Highway Safety Improvement Program

Data Driven Decisions

Kentucky
Highway Safety Improvement Program
2015 Annual Report

Prepared by: KY

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

Kentucky's HSIP funds are administered from the Division of Traffic Operations in KYTC's Central Office. Each Highway District has an HSIP Coordinator that works closely with Central Office and District Personnel to conduct a Road Safety Audit (RSA) on potential improvement locations. The RSA teams are multi-disciplinary and represent the following highway functions; planning, highway design, traffic operations, maintenance, and construction. The Cabinet also requests that members from local Area Development Districts (ADDs) participate in the process. Highway Districts are encouraged to submit candidate projects after completing all established guidelines for funding consideration. Funding levels to date have been sufficient to implement projects submitted that meet the eligibility guidelines for the program**.**

The program methodology used by the Transportation Cabinet during the time period of this report was generally the same as in the previous years. With completion of the document titled, "Kentucky Roadway Departure Safety Implementation Plan" in July 2010, there has been significant reliance on the recommended approach to supplement the traditional process directed to high-crash locations with systematic application of low-cost, cost-effective countermeasures. More specifically, the systematic approach could be characterized as the reverse of the traditional approach in that low-cost, effective countermeasures are first identified and then the crash database is queried to identify highway sections that have targeted crashes at or above a crash threshold that would insure cost-effective deployment of these countermeasures.

The HSIP supports Kentucky's Strategic Highway Safety Plan (SHSP). The mission of the SHSP is, "to reduce Kentucky's highway fatalities and injuries." In conformance with program guidelines, the HSIP seeks to adhere to the SHSP through a data-driven approach for funding safety improvements.

Effectiveness evaluations were performed and benefits/costs were calculated, with results presented for the following three types of systemic improvements:

MEDIAN CABLE BARRIERS

Wilcoxon Signed-Rank Test for "before and after shift in proportions of cross-median or impacted object in median crashes"- significant reduction at 99% confidence level.

Empirical Bayes analysis of "before and after cross-median crashes" results indicated the change in crashes (effect of the treatment) was significant at the 95% confidence level.

Benefit/Cost analysis results; 3.7:1 based on Comprehensive Cost of motor vehicle collisions (National Safety Council).

RUMBLE STRIPS

Wilcoxon Signed-Rank Test for "before and after shift in proportions of wet-weather nighttime crashes"- significant reduction at 95% confidence level.

Empirical Bayes analysis of "before and after wet-weather nighttime crashes" results indicated the change in crashes (effect of the treatment) was significant at the 95% confidence level.

Benefit/Cost analysis results; 3.8:1 based on Comprehensive Cost of motor vehicle collisions (National Safety Council).

HIGH-FRICTION SURFACE TREATMENTS

Wilcoxon Signed-Rank Test for "before and after shift in proportions of wet-weather lane departure crashes"- significant reduction at 95% confidence level.

Empirical Bayes analysis of "before and after wet-weather lane departure crashes" results indicated the change in crashes (effect of the treatment) was significant at the 95% confidence level.

Benefit/Cost analysis results; 10.7:1 based on Comprehensive Cost of motor vehicle collisions (National Safety Council).

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

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

The Safety Circuit Rider program continues to function as the primary means of identifying and implementing projects on local roads through the HSIP. The focus of this program is to provide technical assistance to improve safety on local roads and streets. While the free technical advice offered by the Safety Circuit Rider is available to every community across the Commonwealth, the program selects counties with high crash rates on an annual cycle. The counties selected for 2014 were Allen, Bell, Calloway, Harrison, Hopkins, and Todd. Typical improvements in these counties were clearing and correcting water runoff and drainage, repairing shoulder drop off and width, removing fixed objects such as trees and stumps, and clearing vegetation around signs and intersections. The 2015 selected

counties are Pendleton, Taylor, Clay, McLean, Lincoln, and Powell. Aside from these targeted counties, the Safety Circuit Rider Program develops one day training courses designed to provide communities with practical and effective ways to mainstream safety into their day-to-day activities and project development process. These courses are offered free at selected areas throughout Kentucky.

KYTC has begun preliminary work providing technical assistance and potential funding to Lexington-Fayette Urban County Government (LFUCG) in regards to the development of a Road Departure Safety Plan.

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

☒Design

☒Planning

☒Maintenance

☒Operations

☒Governors Highway Safety Office

☐Other:

Briefly describe coordination with internal partners.

Kentucky's HSIP funds are administered from the Division of Traffic Operations in KYTC's Central Office. Each Highway District has a HSIP Coordinator who works closely with the Central Office and other Highway District personnel to conduct Road Safety Audits (RSAs) of potential improvement locations. The RSA teams are multidisciplinary and represent the following highway functions; planning, design, traffic operations, maintenance, and construction. Highway districts are encouraged to submit candidate projects after completing all established guidelines for funding considerations.

