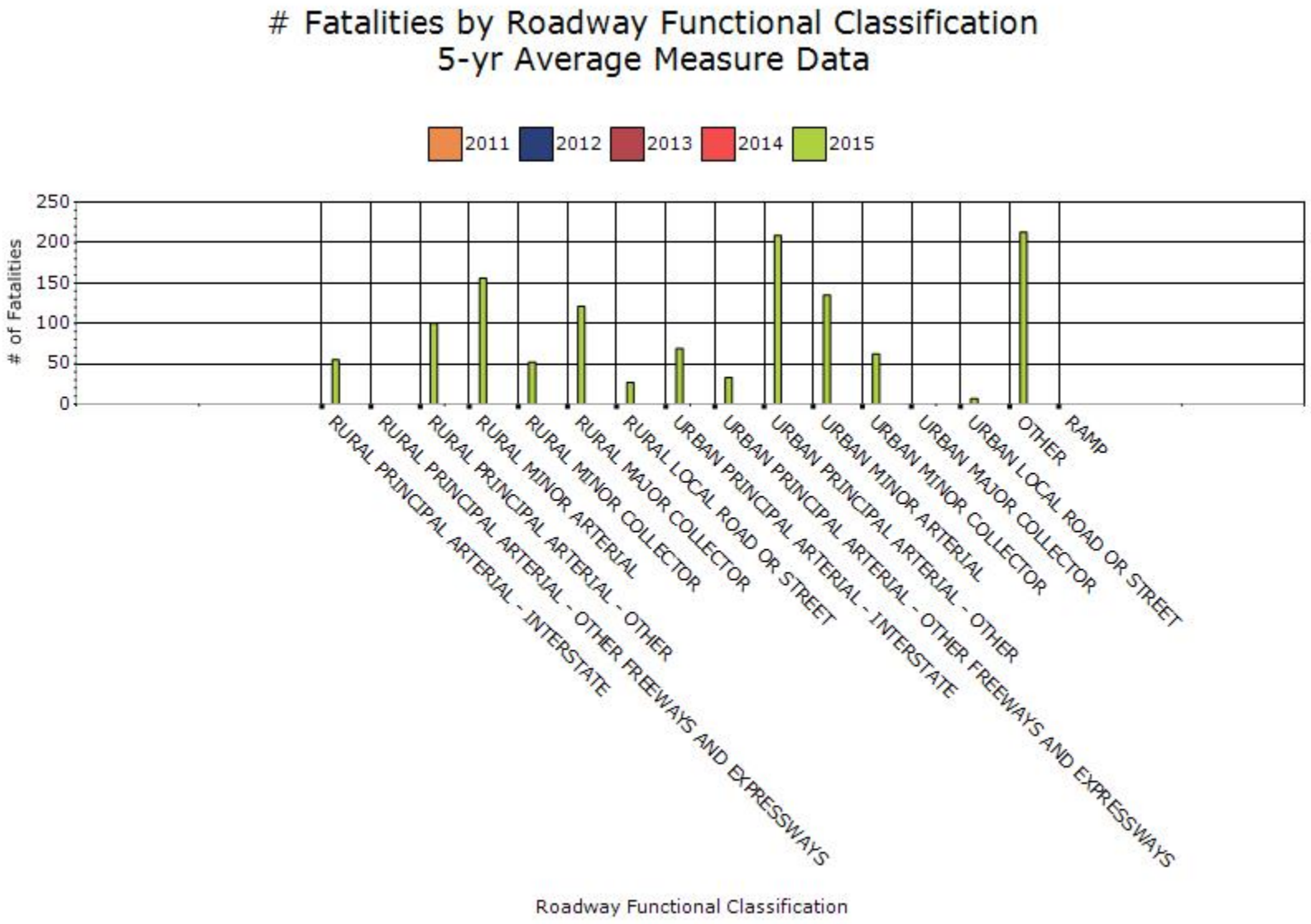

Rate of Serious Injuries for the Last Five Years
5-yr Average Measure Data
3.6
3.5
3.4
3.3
3.2
3.1
3.55
3.48
3.41
3.34
3.24
2011
2012
2013
2014
2015
Years

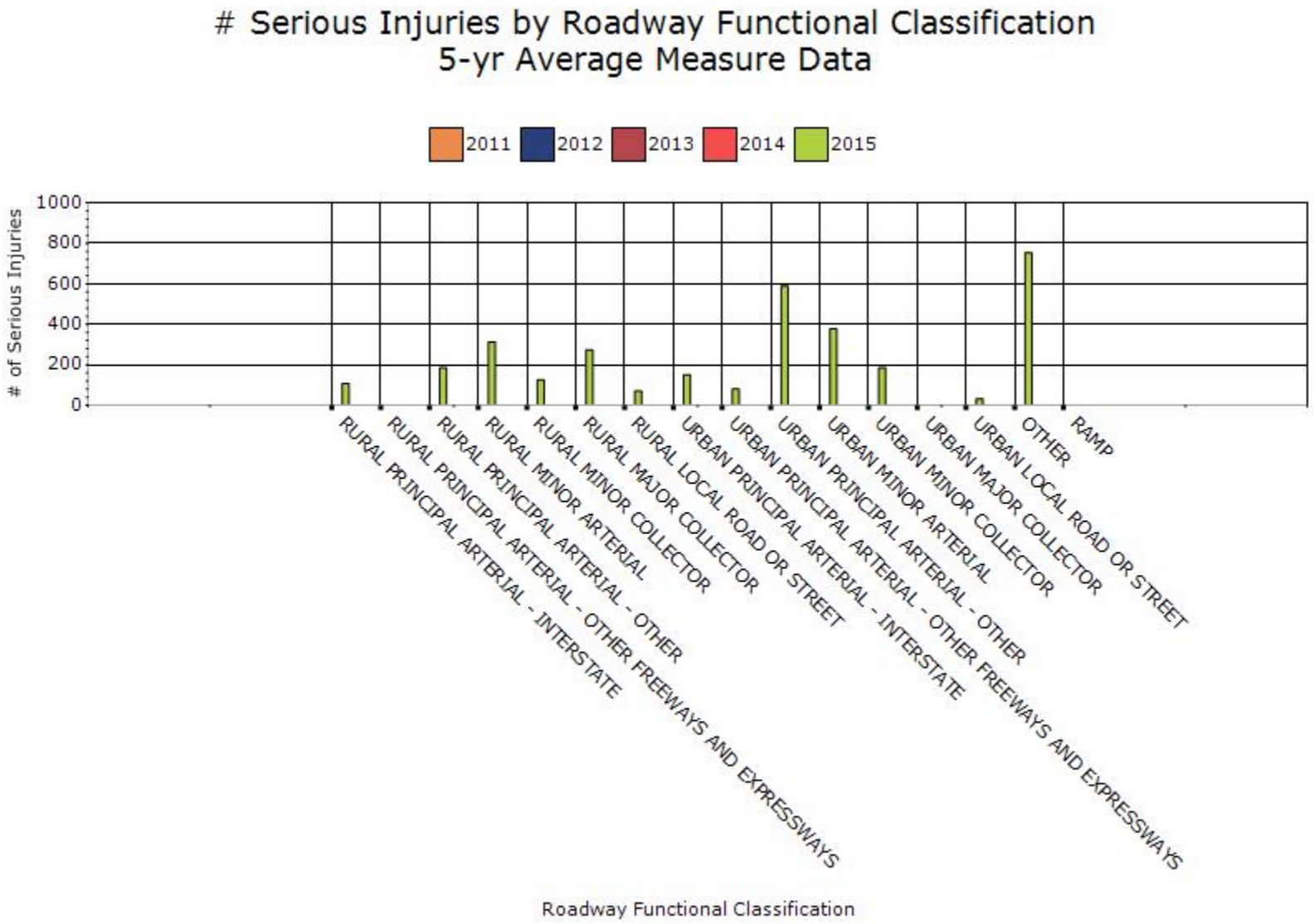
To the maximum extent possible, present performance measure* data by functional classification and ownership.

