Highway Safety Improvement Program

Data Driven Decisions

Pennsylvania
Highway Safety Improvement Program
2015 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 2014, 1,195 people lost their lives on Pennsylvania's roadways - a new 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. We have released updates to several publications that incorporate the concepts of the Highway Safety Manual into our policies and practices. We have also piloted a Highway Safety Manual training course and have begun sessions open to Department personnel at large. 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. There has also been a significant improvement in the quality of applications for Highway Safety Improvement Program funding from the engineering districts as a result of our regional meetings in 2013.

While there remains much work required to reach our goal of reducing highway fatalities by half in the next two decades - a stepping stone on our way to zero deaths - 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?

☐ Central

☐ District

☒ Other Central and District

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

Previously, we had incorporated a new funding formula in response to the increased funding from the MAP-21 legislation:

1) $500,000 base funding for each planning organization

2) $35 million reserved for statewide initiatives, such as the Intersection Safety and Roadway Departure Safety Implementation Plans

3) The remaining amount - approximately $45.5 million - is to be distributed to the planning organizations by a weighted formula. This formula places 50% weight on fatalities and serious injuries and 50% on reportable crashes.

The funds from all three of these categories are applicable to local road problems.

Local road issues are also directly addressed through our Local Technical Assistance Program (LTAP) reports. Upon a request from a municipality, LTAP engineers will perform an engineering study free of charge and recommend safety countermeasures based on their findings. The Walkable Communities Program focuses on pedestrian safety, while the Local Safe Roads Communities Program focuses on local road safety in general. The safety improvements suggested by these two program reports are eligible for HSIP funding. To encourage implementation of the countermeasures, we are advancing a State Transportation Innovation Council (STIC) initiative to combine some of these completed municipalities into regional groups and emplace the countermeasures in a single project. This initiative is currently on-going.

Finally, we will continue to incorporate local road locations onto our Statewide High Crash Location Lists. An updated list has been published for 2015 that includes state road locations; this list will be updated shortly after publication of this Annual Report to include local roads. These high crash locations are typically among the highest priorities for safety funding.

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

☒ Design

☒ Planning

☐ Maintenance

☐ Operations

☒ Governors Highway Safety Office

☒ Other: 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 local 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. 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 improvements at these locations can be considered.

2. Deployment of 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 Deputy Secretary for Highway Administration. Such approval requests must include the following information:

1) General Project Information, including scope, costs and estimated completion dates.
2) District strategy for exceeding its fatality goal, with the consideration of this project.
3) Justification and safety benefit of programming a non-SHCL/Systematic project, related to fatality goals.

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

☒Metropolitan Planning Organizations

☒Governors Highway Safety Office

☐Local Government Association

☒Other: Other-MAST Team - See Question 8 for description

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

☐ Multi-disciplinary HSIP steering committee

☒ Other: 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 SHSP is scheduled for a revision in 2016. The results of the planning process and the impacts of the revised document will be discussed in the 2016 Annual Report.

Program Methodology

Select the programs that are administered under the HSIP.

- ☒ Median Barrier
- ☒ Horizontal Curve
- ☒ Skid Hazard
- ☒ Roadway Departure
- ☒ Local Safety
- ☒ Left Turn Crash
- ☐ Other:
- ☒ Intersection
- ☒ Bicycle Safety
- ☐ Crash Data
- ☒ Low-Cost Spot Improvements
- ☒ Pedestrian Safety
- ☒ Shoulder Improvement
- ☐ Safe Corridor
- ☐ Rural State Highways
- ☐ Red Light Running Prevention
- ☐ Sign Replacement And Improvement
- ☐ Right Angle Crash
- ☐ Segments

Program: **Median Barrier**

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

What data types were used in the program methodology?

Crashes

- ☒ All crashes
- ☐ Fatal crashes only
- ☐ Fatal and serious injury crashes only
- ☐ Other

Exposure

- ☐ Traffic
- ☐ Volume
- ☐ Population
- ☐ Lane miles
- ☐ Other

Roadway

- ☒ Median width
- ☐ Horizontal curvature
- ☐ Functional classification
- ☐ Roadside features
- ☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☐ Yes

☒ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☒ selection committee

☐ Other

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

☒ Rank of Priority Consideration

☐ Ranking based on B/C	
☒ Available funding	2
☐ Incremental B/C	
☐ Ranking based on net benefit	
☐ Other	
☒ 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	☐ Traffic	☐ Median width
☐ Fatal crashes only	☐ Volume	☐ Horizontal curvature
☐ Fatal and serious injury crashes only	☐ Population	☐ Functional classification

☐ Other

☐ Lane miles

☐ Roadside features

☐ Other

☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☒ selection committee

☐ Other

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

☒ Rank of Priority Consideration

☐ Ranking based on B/C	
☒ Available funding	2
☐ Incremental B/C	
☐ Ranking based on net benefit	
☐ Other	
☒ 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	☐ Traffic	☐ Median width
☐ Fatal crashes only	☐ Volume	☐ Horizontal curvature
☐ Fatal and serious injury crashes only	☐ Population	☐ Functional classification
☐ Other	☐ Lane miles	☒ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒Yes

☐No

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

☒Yes

☐No

How are highway safety improvement projects advanced for implementation?

☐Competitive application process

☒selection committee

☐Other

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

☒Rank of Priority Consideration

☐Ranking based on B/C	
☒Available funding	2
☐Incremental B/C	
☐Ranking based on net benefit	
☐Other	
☒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	☐ Traffic	☐ Median width
☐ Fatal crashes only	☐ Volume	☐ Horizontal curvature
☐ Fatal and serious injury crashes only	☐ Population	☐ Functional classification
☐ Other	☐ Lane miles	☐ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☒ selection committee

☐ Other

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

☒ Rank of Priority Consideration

☐ Ranking based on B/C

☒ Available funding 2

☐ Incremental B/C

☐ Ranking based on net benefit

☐ Other

☒ 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	☐ Traffic	☐ Median width
☐ Fatal crashes only	☐ Volume	☐ Horizontal curvature
☐ Fatal and serious injury crashes only	☐ Population	☐ Functional classification
☐ Other	☐ Lane miles	☐ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☒ selection committee

☐ Other

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

☒ Rank of Priority Consideration

- ☐ Ranking based on B/C
- ☒ Available funding 2
- ☐ Incremental B/C
- ☐ Ranking based on net benefit
- ☐ Other
- ☒ 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	☐ Traffic	☐ Median width
☐ Fatal crashes only	☐ Volume	☐ Horizontal curvature
☐ Fatal and serious injury crashes only	☐ Population	☐ Functional classification
☐ Other	☐ Lane miles	☐ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☒ selection committee

☐ Other

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

☐ Rank of Priority Consideration

☐ Ranking based on B/C	
☒ Available funding	2
☐ Incremental B/C	
☐ Ranking based on net benefit	
☐ Other	
☒ 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	☐ Traffic	☐ Median width
☐ Fatal crashes only	☐ Volume	☐ Horizontal curvature

☐ Fatal and serious injury crashes only	☐ Population	☐ Functional classification
☐ Other	☐ Lane miles	☐ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒Yes

☐No

How are highway safety improvement projects advanced for implementation?

☐Competitive application process

☒selection committee

☐Other

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

☒Rank of Priority Consideration

☐Ranking based on B/C	
☒Available funding	2
☐Incremental B/C	
☐Ranking based on net benefit	
☐Other	
☒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	☐ Traffic	☐ Median width
☐ Fatal crashes only	☐ Volume	☐ Horizontal curvature
☐ Fatal and serious injury crashes only	☐ Population	☒ Functional classification
☐ Other	☐ Lane miles	☐ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☒ selection committee

☐ Other

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

☒ Rank of Priority Consideration

☐ Ranking based on B/C

☒ Available funding 2

☐ Incremental B/C

☐ Ranking based on net benefit

☐ Other

☒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	☐Traffic	☐Median width
☐Fatal crashes only	☐Volume	☐Horizontal curvature
☐Fatal and serious injury crashes only	☐Population	☐Functional classification
☐Other	☐Lane miles	☐Roadside features
	☐Other	☐Other

What project identification methodology was used for this program?

☒Crash frequency

☐Expected crash frequency with EB adjustment

☐Equivalent property damage only (EPDO Crash frequency)

☐EPDO crash frequency with EB adjustment

☐Relative severity index

☐Crash rate

☐Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☒ selection committee

☐ Other

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

☒ Rank of Priority Consideration

☐ Ranking based on B/C

☒ Available funding 2

☐ Incremental B/C

☐ Ranking based on net benefit

☐ Other

☒ 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	☐ Traffic	☐ Median width
☐ Fatal crashes only	☐ Volume	☐ Horizontal curvature
☐ Fatal and serious injury crashes only	☐ Population	☐ Functional classification
☐ Other	☐ Lane miles	☐ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☒ selection committee

☐ Other

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

☒ Rank of Priority Consideration

- ☐ Ranking based on B/C
- ☒ Available funding 2
- ☐ Incremental B/C
- ☐ Ranking based on net benefit
- ☐ Other
- ☒ 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	☐ Traffic	☐ Median width
☐ Fatal crashes only	☐ Volume	☐ Horizontal curvature
☐ Fatal and serious injury crashes only	☐ Population	☐ Functional classification

☐ Other

☐ Lane miles

☐ Roadside features

☐ Other

☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☒ selection committee

☐ Other

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

☐ Rank of Priority Consideration

☐ Ranking based on B/C	
☒ Available funding	2
☐ Incremental B/C	
☐ Ranking based on net benefit	
☐ Other	
☒ 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
- ☐ Install/Improve Lighting
- ☒ Add/Upgrade/Modify/Remove Traffic Signal
- ☐ Other

What process is used to identify potential countermeasures?

- ☒ Engineering Study
- ☒ Road Safety Assessment
- ☐ Other:

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

- ☒ Highway Safety Manual
- ☐ Road Safety audits
- ☐ Systemic Approach

☐ Other:

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

Last year, we described the implementation efforts related to the Highway Safety Manual (HSM). All three of the initiatives have been advanced significantly:

1) Pennsylvania-specific SPFs were developed through a research contract with Penn State University. The next step of the process is to develop regionalized SPFs to account for the differences in driving habits and roadway characteristics across the Commonwealth - SPFs related to two lane rural roads in the farmlands of Lancaster County may not always be applicable to two lane rural roads in the mountains of Cameron County. The regionalized SPFs will therefore provide more accurate results. This project - also performed in conjunction with Penn State - has been initiated.

2) The Pennsylvania-specific HSM worksheet has been developed in draft format and has been introduced through the HSM training sessions. While not yet a formal requirement for projects, staff in the engineering districts have been using the worksheet and providing feedback.

3) Several publications have been revised to include language related to the HSM. The most important of these is our Publication 638, the *District Highway Safety Guidance Manual*.

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.

☐ Calendar Year

☒ State Fiscal Year

☐ Federal Fiscal Year

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

Funding Category	Programmed*		Obligated	
HSIP (Section 148)	92485000	90 %	43091467	82 %
HRRRP (SAFETEA-LU)	0	0 %	115130	0 %
HRRR Special Rule				
Penalty Transfer - Section 154				
Penalty Transfer – Section 164				
Incentive Grants - Section 163				
Incentive Grants (Section 406)				
Other Federal-aid Funds (i.e. STP, NHPP)				
State and Local Funds	10000000	10 %	9070059.58	17 %

Totals	102485000	100%	52276656.58	100%

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

0 %

How much funding is obligated to local safety projects?

0 %

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.

A continuing concern from the previous HSIP Annual Reports is the difficulty ensuring that funds are being properly obligated towards safety projects with the greatest potential of improving safety conditions. As will be seen later in this report (in the section related to the benefit-cost ratio), there are many projects still coming through the project design and construction funnel that have been grandfathered into the HSIP program. These projects would not meet current selection criteria for a variety of reasons - limited numbers of fatal or serious injury crashes, countermeasures not directly related to crash history, maintenance-type improvements, etc - but due to historic obligations are still eligible for HSIP funds. We encourage our engineering districts to find other sources of funding for these projects, but this is a request rather than a requirement. It will take some time for the remaining projects to progress through to completion.

A continuing impediment is the distribution of funds to the Planning Organizations by formula without maintaining a centralized control over the monies. While approval to use HSIP funds on a project is retained at a high level, the projects and funding proposals are all generated from the Planning Organizations. We have recently adjusted the funding distribution formula (in response to the increased funding levels through the MAP-21 legislation) to reserve $35 million for statewide initiatives, which will help provide additional high-level control of funding and project selection. Last year's HSIP meetings were used to thoroughly educate Planning Organization staff about the intent and priorities of the HSIP program and should lead to more effective project and funding choices.

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

In the 2014 Annual Report, we mentioned that the engineering districts were beginning to release projects related to the FHWA Intersection Safety Implementation and Roadway Departure Safety Implementations Plans (ISIP and RDIP, respectively). As will be seen in the project listing later in this report, there are a large number of these projects being released for construction. We hope to continue this momentum and perhaps begin incorporating the countermeasures from these plans at other locations, as well.

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
Dunmore Signal Network	Intersection traffic control Modify traffic signal timing - general retiming	1.22 Miles	1840062	7394090	HSIP (Section 148)	Rural Principal Arterial - Other	18286	35	State Highway Agency	Intersections	
Goshen @ Darby-PaoliRd(F)	Alignment Horizontal curve realignment	0.29 Miles	3000	1522577	HSIP (Section 148)	Rural Major Collector	6938	25	State Highway Agency	Roadway Departure	
PA 68/Dolby Street Inters	Intersection geometry Auxiliary lanes - add left-turn lane	0.81 Miles	450000	3750000	HSIP (Section 148)	Urban Principal Arterial - Other	10649	35	State Highway Agency	Intersections	
PA 28/US 322 Intersection	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	0.66 Miles	333720	1500000	HSIP (Section 148)	Urban Minor Arterial	4237	35	State Highway Agency	Intersections	

West Carson St. Viaduct	Pedestrians and bicyclists Install sidewalk	2.04 Miles	175652	46717078	HSIP (Section 148)	Urban Principal Arterial - Other	11581	35	State Highway Agency	Pedestrians	
Clairton Blvd/Saw Mill Rn	Intersection geometry Auxiliary lanes - add two-way left-turn lane	1.84 Miles	537500	17560000	HSIP (Section 148)	Urban Principal Arterial - Other	42233	40	State Highway Agency	Intersections	
I-376/I79 - Fort Pitt Tun	Interchange design Acceleration / deceleration / merge lane	12.71 Miles	536915	87091000	HSIP (Section 148)	Urban Principal Arterial - Interstate	79400	50	State Highway Agency	Intersections	
Torchlight Intersection	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	0.48 Miles	4741173	8084950	HSIP (Section 148)	Rural Principal Arterial - Other	8830	45	State Highway Agency	Intersections	
PA 519/SR 1055 Intersect.	Intersection traffic control Modify control - all-way stop to roundabout	0.2 Miles	1504085	5700000	HSIP (Section 148)	Rural Minor Arterial	10681	45	State Highway Agency	Intersections	
US 30 Corridor Impvmts	Non-infrastructure Road safety audits	15.09 Miles	180000	1200000	HSIP (Section 148)	Urban Principal Arterial - Other	19878	40	State Highway Agency	Safety Studies	

Nyes/Dvnshre Hts Safety	Intersection traffic control Modify traffic signal - modernization/replace ment	0.18 Miles	10000 0	400000	HSIP (Sectio n 148)	Urban Major Collector	116 71	35	State Highwa y Agency	Intersectio ns	
N Pensyl Hollow Rd Intrsn	Intersection geometry Auxiliary lanes - add left-turn lane	0.46 Miles	70693	2000000	HSIP (Sectio n 148)	Rural Major Collector	463 2	55	State Highwa y Agency	Intersectio ns	
SR 322/119 Intersection	Intersection geometry Auxiliary lanes - add left-turn lane	0.49 Miles	40951. 24	1610952	HSIP (Sectio n 148)	Rural Principal Arterial - Other	731 0	35	State Highwa y Agency	Intersectio ns	
SR 183/4016 (Schaeffers)	Intersection geometry Intersection geometrics - miscellaneous/other/un specified	0.88 Miles	10404 46	3107160	HSIP (Sectio n 148)	Rural Minor Arterial	127 23	45	State Highwa y Agency	Intersectio ns	
Cape Horn Rd Improvements	Roadway Roadway widening - travel lanes	1.21 Miles	52000 0	6056268 .9	HSIP (Sectio n 148)	Urban Principal Arterial - Other	147 02	40	State Highwa y Agency	Lane Departure	
Exit 7 Improvements	Intersection traffic control Intersection traffic control - other	0.61 Miles	70000	2228041	HSIP (Sectio n 148)	Rural Principal Arterial -	948 5	45	State Highwa y	Intersectio ns	

