Highway Safety Improvement Program

Data Driven Decisions

Pennsylvania
Highway Safety Improvement Program
2014 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 2013, 1,208 people lost their lives on Pennsylvania's roadways - the lowest number since we began tracking these statistics in 1928. Despite this achievement, we acknowledge that even one death on our roads is too many. We remain committed to pursuing our aggressive highway safety goals that aim to reduce fatalities and serious injuries in half by 2030.

Several key initiatives are underway to help us maintain our progess towards meeting these goals. On the project planning side, we have begun incorporating the Highway Safety Manual into our project selection processes and design publications. We've met with each of our Engineering Districts to explain the priorities of the HSIP program and how to effectively choose projects and expend safety funds. And we've released two large planning reports, provided by FHWA, that recommend low-cost safety countermeasures at over 14,000 locations within the Commonwealth to address intersection and run-off road crashes. The first projects to implement these countermeasures were started this year.

While there remains much work required to reach our 2030 goal, we are optimistic that the variety of programs currently underway and those in the future will provide great benefits to the Commonwealth's travelers and enable us to easily realize our goals.

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.

We recently 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.

Finally, we will continue to incorporate local road locations onto our Statewide High Crash Location Lists, the next of which will be published in 2015. These 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-NONE

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

Response: The HSIP Program fully aligns with the 2012 Pennsylvania Strategic Highway Safety Plan. 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

Program Methodology

Select the programs that are administered under the HSIP.

☒ Median Barrier	☒ Intersection	☐ Safe Corridor
☒ Horizontal Curve	☒ Bicycle Safety	☐ Rural State Highways
☒ Skid Hazard	☐ Crash Data	☐ Red Light Running Prevention

☒ Roadway Departure	☒ Low-Cost Spot Improvements	☐ Sign Replacement And Improvement
☒ Local Safety	☒ Pedestrian Safety	☐ Right Angle Crash
☒ Left Turn Crash	☒ Shoulder Improvement	☐ Segments
☐ Other:		

Program: **Median Barrier**

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

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
- ☐ 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
- ☐ 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

☐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
- ☐ 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

☐ 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

☐ 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
- ☐ 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

☐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
- ☐ 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
- ☐ 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

☐ Incremental B/C

☐ Ranking based on net benefit

☐ Other

☒ Potential for Improvement based on Crash History

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

25

Highway safety improvment program funds are used to address which of the following systemic improvments?

☒ 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

☐ Safety Edge

☒ Add/Upgrade/Modify/Remove Traffic Signal

☐ Clear Zone Improvements

☐ Install/Improve Lighting

☐ 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.

In 2013, Pennsylvania began an effort to integrate the Highway Safety Manual into it's project planning processes. Three major initiaves have come from this effort:

1) Creation of Pennsylvania-specific Safety Performance Functions (SPFs), which are currently in development through a research contract with Penn State University.
2) Development of a Pennsylvania-specific Excel-based HSM Worksheet, which is currently in development through a consultant contract.
3) Integration of HSM principles and practices into our design manuals and publications, which is currently underway through a consultant contract.

While the benefits of these efforts will not affect safety projects reported in this Annual Report, they are worth noting here since each initiative will soon be reaching completion.

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)	93741572	88 %	98299699.14	89 %
HRRRP (SAFETEA-LU)	2197524	2 %	2383419.94	2 %
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	9 %	9714478	9 %

Totals	105939096	100%	110397597.08	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.

In last year's HSIP Annual Report, we discussed the difficulties with ensuring that funds are being properly obligated towards safety projects with the greatest potential of improving safety and helping us meet our safety goals. We had many projects that were grandfathered into the HSIP program that required large blocks of funding to address areas with little safety deficiencies. However, the majority of those projects have been passed through to completion and the internal approval rate for HSIP funds is approaching 90%.

Additionally, we conducted visits to each of PennDOT's eleven Engineering Offices as mentioned last year. Attendees included Central Office safety personnel, District engineering staff, and representatives from the transportation planning organizations. Our explanation of the priorities of the HSIP program were well-received and we were able to clear up several issues that District staff members were facing.

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. It is also hoped that last year's HSIP meetings were able to thoroughly educate Planning Organization staff about the intent and priorities of the HSIP program and will 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 2012, FHWA provided PennDOT with an Intersection Safety Implementation Plan (ISIP) and a Roadway Departure Safety Implementation Plan (RDIP). These two plans recommended a variety of low-cost safety countermeasures at over 14,000 locations. After a review of the materials and meetings with each of the Department's eleven Engineering Districts, ISIP and RDIP projects are being started

through the design and implementation processes. The first of these projects are included in this report's Project Listing.

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
Ginger Hill Intersection	Intersection geometry Intersection geometry - other	1 Miles	18000	4000000	HSIP (Section 148)	Rural Minor Arterial	5327	45	State Highway Agency	Intersections	
Intersection SR 0088 & 0837	Intersection geometry Auxiliary lanes - add left-turn lane	0 Miles	2743	862000	HSIP (Section 148)	Urban Principal Arterial - Other	7407	25	State Highway Agency	Intersections	
PA475 Hustontown Intersection	Intersection geometry Intersection geometrics - modify intersection corner radius	1 Miles	239153	1002148	HSIP (Section 148)	Rural Minor Arterial	2626	35	State Highway Agency	Intersections	

US522 Gem Curve	Alignment Horizontal curve realignment	1 Miles	411055	1427000	HSIP (Section 148)	Rural Minor Arterial	1440	20	State Highway Agency	Roadway Departure	
SR 183/4016 (Shaeffers)	Intersection geometry Intersection geometry - other	1 Miles	148500	3107160	HSIP (Section 148)	Rural Minor Arterial	12615	45	State Highway Agency	Intersections	
Remove Weave Condition	Interchange design Acceleration / deceleration / merge lane	0 Miles	50000	1761574	HSIP (Section 148)	Interstate Ramp	20584	35	State Highway Agency	Intersections	
PA 27/North St. Connector	Intersection traffic control Intersection traffic control - other	0 Miles	346495	7800000	HSIP (Section 148)	Urban Minor Arterial	13689	25	State Highway Agency	Intersections	
222 & Shantz & 863 Improvements	Intersection traffic control Intersection traffic	0 Miles	495000	6000000	HSIP (Section 148)	Rural Principal Arterial - Other	27986	55	State Highway Agency	Intersections	

	control - other										
Strasburg Pk Intersection	Intersection geometry Auxiliary lanes - add left-turn lane	0 Miles	1291071	1610410	HSIP (Section 148)	Urban Major Collector	9190	35	State Highway Agency	Intersections	
Belmont Rd Intersection	Alignment Vertical alignment or elevation change	0 Miles	556252	562515	HSIP (Section 148)	Rural Major Collector	6303	50	State Highway Agency	Intersections	
PA26/PA305 Intersection Improvement	Intersection geometry Intersection geometry - other	0 Miles	12202	730000	HSIP (Section 148)	Rural Minor Arterial	2309	35	State Highway Agency	Intersections	
Montour Street to US 11	Intersection geometry Auxiliary lanes - add acceleration lane	1 Miles	28601	841363	HSIP (Section 148)	Rural Minor Arterial	22339	40	State Highway Agency	Intersections	
SR 1004 Curve	Alignment Horizontal	1 Miles	690694	193000	HSIP (Section	Rural Major	2018	45	State Highway	Roadway	

Realignment	curve realignment			0	148)	Collector			Agency	Departure	
US 6 Center Turn Lane	Intersection geometry Auxiliary lanes - add two-way left-turn lane	0 Miles	176000	2700000	HSIP (Section 148)	Rural Principal Arterial - Other	9349	45	State Highway Agency	Intersections	
PA 68 Clarion Curve	Alignment Horizontal curve realignment	1 Miles	32490	4360000	HSIP (Section 148)	Urban Principal Arterial - Other	10964	35	State Highway Agency	Roadway Departure	
SR 0307 Shoulder Rumble Strips	Roadway Rumble strips - edge or shoulder	1 Miles	525000	525000	HSIP (Section 148)	Urban Minor Arterial	10432	45	State Highway Agency	Roadway Departure	
United High School Curve	Alignment Horizontal curve realignment	1 Miles	584550	680000	HSIP (Section 148)	Rural Minor Arterial	4931	45	State Highway Agency	Roadway Departure	
Yellow Creek Park Intersection	Intersection geometry Auxiliary lanes - add left-turn	1 Miles	207000	3415000	HSIP (Section 148)	Rural Principal Arterial - Other	7315	55	State Highway Agency	Intersections	

	lane										
Mount Zion Rd Improvement	Intersection traffic control Intersection traffic control - other	1 Miles	112500	650000	HSIP (Section 148)	Urban Principal Arterial - Other	22297	35	State Highway Agency	Intersections	
SR 739 Shoulder / Widening	Roadway Rumble strips - edge or shoulder	2 Miles	474000	1121250	HSIP (Section 148)	Rural Major Collector	1011	35	State Highway Agency	Roadway Departure	
SR 11 Shoulders / ELRS	Roadway Rumble strips - edge or shoulder	3 Miles	349000	862500	HSIP (Section 148)	Rural Major Collector	2205	55	State Highway Agency	Roadway Departure	
SR 11 Shoulders / ELRS	Roadway Rumble strips - edge or shoulder	3 Miles	67760	862500	HSIP (Section 148)	Rural Major Collector	2837	55	State Highway Agency	Roadway Departure	
94 & 394 Intersection Improvements	Intersection traffic control Modify control - two-way	2 Miles	120021	1035000	HSIP (Section 148)	Rural Minor Arterial	8170	35	State Highway Agency	Intersections	

	stop to roundabout										
SR2012 Mt. Tom to Airport	Intersection geometry Intersection geometry - other	1 Miles	53506	2400000	HSIP (Section 148)	Rural Minor Arterial	10818	45	State Highway Agency	Intersections	
Colebrook Road Improvement	Roadway delineation Roadway delineation - other	4 Miles	30000	3000000	HSIP (Section 148)	Rural Major Collector	7117	45	State Highway Agency	Lane Departure	
Market St Road Safety audit	Non-infrastructure Road safety audits	5 Miles	30000	30000	HSIP (Section 148)	Urban Principal Arterial - Other	25890	35	State Highway Agency	Road Safety audit which will recommend improvements in many areas.	
Lycoming Median Guide Rail	Roadside Barrier - cable	44 Miles	67000	679000	HSIP (Section 148)	Rural Principal Arterial - Other Freeways and Expressway	13149	65	State Highway Agency	Roadway Departure	

						s					
Mercer Tree Removal	Roadside Removal of roadside objects (trees, poles, etc.)	9.15 Miles	60000	60000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Erie Tree Removal	Roadside Removal of roadside objects (trees, poles, etc.)	14.87 Miles	90000	90000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
2013-14 Centre Reg ISIP	Intersection traffic control Intersection traffic control - other	0.02 Miles	58950	150000	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Group 2-14 NC Rumblestrip	Roadway Rumble strips - unspecified or other	0.02 Miles	100000	700000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	

2013-14 Centre RDIP	Roadway signs and traffic control Curve-related warning signs and flashers	0.02 Miles	135810	150000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
ISIP Systematic	Intersection traffic control Intersection traffic control - other	0 Miles	155000	105000	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
RDIP Systematic	Roadway Roadway - other	0 Miles	67000	370000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
DW Systematic Improvement -2014	Intersection traffic control Intersection traffic control - other	742 Numbers	86000	4030000	HSIP (Section 148)		0	0	State Highway Agency	Intersections	