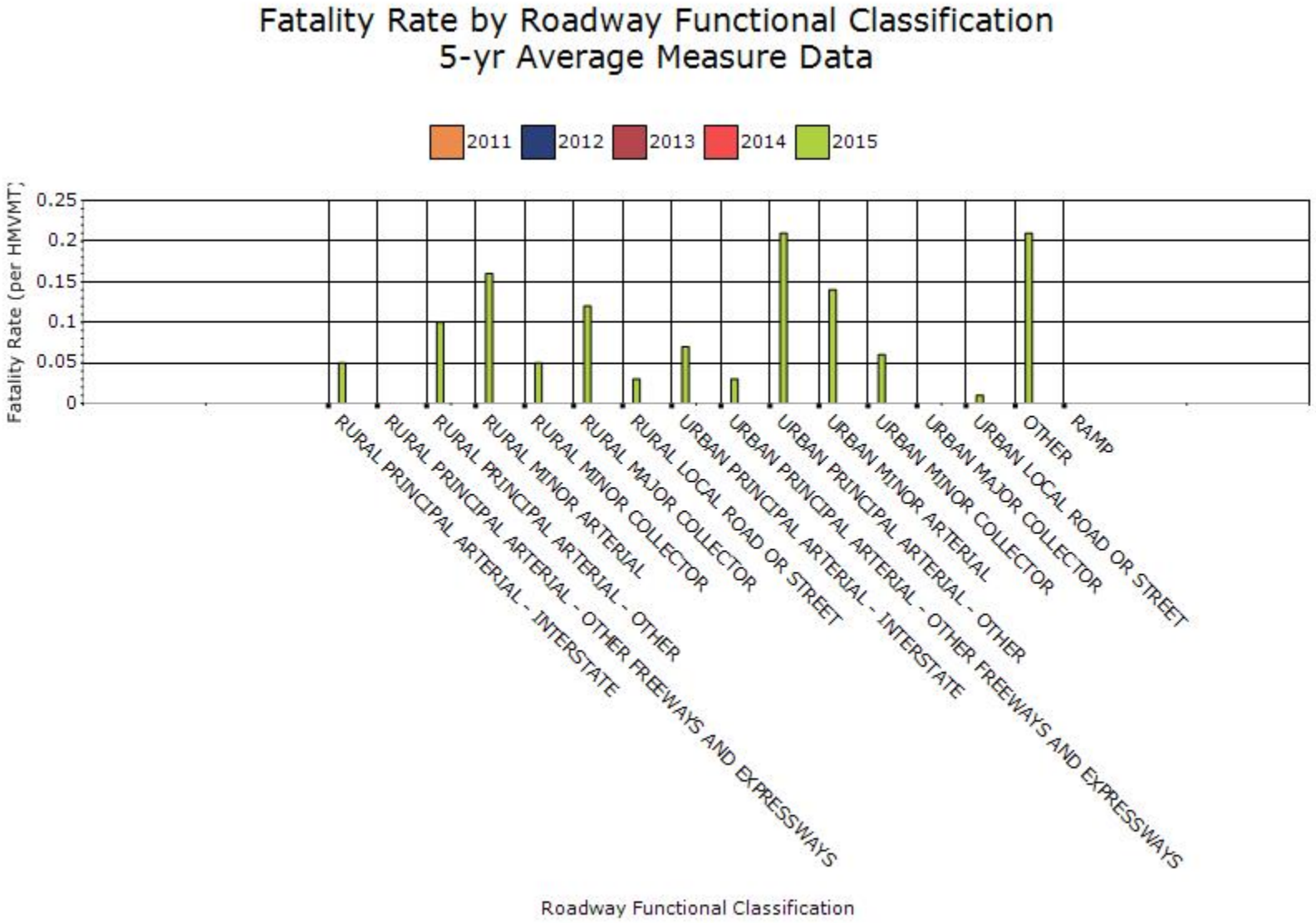
Year - 2015

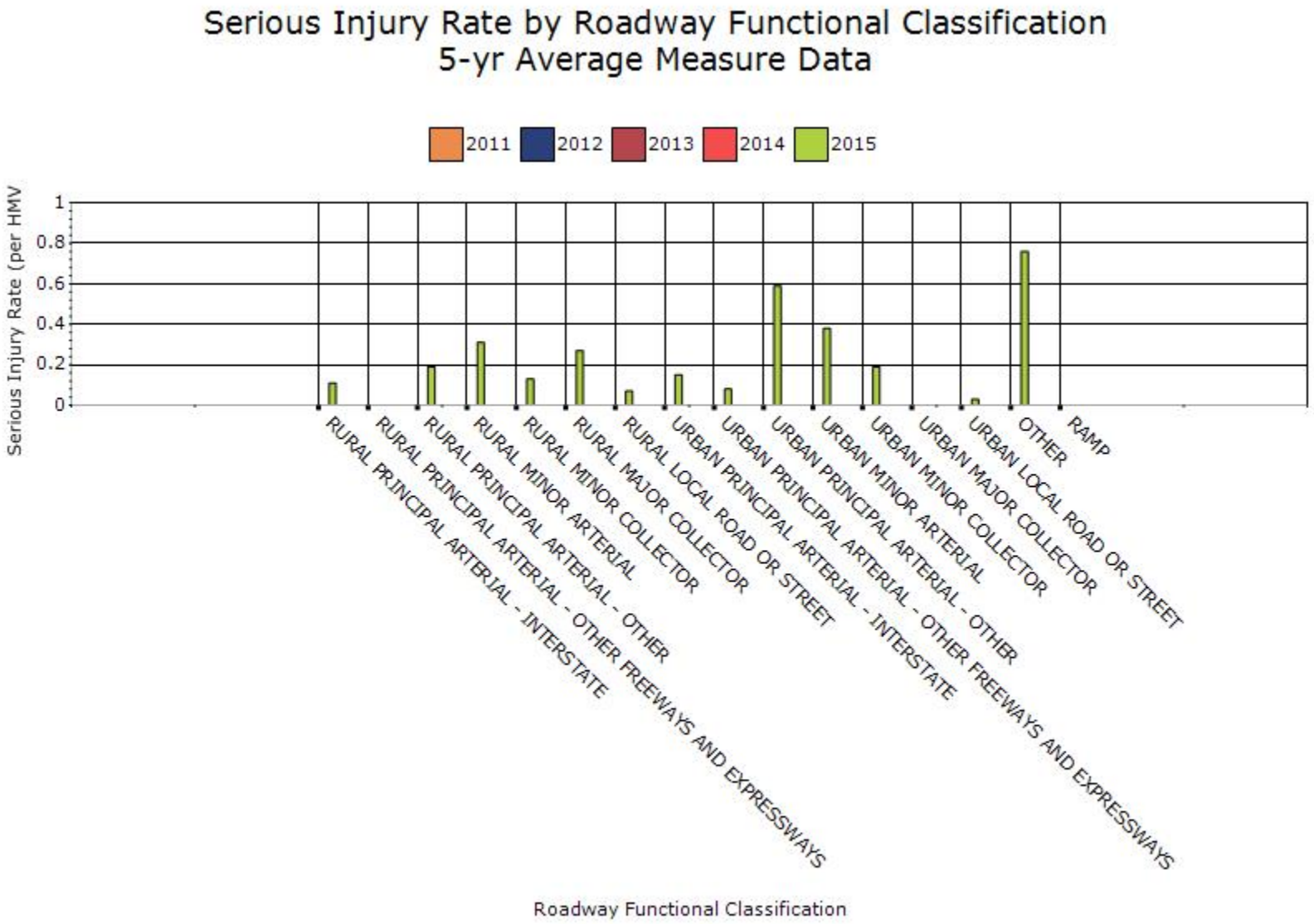
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	55	108	0.05	0.11
RURAL PRINCIPAL ARTERIAL - OTHER	100	185	0.1	0.19
RURAL MINOR ARTERIAL	156	313	0.16	0.31
RURAL MINOR COLLECTOR	52	126	0.05	0.13
RURAL MAJOR COLLECTOR	121	273	0.12	0.27
RURAL LOCAL ROAD OR STREET	27	71	0.03	0.07
URBAN PRINCIPAL ARTERIAL - INTERSTATE	69	151	0.07	0.15
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	33	80	0.03	0.08

URBAN PRINCIPAL ARTERIAL - OTHER	209	590	0.21	0.59
URBAN MINOR ARTERIAL	135	378	0.14	0.38
URBAN MINOR COLLECTOR	62	186	0.06	0.19
URBAN LOCAL ROAD OR STREET	7	32	0.01	0.03
OTHER	213	754	0.21	0.76


Fatalities by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Fatalities
250
200
150
100
50
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
OTHER
RAMP
Roadway Functional Classification

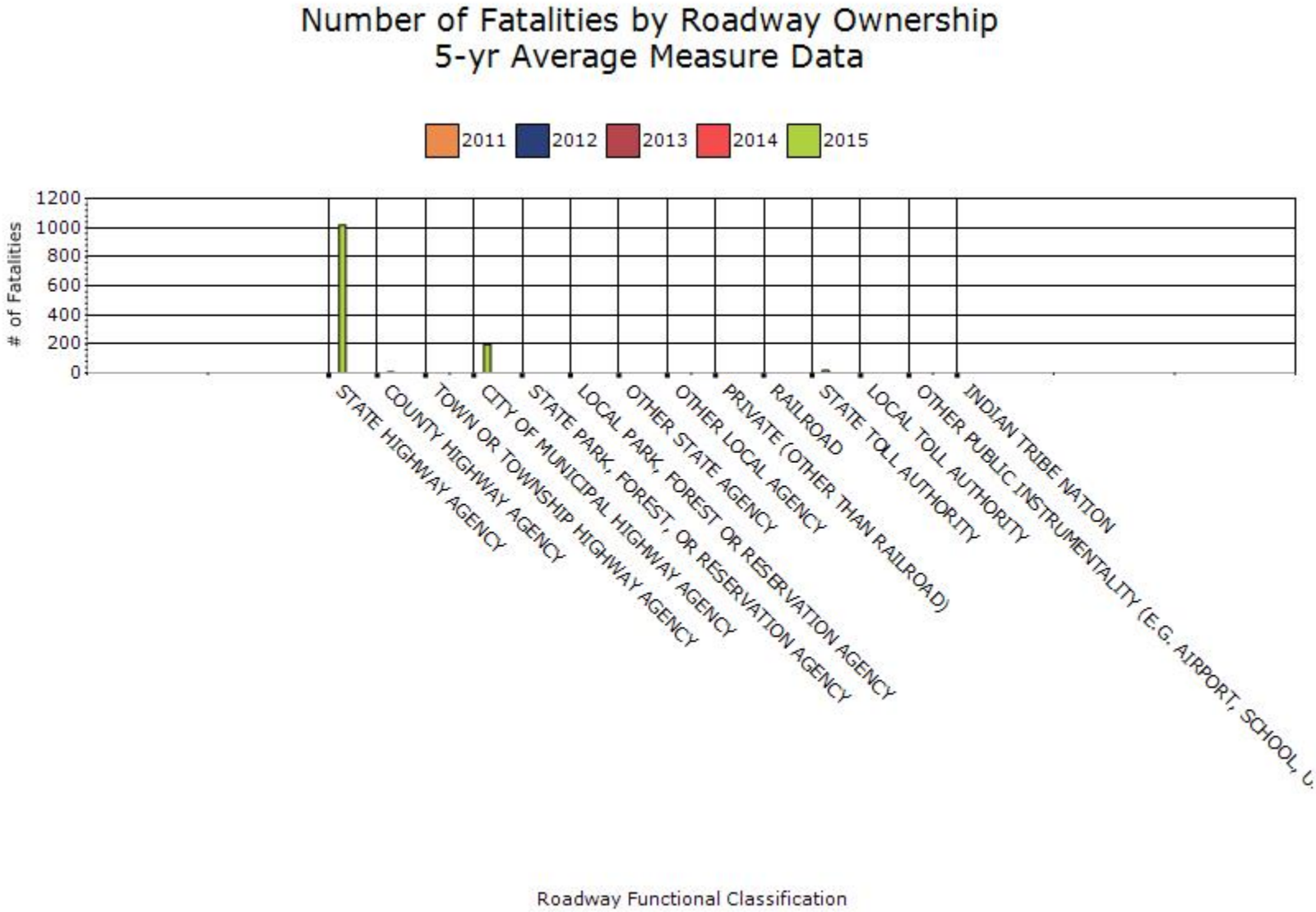

Serious Injuries by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Serious Injuries
1000
800
600
400
200
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
OTHER
RAMP
Roadway Functional Classification

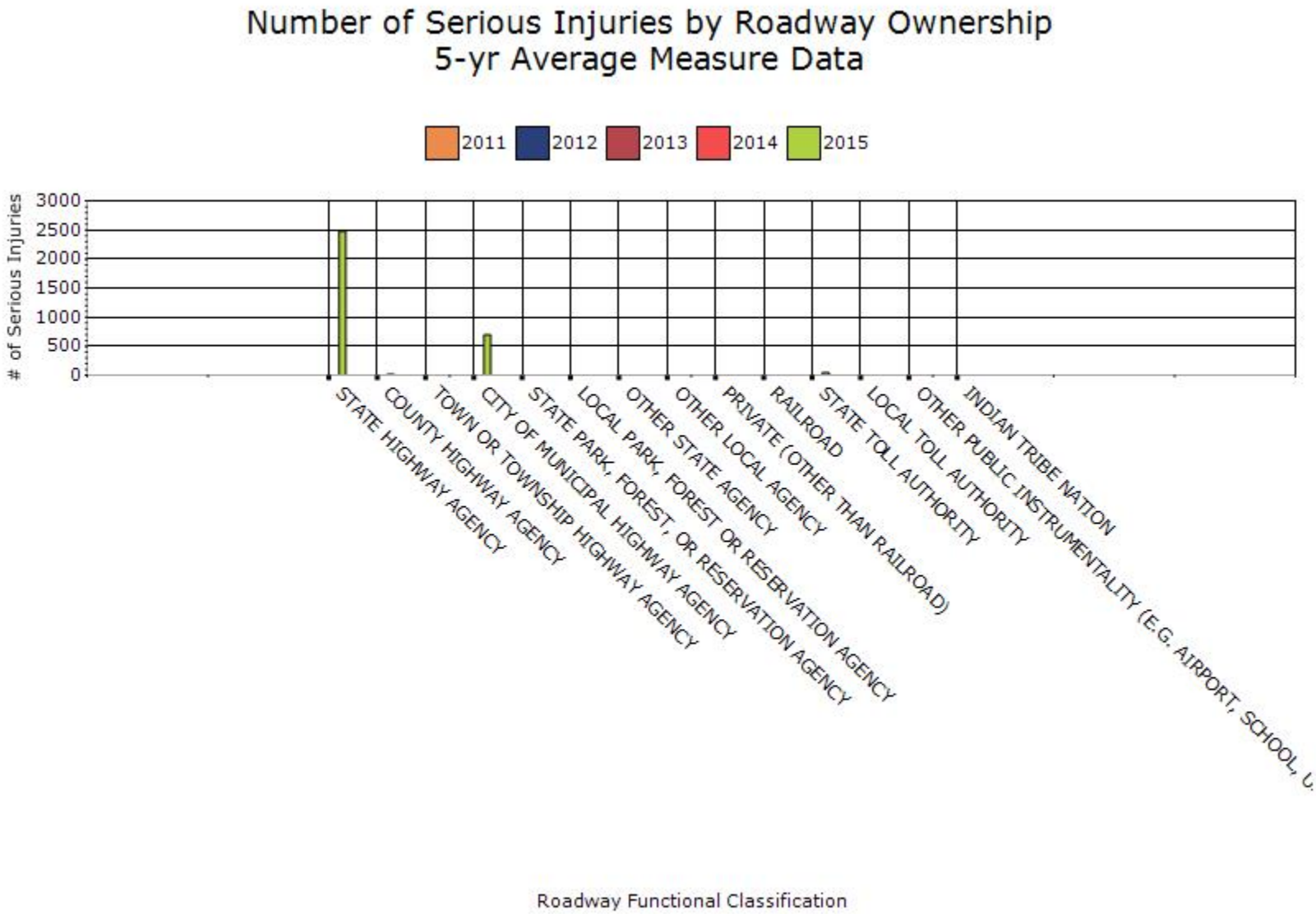

Fatality Rate by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
Fatality Rate (per HMVMT)
0.25
0.2
0.15
0.1
0.05
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
OTHER
RAMP
Roadway Functional Classification