						Other			Agency		
Hardies Road Intersection	Intersection geometry Auxiliary lanes - add left-turn lane	0.77 Miles	60000	3066028	HSIP (Section 148)	Urban Principal Arterial - Other	25390	40	State Highway Agency	Intersections	
Wrong Way Ramps	Roadway signs and traffic control Roadway signs and traffic control - other	21.81 Miles	48000	1089848	HSIP (Section 148)		0	0	State Highway Agency	Wrong Way Prevention	
CCIP Palmyra to Cleona	Intersection traffic control Modify traffic signal - modernization/replacement	8.93 Miles	86284	3666171	HSIP (Section 148)	Urban Principal Arterial - Other	15647	35	State Highway Agency	Intersections	
SR 222 - 863 Early Action	Intersection traffic control Modify traffic signal - modernization/replacement	1.15 Miles	300000	300000	HSIP (Section 148)	Rural Principal Arterial - Other	27986	55	State Highway Agency	Intersections	
SR 322 Safety Improvement	Intersection geometry Auxiliary lanes - add left-turn lane	1.84 Miles	440000	6326490	HSIP (Section 148)	Rural Principal Arterial - Other	10652	55	State Highway Agency	Intersections	
Bigelow/BloomfieldBr-Baum	Intersection traffic control Modify traffic	1.81	99917	1457500	HSIP (Sectio	Urban Principal	160	35	State Highwa	Intersectio	

	signal - modernization/replacement	Miles	0	0	n 148)	Arterial - Other	99		y Agency	ns	
222 & Shantz & 863 Improv	Intersection traffic control Intersection traffic control - other	1.15 Miles	160000	6000000	HSIP (Section 148)	Rural Principal Arterial - Other	27986	55	State Highway Agency	Intersections	
PA 100 Crdr Sfty Imprv	Intersection geometry Auxiliary lanes - add left-turn lane	9.34 Miles	628000	4500000	HSIP (Section 148)	Rural Principal Arterial - Other	15182	45	State Highway Agency	Intersections	
Martins RdtoChristians Rd	Roadside Barrier - concrete	1.77 Miles	60000	1100000	HSIP (Section 148)	Rural Principal Arterial - Other	22765	55	State Highway Agency	Roadway Departure	
SR 118 & Idetown Rd.	Intersection geometry Auxiliary lanes - add left-turn lane	0.08 Miles	82818.79	1139258	HSIP (Section 148)	Rural Minor Arterial	6481	45	State Highway Agency	Intersections	
Olney:Broad-Rising Sun(C)	Intersection traffic control Modify traffic signal - modernization/replacement	1.61 Miles	3495160	3842998	HSIP (Section 148)	Urban Principal Arterial - Other	11034	30	State Highway Agency	Intersections	

Erie Av: Broad St. - K St	Pedestrians and bicyclists Pedestrian signal	2.47 Miles	475000	4500000	HSIP (Section 148)	Urban Principal Arterial - Other	9820	30	State Highway Agency	Pedestrians	
PA 116 and Oxford Ave	Intersection geometry Auxiliary lanes - add left-turn lane	0.43 Miles	225000	1000000	HSIP (Section 148)	Urban Principal Arterial - Other	6464	25	State Highway Agency	Intersections	
RATS CableGuiderail Replc	Roadside Roadside - other	59.61 Miles	200.68	1493101.47	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
US11 & PA997 Intersection	Roadway Roadway widening - travel lanes	2.08 Miles	153226	2255384	HSIP (Section 148)	Rural Minor Arterial	9936	45	State Highway Agency	Lane Departure	
Weigh Scales to Paxinos	Intersection geometry Auxiliary lanes - add two-way left-turn lane	5.41 Miles	236000	1760000	HSIP (Section 148)	Rural Principal Arterial - Other	11950	55	State Highway Agency	Intersections	
PA31 W Somrst Corridr Imp	Intersection geometry Auxiliary lanes - add two-way left-turn lane	0.86 Miles	1578009	4320000	HSIP (Section 148)	Urban Principal Arterial - Other	7567	40	State Highway Agency	Intersections	

US 6 Center Turn Lane	Intersection geometry Auxiliary lanes - add two-way left-turn lane	0.67 Miles	550000	2515860	HSIP (Section 148)	Rural Principal Arterial - Other	10821	45	State Highway Agency	Intersections	
PA 68 Clarion Curve	Intersection geometry Auxiliary lanes - add two-way left-turn lane	0.63 Miles	371850	4360000	HSIP (Section 148)	Urban Principal Arterial - Other	10649	35	State Highway Agency	Intersections	
Post & Cable Guide Rail	Roadside Roadside - other	6.92 Miles	137000	1500000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
United High School Curve	Alignment Horizontal curve realignment	1.36 Miles	4003330	8382001	HSIP (Section 148)	Rural Minor Arterial	4839	45	State Highway Agency	Roadway Departure	
Yellow Crk Park Intersect	Intersection geometry Auxiliary lanes - add two-way left-turn lane	0.68 Miles	3086100	3415000	HSIP (Section 148)	Rural Principal Arterial - Other	7315	55	State Highway Agency	Intersections	
PA 272 Intersection Impvt	Intersection traffic control Modify control - all-way stop to roundabout	1.78 Miles	45000	2800000	HSIP (Section 148)	Rural Principal Arterial - Other	15355	55	State Highway Agency	Intersections	

SR54/3009 Int Improvement	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	0.37 Miles	423200	423200	HSIP (Section 148)	Rural Principal Arterial - Other	15098	45	State Highway Agency	Intersections	
US22 Frankstown Intrsctns	Intersection geometry Intersection geometrics - realignment to align offset cross streets	0.93 Miles	30000	9160000	HSIP (Section 148)	Rural Principal Arterial - Other	5993	55	State Highway Agency	Intersections	
SR 248/946 Intersctn Impr	Intersection traffic control Modify traffic signal - modernization/replacement	0.15 Miles	355000	842920	HSIP (Section 148)	Rural Principal Arterial - Other	8602	40	State Highway Agency	Intersections	
Bridgeville Rd Shoulders	Shoulder treatments Widen shoulder - paved or other	0.84 Miles	1317597	1317597	HSIP (Section 148)	Rural Major Collector	1674	40	State Highway Agency	Roadway Departure	
Mount Zion Rd Improvement	Intersection traffic control Modify traffic signal - modernization/replacement	2.48 Miles	175500	657392	HSIP (Section 148)	Urban Principal Arterial - Other	22480	35	State Highway Agency	Intersections	
Bull Road Improvement	Roadway Pavement surface - miscellaneous	0.37 Miles	216000	766467.85	HSIP (Sectio	Rural Minor	8966	40	State Highway	Lane Departure	

					n 148)	Arterial			Agency		
Philipsburg Add Center Ln	Intersection geometry Auxiliary lanes - add two-way left-turn lane	1.43 Miles	50000	6421000	HSIP (Section 148)	Rural Principal Arterial - Other	11034	55	State Highway Agency	Intersections	
SR 66/948 Intchg Improve	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	1.38 Miles	368794	2500000	HSIP (Section 148)	Rural Minor Arterial	2593	55	State Highway Agency	Intersections	
Wmspt. to Jersey Shore	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	12.89 Miles	700000	16500000	HSIP (Section 148)	Rural Principal Arterial - Other	22765	55	State Highway Agency	Intersections	
US220/SR4018 Intersection	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	0.26 Miles	525000	1241200	HSIP (Section 148)	Rural Principal Arterial - Other	14566	40	State Highway Agency	Intersections	
Auction Road Phase II	Interchange design Convert at-grade intersection to interchange	1.56 Miles	2788616	14412347	HSIP (Section 148)	Rural Principal Arterial - Other	6259	55	State Highway Agency	Intersections	

Union Deposit Road Safety	Intersection traffic control Modify traffic signal - modernization/replacement	1.53 Miles	1098027	1098026.1	HSIP (Section 148)	Urban Principal Arterial - Other	27943	35	State Highway Agency	Intersections	
Basin Street Safety Imprv	Non-infrastructure Road safety audits	0	1399	753494	HSIP (Section 148)	Urban Local Road or Street	0	35	City of Municipal Highway Agency	Safety Studies	
422 & Ramona Rd Intersect	Non-infrastructure Road safety audits	1.07 Miles	290000	1035000	HSIP (Section 148)	Urban Principal Arterial - Other	14602	55	State Highway Agency	Safety Studies	
51 Safety/Midwood-Edgebro	Intersection geometry Auxiliary lanes - add two-way left-turn lane	1.84 Miles	1360000	1360000	HSIP (Section 148)	Urban Principal Arterial - Other	42233	35	State Highway Agency	Intersections	
Colebrook Road Improvemt	Non-infrastructure Road safety audits	3.55 Miles	50000	3000000	HSIP (Section 148)	Rural Major Collector	7670	45	State Highway Agency	Safety Studies	
Cameron St Low Cost Safe	Intersection traffic control Systemic improvements - signal-	6.1 Miles	350000	722001.97	HSIP (Sectio	Urban Principal Arterial -	8135	35	State Highway	Intersections	

	controlled				n 148)	Other			Agency		
US220 & PA199 Int	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	0.22 Miles	250000	1196600	HSIP (Section 148)	Rural Principal Arterial - Other	14566	40	State Highway Agency	Intersections	
SR220/SR2027 Intersection	Shoulder treatments Widen shoulder - paved or other	1.1 Miles	150000	1500000	HSIP (Section 148)	Rural Minor Arterial	9357	55	State Highway Agency	Intersections	
SR 5: Grngarden-Chestnut	Roadway Pavement surface - miscellaneous	3.59 Miles	555000	1355000	HSIP (Section 148)	Urban Principal Arterial - Other	13880	40	State Highway Agency	Lane Departure	
SR 5: Chestnut-Bayfront	Roadway Pavement surface - miscellaneous	2.47 Miles	500000	1103000	HSIP (Section 148)	Urban Principal Arterial - Other	19258	40	State Highway Agency	Lane Departure	
Rock Fall Barrier	Roadside Fencing	0.16 Miles	189652	240000	HSIP (Section 148)	Rural Principal Arterial - Other	14074	55	State Highway Agency	Roadside Safety	
D10 Systemic Safety	Miscellaneous	0	288000	1941113.18	HSIP (Sectio		0	0	State Highway	Systemic Improvem	

					n 148)				Agency	ents	
District Wide Rumbles	Roadway Rumble strips - unspecified or other	12.86 Miles	1001892	997254.59	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Lycoming Median Guiderail	Roadside Barrier - cable	43.85 Miles	679000	679000	HSIP (Section 148)	Rural Principal Arterial - Other	12900	0	State Highway Agency	Roadway Departure	
D9 HSIP CMB	Roadside Barrier - cable	18.34 Miles	460032	750000	HSIP (Section 148)	Rural Principal Arterial - Interstate	20762	55	State Highway Agency	Roadway Departure	
Erie ISIP/RDIP Systematic	Roadside Roadside - other	0	100000	500000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Mercer ISIP/RDIP System	Roadside Roadside - other	0	100000	500000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
NW ISIP/RDIP Systematic	Roadside Roadside - other	0	100000	500000	HSIP (Section 148)		0	0	State Highway	Roadway Departure	

									Agency		
Intersectn Safety Imp.(C)	Intersection traffic control Systemic improvements - stop-controlled	0	2403840	2403840	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Wrong Way Entry Signs (C)	Roadway signs and traffic control Roadway signs and traffic control - other	0	225160	300000	HSIP (Section 148)		0	0	State Highway Agency	Wrong Way Prevention	
2013-14 Centre Reg ISIP	Intersection traffic control Systemic improvements - stop-controlled	0	10000	15000	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Roadway Depart. Safety(C)	Roadside Roadside - other	0	150000	1700000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
SR2016 at RiverAve Signal	Intersection traffic control Modify traffic signal - modernization/replacement	0.09 Miles	80000	250000	HSIP (Section 148)	Urban Minor Arterial	8366	35	State Highway Agency	Intersections	
ISIP SYSTEMATIC	Intersection traffic control Systemic improvements - stop-	0	64400	169400	HSIP (Sectio		0	0	State Highway	Intersections	

	controlled				n 148)				Agency		
RDIP SYSTEMATIC	Roadside Roadside - other	0	506000	889950	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
15th Street Corridor	Intersection traffic control Modify traffic signal - modernization/replacement	0.7 Miles	55600	1175000	HSIP (Section 148)	Urban Minor Arterial	17403	30	State Highway Agency	Intersections	
US322/Murray Rd/VoTech Rd	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	0.09 Miles	318000	353334	HSIP (Section 148)	Rural Minor Arterial	2531	55	State Highway Agency	Intersections	
W Phila Intrsc Upgrdes(C)	Intersection traffic control Modify traffic signal - modernization/replacement	5.21 Miles	1973390	1973390	HSIP (Section 148)	Urban Principal Arterial - Other	14910	30	State Highway Agency	Intersections	
Brewery Hill to Clfd Crk	Roadway Pavement surface - miscellaneous	4.33 Miles	315000	2400000	HSIP (Section 148)	Urban Principal Arterial - Other	7383	35	State Highway Agency	Lane Departure	

Lycoming Cable Guiderail	Roadside Barrier - cable	0	60000	400000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
NTIER Cable Guiderail	Roadside Barrier - cable	0	61550	400000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
SR 54 Corridor Study	Non-infrastructure Road safety audits	2.43 Miles	250000	250000	HSIP (Section 148)	Rural Principal Arterial - Other	19546	55	State Highway Agency	Safety Studies	
D9 2015 HSIP HFS	Roadway Pavement surface - high friction surface	0	538642	658642	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
D10-2015 Systematic RDIP	Roadside Roadside - other	0	500000	716159	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Wrong Way Ramp Updates	Roadway signs and traffic control Roadway signs and traffic control - other	0	10000	490000	HSIP (Section 148)		0	0	State Highway Agency	Wrong Way Prevention	

2015 Systematic Sig Safe	Intersection traffic control Systemic improvements - signal-controlled	0	250000	250000	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
RDIP-2015 GuideRail Upg	Roadside Barrier - other	0	1000000	1591559	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Tioga US15 MCGR	Roadside Barrier - cable	21.28 Miles	10000	1200000	HSIP (Section 148)	Rural Principal Arterial - Other	8425	65	State Highway Agency	Roadway Departure	
D3 CGR Replacement	Roadside Roadside - other	0	40000	529000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Lyco US15 MCGR	Roadside Barrier - cable	28.33 Miles	30000	650000	HSIP (Section 148)	Rural Principal Arterial - Other	6837	65	State Highway Agency	Roadway Departure	
US15 Wrong Way Ramps	Roadway signs and traffic control Roadway signs and traffic control - other	0	30000	205000	HSIP (Section 148)		0	0	State Highway Agency	Wrong Way Prevention	

D3 RDIP	Roadside Roadside - other	0	80000	270000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
DW ISIP Signal Impr-2015	Intersection traffic control Systemic improvements - signal-controlled	0	45000	1200000	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
DW Systematic Impr 2015	Roadside Roadside - other	0	110000	2325000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
I-80 Median Barrier	Roadside Barrier - cable	6 Miles	167140	1000000	HSIP (Section 148)	Rural Principal Arterial - Interstate	29252	55	State Highway Agency	Roadway Departure	
I-380 Median Barrier	Roadside Barrier - cable	7 Miles	111430	1350000	HSIP (Section 148)	Rural Principal Arterial - Interstate	24714	55	State Highway Agency	Roadway Departure	
District Signal Upgrades	Intersection traffic control Modify traffic signal - modernization/replacement	0	50000	700000	HSIP (Section 148)		0	0	State Highway Agency	Intersections	

SR 10-Reading-FlashingWrn	Intersection traffic control Intersection flashers - add overhead (continuous)	0.24 Miles	39100	74750	HSIP (Section 148)	Urban Minor Arterial	9700	35	State Highway Agency	Intersections	