Progress in Achieving Safety Performance Targets

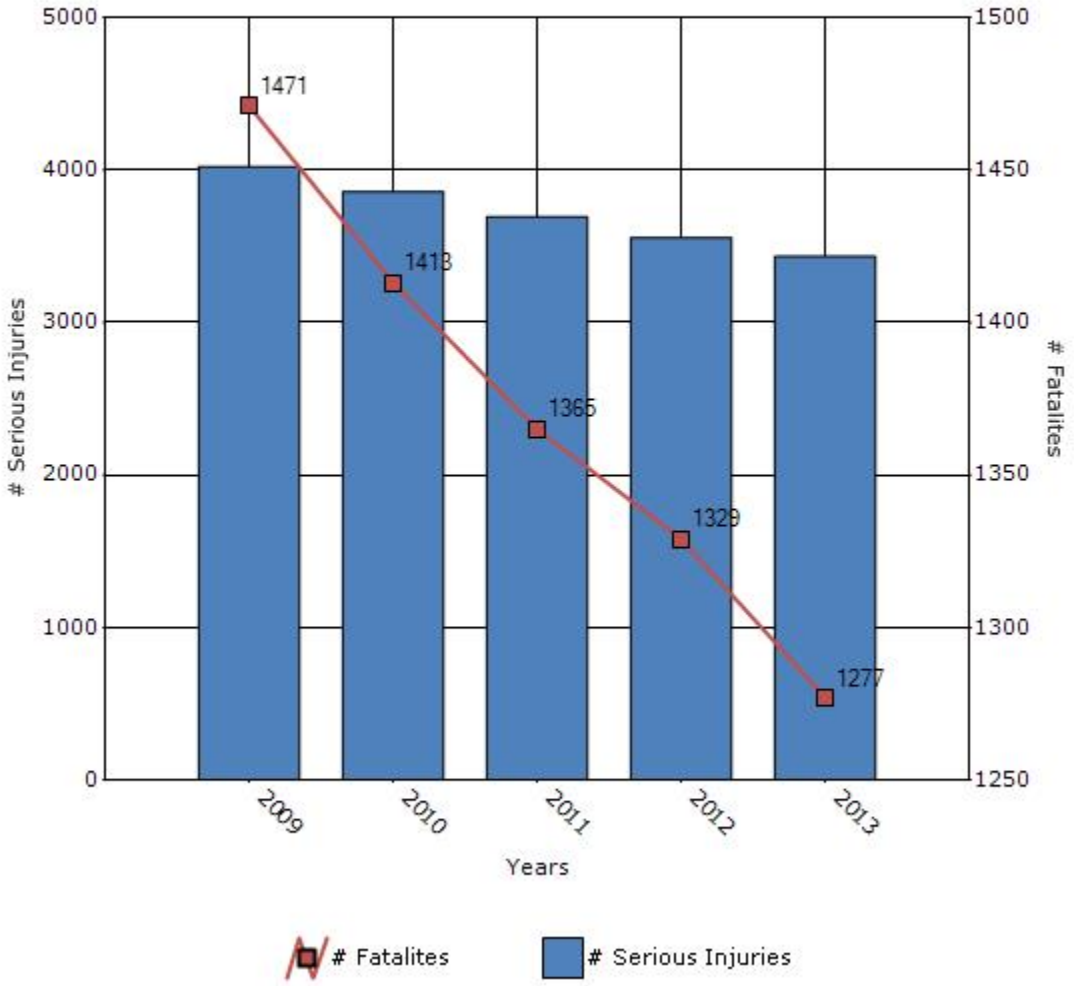
Overview of General Safety Trends

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

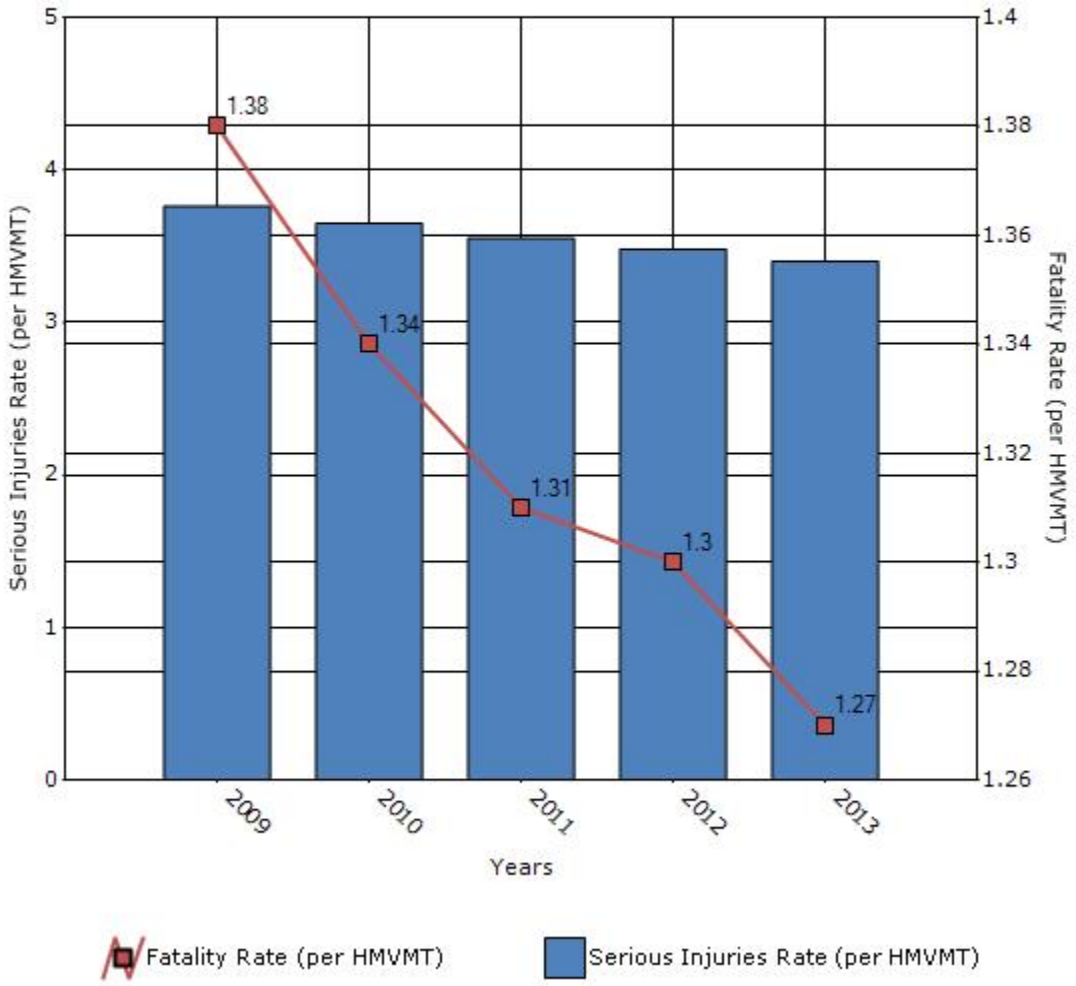
Performance Measures*	2009	2010	2011	2012	2013
Number of fatalities	1471	1413	1365	1329	1277
Number of serious injuries	4022	3858	3693	3556	3432
Fatality rate (per HMVMT)	1.38	1.34	1.31	1.3	1.27
Serious injury rate (per HMVMT)	3.76	3.65	3.55	3.48	3.4

*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

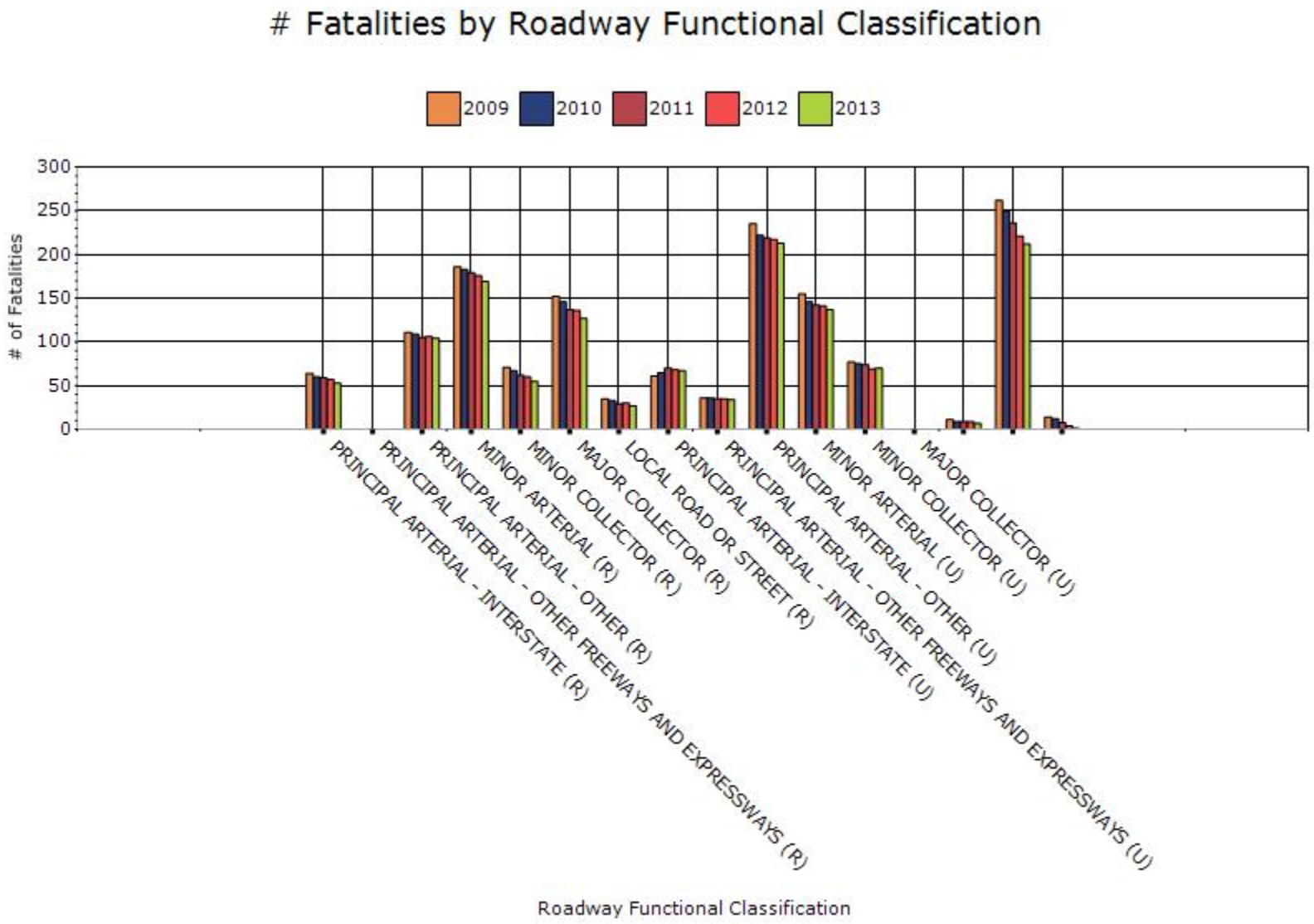


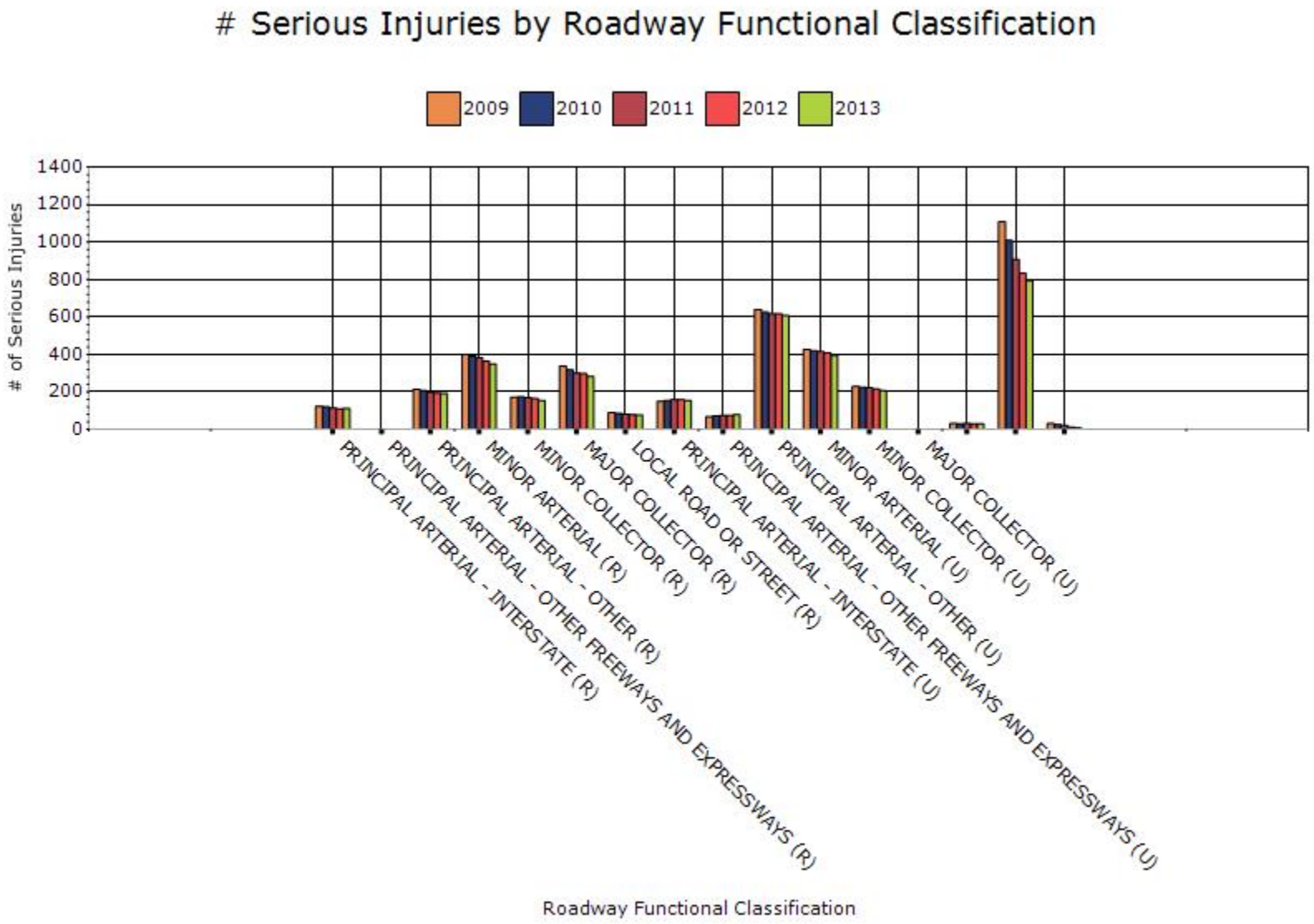
To the maximum extent possible, present performance measure* data by functional classification and ownership.