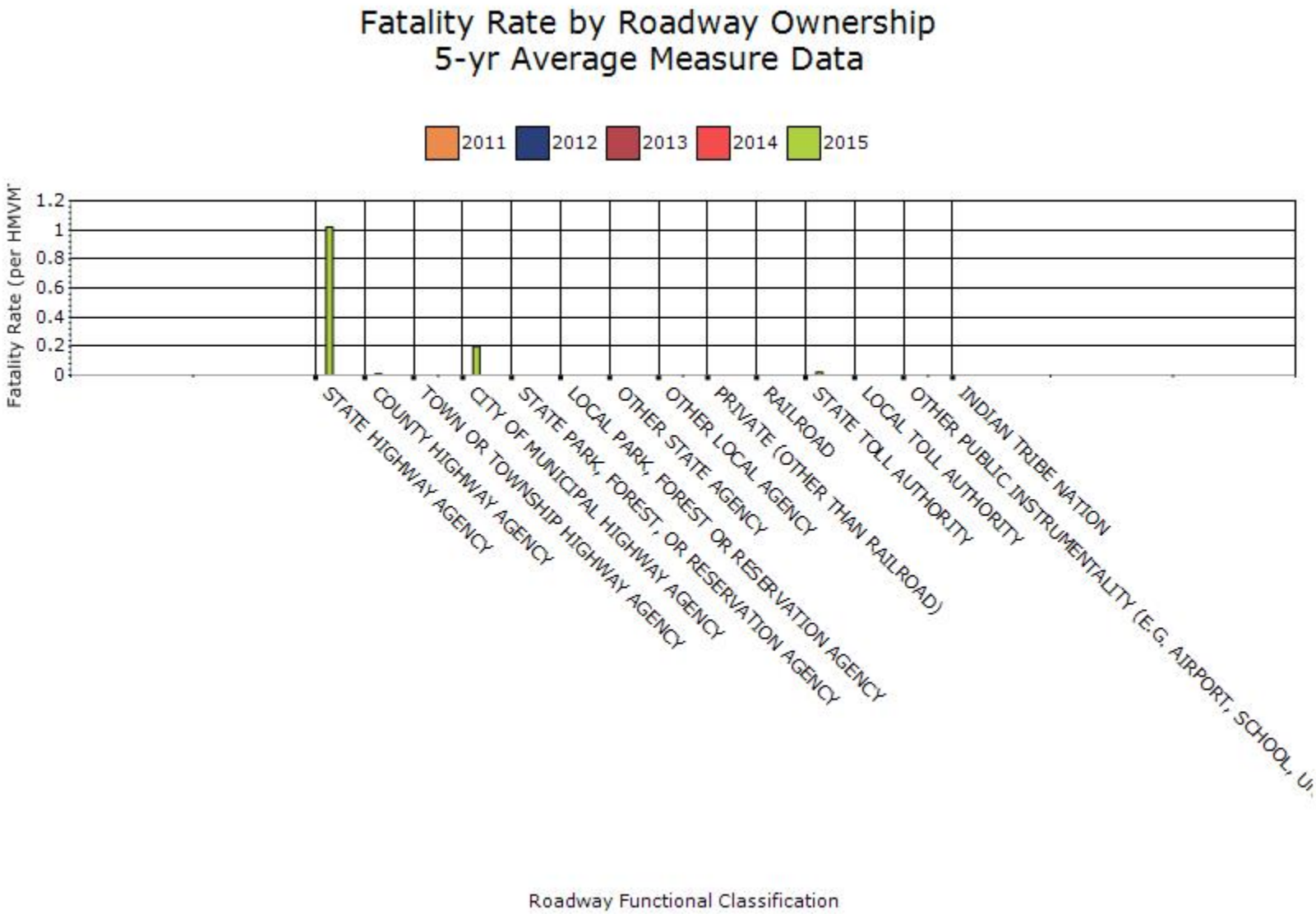

Serious Injury Rate by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
Serious Injury Rate (per HMV
1
0.8
0.6
0.4
0.2
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
OTHER
RAMP
Roadway Functional Classification

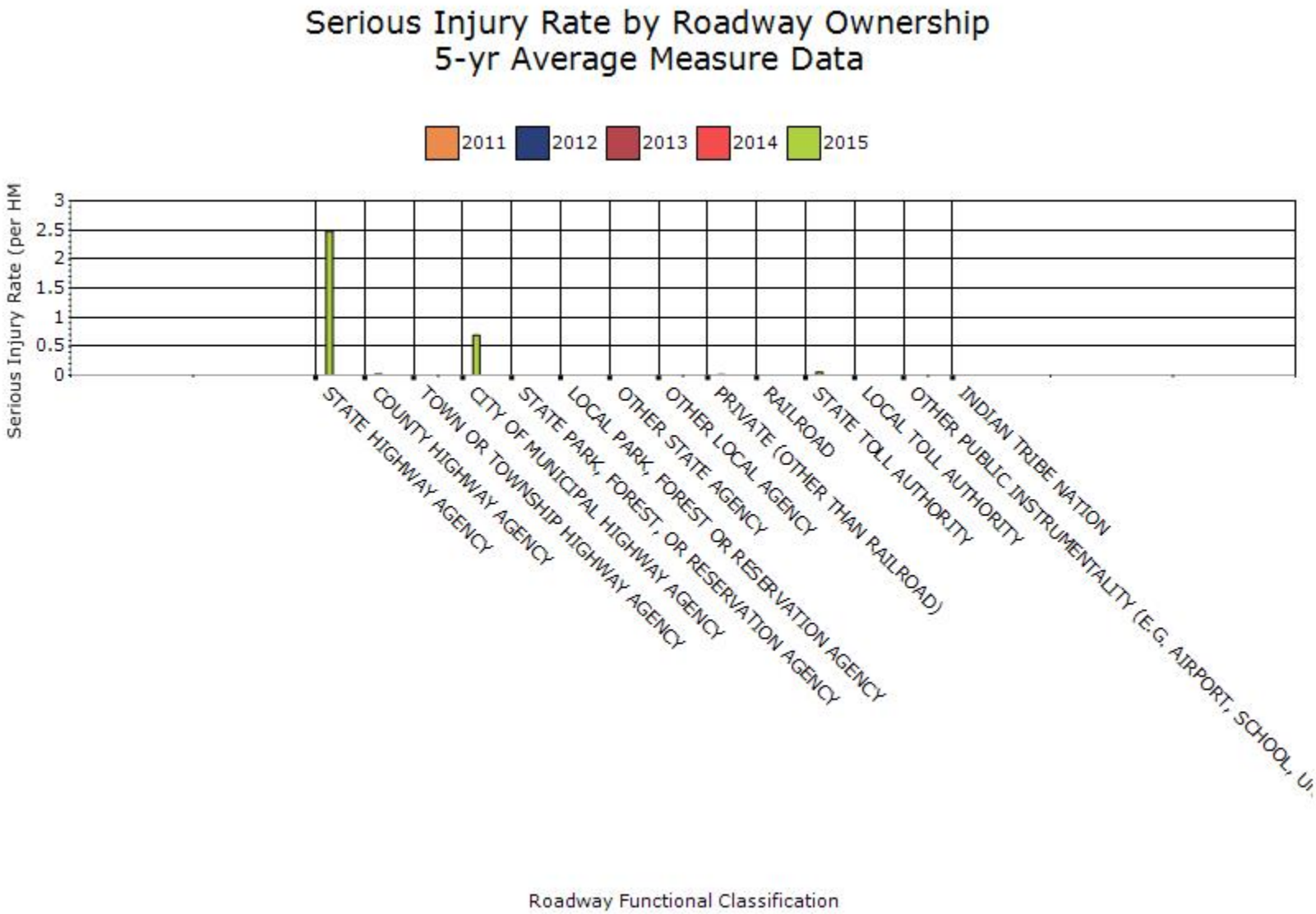
Year - 2015

Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	1017	2479	1.02	2.48
COUNTY HIGHWAY AGENCY	7	19	0.01	0.02
CITY OF MUNICIPAL HIGHWAY AGENCY	198	694	0.2	0.69
PRIVATE (OTHER THAN RAILROAD)	1	6		0.01
STATE TOLL AUTHORITY	17	46	0.02	0.05


Number of Fatalities by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Fatalities
1200
1000
800
600
400
200
0
STATE HIGHWAY AGENCY
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, U
INDIAN TRIBE NATION
Roadway Functional Classification


Number of Serious Injuries by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Serious Injuries
3000
2500
2000
1500
1000
500
0
STATE HIGHWAY AGENCY
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, U
INDIAN TRIBE NATION
Roadway Functional Classification


Fatality Rate by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
Fatality Rate (per HMVM
1.2
1
0.8
0.6
0.4
0.2
0
STATE HIGHWAY AGENCY
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, U
INDIAN TRIBE NATION
Roadway Functional Classification


Serious Injury Rate by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
Serious Injury Rate (per HM
3
2.5
2
1.5
1
0.5
0
STATE HIGHWAY AGENCY
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, U
INDIAN TRIBE NATION
Roadway Functional Classification

Describe any other aspects of the general highway safety trends on which you would like to elaborate.

2015 Vehicle Miles Traveled was available and used for this Report.

Application of Special Rules

Present the rate of traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65.

Older Driver Performance Measures	**2010**	**2011**	**2012**	**2013**	**2014**
Fatality rate (per capita)	0.062	0.082	0.102	0.1	0.1
Serious injury rate (per capita)	0.074	0.098	0.124	0.126	0.126
Fatality and serious injury rate (per capita)	0.134	0.176	0.222	0.222	0.224

*Performance measure data is presented using a five-year rolling average.