Progress in Achieving Safety Performance Targets

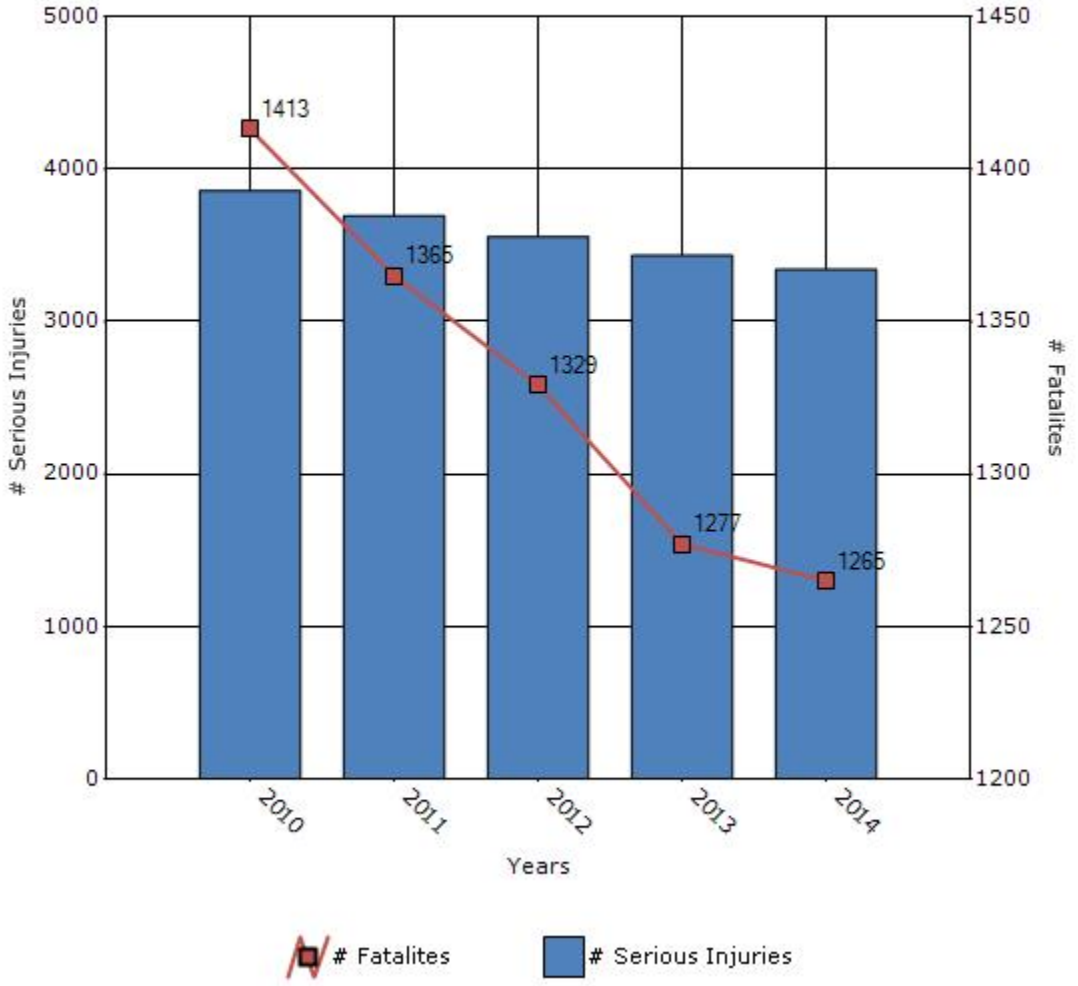
Overview of General Safety Trends

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

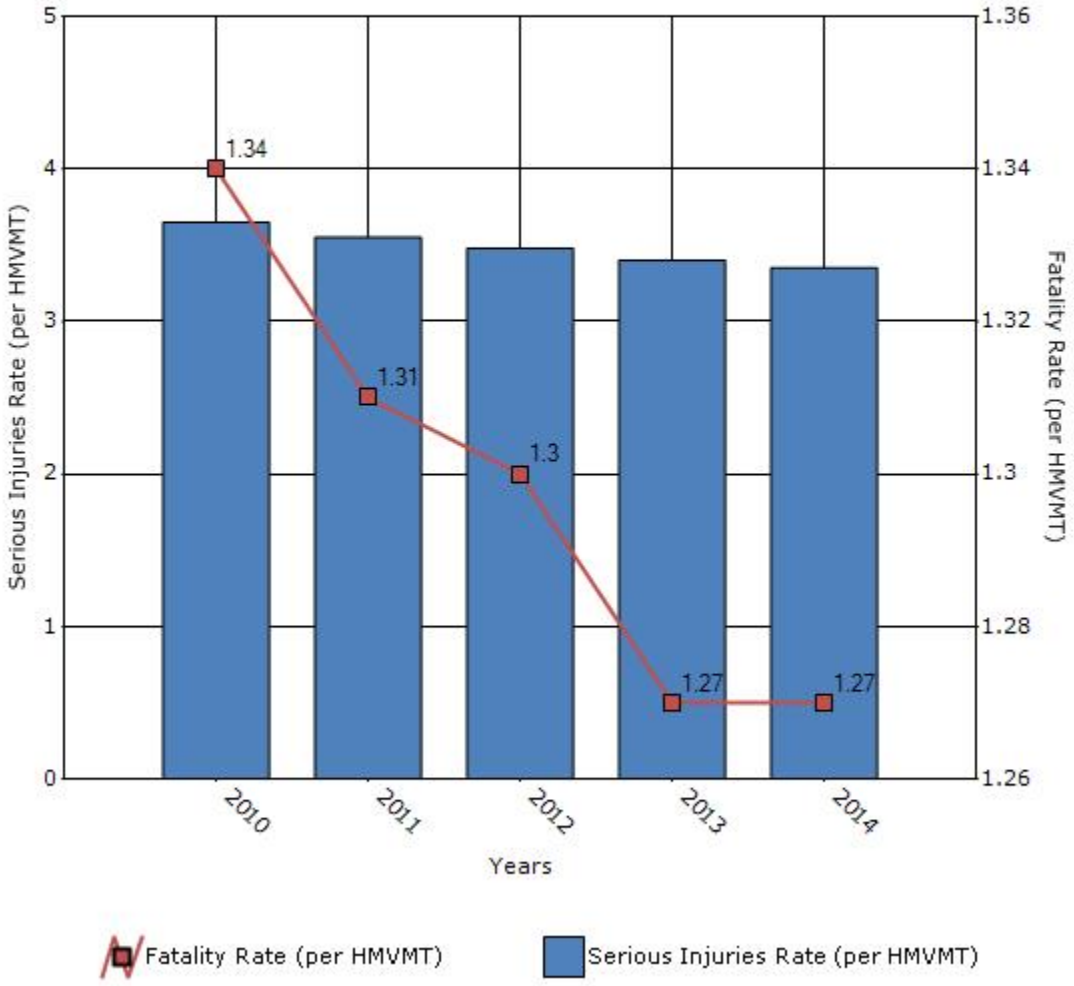
Performance Measures*	2010	2011	2012	2013	2014
Number of fatalities	1413	1365	1329	1277	1265
Number of serious injuries	3858	3693	3556	3432	3340
Fatality rate (per HMVMT)	1.34	1.31	1.3	1.27	1.27
Serious injury rate (per HMVMT)	3.65	3.55	3.48	3.4	3.35

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

Number of Fatalities and Serious injuries for the Last Five Years



Rate of Fatalities and Serious injuries for the Last Five Years

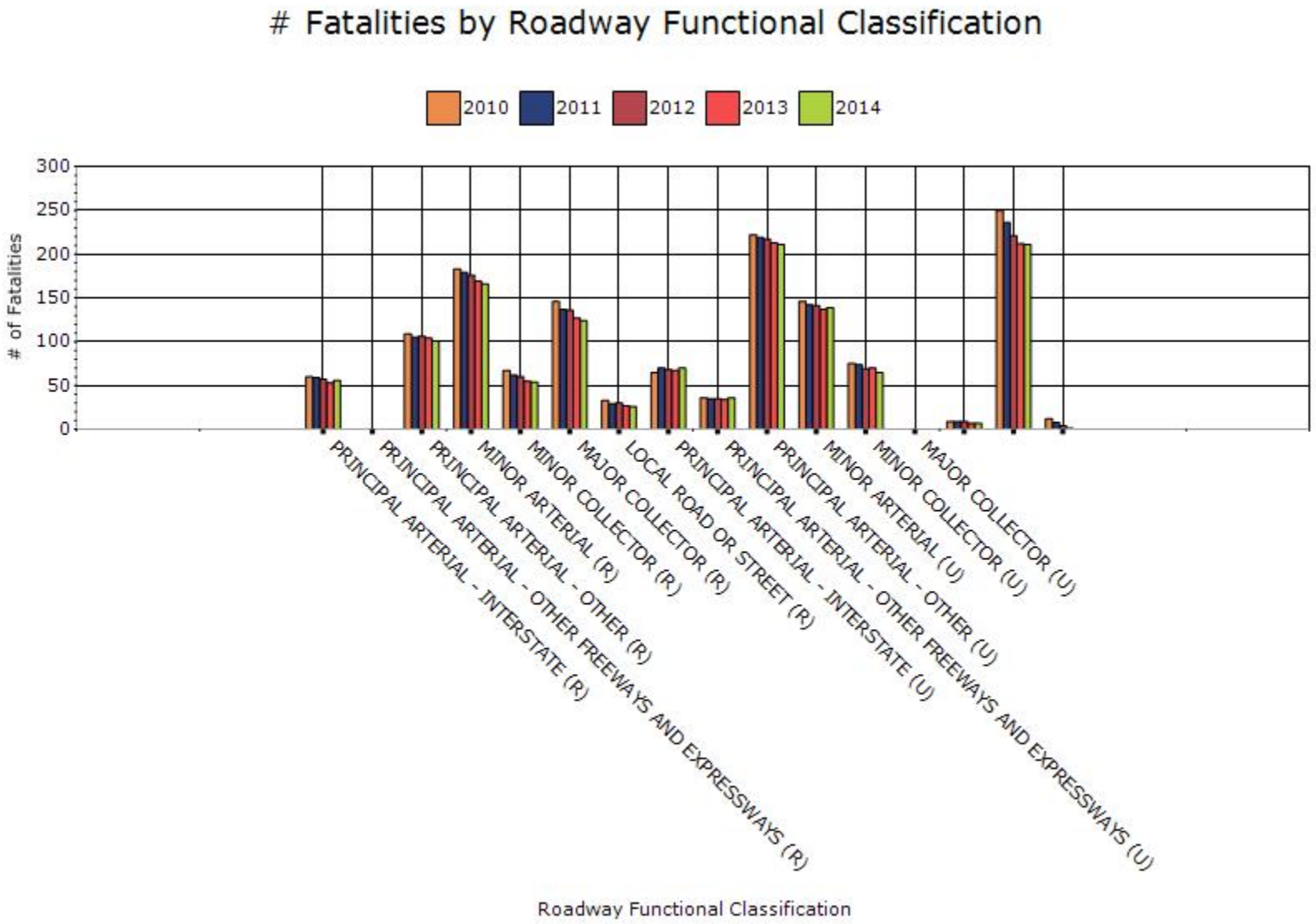


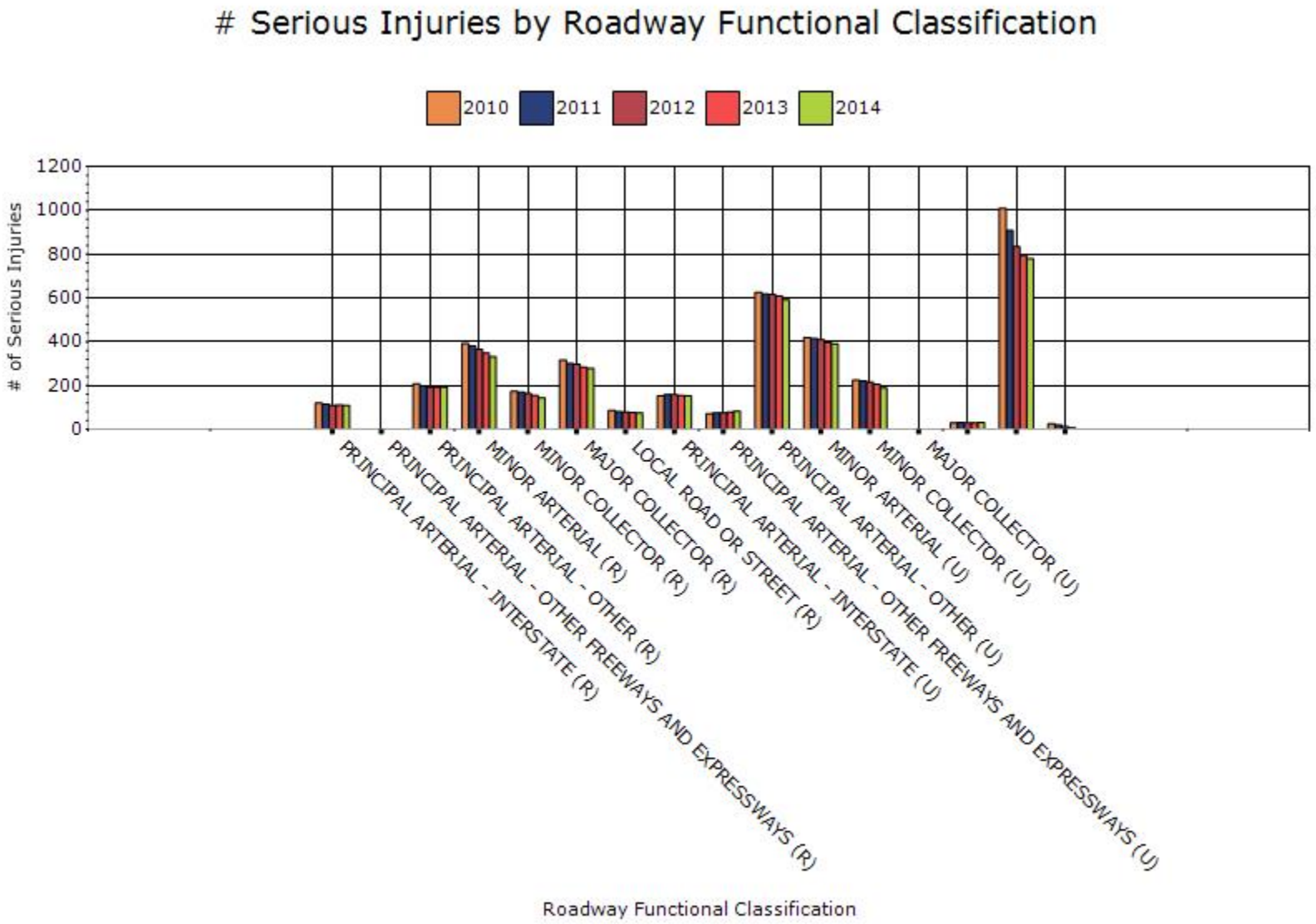
To the maximum extent possible, present performance measure* data by functional classification and ownership.