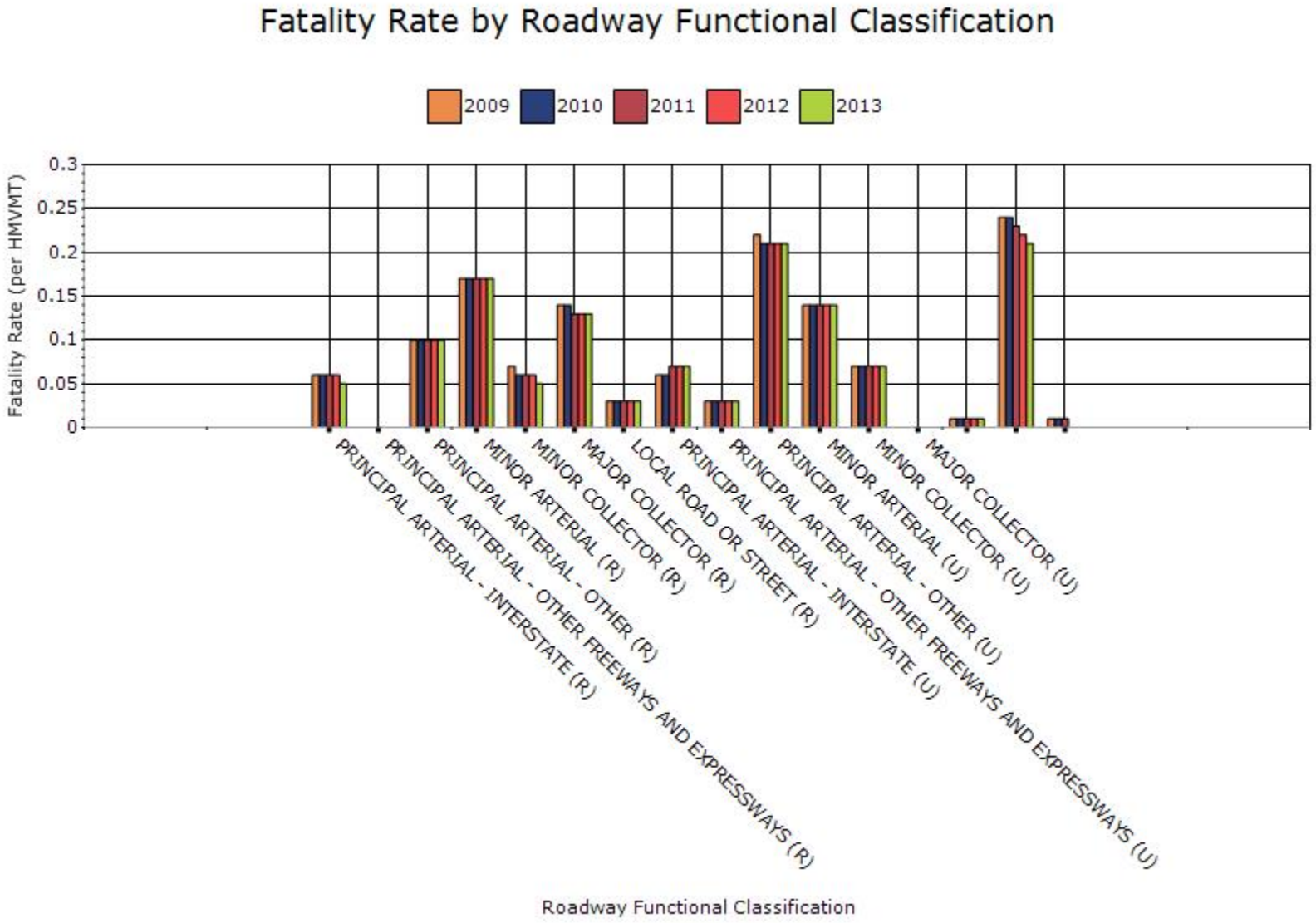
Year - 2013

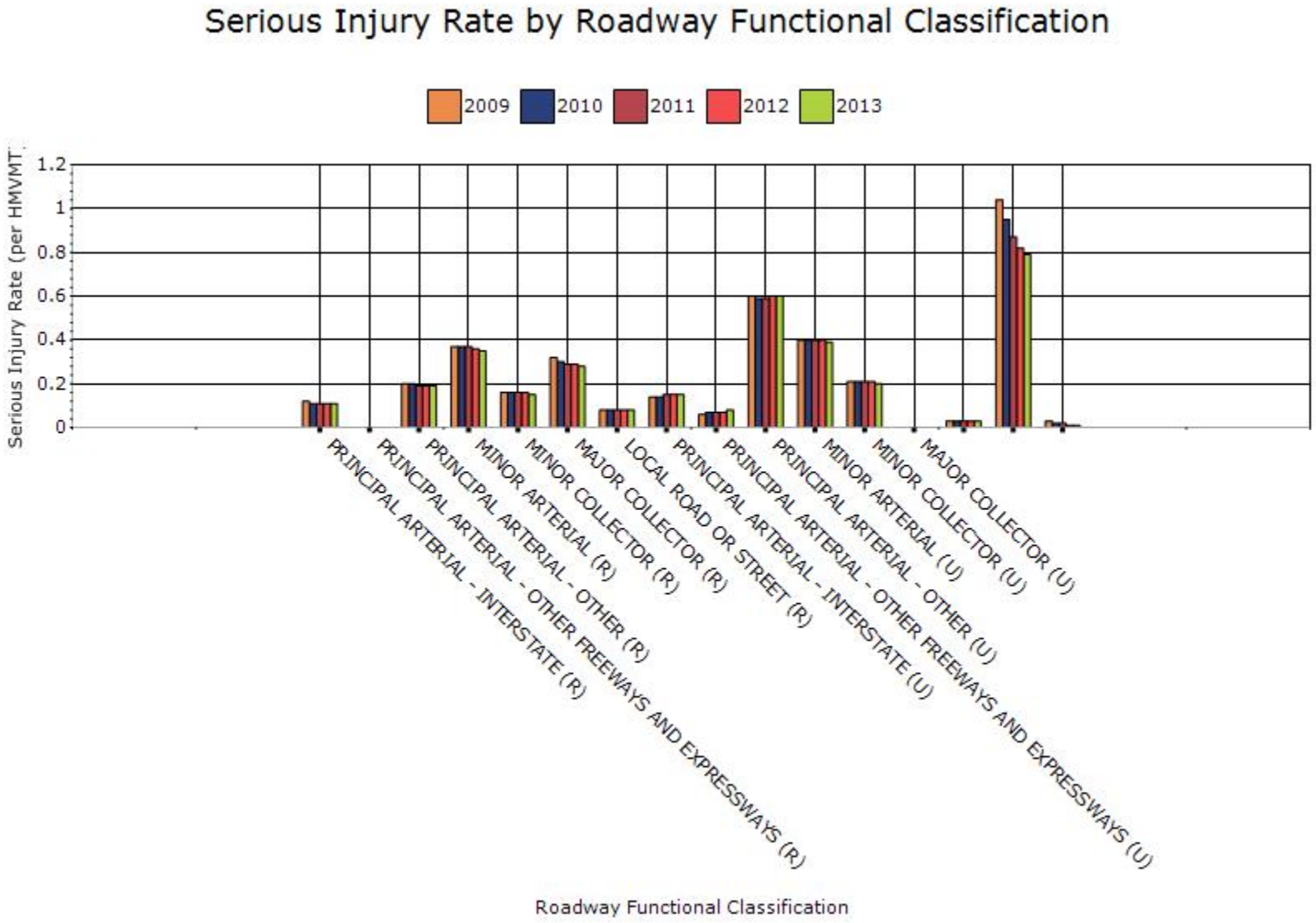
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	53	111	0.05	0.11
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	0	0	0	0
RURAL PRINCIPAL ARTERIAL - OTHER	104	192	0.1	0.19
RURAL MINOR ARTERIAL	169	349	0.17	0.35
RURAL MINOR COLLECTOR	55	155	0.05	0.15
RURAL MAJOR COLLECTOR	127	283	0.13	0.28
RURAL LOCAL ROAD OR STREET	27	77	0.03	0.08
URBAN PRINCIPAL	67	154	0.07	0.15

ARTERIAL - INTERSTATE				
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	34	78	0.03	0.08
URBAN PRINCIPAL ARTERIAL - OTHER	213	608	0.21	0.6
URBAN MINOR ARTERIAL	137	396	0.14	0.39
URBAN MINOR COLLECTOR	70	206	0.07	0.2
URBAN MAJOR COLLECTOR	0	0	0	0
URBAN LOCAL ROAD OR STREET	7	30	0.01	0.03
OTHER	212	794	0.21	0.79
RAMP	1	7	0	0.01


Fatalities by Roadway Functional Classification
2009
2010
2011
2012
2013
# 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
2009
2010
2011
2012
2013
# of Serious Injuries
1400
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

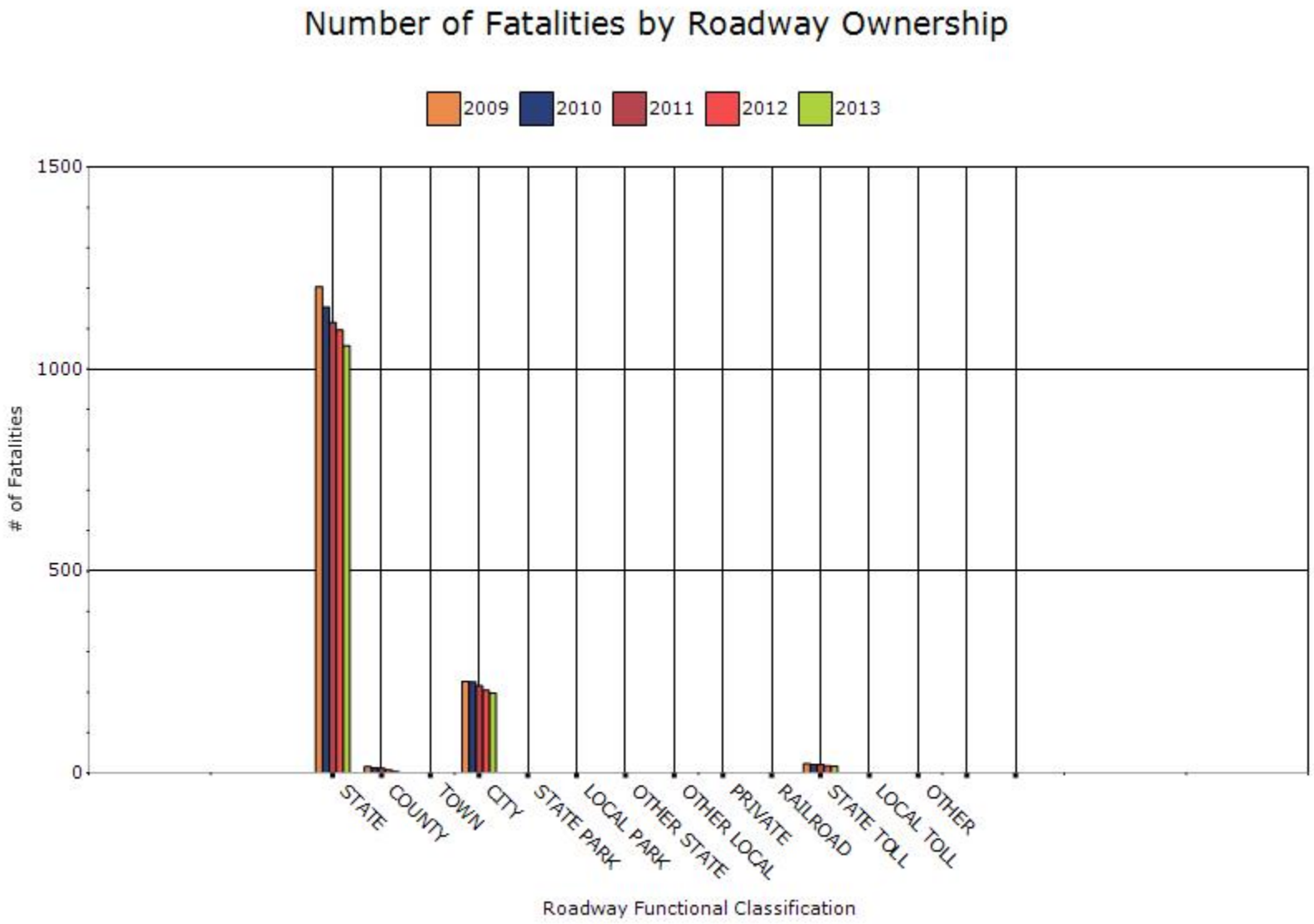

Fatality Rate by Roadway Functional Classification
2009
2010
2011
2012
2013
Fatality Rate (per HMVMT)
0.3
0.25
0.2
0.15
0.1
0.05
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (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