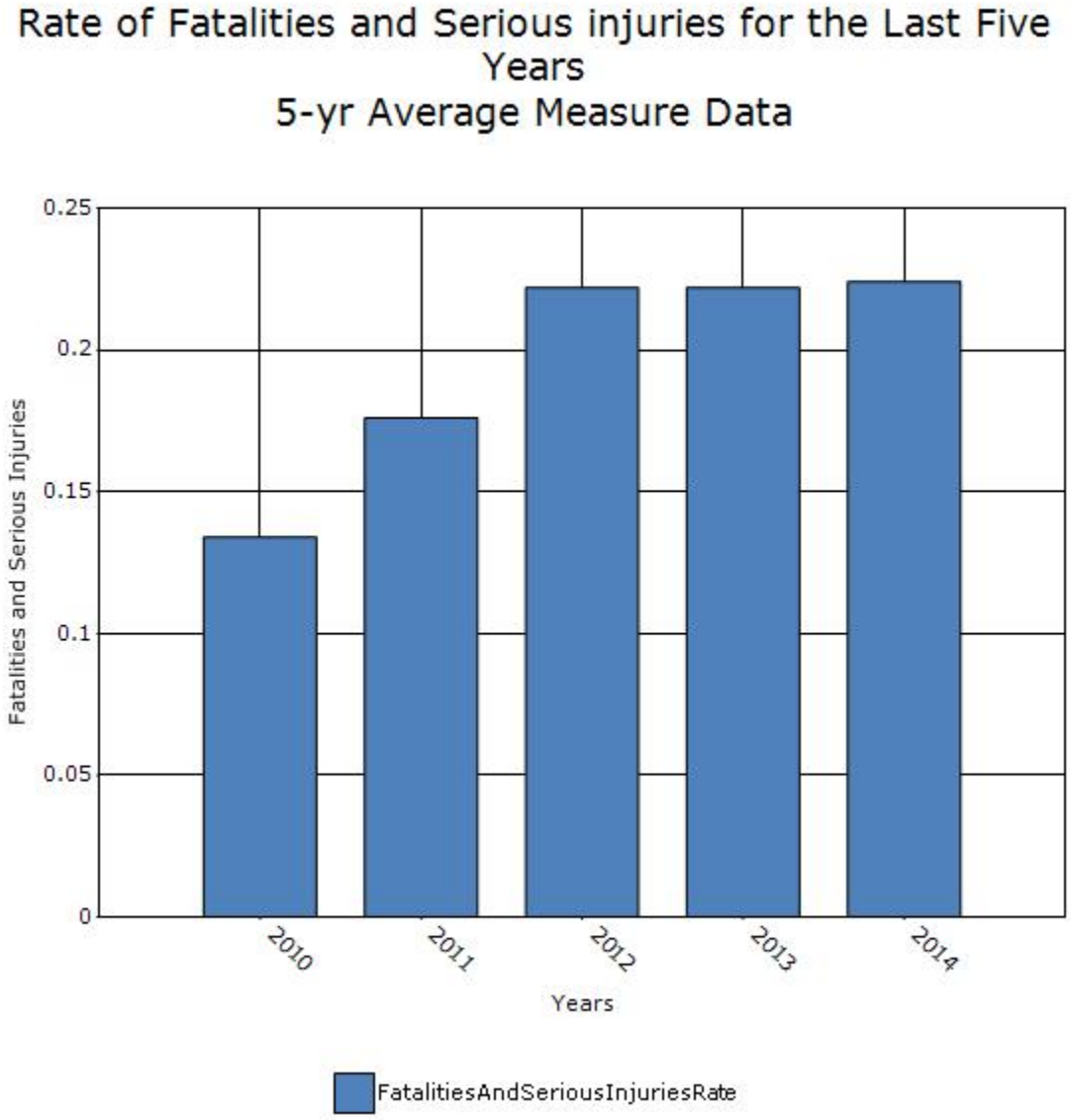
Older Persons Per 1000 Population before 2008 was not provided by FHWA. Therefore the annual performance measure data was not populated for 2006 and 2007. This directly affects the 5-yr data for years 2010 and 2011 as skewed because full 5-yr historical data is not available before 2012.

Here is the calculation used for deriving the Fatality and serious injury rate (per capita):

((Older Driver Fatalities + Older Pedestrian Fatalities)/Older Persons Per 1000 Population)

+

((Older Driver Serious Injuries + Older Pedestrian Serious Injuries)/Older Persons Per 1000 Population)



Does the older driver special rule apply to your state?

No

Assessment of the Effectiveness of the Improvements (Program Evaluation)

What indicators of success can you use to demonstrate effectiveness and success in the Highway Safety Improvement Program?

Other-Application of proven safety Countermeasures like HFST and rumble strips.

What significant programmatic changes have occurred since the last reporting period?

Include Local Roads in Highway Safety Improvement Program

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

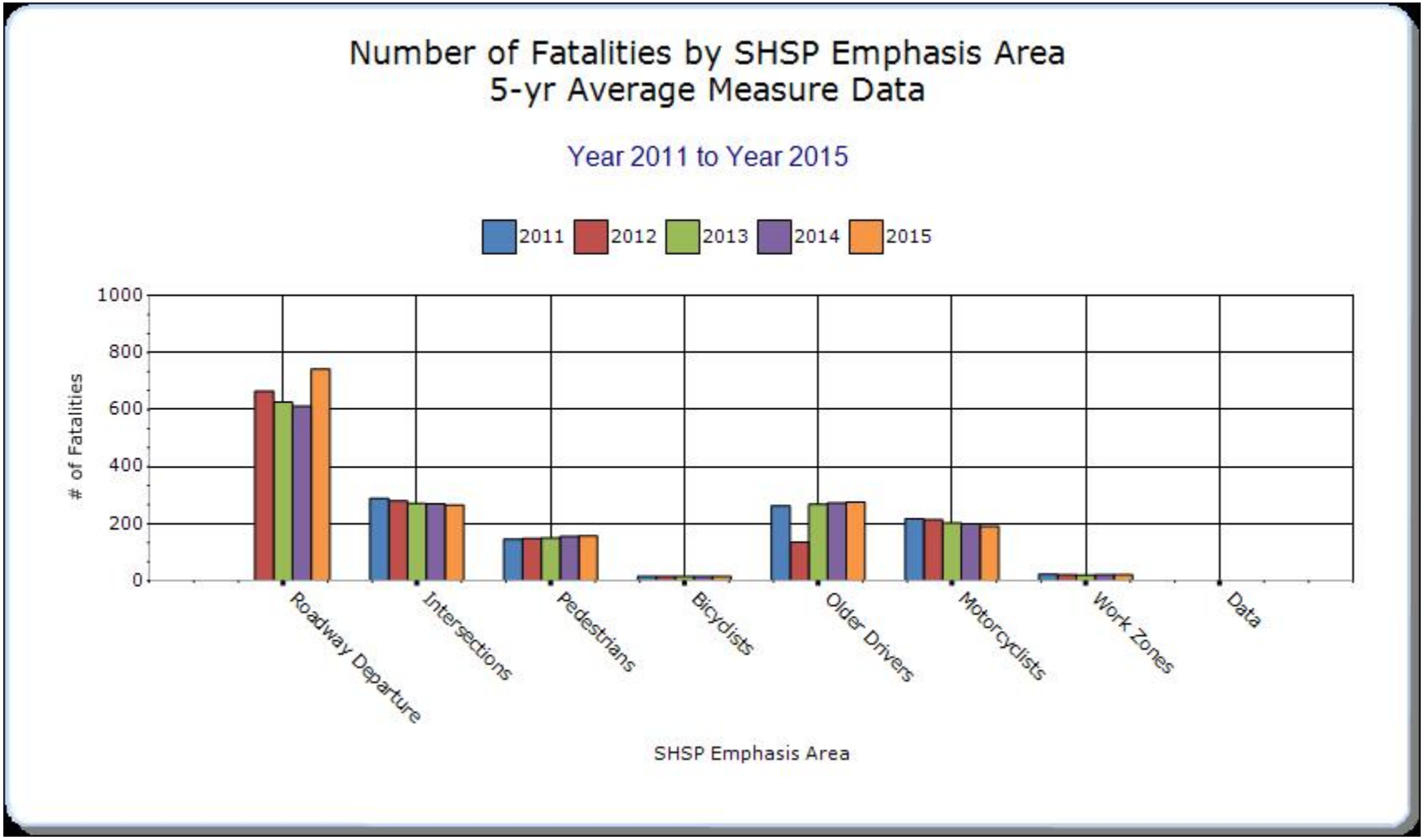
The changes for local roads are described in detail in section 1.4, "Local Roads".