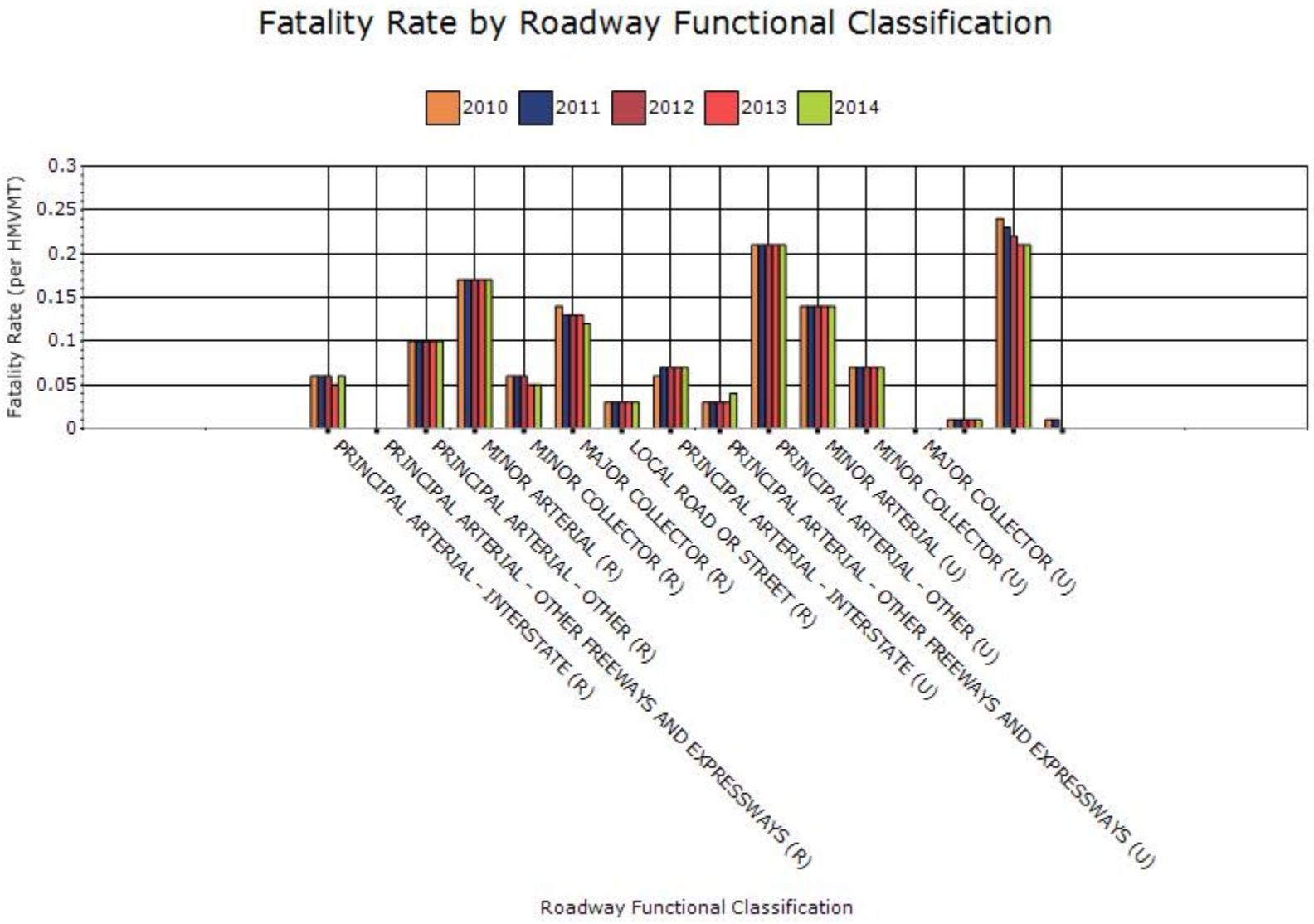
Year - 2014

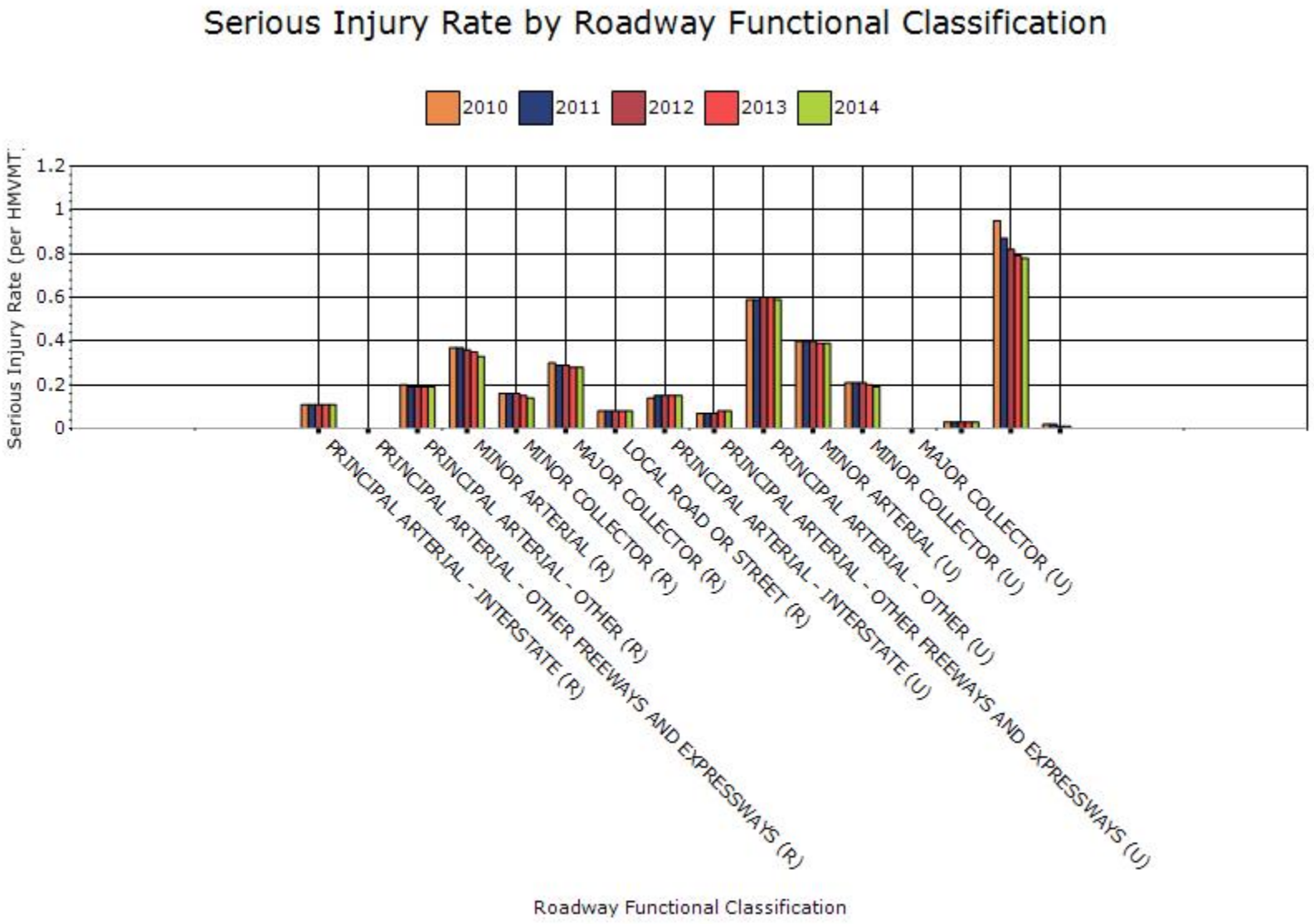
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	56	110	0.06	0.11
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	0	0	0	0
RURAL PRINCIPAL ARTERIAL - OTHER	101	192	0.1	0.19
RURAL MINOR ARTERIAL	166	332	0.17	0.33
RURAL MINOR COLLECTOR	54	144	0.05	0.14
RURAL MAJOR COLLECTOR	124	279	0.12	0.28
RURAL LOCAL ROAD OR STREET	26	75	0.03	0.08
URBAN PRINCIPAL	70	152	0.07	0.15

ARTERIAL - INTERSTATE				
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	36	83	0.04	0.08
URBAN PRINCIPAL ARTERIAL - OTHER	211	592	0.21	0.59
URBAN MINOR ARTERIAL	139	391	0.14	0.39
URBAN MINOR COLLECTOR	65	189	0.07	0.19
URBAN MAJOR COLLECTOR	0	0	0	0
URBAN LOCAL ROAD OR STREET	7	31	0.01	0.03
OTHER	211	780	0.21	0.78
RAMP	0	1	0	0


Fatalities by Roadway Functional Classification
2010
2011
2012
2013
2014
# of Fatalities
300
250
200
150
100
50
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL ROAD OR STREET (R)
PRINCIPAL ARTERIAL - INTERSTATE (U)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (U)
PRINCIPAL ARTERIAL - OTHER (U)
MINOR ARTERIAL (U)
MINOR COLLECTOR (U)
MAJOR COLLECTOR (U)
Roadway Functional Classification


Serious Injuries by Roadway Functional Classification
2010
2011
2012
2013
2014
# of Serious Injuries
1200
1000
800
600
400
200
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL ROAD OR STREET (R)
PRINCIPAL ARTERIAL - INTERSTATE (U)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (U)
PRINCIPAL ARTERIAL - OTHER (U)
MINOR ARTERIAL (U)
MINOR COLLECTOR (U)
MAJOR COLLECTOR (U)
Roadway Functional Classification

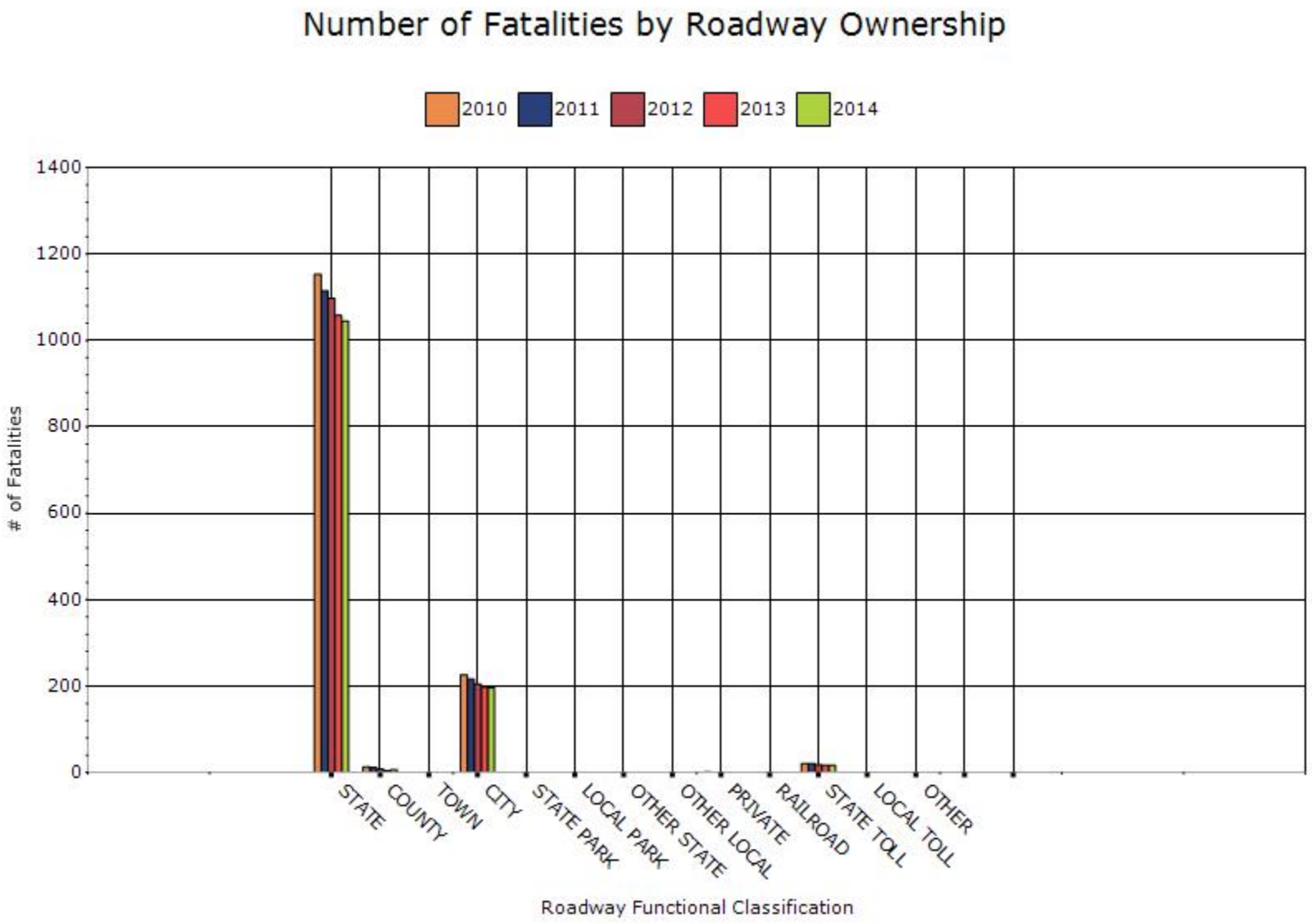

Fatality Rate by Roadway Functional Classification
2010
2011
2012
2013
2014
Fatality Rate (per HMVMT)
0.3
0.25
0.2
0.15
0.1
0.05
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL ROAD OR STREET (R)
PRINCIPAL ARTERIAL - INTERSTATE (U)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (U)
PRINCIPAL ARTERIAL - OTHER (U)
MINOR ARTERIAL (U)
MINOR COLLECTOR (U)
MAJOR COLLECTOR (U)
Roadway Functional Classification

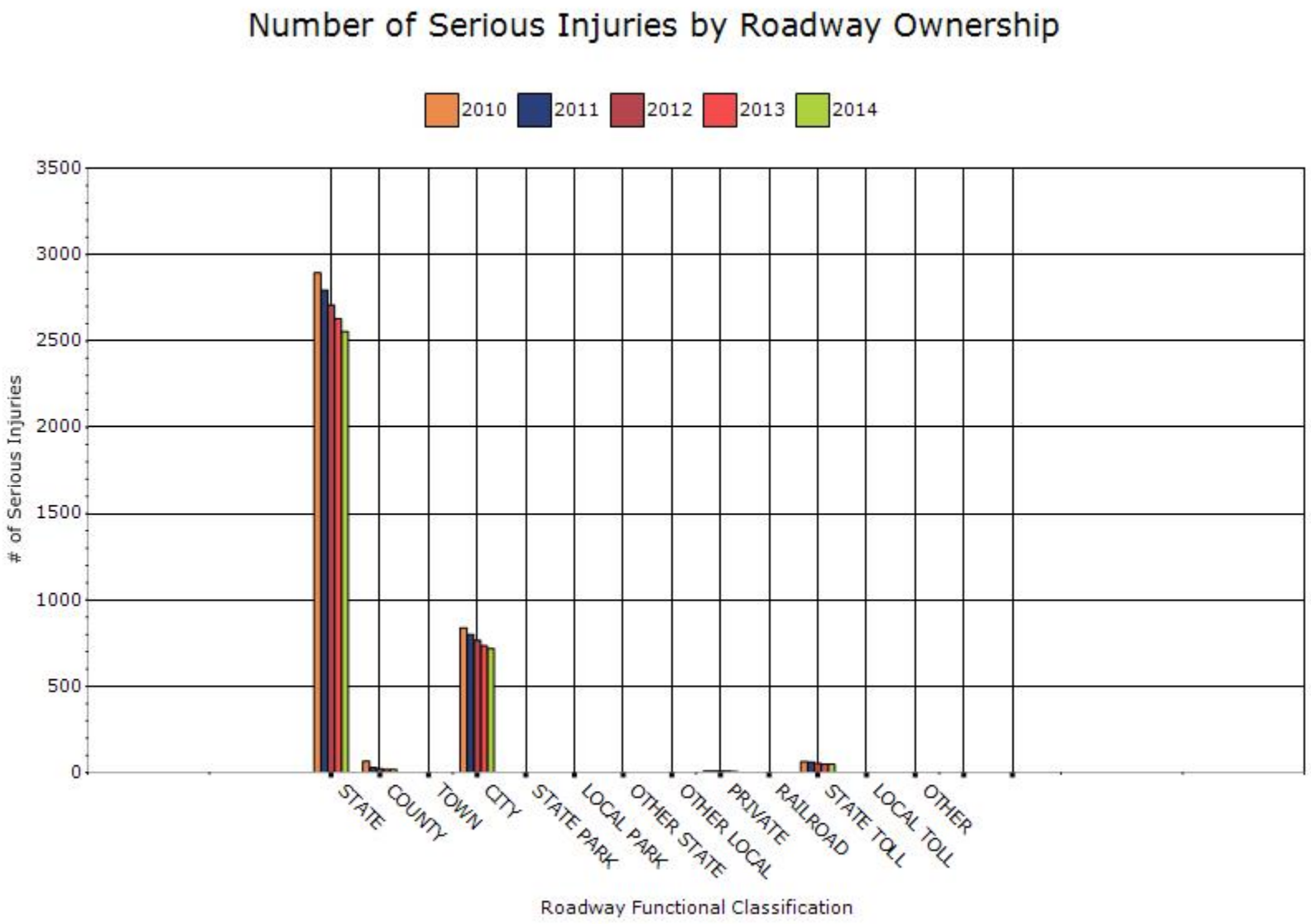

Serious Injury Rate by Roadway Functional Classification
2010
2011
2012
2013
2014
Serious Injury Rate (per HMVMT)
1.2
1
0.8
0.6
0.4
0.2
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL ROAD OR STREET (R)
PRINCIPAL ARTERIAL - INTERSTATE (U)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (U)
PRINCIPAL ARTERIAL - OTHER (U)
MINOR ARTERIAL (U)
MINOR COLLECTOR (U)
MAJOR COLLECTOR (U)
Roadway Functional Classification