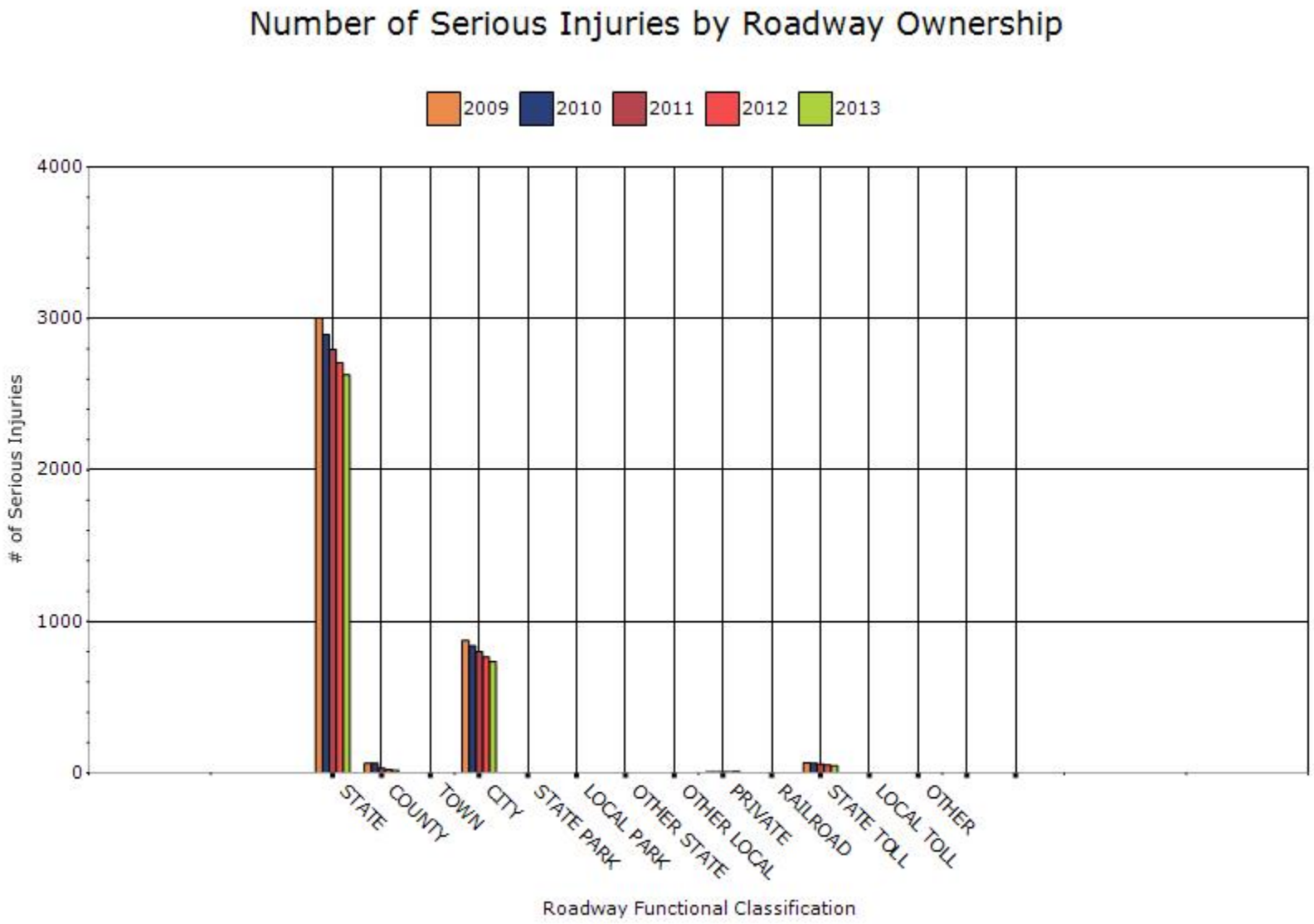

Serious Injury Rate by Roadway Functional Classification
2009
2010
2011
2012
2013
Serious Injury Rate (per HMVMT)
1.2
1
0.8
0.6
0.4
0.2
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR 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

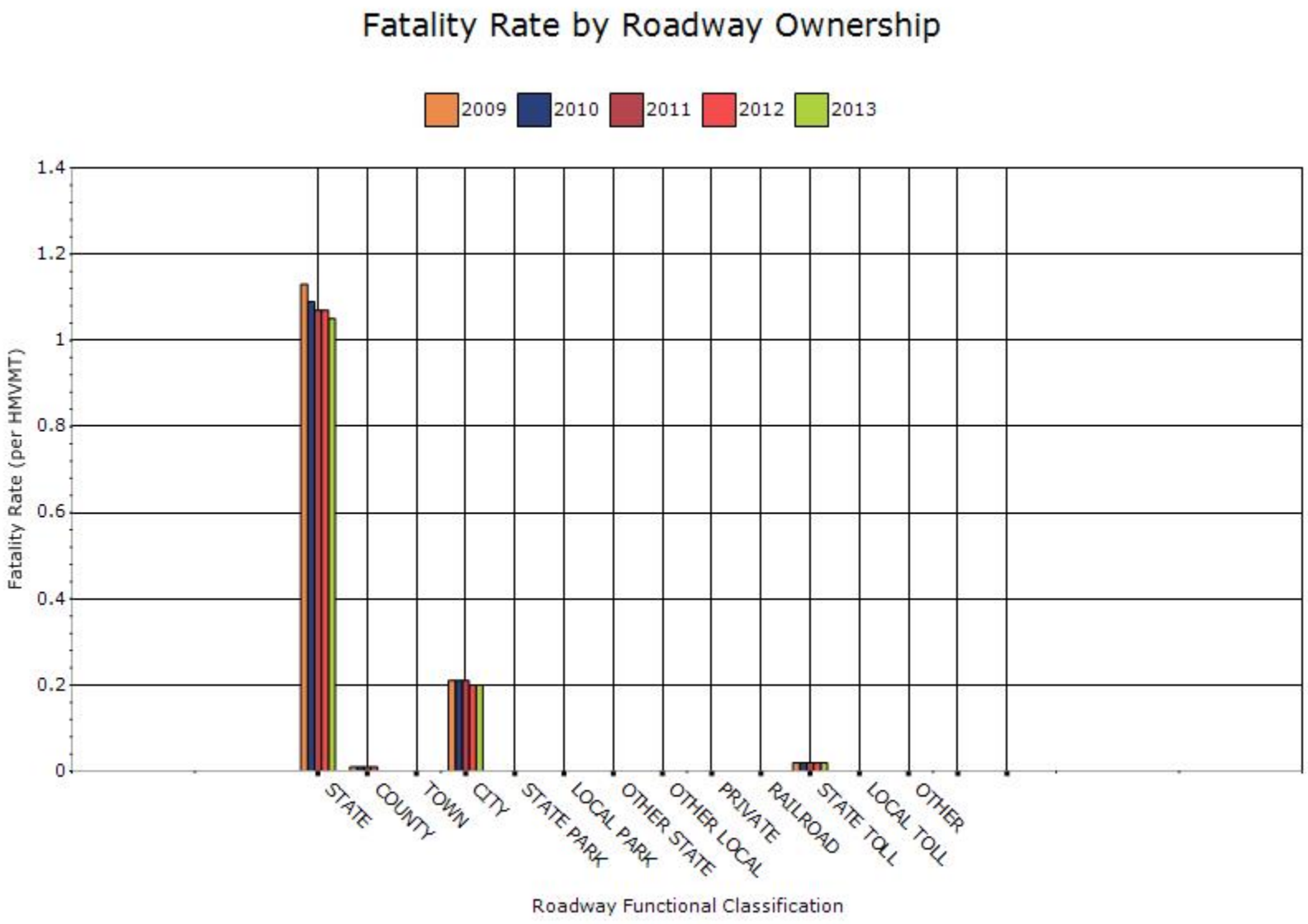
Year - 2013

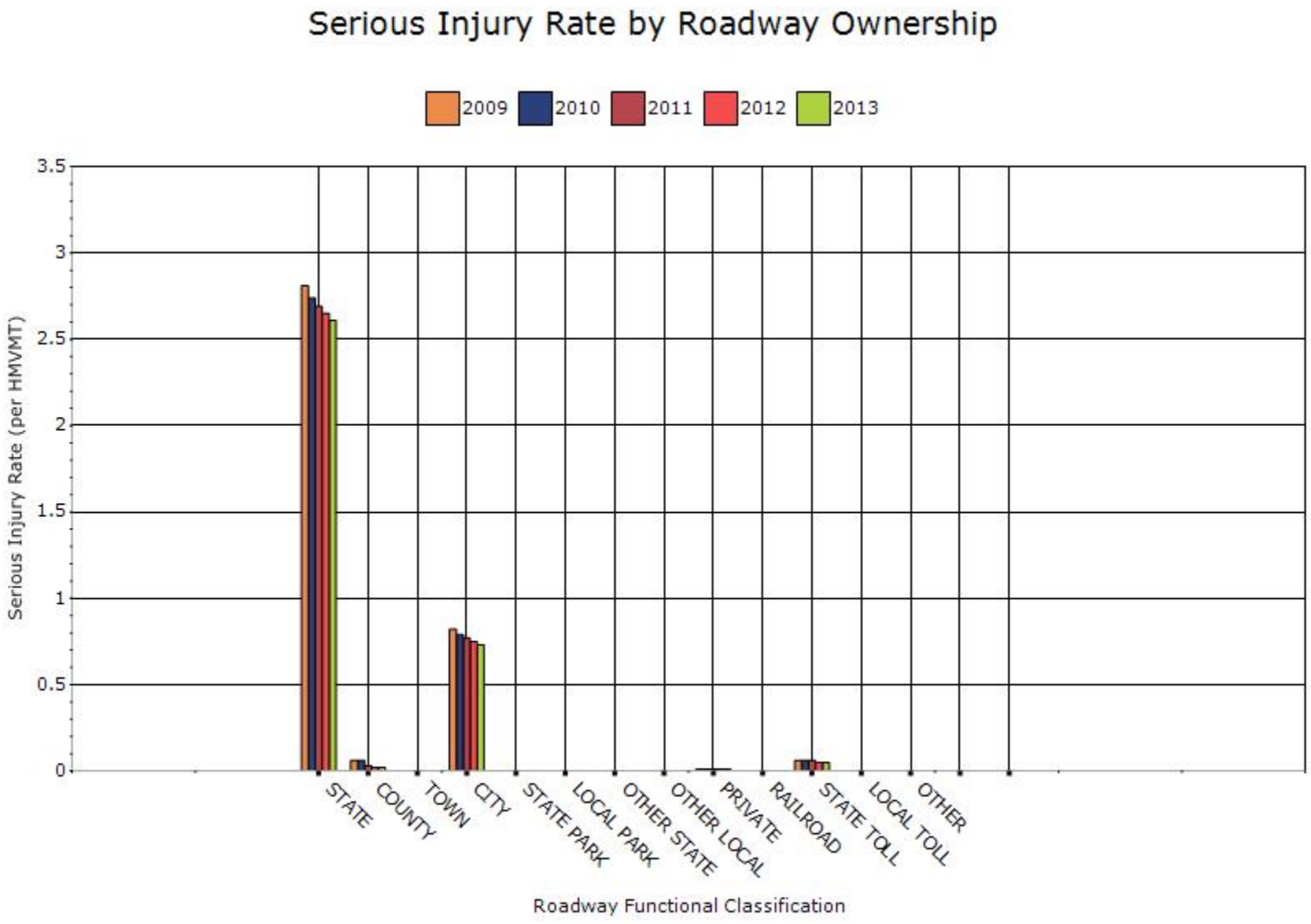
Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	1058	2628	1.05	2.61
COUNTY HIGHWAY AGENCY	4	19	0	0.02
TOWN OR TOWNSHIP HIGHWAY AGENCY	0	0	0	0
CITY OF MUNICIPAL HIGHWAY AGENCY	198	735	0.2	0.73
STATE PARK, 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	9	0	0.01
RAILROAD	0	0	0	0
STATE TOLL AUTHORITY	17	48	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
2009
2010
2011
2012
2013
1500
1000
500
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
2009
2010
2011
2012
2013
4000
3000
2000
1000
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
2009
2010
2011
2012
2013
Fatality Rate (per HMVMT)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
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
2009
2010
2011
2012
2013
Serious Injury Rate (per HMVMT)
3.5
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 2013 vehicle miles traveled data is not available at the time of publishing this report. The 2013 values have been estimated using the 2012 values. These values will be updated in next year's 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	2009	2010	2011	2012	2013
Fatality rate (per capita)	1.682	1.594	1.556	1.538	1.544
Serious injury rate (per capita)	2.894	2.772	2.636	2.556	2.542
Fatality and serious injury rate (per capita)	4.576	4.366	4.192	4.094	4.086

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

Data was obtained from the following sources:

1. Fatality and serious injury data was taken from the state crash database
2. Population figures were obtained from the US Census Bureau and from official State publications
3. The ratio of older persons per 1000 population was obtained from FHWA

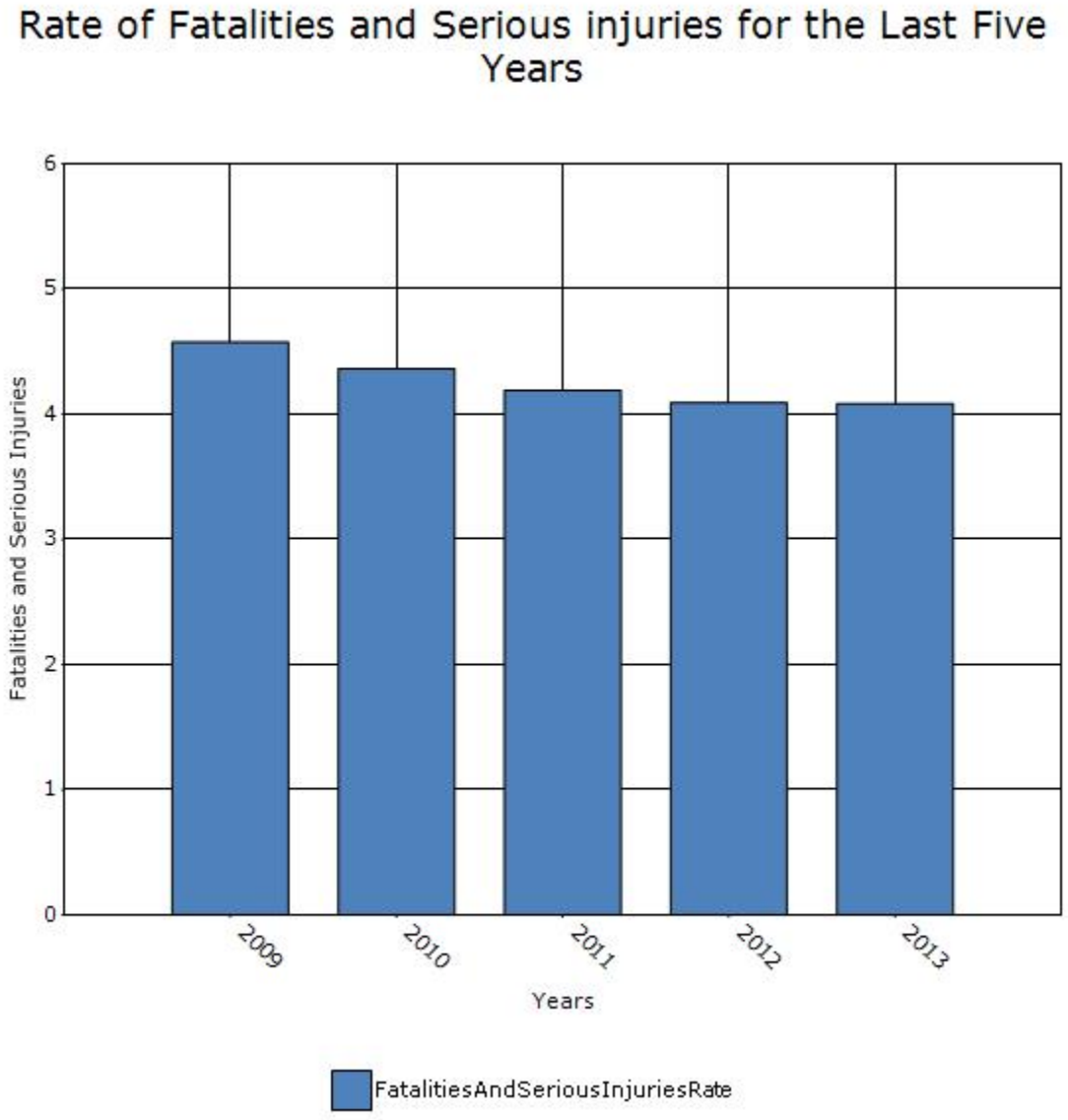
From the latter two pieces of data, a number of older persons in the Commonwealth was calculated for each year. NOTE: the 2013 ratio of older persons was not yet available from FHWA; 2013 values were estimated using the 2012 ratio.