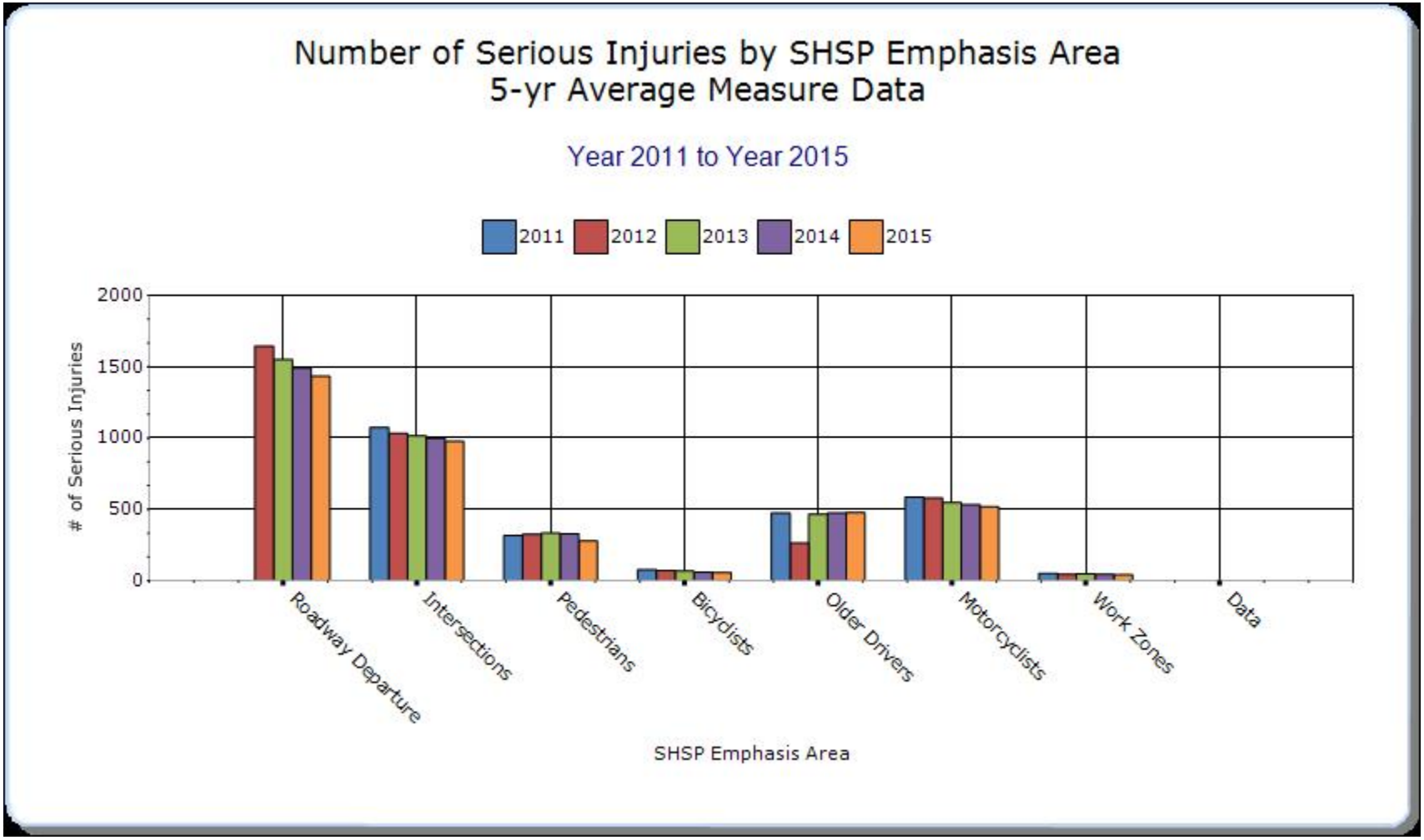
SHSP Emphasis Areas

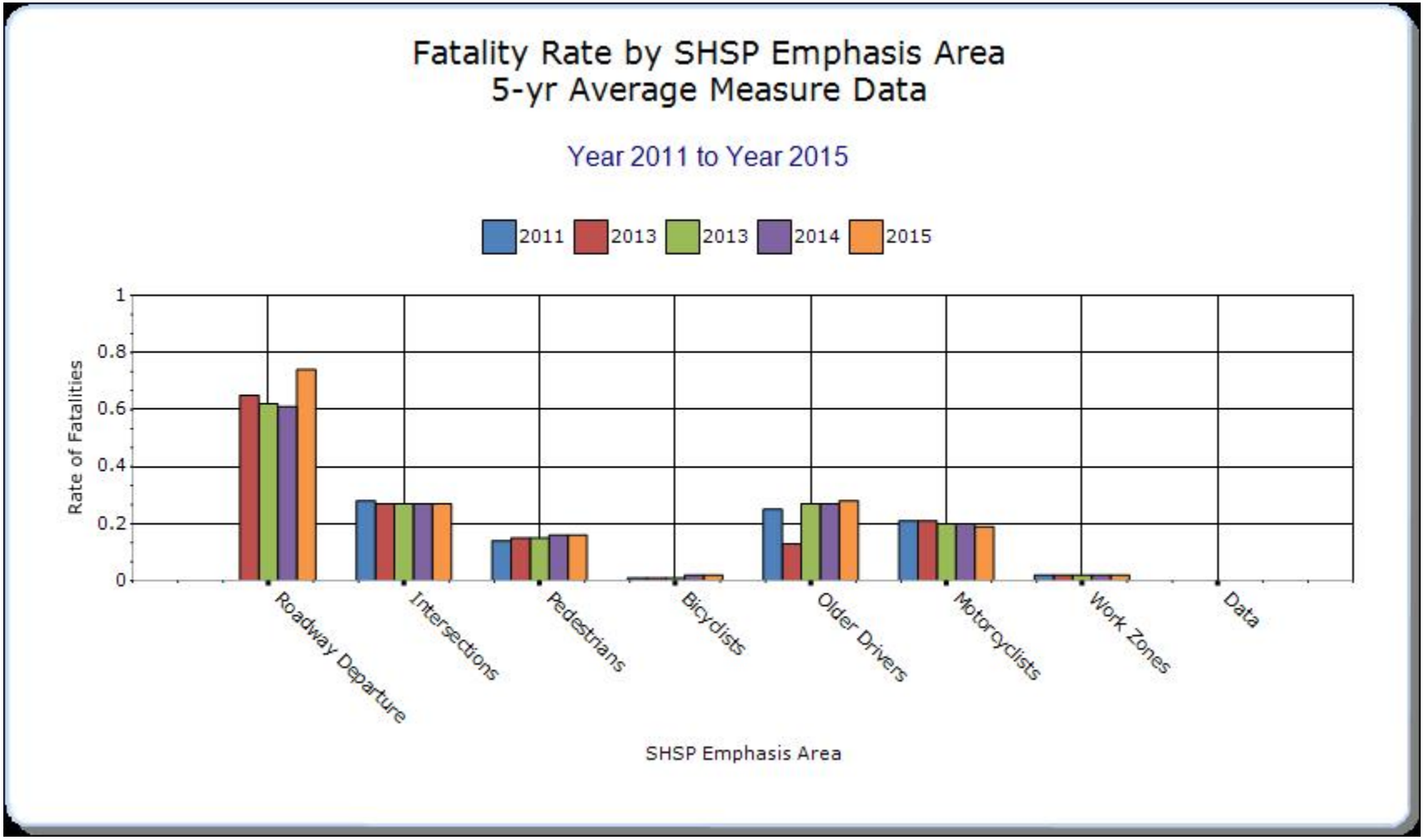
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

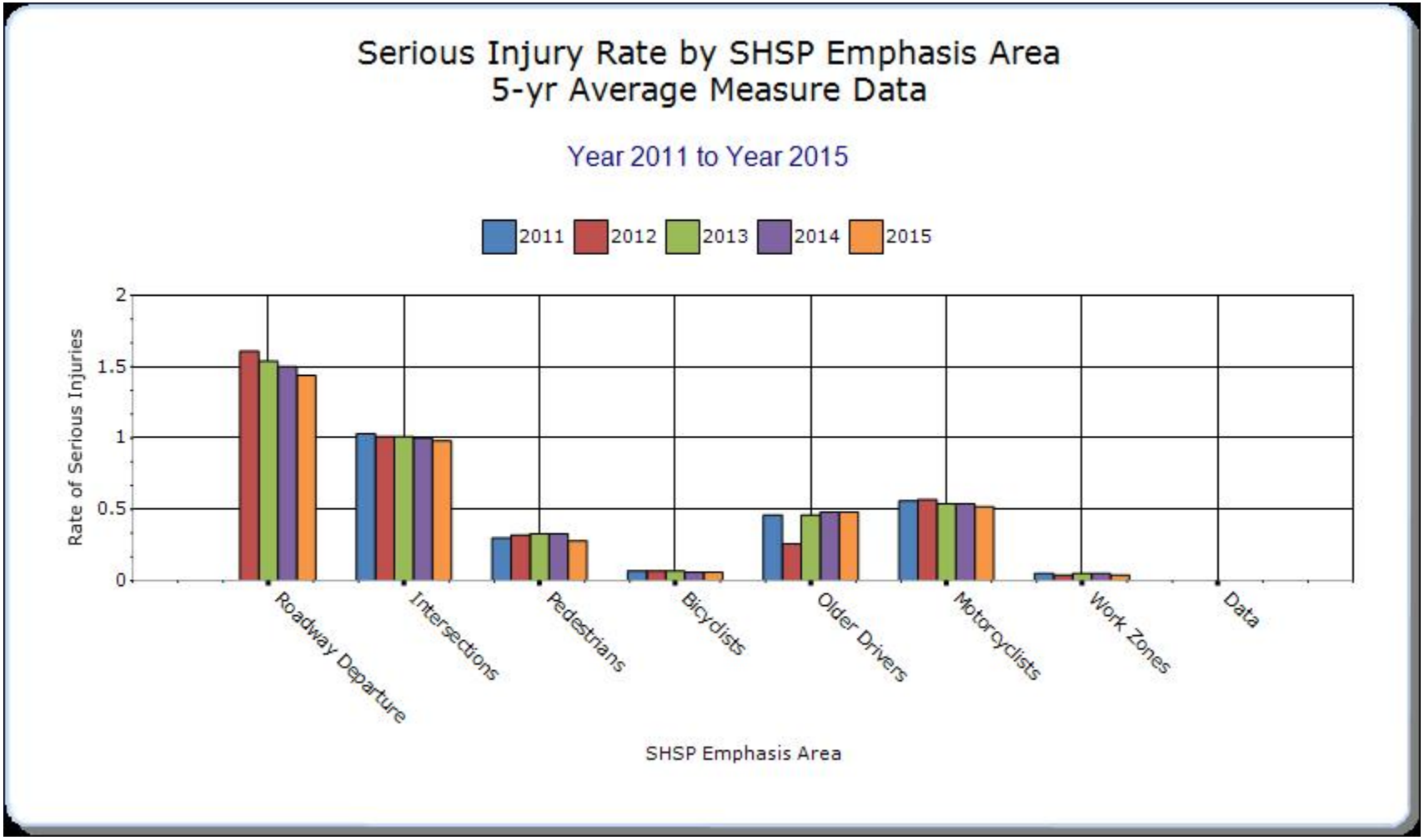
Year - 2015

HSIP-related SHSP Emphasis Areas	Target Crash Type	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)	Other-1	Other-2	Other-3
Roadway Departure	Run-off-road	742	1433	0.74	1.44			
Intersections	Intersections	266	977	0.27	0.98			
Pedestrians	Vehicle/pedestrian	157	279	0.16	0.28			
Bicyclists	Vehicle/bicycle	15	58	0.02	0.06			
Older Drivers	Older Driver	275	478	0.28	0.48			
Motorcyclists	Motorcycle	191	520	0.19	0.52			
Work Zones	Work Zone	21	41	0.02	0.04			


Number of Fatalities by SHSP Emphasis Area
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
1000
800
600
400
200
0
# of Fatalities
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Number of Serious Injuries by SHSP Emphasis Area
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
2000
1500
1000
500
0
# of Serious Injuries
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Fatality Rate by SHSP Emphasis Area
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2013
2013
2014
2015
Rate of Fatalities
1
0.8
0.6
0.4
0.2
0
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area