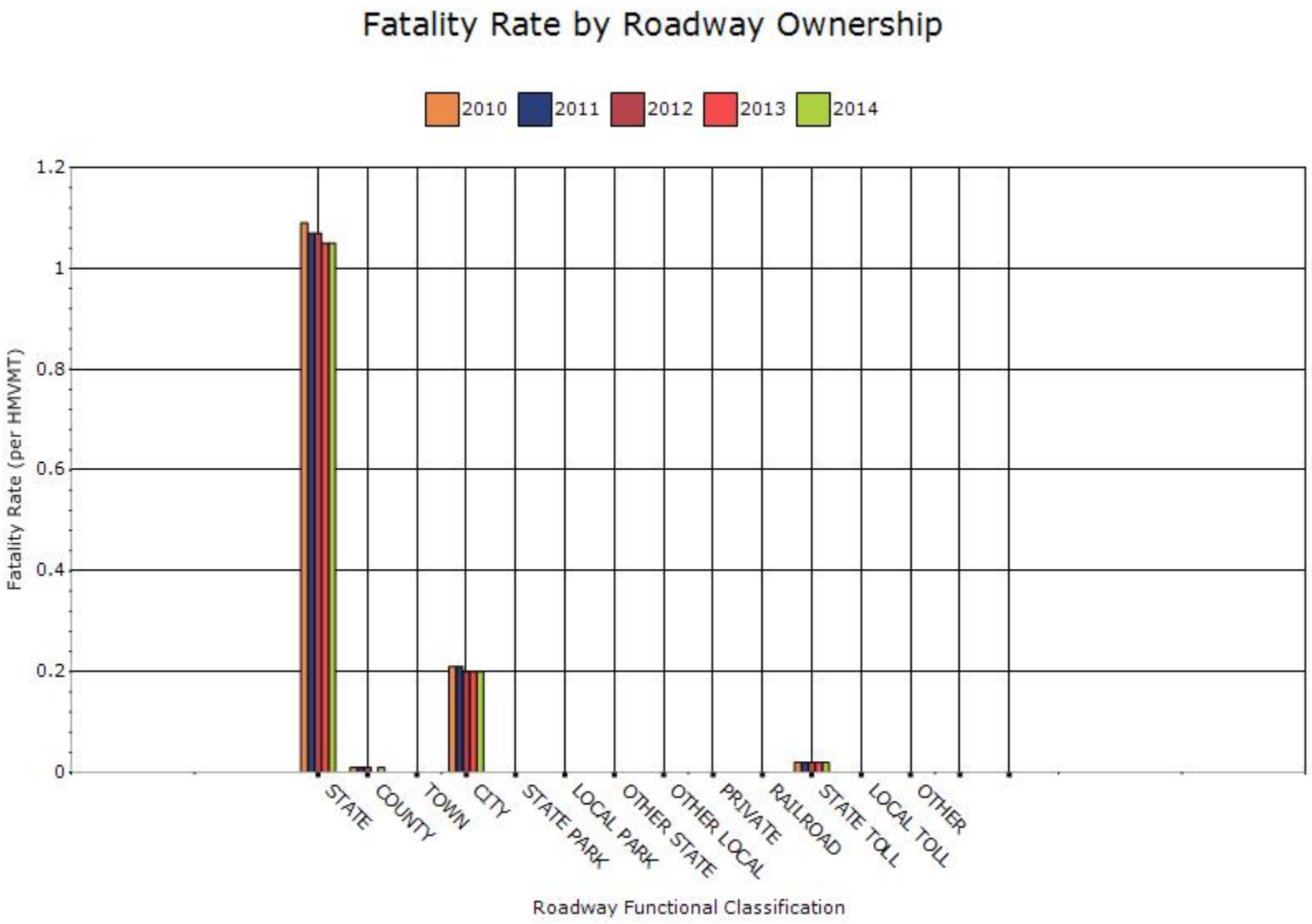
Year - 2014

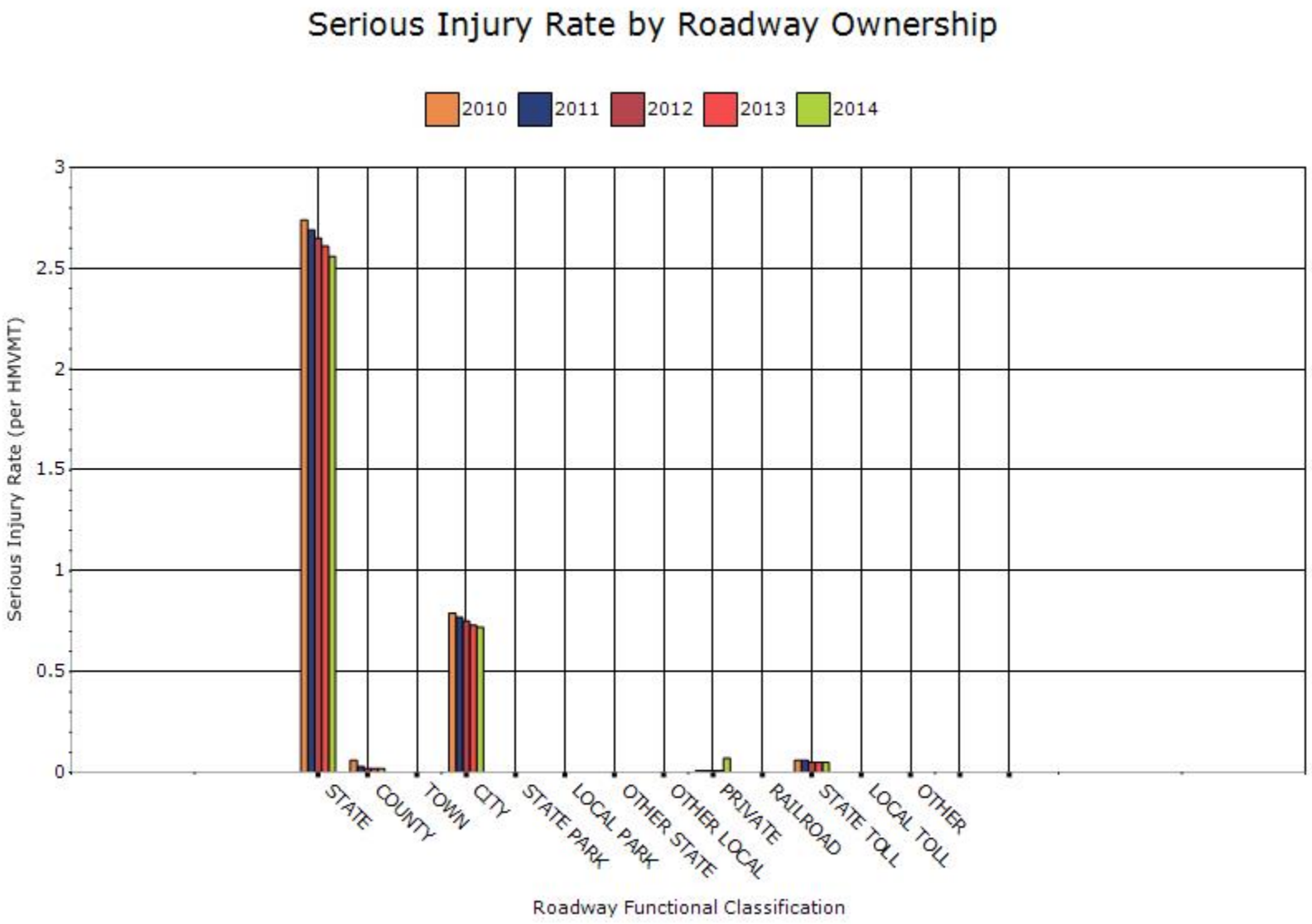
Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	1045	2555	1.05	2.56
COUNTY HIGHWAY AGENCY	6	17	0.01	0.02
TOWN OR TOWNSHIP HIGHWAY AGENCY	0	0	0	0
CITY OF MUNICIPAL HIGHWAY AGENCY	196	719	0.2	0.72
STATE PARK, FOREST, OR RESERVATION AGENCY	0	0	0	0
LOCAL PARK, FOREST OR RESERVATION AGENCY	0	0	0	0
OTHER STATE AGENCY	0	0	0	0
OTHER LOCAL AGENCY	0	0	0	0
PRIVATE (OTHER THAN RAILROAD)	0	7	0	0.07
RAILROAD	0	0	0	0
STATE TOLL AUTHORITY	17	49	0.02	0.05
LOCAL TOLL AUTHORITY	0	0	0	0
OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, UNIVERSITY)	0	0	0	0
INDIAN TRIBE NATION	0	0	0	0

OTHER	0	0	0	0


Number of Fatalities by Roadway Ownership
2010
2011
2012
2013
2014
1400
1200
1000
800
600
400
200
0
# of Fatalities
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification


Number of Serious Injuries by Roadway Ownership
2010
2011
2012
2013
2014
3500
3000
2500
2000
1500
1000
500
0
# of Serious Injuries
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification


Fatality Rate by Roadway Ownership
2010
2011
2012
2013
2014
1.2
1
0.8
0.6
0.4
0.2
0
Fatality Rate (per HMVMT)
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification


Serious Injury Rate by Roadway Ownership
2010
2011
2012
2013
2014
Serious Injury Rate (per HMVMT)
3
2.5
2
1.5
1
0.5
0
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification

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

Please note that the 2014 Vehicle Miles Traveled data is not available at the time of publishing this report. The 2014 values have been estimated using the 2013 values.

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	2009	2010	2011	2012	2013
Fatality rate (per capita)	1.434	1.386	1.306	1.268	1.258
Serious injury rate (per capita)	1.722	1.624	1.54	1.552	1.572
Fatality and serious injury rate (per capita)	3.162	3.012	2.846	2.82	2.832

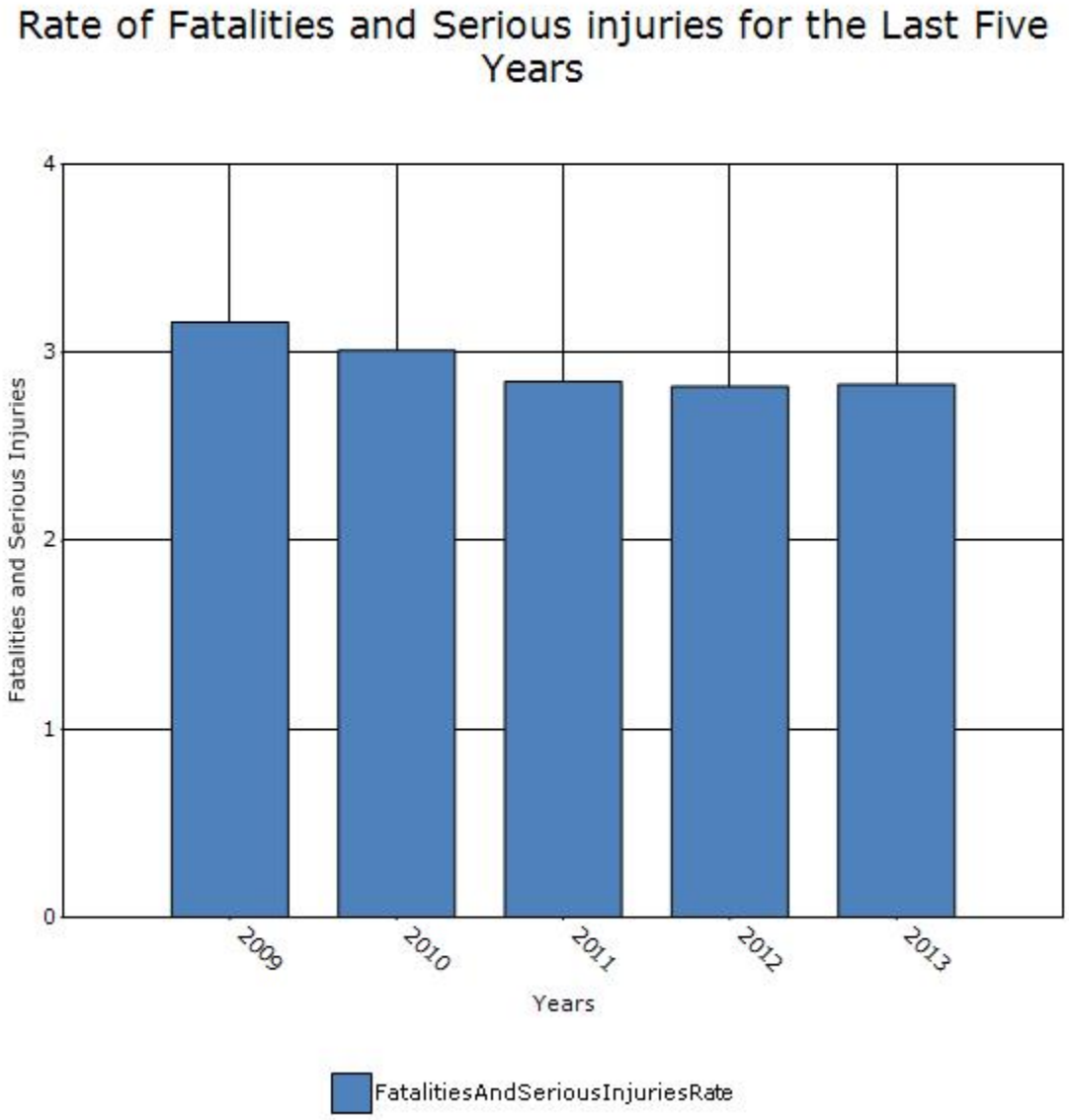
*Performance measure data is presented using a five-year rolling average.

The methodology used is based upon the guidance provided by on the FHWA website under the heading Section 148: Older Drivers and Pedestrians Special Rule Interim Guidance

Older driver fatalities and older pedestrian fatalities were gathered from the NHTSA FARS database. Serious injury data was taken from our state records. The number of older persons per 1000 population was taken from the same FHWA website.

Fatality rate per capita was taken as the sum of older driver and older pedestrian fatalities divided by the number of older persons per 1000 population. Serious injury rate was calculated in a parallel operation. The fatality and serious injury rate was performed as a third calculation rather than a simple sum of the components; rounding therefore accounts for the 0.01 differences in the data presented.

Five year averages were calculated from the annual data.



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?

☐ None

☒ Benefit/cost

☐ Policy change

☐ Other:

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

☐ Shift Focus to Fatalities and Serious Injuries

☐ Include Local Roads in Highway Safety Improvement Program

☐ Organizational Changes

☒ None

☐ Other:

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

There have been no significant program changes since the last reporting period. Much of our work has been focused on advancing the initiatives and changes reported in the 2014 Annual Report. There was

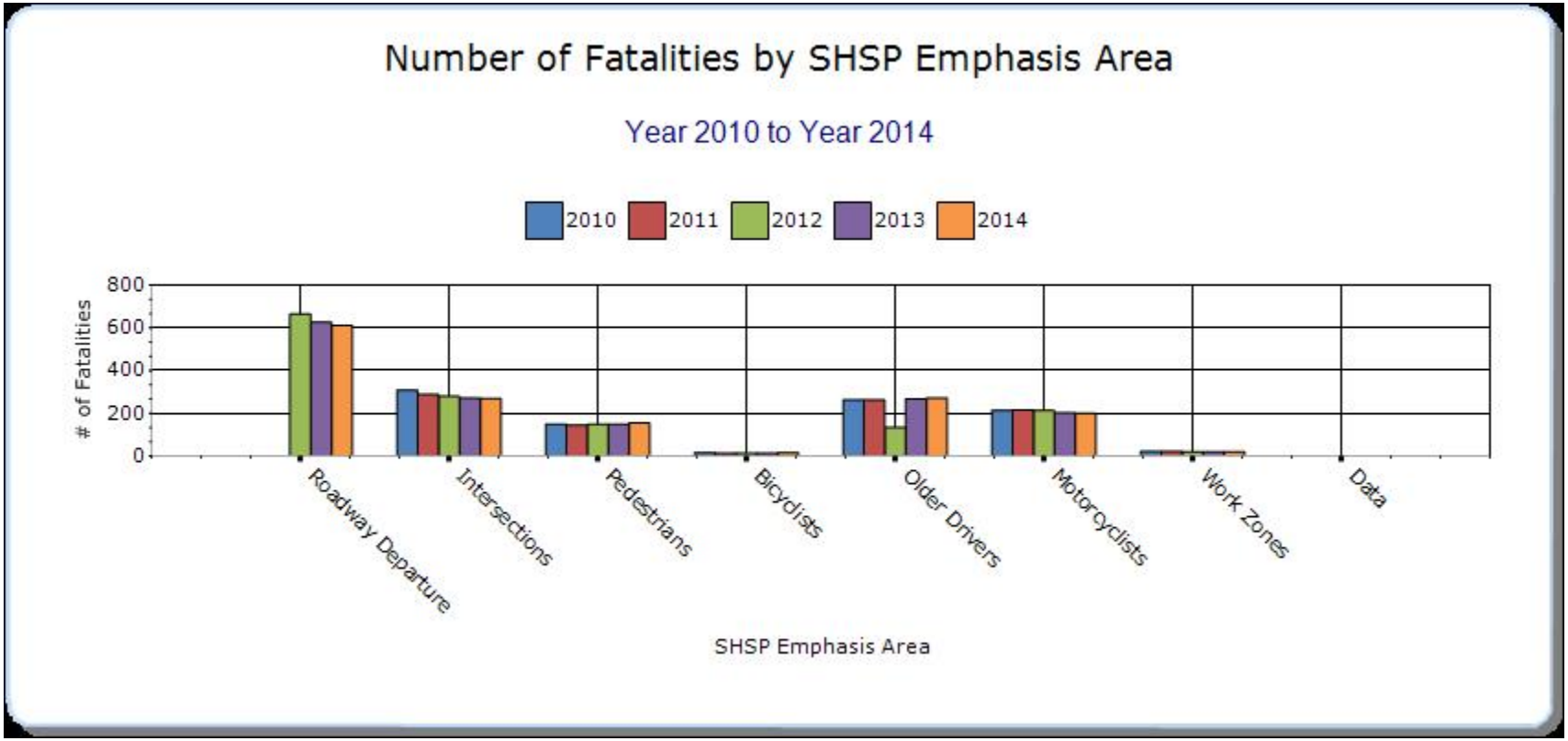
also a small turnover in staffing in the Safety Section during the 2015 reporting period; we are hopeful that the experiences of the new personnel will lead to new ideas and new focus areas.