The older pedestrian (age 65+) fatalities and fatalities in crashes involving and older driver (age 65+) were added together. The same was performed on the serious injuries.

A rate of fatalities and serious injuries per 10,000 was then calculated. The 10,000 mark was set by FHWA in order to yield workable numbers for the rates. The rates were then added to get a net Fatality and Serious Injury Rate.

A five year average of this rate was calculated and rounded to the nearest tenth. The 2007-2011 value is

4.2 and the 2009-2013 value is 4.1. Therefore, the Special Rule does not apply for Pennsylvania. However, recognizing our aging population and increasing trends in highway fatalities for our older citizens, we will continue our efforts at improving older driver safety.



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: Other-Change in Funding Distribution Formula

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

The formula for the distribution of safety monies has been adjusted in response to the increase in funding in the MAP-21 legislation. The formula is as follows:

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

2) $35 million reserved for statewide initiatives, such as implementation of the Intersection Safety and Roadway Departure Safety Implementation Plans as well as the systematic implementation of additional proven low cost safety improvements.

3) The remainder - $45.5 million - will be distributed to the planning organizations using a weighted formula based 50% on fatalities and serious injuries and 50% on reportable crashes

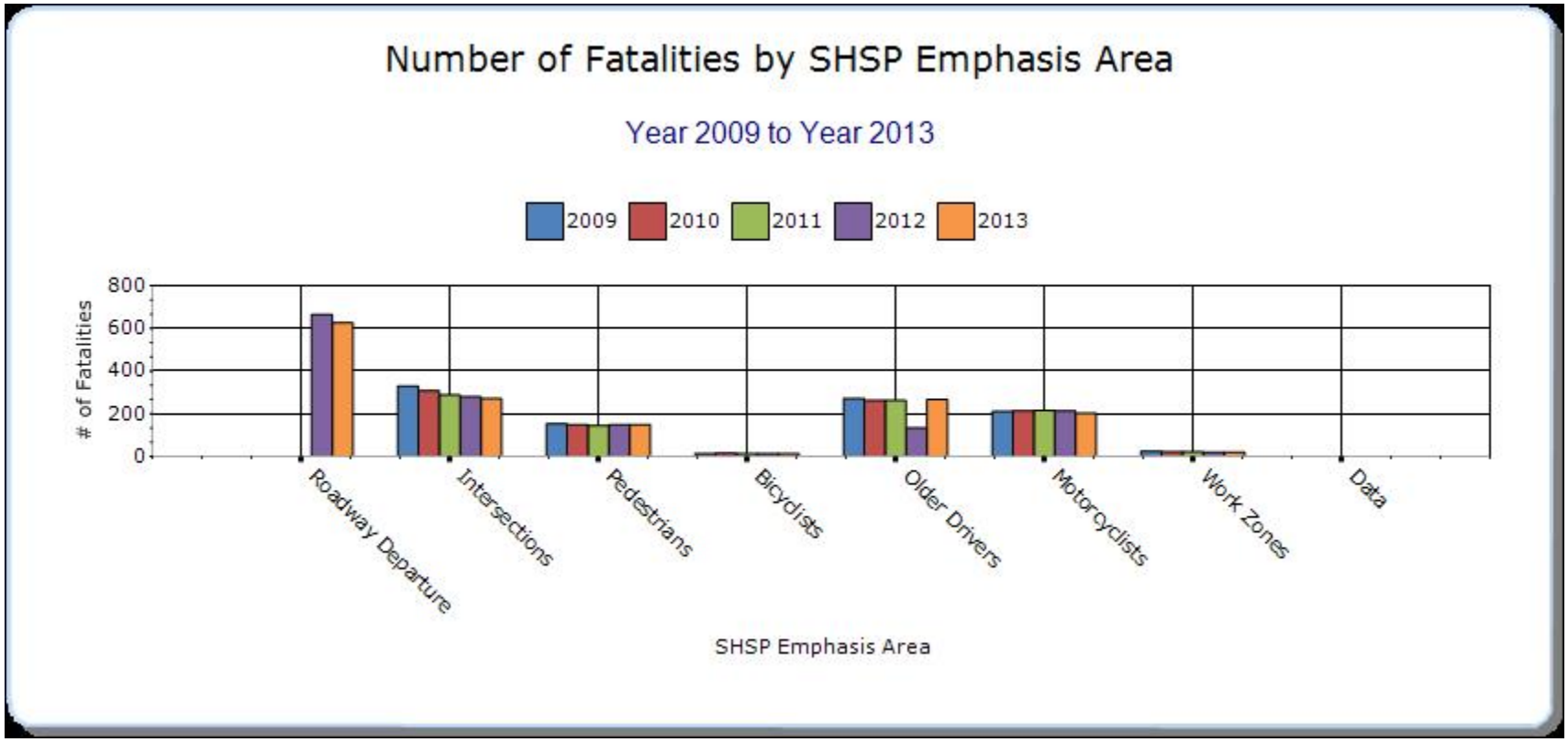
It is hoped that this new funding formula will provide for a greater return on our safety investment and continue our great progress in achieving our aggressive highway safety goals. The base funding will provide smaller planning organizations with the ability to perform medium-sized improvement projects as needed. The $35 million reserved for statewide initiatives provides for some centralized control over safety monies and will ensure the implementation of high-level safety efforts. And finally, the revision of the formula for distributing the remaining funds - approximately equal to our safety funding levels from previous years - will focus those funds of areas with distinct safety problems.

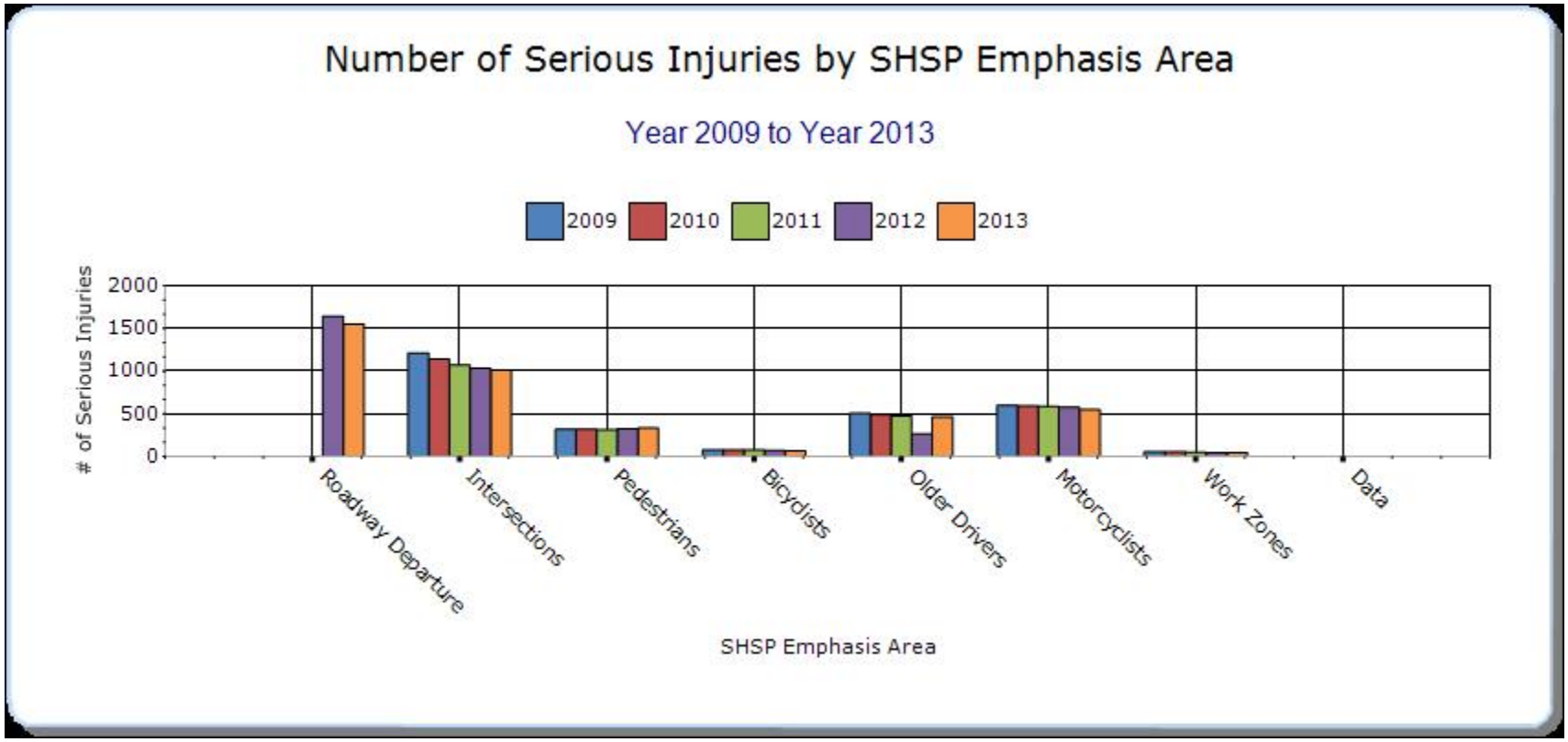
SHSP Emphasis Areas

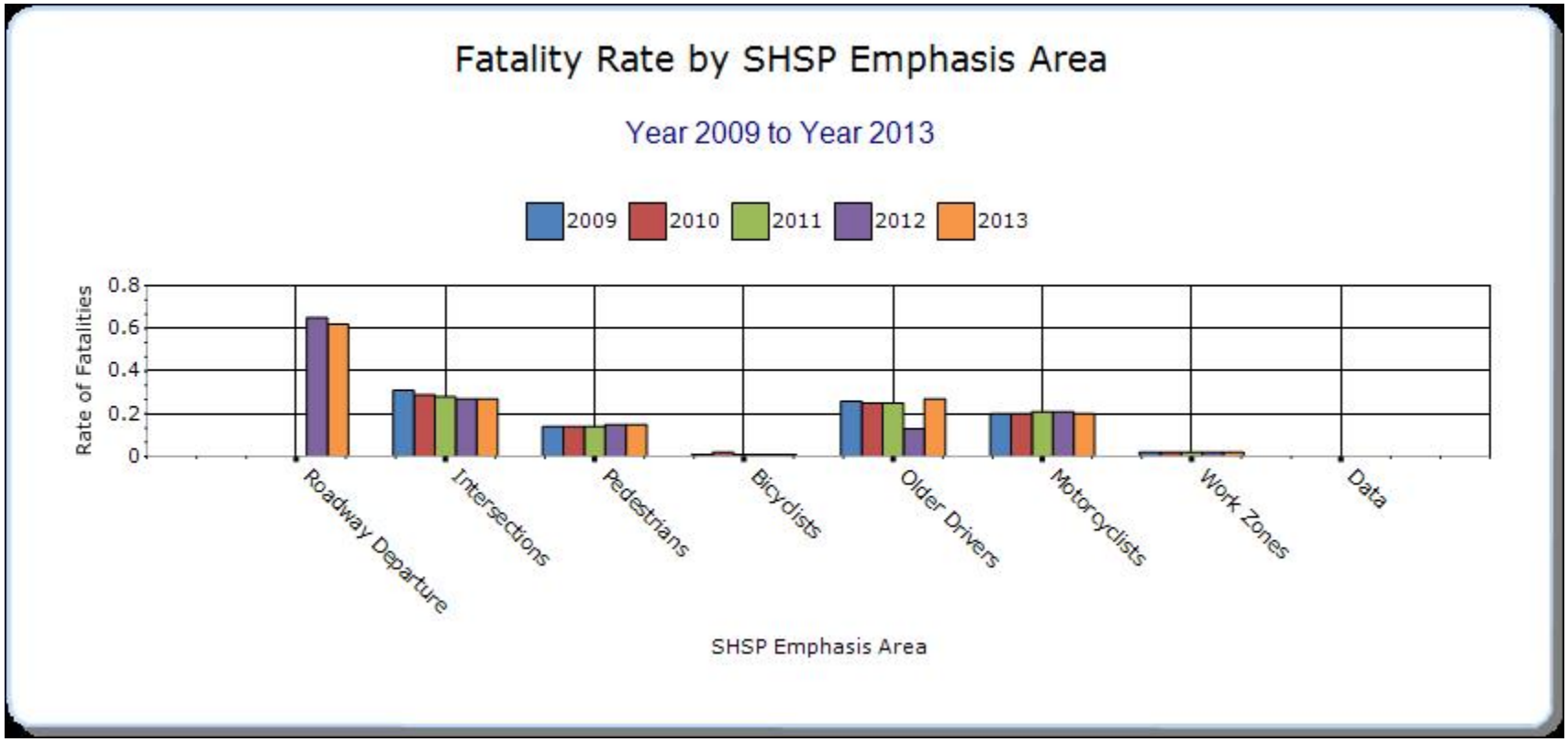
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