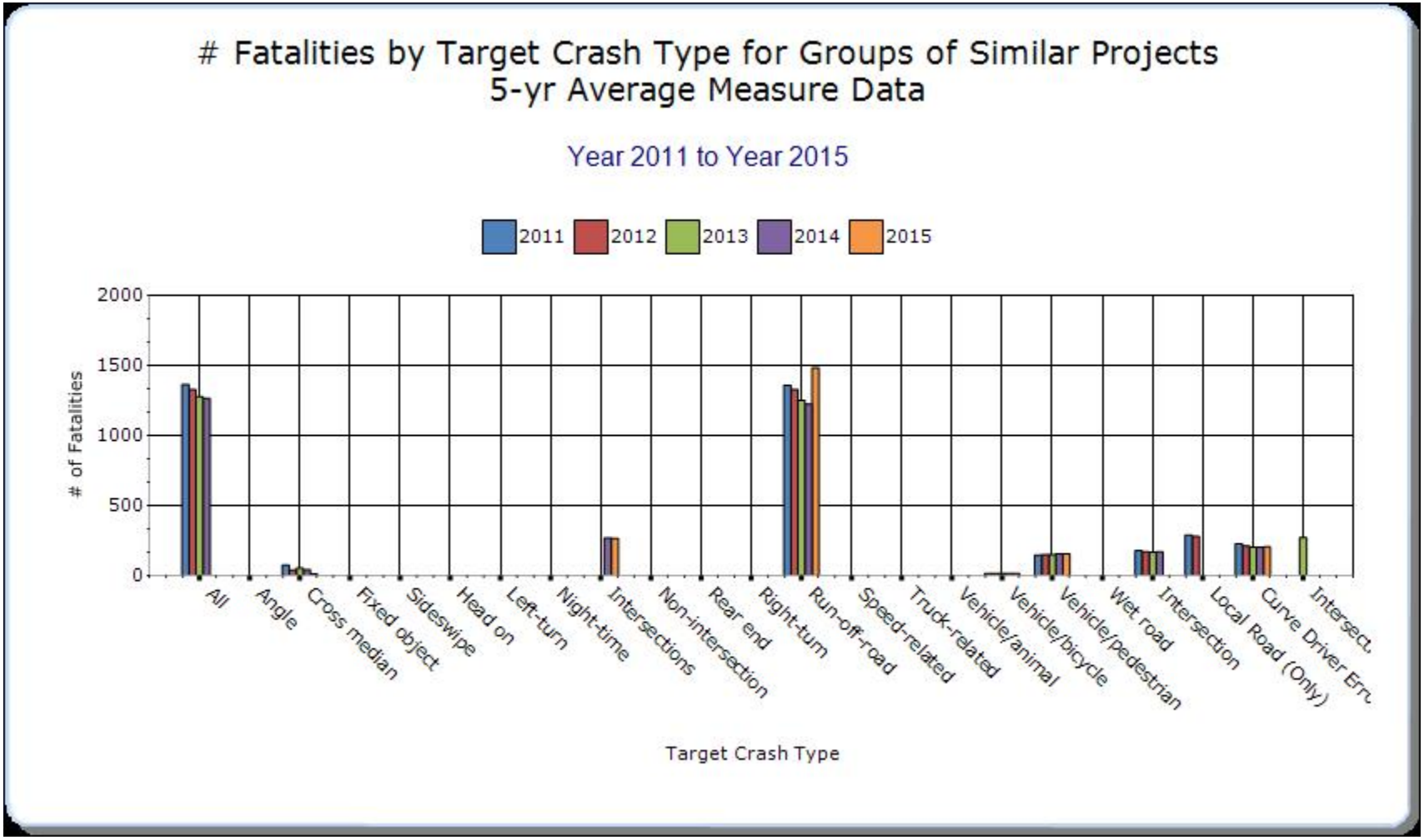


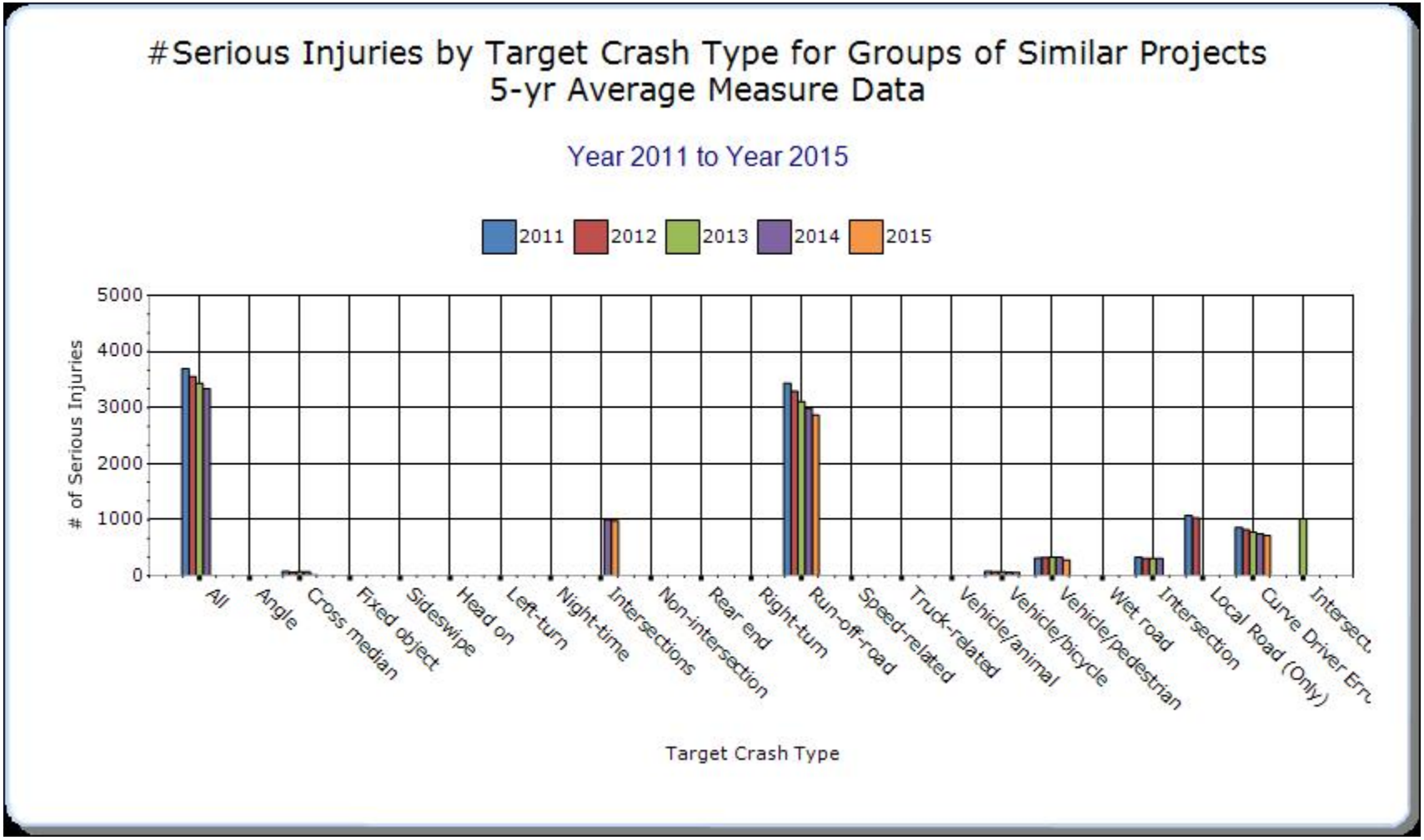
Groups of similar project types

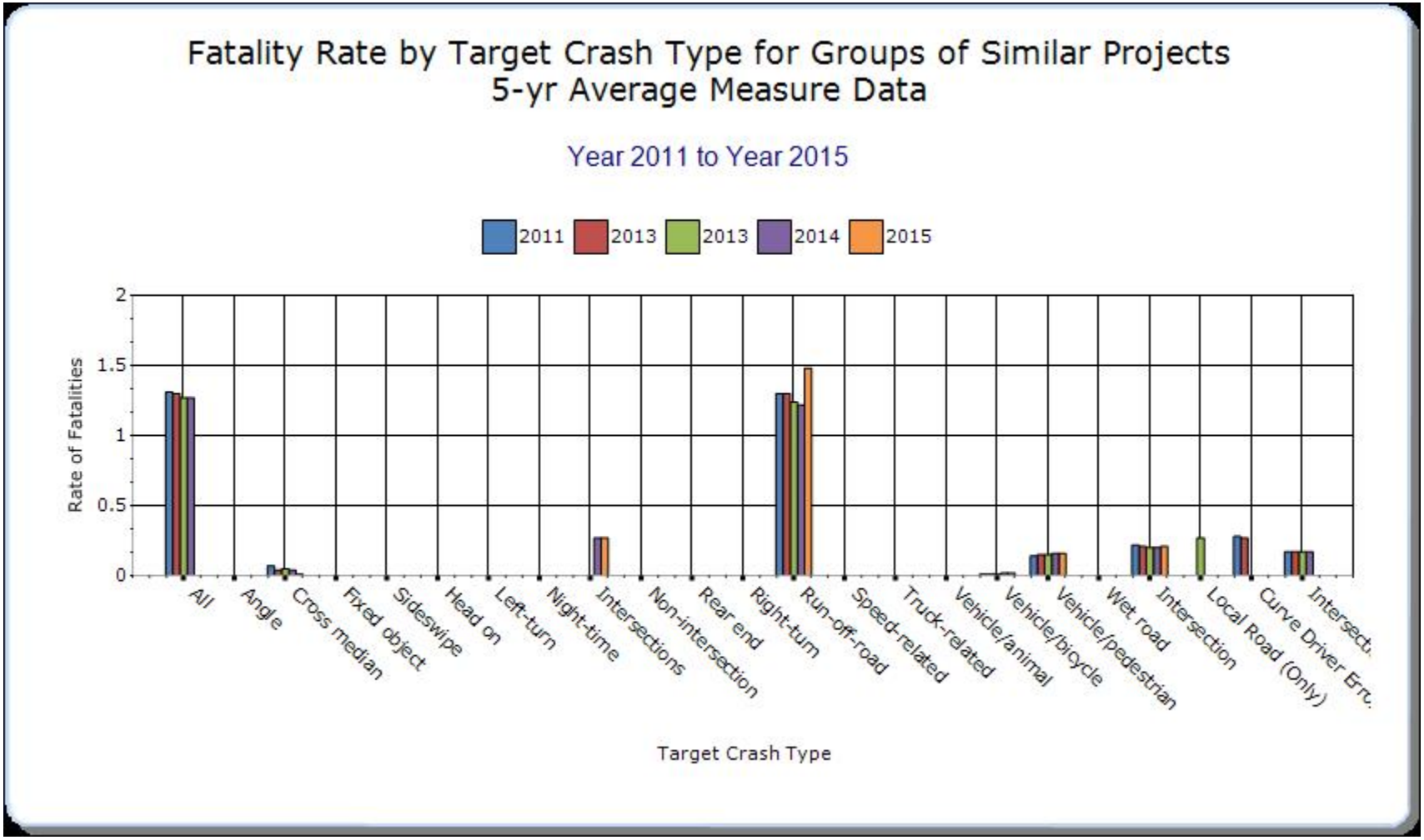
Present the overall effectiveness of groups of similar types of projects.