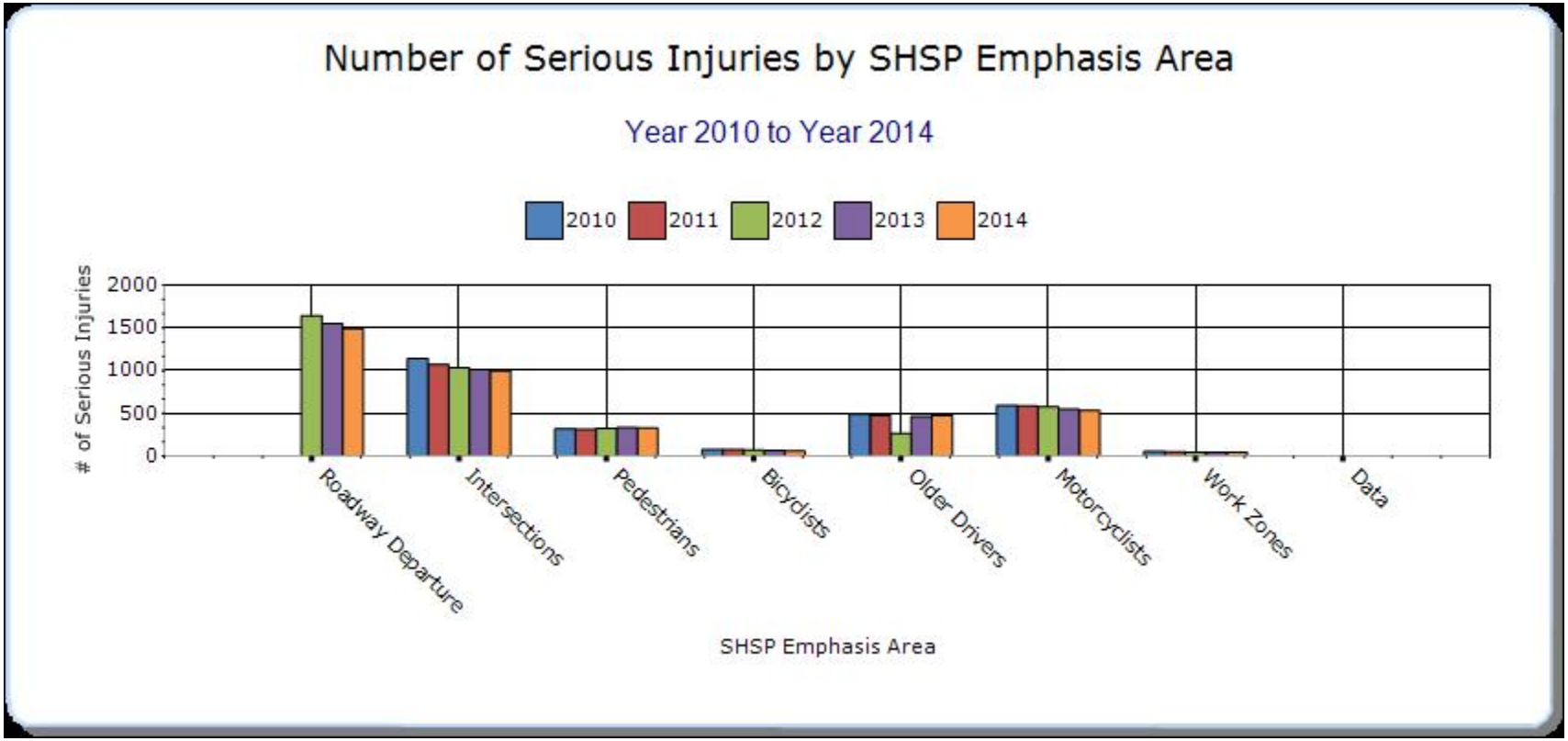
SHSP Emphasis Areas

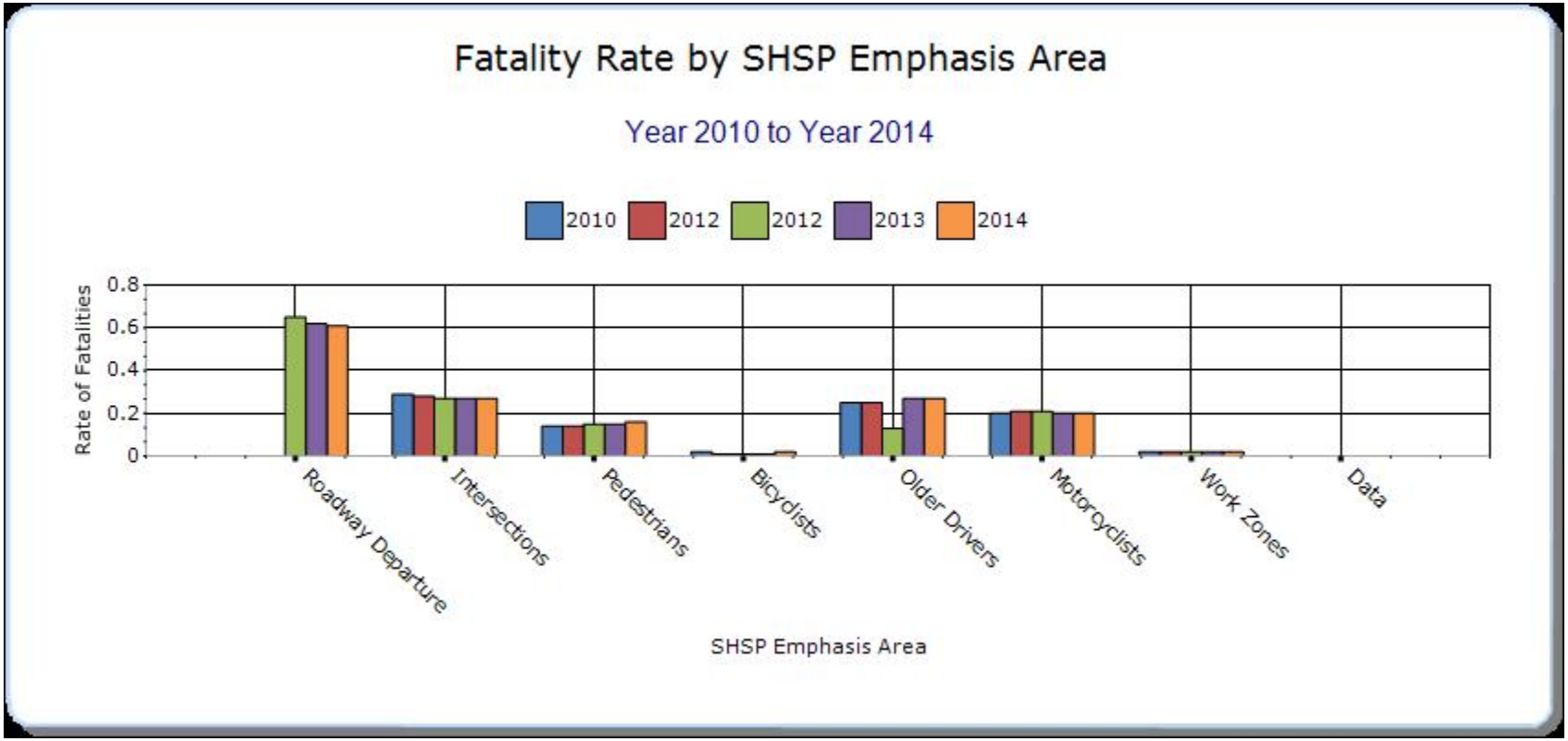
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

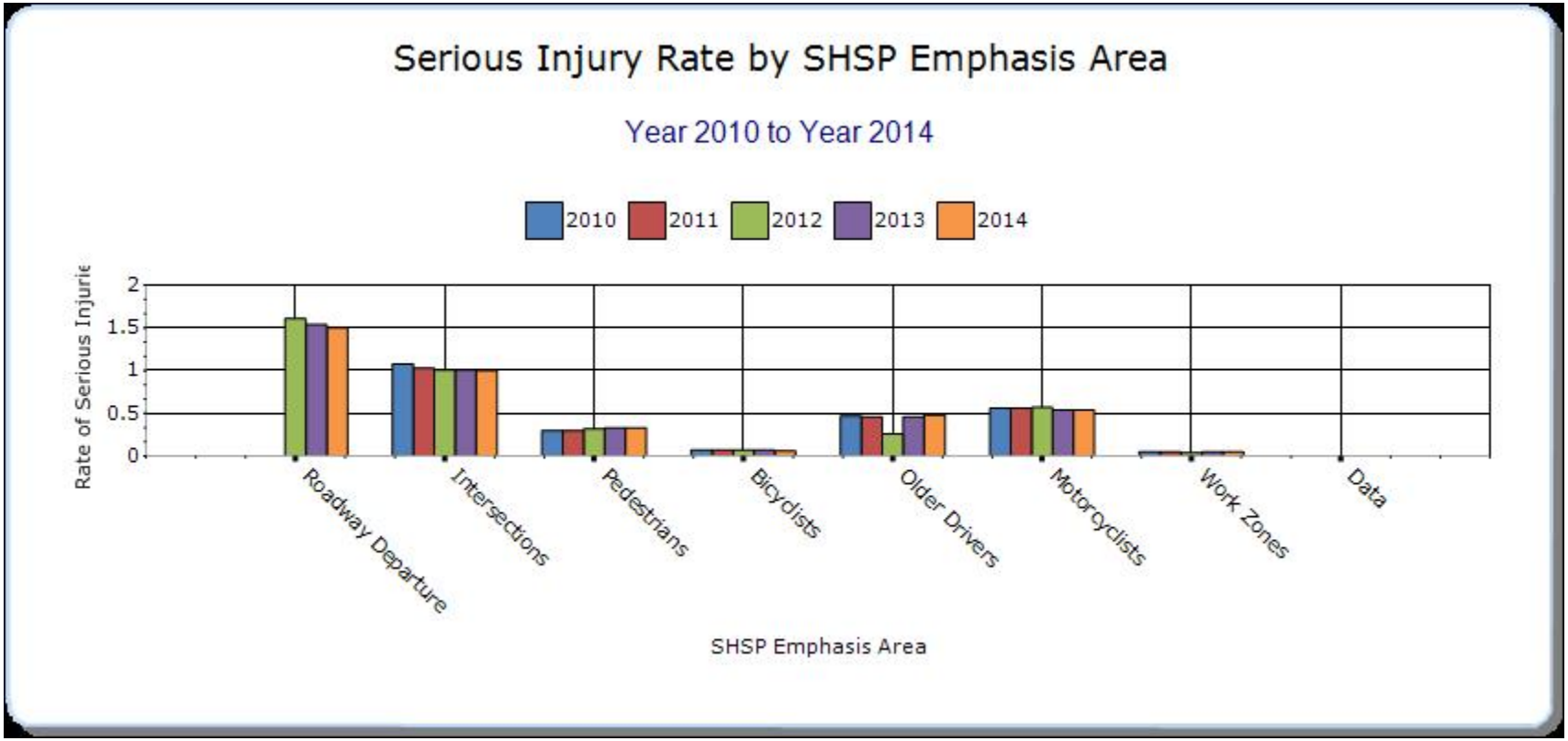
Year - 2014

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	612	1493	0.61	1.5	0	0	0
Intersections	Intersections	270	998	0.27	1	0	0	0
Pedestrians	Vehicle/pedestrian	156	329	0.16	0.33	0	0	0
Bicyclists	Vehicle/bicycle	16	60	0.02	0.06	0	0	0
Older Drivers	Older Driver	273	476	0.27	0.48	0	0	0
Motorcyclists	Motorcycle	200	535	0.2	0.54	0	0	0
Work Zones	Work Zone	21	45	0.02	0.05	0	0	0


Number of Fatalities by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# of Fatalities
800
600
400
200
0
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Number of Serious Injuries by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# of Serious Injuries
2000
1500
1000
500
0
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Fatality Rate by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2012
2012
2013
2014
Rate of Fatalities
0.8
0.6
0.4
0.2
0
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area

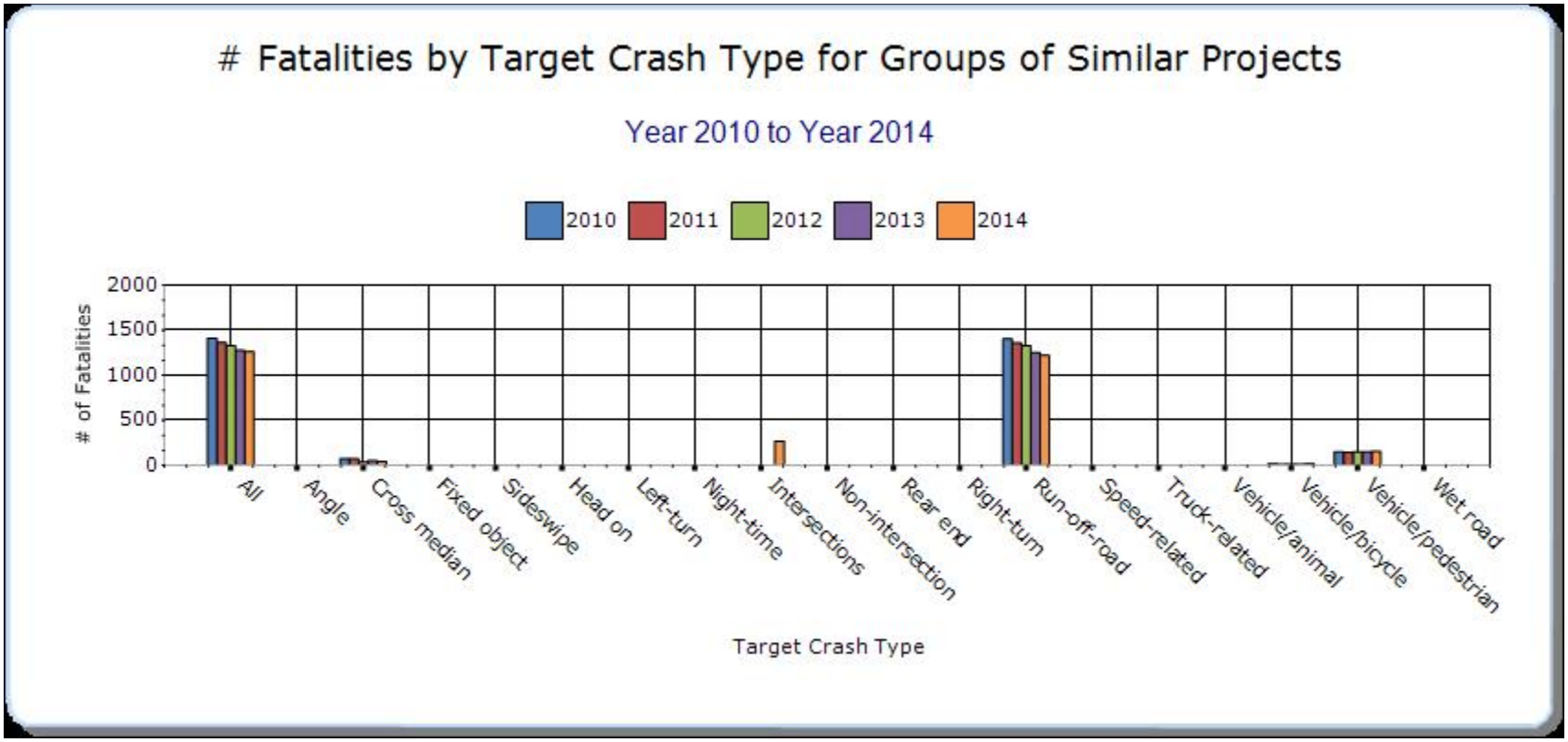

Serious Injury Rate by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2011
2012
2013
2014
Rate of Serious Injurie
2
1.5
1
0.5
0
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area