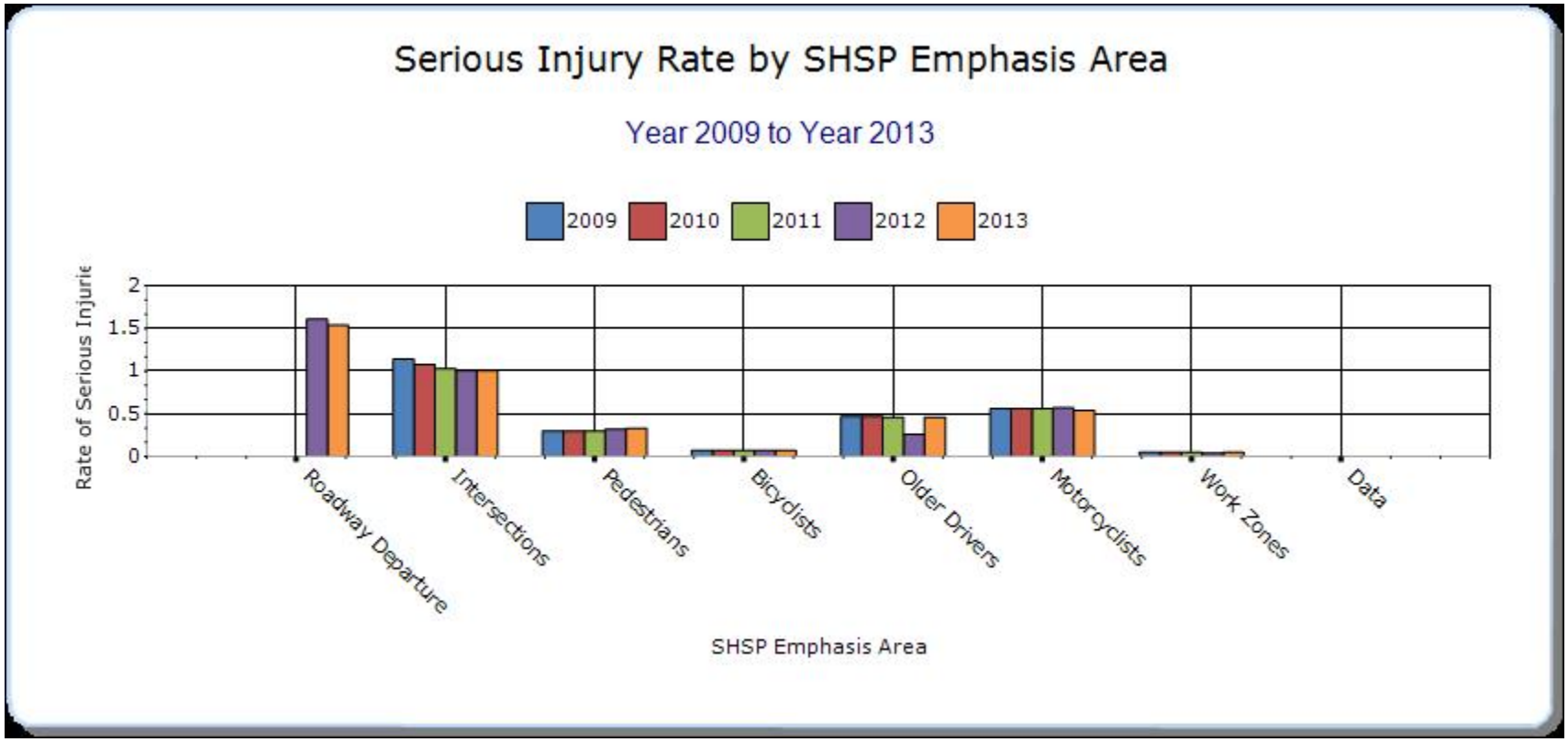
Year - 2013

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	626	1552	0.62	1.54	0	0	0
Intersections	Intersection Crashes	271	1015	0.27	1.01	0	0	0
Pedestrians	Vehicle/pedestrian	150	334	0.15	0.33	0	0	0
Bicyclists	Vehicle/bicycle	15	68	0.01	0.07	0	0	0
Older Drivers	Older Driver Crashes	268	467	0.27	0.46	0	0	0
Motorcyclists	Motorcycle Crashes	203	549	0.2	0.54	0	0	0
Work Zones	Work Zone Crashes	20	47	0.02	0.05	0	0	0


Number of Fatalities by SHSP Emphasis Area
Year 2009 to Year 2013
2009
2010
2011
2012
2013
# 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 2009 to Year 2013
2009
2010
2011
2012
2013
# 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 2009 to Year 2013
2009
2010
2011
2012
2013
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

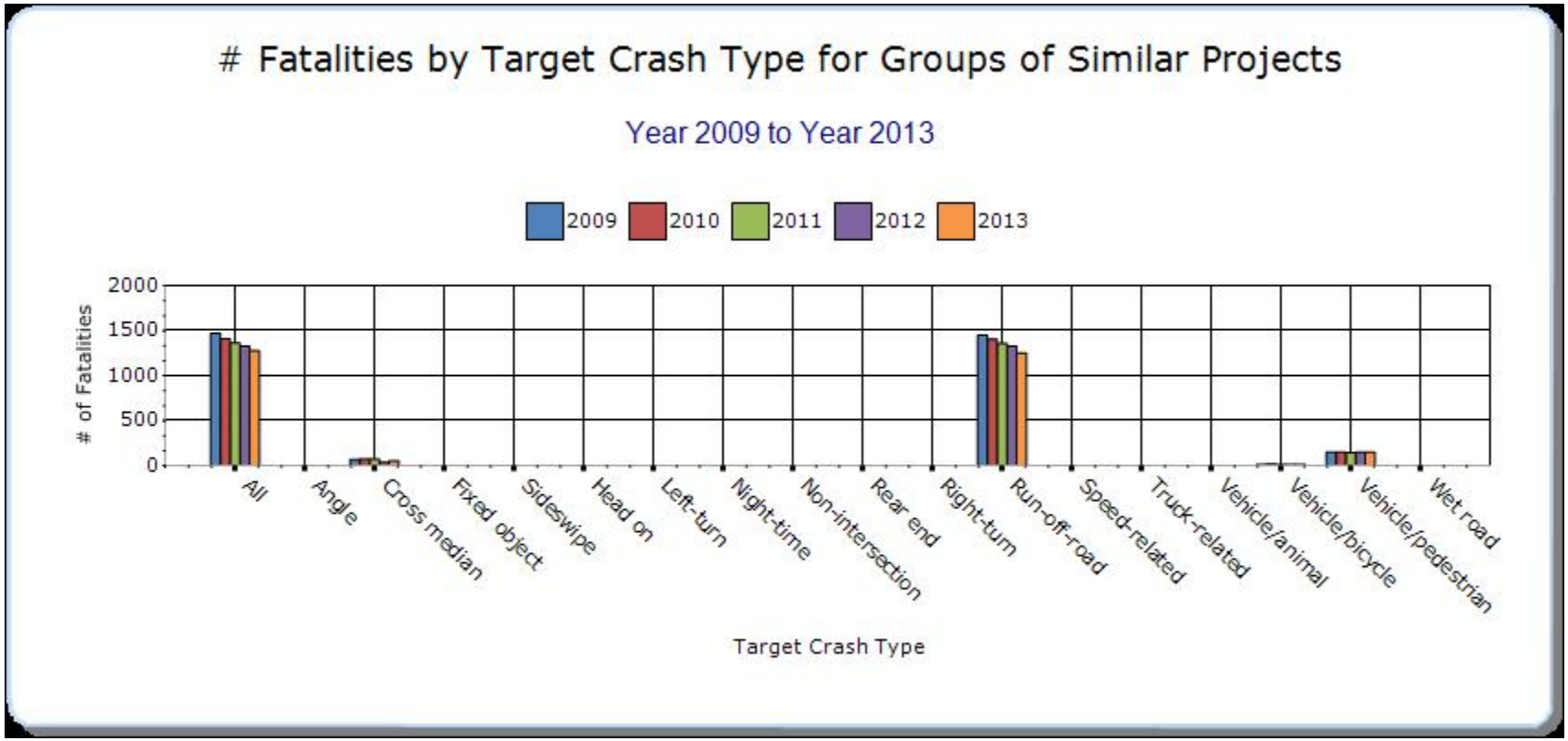

Serious Injury Rate by SHSP Emphasis Area
Year 2009 to Year 2013
2009
2010
2011
2012
2013
Rate of Serious Injurie
2
1.5
1
0.5
0
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area