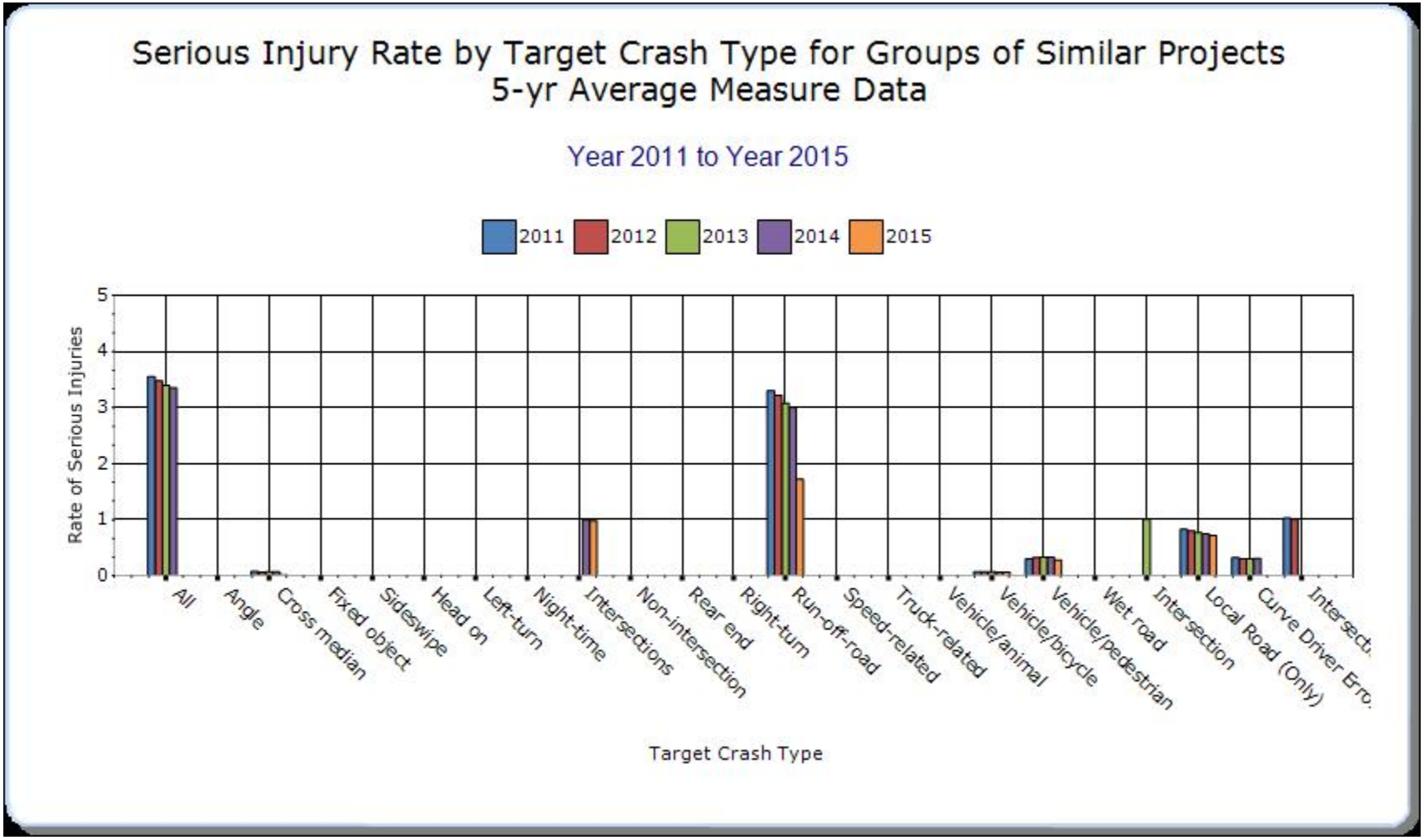
Year - 2015

HSIP Sub-program Types	Target Crash Type	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)	Other-1	Other-2	Other-3
Shoulder Improvement	Run-off-road	742	1433	0.74	0.28			
Roadway Departure	Run-off-road	742	1433	0.74	1.44			
Local Safety	Local Road (Only)	206	717	0.21	0.72			
Pedestrian Safety	Vehicle/pedestrian	157	279	0.16	0.28			
Median Barrier	Cross median	14	12	0.01	0.01			
Intersection	Intersections	266	977	0.27	0.98			
Horizontal Curve								
Bicycle Safety	Vehicle/bicycle	15	58	0.02	0.06			


Fatalities by Target Crash Type for Groups of Similar Projects
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Fatalities
2000
1500
1000
500
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Intersection
Local Road (Only)
Curve Driver Err
Intersect
Target Crash Type


#Serious Injuries by Target Crash Type for Groups of Similar Projects
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Serious Injuries
5000
4000
3000
2000
1000
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Intersection
Local Road (Only)
Curve Driver Err
Intersect
Target Crash Type


Fatality Rate by Target Crash Type for Groups of Similar Projects
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2013
2013
2014
2015
Rate of Fatalities
2
1.5
1
0.5
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Intersection
Local Road (Only)
Curve Driver Err.
Intersect.
Target Crash Type