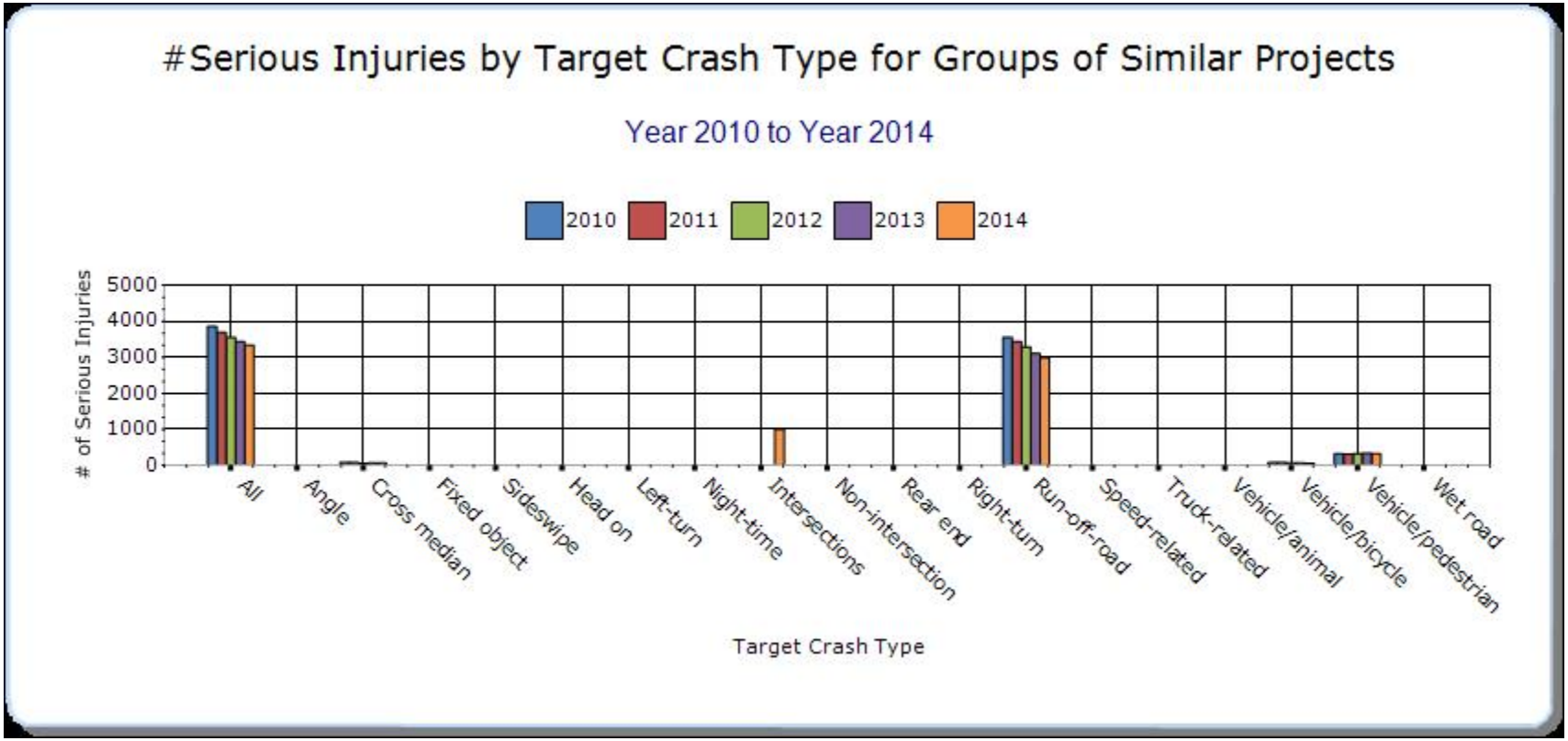
Groups of similar project types

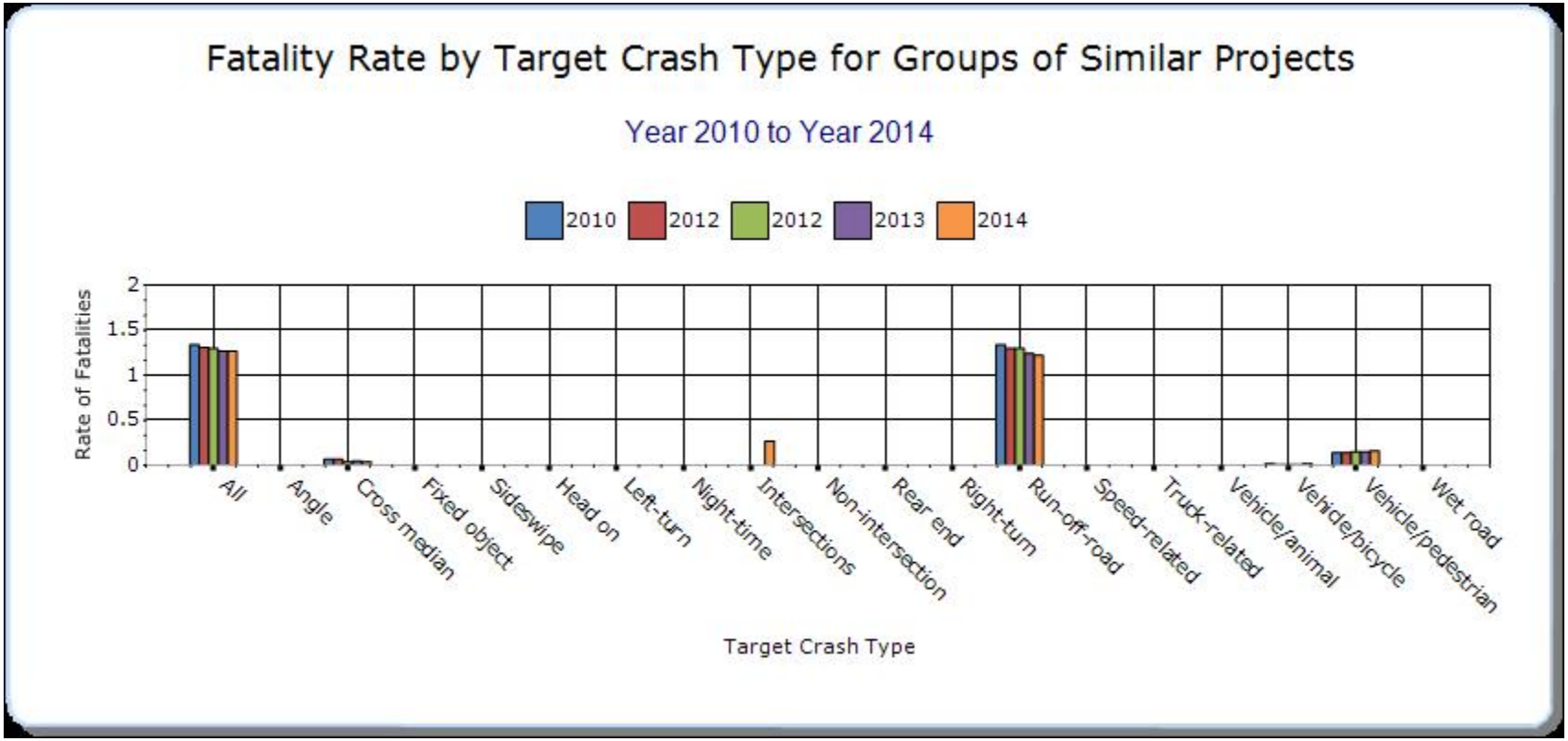
Present the overall effectiveness of groups of similar types of projects.

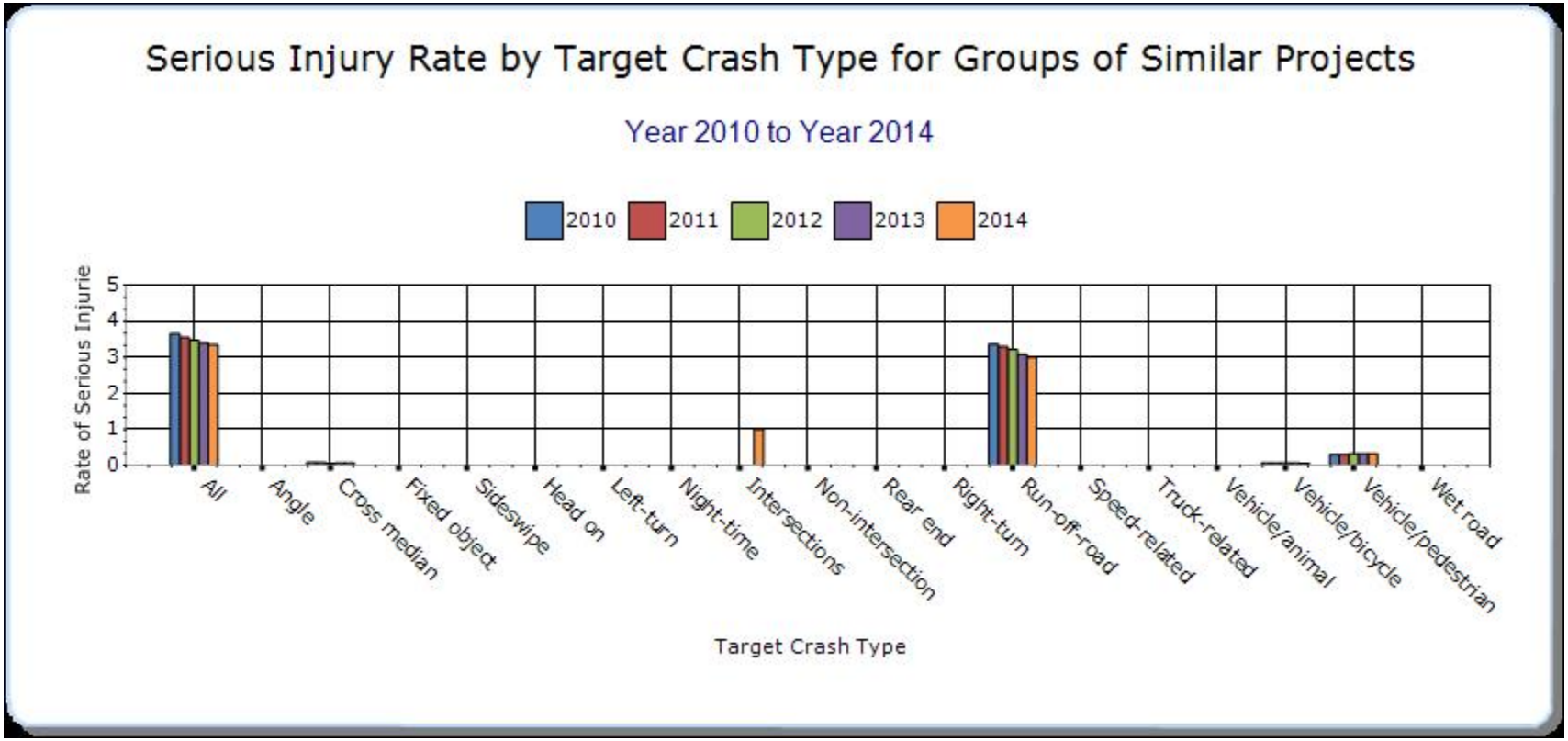
Year - 2014

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
Intersection	Intersections	270	998	0.27	1	0	0	0
Median Barrier	Cross median	44	67	0.04	0.07	0	0	0
Shoulder Improvement	Run-off-road	612	1493	0.61	1.5	0	0	0
Low-Cost Spot Improvements	All	1265	3340	1.27	3.35	0	0	0
Horizontal Curve	Curve Driver Error	170	306	0.17	0.31	0	0	0
Local Safety	Local Road (Only)	204	749	0.2	0.75	0	0	0
Roadway Departure	Run-off-road	612	1493	0.61	1.5	0	0	0
Bicycle Safety	Vehicle/bicycle	16	60	0.02	0.06	0	0	0
Pedestrian Safety	Vehicle/pedestrian	156	329	0.16	0.33	0	0	0


Fatalities by Target Crash Type for Groups of Similar Projects
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# 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
Target Crash Type


#Serious Injuries by Target Crash Type for Groups of Similar Projects
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# 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
Target Crash Type


Fatality Rate by Target Crash Type for Groups of Similar Projects
Year 2010 to Year 2014
2010
2012
2012
2013
2014
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
Target Crash Type

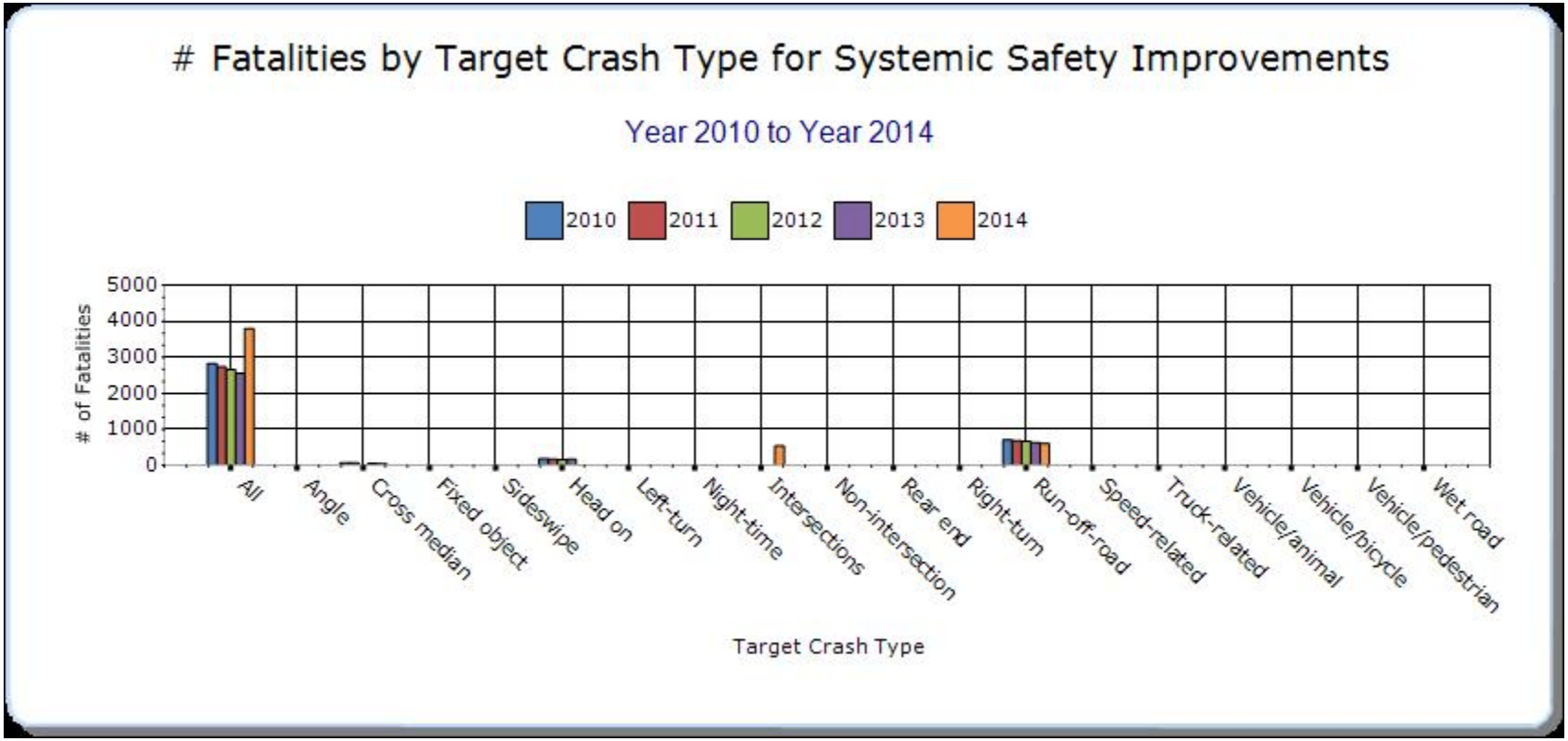

Serious Injury Rate by Target Crash Type for Groups of Similar Projects
Year 2010 to Year 2014
2010
2011
2012
2013
2014
Rate of Serious Injurie
5
4
3
2
1
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