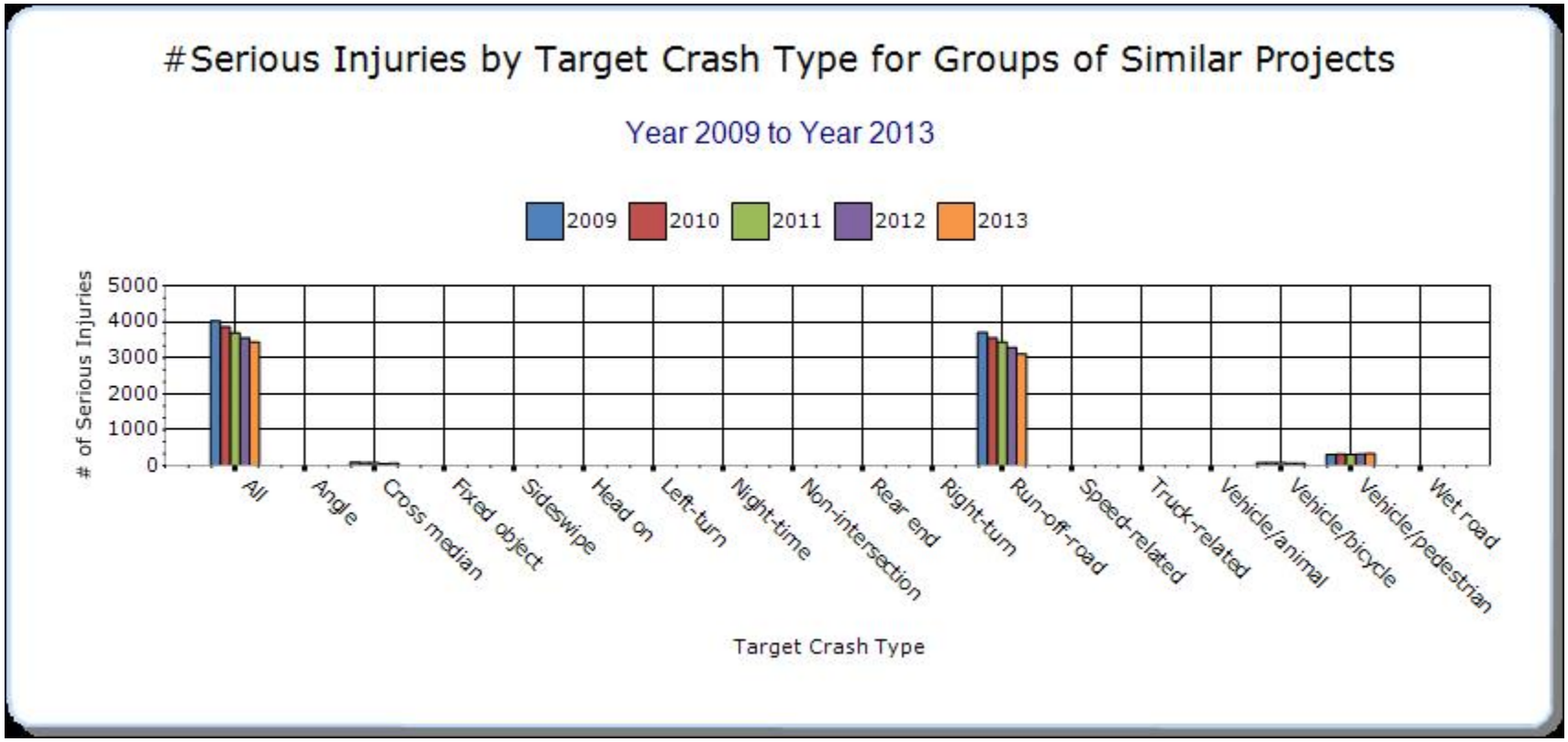
Groups of similar project types

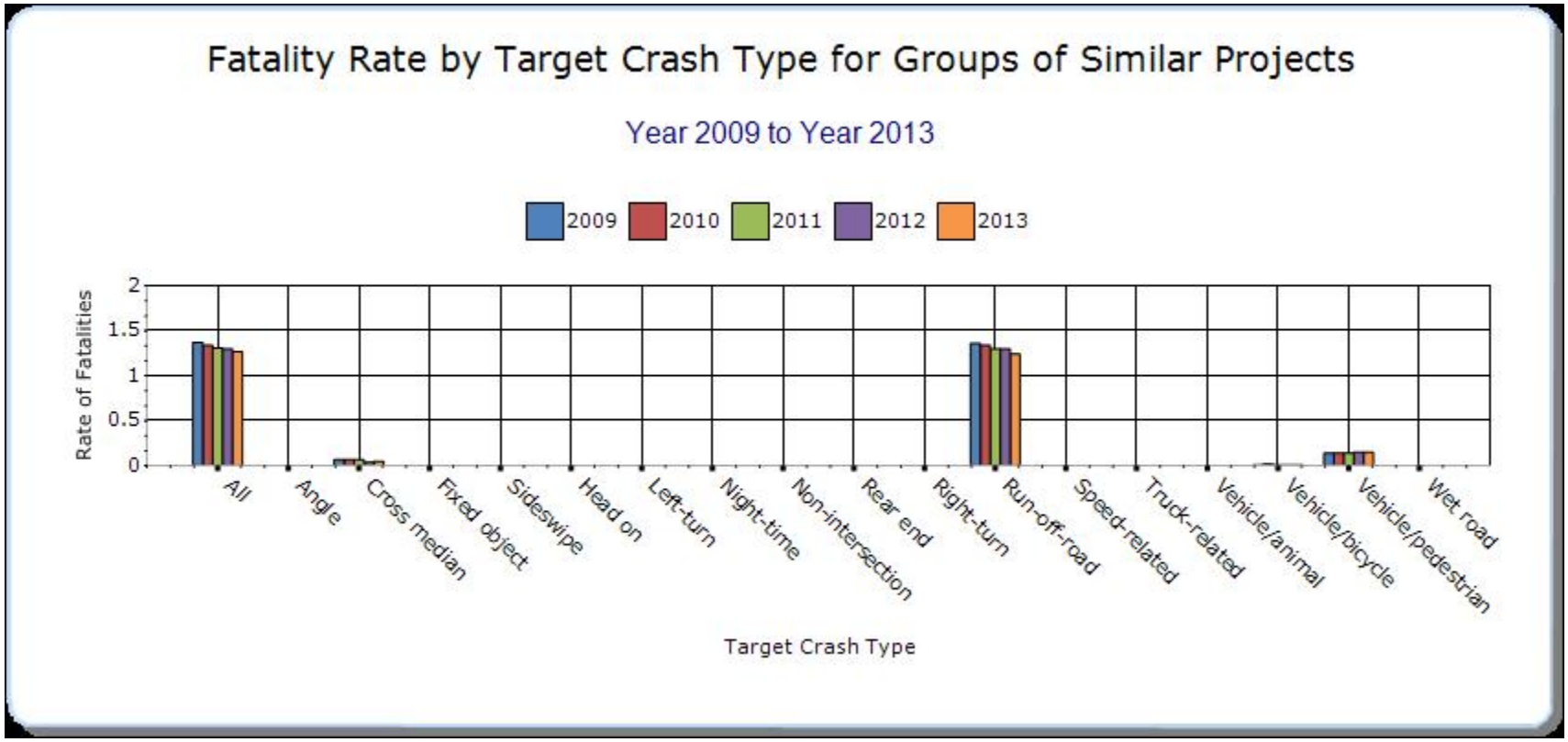
Present the overall effectiveness of groups of similar types of projects.

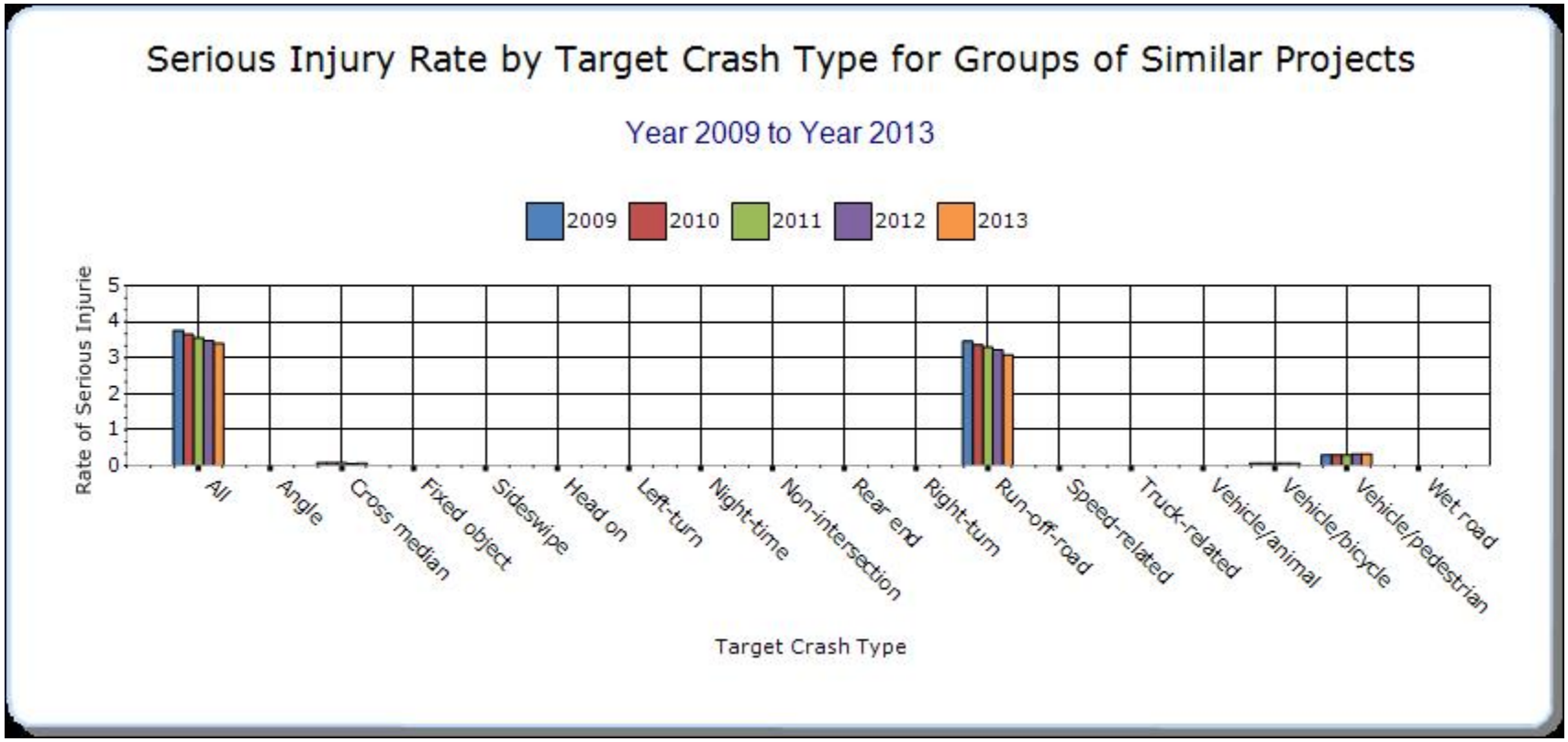
Year - 2013

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
Low-Cost Spot Improvements	All	1277	3432	1.27	3.4	0	0	0
Intersection	Intersection	271	1015	0.27	1.01	0	0	0
Horizontal Curve	Curve Driver Error	167	306	0.17	0.3	0	0	0
Roadway Departure	Run-off-road	626	1552	0.62	1.54	0	0	0
Local Safety	Local Road (Only)	203	777	0.2	0.77	0	0	0
Bicycle Safety	Vehicle/bicycle	15	68	0.01	0.07	0	0	0
Median Barrier	Cross median	54	70	0.05	0.07	0	0	0
Pedestrian Safety	Vehicle/pedestrian	150	334	0.15	0.33	0	0	0
Shoulder Improvement	Run-off-road	626	1552	0.62	1.54	0	0	0


Fatalities by Target Crash Type for Groups of Similar Projects
Year 2009 to Year 2013
2009
2010
2011
2012
2013
# of Fatalities
2000
1500
1000
500
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
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 2009 to Year 2013
2009
2010
2011
2012
2013
# of Serious Injuries
5000
4000
3000
2000
1000
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
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 2009 to Year 2013
2009
2010
2011
2012
2013
Rate of Fatalities
2
1.5
1
0.5
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

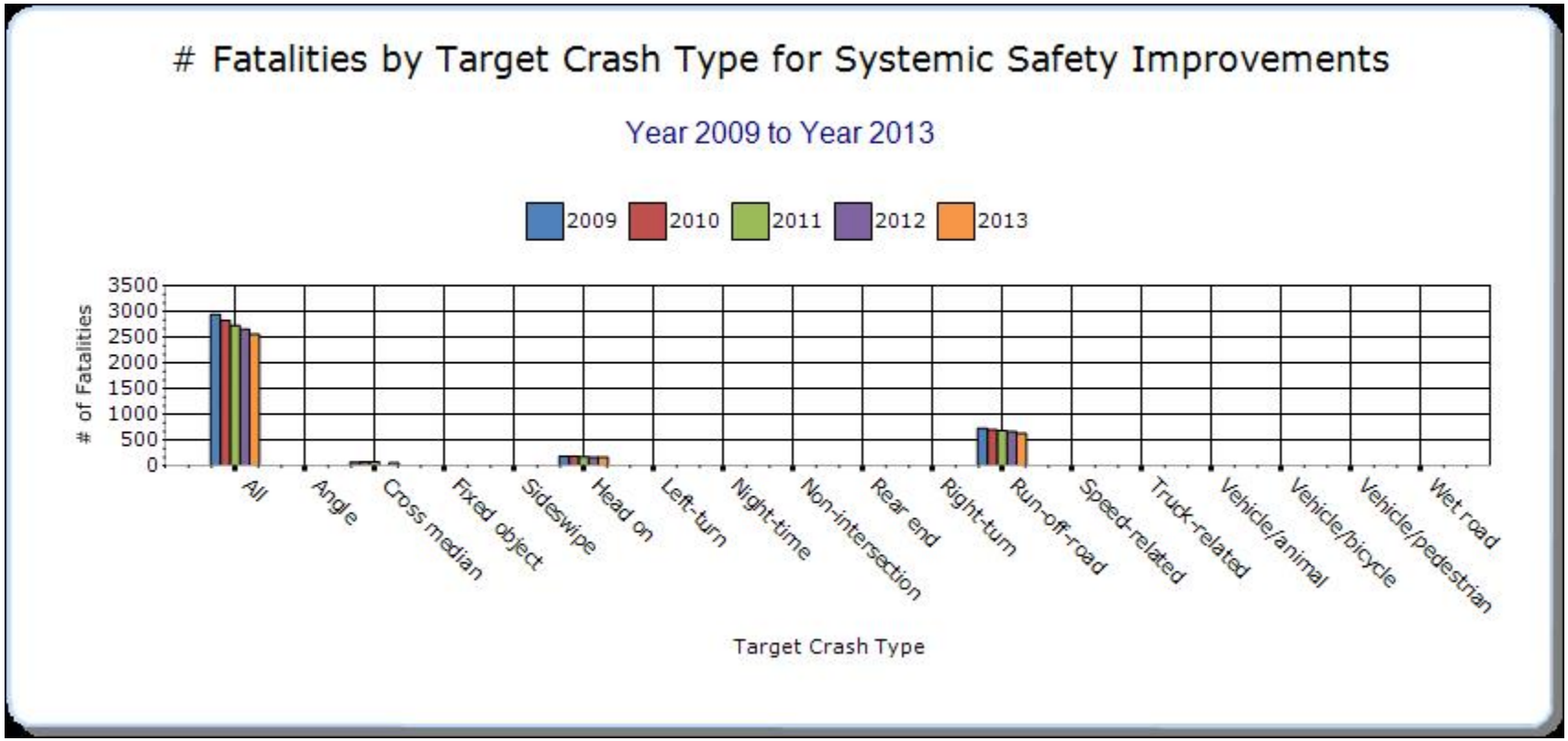

Serious Injury Rate by Target Crash Type for Groups of Similar Projects
Year 2009 to Year 2013
2009
2010
2011
2012
2013
Rate of Serious Injurie
5
4
3
2
1
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