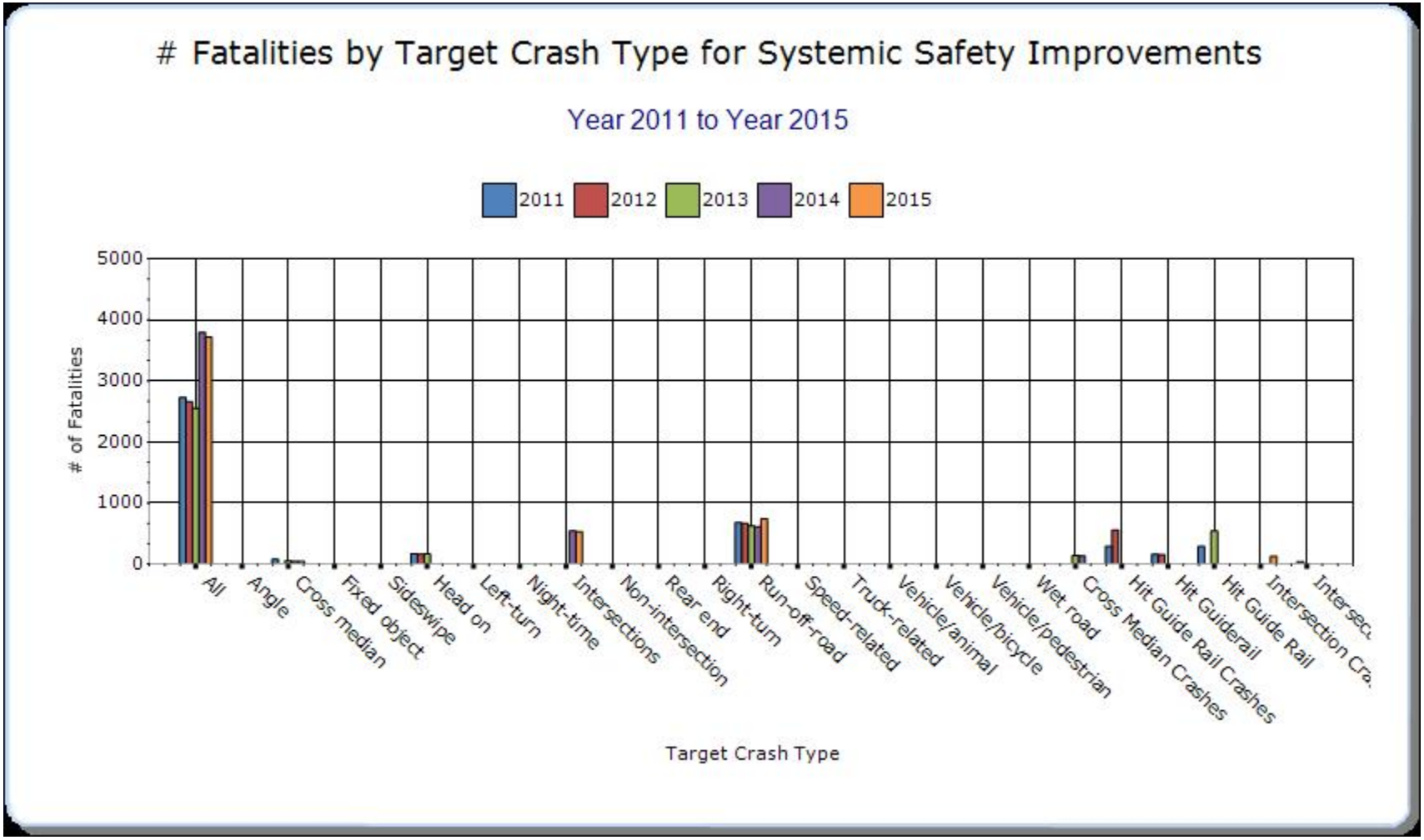


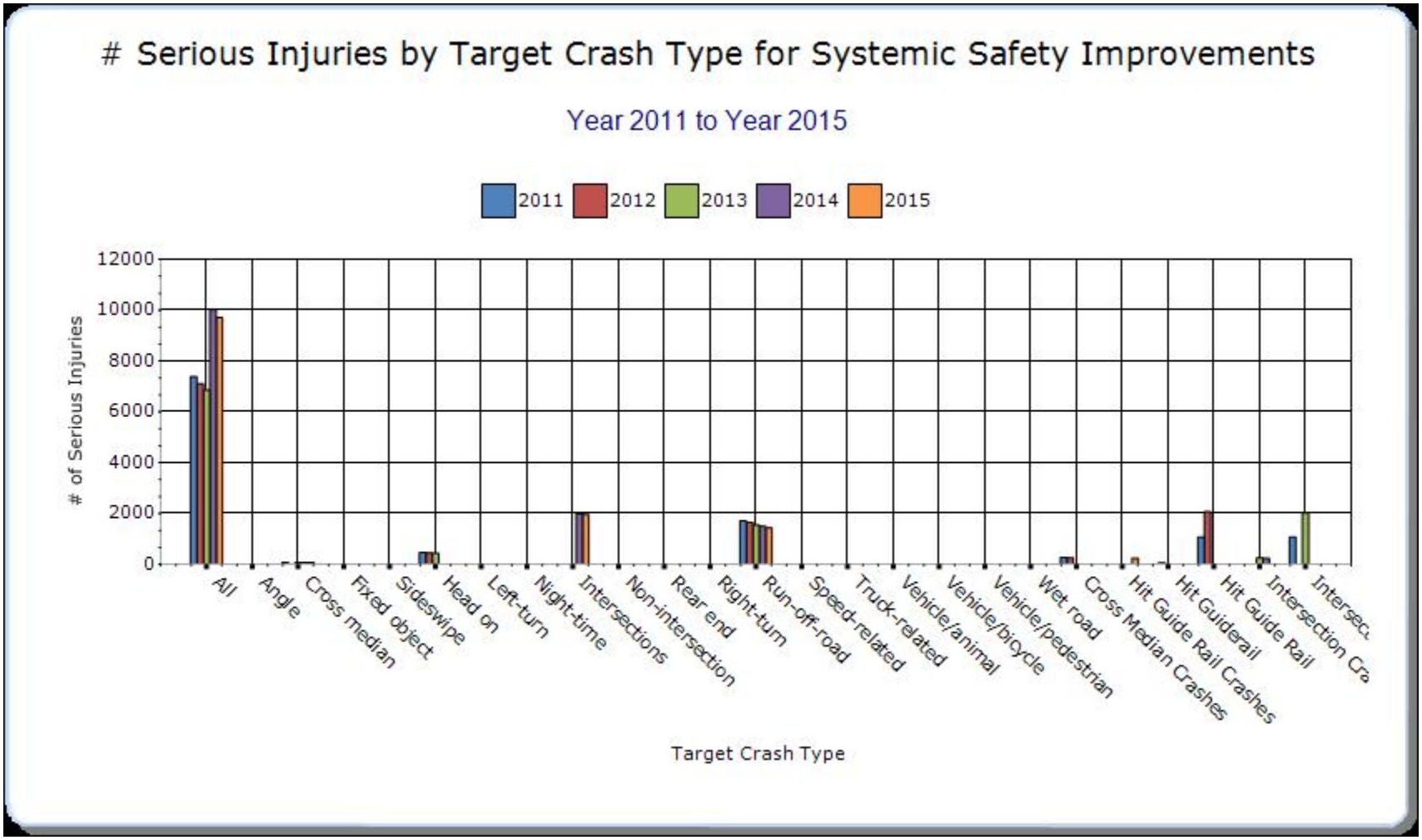
Systemic Treatments

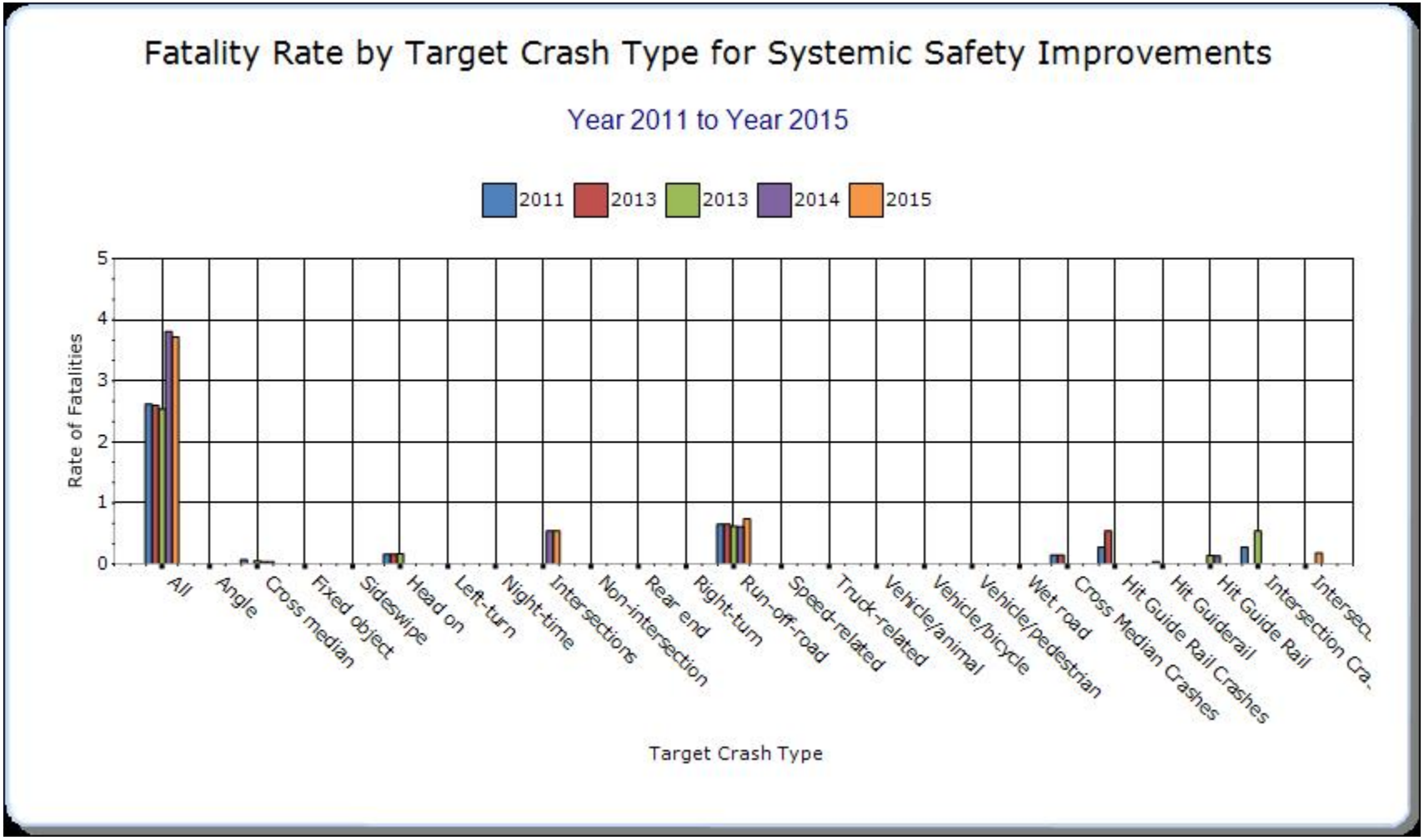
Present the overall effectiveness of systemic treatments.

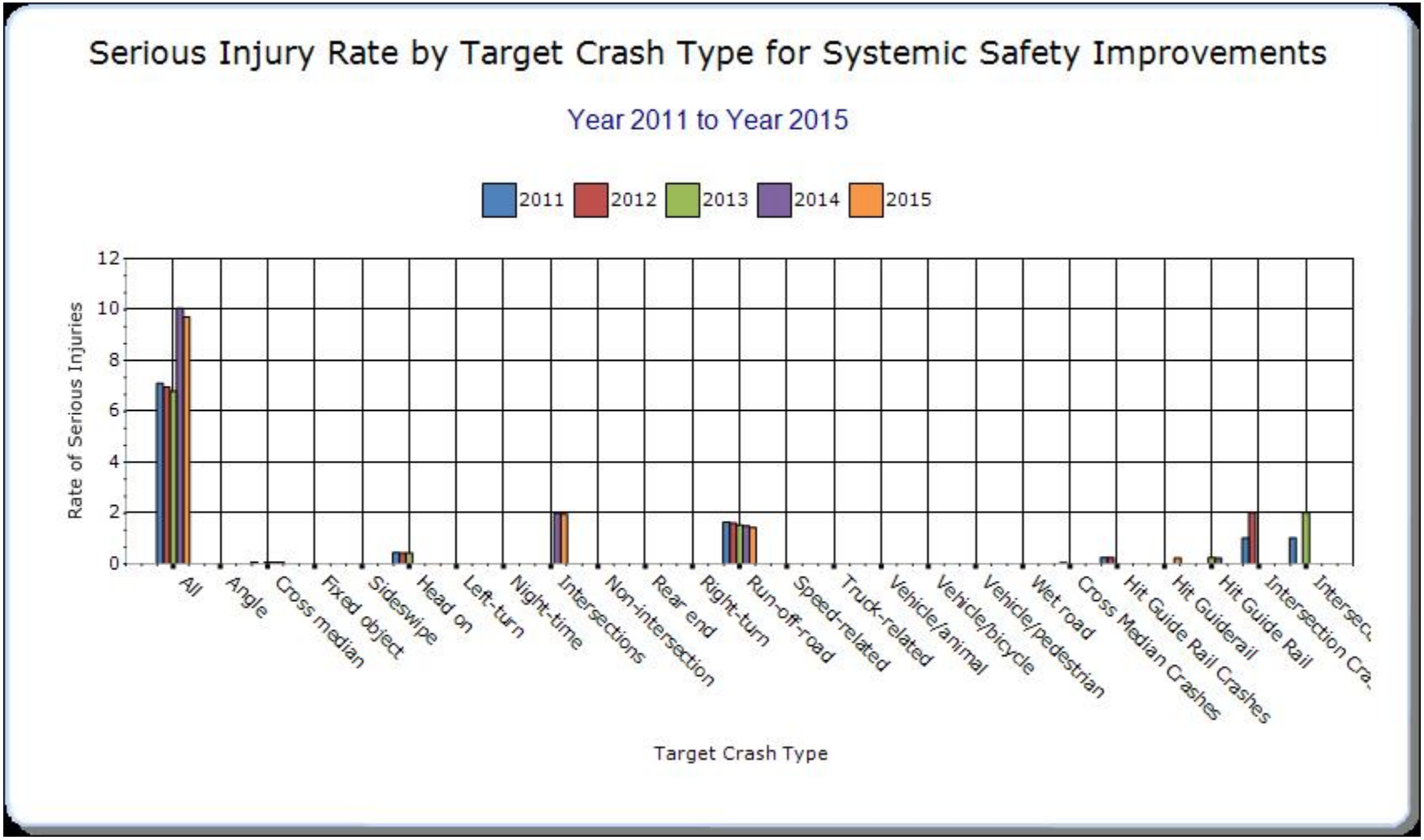
Year - 2015

Systemic improvement	Target Crash Type	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)	Other-1	Other-2	Other-3
Install/Improve Pavement Marking and/or Delineation	All	1240	3235	1.24	3.24			
Pavement/Shoulder Widening	Run-off-road	742	1433	0.74	1.44			
Rumble Strips	All	1240	3235	1.24	3.24			
Cable Median Barriers	Cross median	44	67	0.04	0.07			
Traffic Control Device Rehabilitation	Intersections	266	977	0.27	0.98			
Upgrade Guard Rails	Hit Guiderail	127.8	244	0.18	0.24			
Install/Improve Signing	All	1240	3235	1.24	3.24			
Add/Upgrade/Modify/Remove Traffic Signal	Intersections	266	977	0.27	0.98			


Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Fatalities
5000
4000
3000
2000
1000
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Cross Median Crashes
Hit Guide Rail Crashes
Hit Guiderail
Hit Guide Rail
Intersection Cra
Target Crash Type


Serious Injuries by Target Crash Type for Systemic Safety Improvements
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Serious Injuries
12000
10000
8000
6000
4000
2000
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Cross Median Crashes
Hit Guide Rail Crashes
Hit Guiderail
Hit Guide Rail
Intersection Cra
Intersec
Target Crash Type


Fatality Rate by Target Crash Type for Systemic Safety Improvements
Year 2011 to Year 2015
2011
2013
2013
2014
2015
Rate of Fatalities
0
1
2
3
4
5
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Cross Median Crashes
Hit Guide Rail Crashes
Hit Guiderail
Hit Guide Rail
Intersection Cra
Intersec
Target Crash Type


Serious Injury Rate by Target Crash Type for Systemic Safety Improvements
Year 2011 to Year 2015
2011
2012
2013
2014
2015
Rate of Serious Injuries
0
2
4
6
8
10
12
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Cross Median Crashes
Hit Guide Rail Crashes
Hit Guiderail
Hit Guide Rail
Intersection Cra
Intersec
Target Crash Type

Describe any other aspects of the overall Highway Safety Improvement Program effectiveness on which you would like to elaborate.

Before the recent ruling for MAP-21 and the FAST Act, HSIP funds could be used for driver behavioral safety issues. While using funds for behavioral issues was permitted, PennDOT only used HSIP funds for infrastructure related safety improvements. All behavioral safety aspects for Pennsylvania have been funded by NHTSA or State safety funds. The HSIP funds have resulted in a variety of infrastructure related projects which installed basic warning signs at curves and intersections at various locations across the state to large scale reconstruction projects that rebuilt intersections into safer geometric and operational configurations.

In 2015 fatalities across the nation went up significantly. The Commonwealth of Pennsylvania did have a slight increase in total highway fatalities at 0.4% (5 more fatalities than 2014). This increase was well below the national 8% increase. PennDOT will continue to monitor the crash trends for each year and determine what options are working and what methods need changed to reduce the fatal and serious injury crashes. At the end of 2016 Pennsylvania will adopt a new SHSP. The new SHSP has been in development since January 2016. PennDOT has hosted several steering committee meetings in 2016 to gather input from all safety stakeholders across the state. The new visions, goals, and targets established by the 2016 SHSP will target areas that should reduce fatalities and serious injuries. The new objectives will be established with data to so measurable results can be tracked. The SHSP will not only be adopted by PennDOT, but all other safety stakeholders across the state. The goals of the SHSP will be carried out by MAST (Multi Agency Safety Team).

PennDOT is also in the process of developing a Speed Management Action Plan (SMAP) which is being directed by FHWA. Findings and recommendations from this SMAP will be incorporated into HSIP project selection in the future years.

Project Evaluation

Provide project evaluation data for completed projects (optional).

Location	Functional Class	Improvement Category	Improvement Type	Bef-Fatal	Bef-Serious Injury	Bef-All Injuries	Bef-PDO	Bef-Total	Aft-Fatal	Aft-Serious Injury	Aft-All Injuries	Aft-PDO	Aft-Total	Evaluation Results (Benefit/ Cost Ratio)
Statewide CLRS	Systemic	Roadway	Rumble strips - center											251 miles in 2015 bringing our total up to 5453 miles statewide
Statewide ELR/SRS	systemic	Roadway	Rumble strips - edge or shoulder											72 miles were added this year for a total of 4470 miles Statewide

Statewide High Tension Cable Median Barrier	Systemic	Roadway	Roadway - other											We installed 66 miles in 2015 bringing the total miles up to 206 miles statewide.
Statewide High Friction Surface Treatments	Systemic	Roadway	Pavement surface - high friction surface											We added 21 miles of HFST in 2015 (91 new locations) bringing the total up to 28.41 miles or 154 locations across the state.

Optional Attachments

Sections	Files Attached

Glossary

5 year rolling average means the average of five individual, 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.