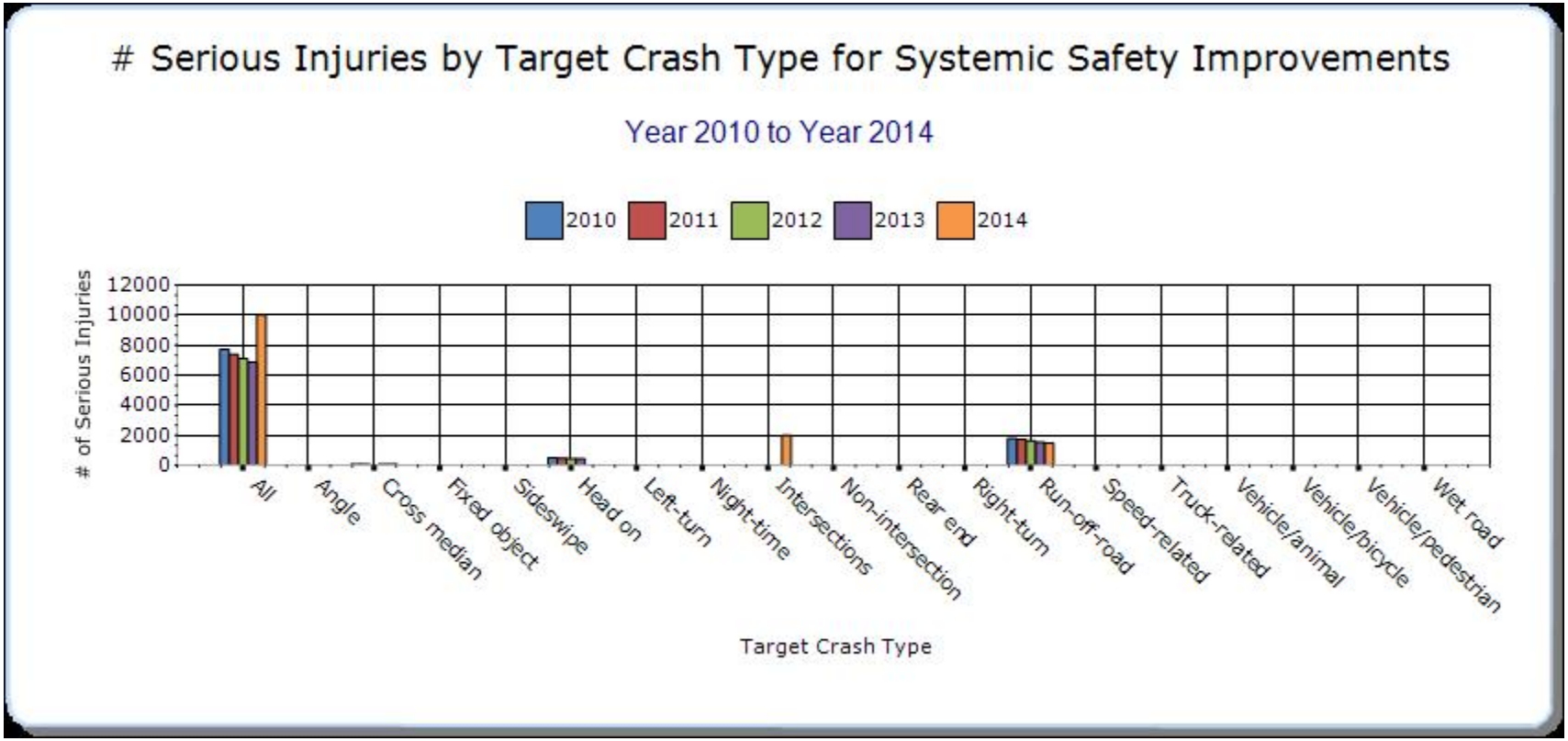
Systemic Treatments

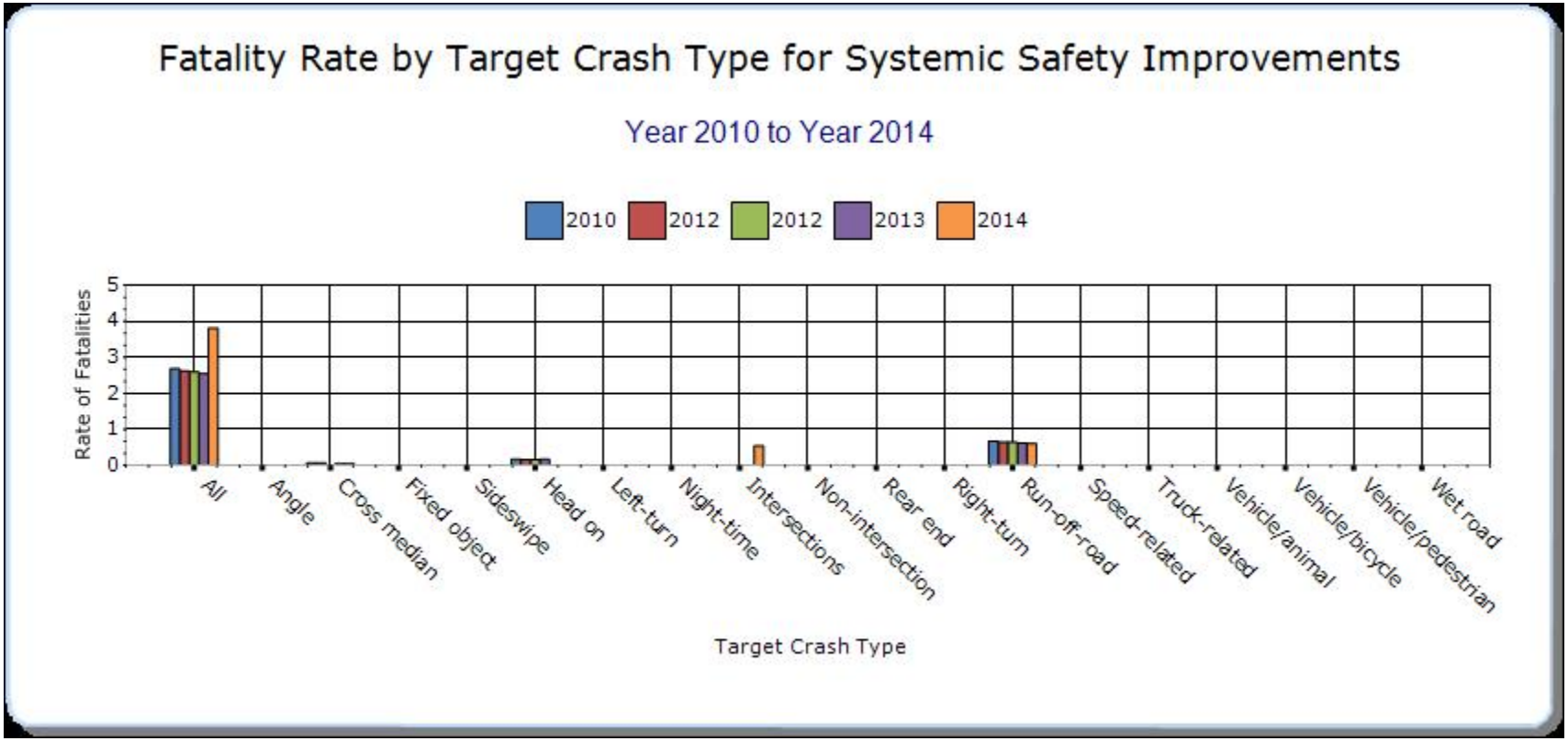
Present the overall effectiveness of systemic treatments.

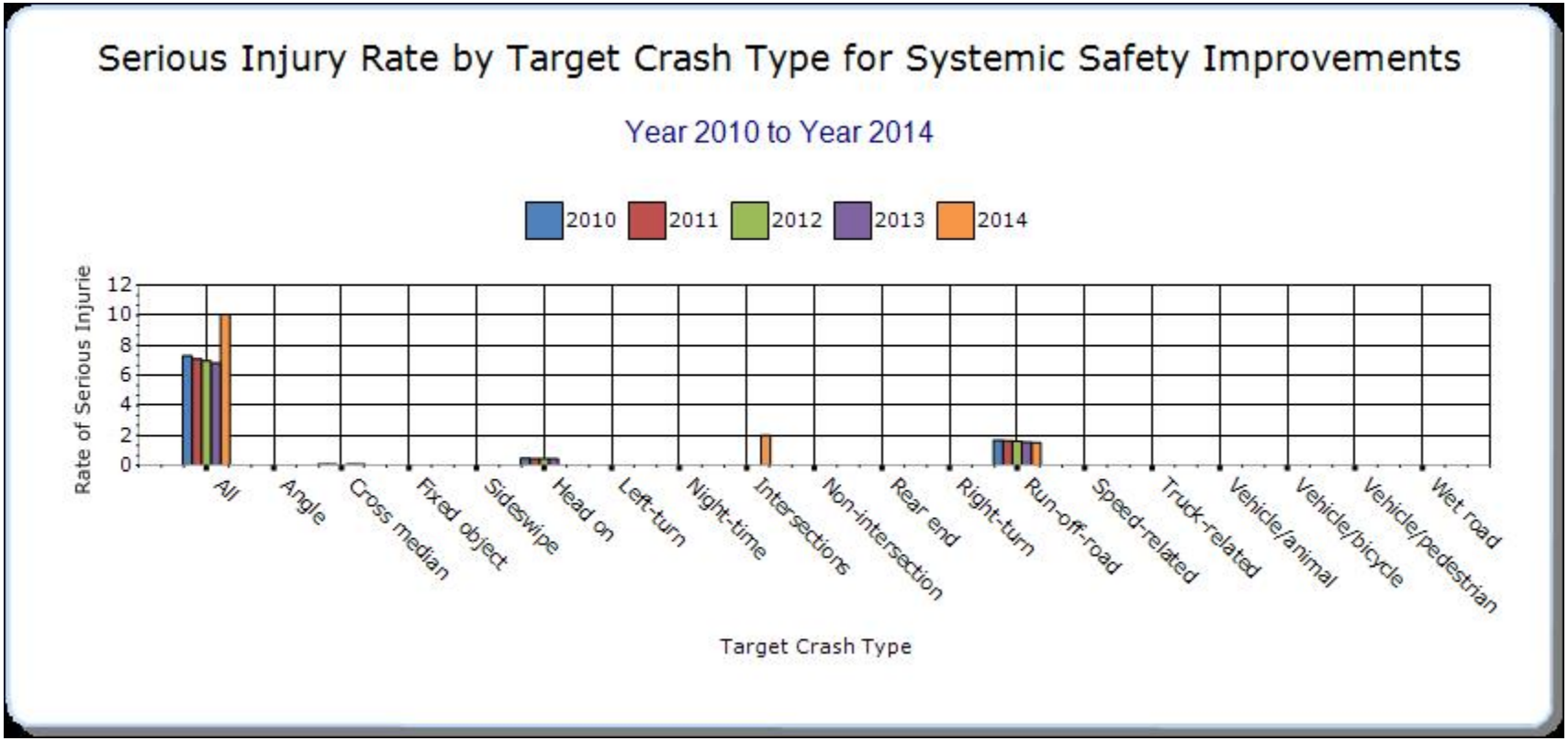
Year - 2014

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
Pavement/Shoulder Widening	Run-off-road	612	1493	0.61	1.5	0	0	0
Traffic Control Device Rehabilitation	Intersections	270	998	0.27	1	0	0	0
Install/Improve Signing	All	1265	3340	1.27	3.35	0	0	0
Rumble Strips	All	1265	3340	1.27	3.35	0	0	0
Add/Upgrade/Modify/Remove Traffic Signal	Intersections	270	998	0.27	1	0	0	0
Cable Median Barriers	Cross median	44	67	0.04	0.07	0	0	0
Upgrade Guard Rails	Hit Guide Rail	132	244	0.13	0.24	0	0	0
Install/Improve Pavement Marking and/or Delineation	All	1265	3340	1.27	3.35	0	0	0


Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# 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
Target Crash Type


Serious Injuries by Target Crash Type for Systemic Safety Improvements
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# 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
Target Crash Type


Fatality Rate by Target Crash Type for Systemic Safety Improvements
Year 2010 to Year 2014
2010
2012
2012
2013
2014
Rate of Fatalities
5
4
3
2
1
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
Target Crash Type


Serious Injury Rate by Target Crash Type for Systemic Safety Improvements
Year 2010 to Year 2014
2010
2011
2012
2013
2014
Rate of Serious Injurie
12
10
8
6
4
2
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
Target Crash Type

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

Please note that the 2014 Vehicle Miles Traveled data is unavailable at this time; 2013 data has been used for this reporting.

The overall HSIP benefit cost ratio for projects completed in 2011 – the most recent set for which we have three years of complete before and after data – is -0.96:1. This indicates that for each dollar we invested in the HSIP program, we lost that dollar and an additional $0.96. Our overall HSIP benefit-cost ratio has been reduced to 0.73:1.

While these results are outwardly negative, they are not entirely in line with our overall statewide fatality statistics. 2011 lies in the middle of a recent decline in fatalities; the 25% decline since 2005 has resulted in record lows in highway deaths not seen since the 1920s.

Similar to the previous annual report, a closer examination of the data was performed to identify the cause for the negative ratio. Several key examples were identified:

Project 70367 was a corridor safety improvement project near Sunbury. A $861,000 HSIP investment went towards signal upgrades, ADA-compliant ramps and sidewalks, and pedestrian signals. There was a 7% reduction in crashes the after project was completed, but the fatalities and serious injuries both increased from 0 to 2. An analysis of the individual crashes revealed that 2 fatalities occurred in a head-on crash on a bridge, 1 serious injury was a pedestrian running into the street mid-block and being struck by a slow-moving vehicle, and 1 serious injury was a pedestrian struck by an ambulance making a careless turn. None of these events were impacted by the HSIP-funded improvements in the corridor.

Project 84566 was a signing replacement project along various interstates and arterials in Lackawanna and Luzerne counties. $190,000 on HSIP funds were spent. Fatalities did not change (from 1 to 1) but there was an increase in serious injuries from 0 to 3. All of the fatalities and major injuries after construction were the result of vehicles operating on slippery roads in winter conditions and hitting fixed objects, and would not have been prevented by the signing replacements.

Project 80103 was a roadway betterment project in Philadelphia. $4.4 million in HSIP funds were expended for pavement overlays, barrier reconstruction, guide rail upgrades, and crashworthy end treatments. Shoulder rumble strips and new pavement markings were also included. In the three years after completion, there was a small reduction in crashes, but an increase in fatalities from 1 to 3 and an increase in serious injuries from 2 to 5. Two of the fatalities were from a motorcycle losing control at high speed; the third was similarly the result of a driver losing control of their vehicle at an excessive speed. The serious injury crashes had a variety of causations including wrong way and rear end events. The vast majority of the fatalities and injuries would have occurred regardless of the project's improvements.

Project 73468 was a bridge replacement and intersection improvement project in Columbia County. $4.6 million in HSIP funds were used on the project, but there were no fatal, serious, or moderate injuries in the three years before the completion date. This project would not meet our current selection criteria for HSIP projects and was likely grandfathered through a previous approval.

If these four projects were eliminated from the calculation, the HSIP benefit-cost ratio for the projects completed in 2011 would be 1:1. It is likely that further analysis of the crash histories would yield further adjustments to the final result. However, a thorough examination of all 3,400 crashes that occurred in the project areas would be a difficult proposition for the annual report given the current timeframes for analysis and submittal. We are further limited by some of the location data provided: our engineering districts often provide locations in entire roadway segments (typically 2000-3000 feet long) rather than the actual locations of improvements. Therefore, it is possible that we are providing analysis on sections of roadway that are not impacted by our HSIP projects. Correcting this issue will require coordination with our district personnel and implementation of more standardized reporting.

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)

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.

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.