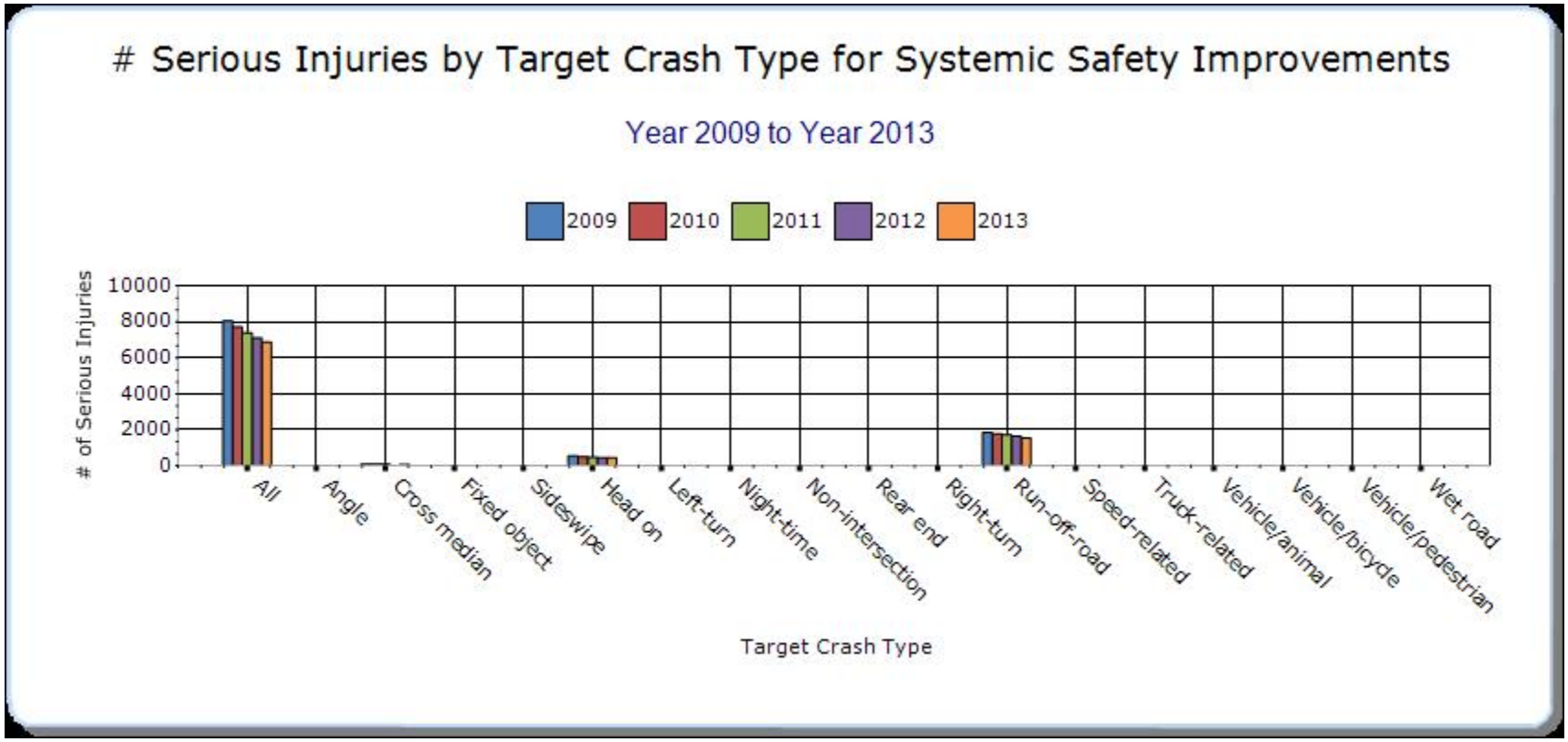
Systemic Treatments

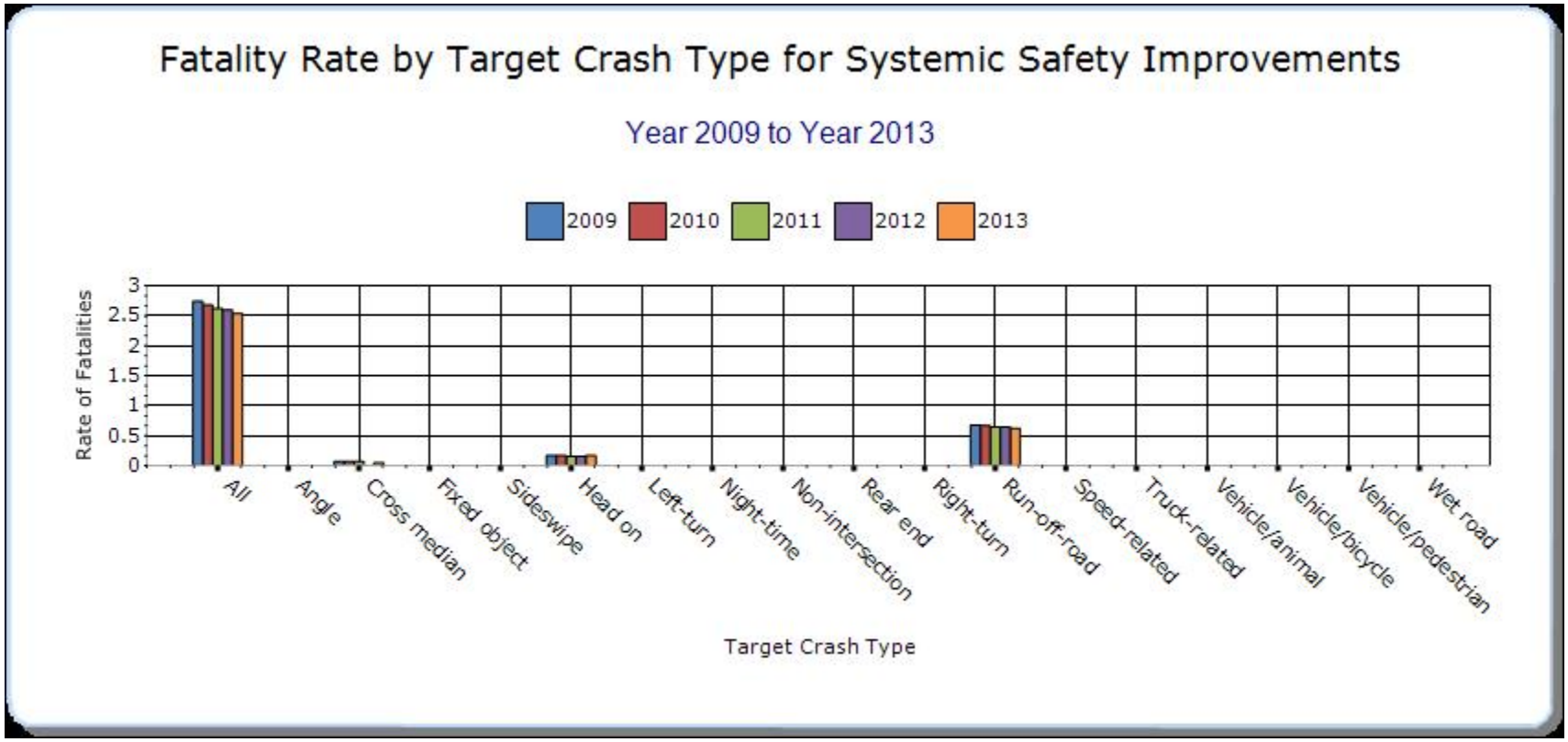
Present the overall effectiveness of systemic treatments.

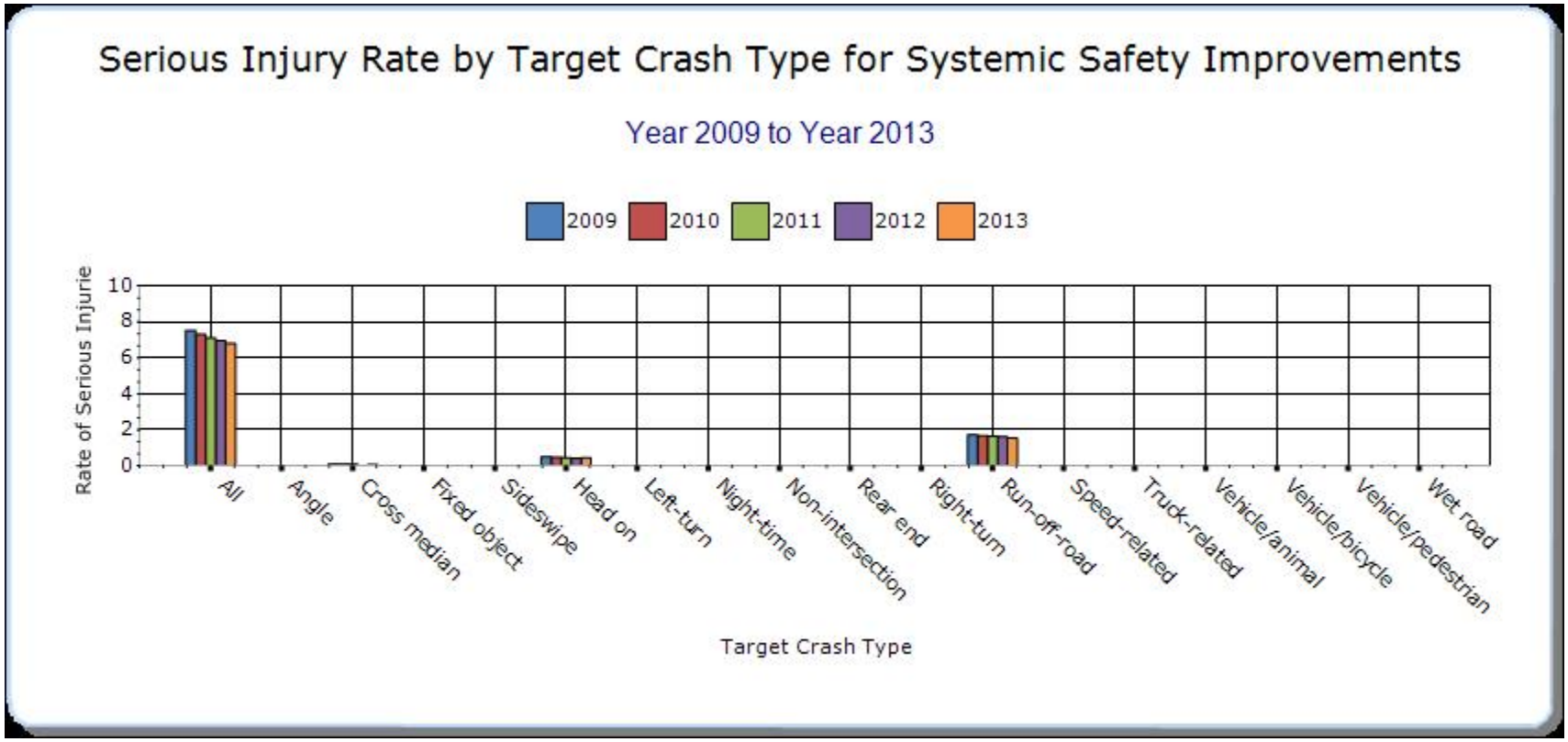
Year - 2013

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 Signing	All	1277	3432	1.27	3.4	0	0	0
Install/Improve Pavement Marking and/or Delineation	All	1277	3432	1.27	3.4	0	0	0
Traffic Control Device Rehabilitation	Intersection	271	1015	0.27	1.01	0	0	0
Cable Median Barriers	Cross median	54	70	0.05	0.07	0	0	0
Rumble Strips	Head on	167	441	0.17	0.44	0	0	0
Upgrade Guard Rails	Hit Guide Rail	139	256	0.14	0.25	0	0	0
Pavement/Shoulder Widening	Run-off-road	626	1552	0.62	1.54	0	0	0
Add/Upgrade/Modify/Remove Traffic Signal	Intersection	271	1015	0.27	1.01	0	0	0


Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2009 to Year 2013
2009
2010
2011
2012
2013
# of Fatalities
3500
3000
2500
2000
1500
1000
500
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
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 2009 to Year 2013
2009
2010
2011
2012
2013
# of Serious Injuries
10000
8000
6000
4000
2000
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
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 2009 to Year 2013
2009
2010
2011
2012
2013
Rate of Fatalities
3
2.5
2
1.5
1
0.5
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
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 2009 to Year 2013
2009
2010
2011
2012
2013
Rate of Serious Injurie
10
8
6
4
2
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
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 2013 vehicle miles traveled data is not available at the time of publishing this report. The 2013 values have been estimated using the 2012 values. These values will be updated in next year's report.

The most updated version of our HSIP program benefit-cost ratio is 0.85:1. This indicates that only $0.85 of economic benefit is realized for each safety dollar spent. This indicator is negative despite our recent safety successes, which include a record low number of highway fatalities since record keeping began over 80 years ago. However, a closer analysis of the data used to generate this ratio reveals two items worthy of consideration:

1) One project location in Lycoming County, completed in 2009, is the cause of a 0.16 reduction in the benefit cost ratio by itself. *If this single project is removed from the analysis, our benefit cost ratio would be a positive 1.01:1*. After the intersection improvements, which included acceleration lanes for traffic turning onto a major highway, were completed, a series of four fatal accidents occurred. These involved a pedestrian being struck, a large truck rolling over for unknown causes, a DUI crash, and an inexperienced driver making an entry onto the highway without clearance. None of these accidents would have been affected by the work paid for with HSIP funds.

2) Several projects, including ones in the most recent 2010 set of data, had minimal crash history prior to the completion date. For example, a project in Adams County which cost over $600,000 had no crashes in the three years prior to construction. Another project in Washington County had a pair of property damage only crashes in the three years before completion, but was provided with an intersection upgrade that cost almost $800,000.

The first item is difficult to address; fatal crashes are very random in nature, and their high cost to society cannot be disputed. Our excellent progress in reducing fatalities in the Commonwealth is a much better indicator of the effectiveness of our safety programs.

The second item, however, is one that we are continuously working to correct. As mentioned previously in this report, safety staff from PennDOT's Central Office made visits to each Engineering District office this past fall to present a refresher course on the HSIP program, it's priorities, and the proper ways to obtain the most benefit from safety investments. Many of these seemingly poor project choices were grandfathered into the HSIP program, and therefore not subject to our improved project selection methodology. To combat this, we instituted a policy change in January 2011 that removed projects with limited crash history or limited potential for safety improvement for consideration. Based on the inclusion of the large number of project eligible for HSIP funds under our new guidelines on this year's new Transporation Improvement Program, we feel strongly that the adverse effect of these grandfathered projects will soon be negated.

Provide project evaluation data for completed projects (optional).

Location	Functional Class	Improvement Category	Improvement Type	Bef-Fatal	Bef-Serious Injury	Bef-Other Injury	Bef-PDO	Bef-Total	Aft-Fatal	Aft-Serious Injury	Aft-Other Injury	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.