HSIP projects are selected and prioritized based on their correlation with Kentucky's Strategic Highway Safety Plan. There are presently 11 emphasis areas within the SHSP and efforts are made to implement projects consistent with the goals and objectives of the SHSP.

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

☒Metropolitan Planning Organizations

☐ Governors Highway Safety Office

☐ Local Government Association

☐ Other:

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-No changes since last year

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

The Governor's Office of Highway Safety is responsible for development of the Strategic Highway Safety Plan and therefore directly associated with the required correlation between HSIP and SHSP. Efforts have been made to use data-driven analysis to identify emphasis areas of high potential to affect safety. Some of these emphasis areas, primarily "Roadway Departure" and "Intersections," are consistent with the HSIP project selection process.

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: **7/1/2011**

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 2
- ☐ Incremental B/C
- ☒ Ranking based on net benefit 1
- ☐ Other

Program: **Intersection**

Date of Program Methodology: **9/1/2012**

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-Prioritized list

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 1
- ☐ Other

Program: **Skid Hazard**

Date of Program Methodology: **7/1/2011**

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-Prioritized list based on EB

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 1
- ☐ Other

Program: **Roadway Departure**

Date of Program Methodology: **7/1/2011**

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-Prioritized list

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 1
- ☐ Other

Program: **Low-Cost Spot Improvements**

Date of Program Methodology: **7/1/2013**

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-Potential	☐ Lane miles	☐ Roadside features
	☐ Other	☒ Other-Potential
	☒ Other-Potential	

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-Potential

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 1
- ☐ Incremental B/C
- ☐ Ranking based on net benefit
- ☐ Other

Program: **Sign Replacement And Improvement**

Date of Program Methodology: **7/1/2011**

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-Prioritized list

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	1
☐ Other	

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

50

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

☒Cable Median Barriers

☐Traffic Control Device Rehabilitation

☒Install/Improve Signing

☒Upgrade Guard Rails

☒Safety Edge

☒Add/Upgrade/Modify/Remove Traffic Signal

☒Rumble Strips

☐Pavement/Shoulder Widening

☒Install/Improve Pavement Marking and/or Delineation

☒Clear Zone Improvements

☐Install/Improve Lighting

☒Other Other-High-Friction Treatments at Curves

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 2015, Kentucky's HSIP began implementing systemic projects for Intersection Improvements and continued using a systemic process for Roadway Delineation projects.

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)	38484089	100 %	53945177	99 %
HRRRP (SAFETEA-LU)	0	0 %	558000	1 %
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				

Totals	38484089	100%	54503177	100%

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

$300,000.00

How much funding is obligated to local safety projects?

$300,000.00

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

$3,103,800.00

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

$3,103,800.00

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

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

$38,452,587.00

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

MAP-21 was enacted in 2012 and with that came new guidance and requirements, as well as additional funding. The Kentucky Transportation Cabinet utilized Kentucky's Strategic Highway Safety Plan to draft a Highway Safety Improvement Program Investment Plan to guide Transportation Safety obligations and spending. Once the Investment Plan was completed and shared with the FHWA Kentucky Division, Kentucky moved forward with the implementation of the plan which includes emphasis areas for the obligation of HSIP funding for upcoming fiscal years and also to program and invest unobligated funds from previous fiscal years. For the past several years Kentucky has strived to put a program in place to fully implement programmed HSIP improvements through the federal procurement process instead of relying upon force account work to complete improvements. This came with several challenges including the amount of time required to develop a project for safety improvements that includes all of the federal requirements for advertised bid letting as well as the planning and coordination required to include projects in KYTC's Highway Plan for both internal communication and communication with the FHWA Kentucky Division.

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

No additional comments.

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
Calloway KY 280	Roadside Roadside - other	9.209 Miles	1422300	1422300	HSIP (Section 148)	Rural Minor Collector	2274	55	State Highway Agency	Roadway Departure	
Crittenden Various	Roadway Pavement surface - high friction surface	0	129841	129841	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
McCracken I-24	Roadside Barrier - cable	16.5 Miles	13802	13802	HSIP (Section 148)	Urban Principal Arterial - Interstate	43513	70	State Highway Agency	Roadway Departure	
McCracken KY 1954	Roadside Roadside - other	3.03 Miles	250000	250000	HSIP (Section 148)	Rural Major Collector	5920	55	State Highway Agency	Design funds for Low Cost Safety Improvements	
District 1	Roadway signs and	0	466570	466570	HSIP (Section		0	0	State Highway	Roadway	

Various	traffic control Curve-related warning signs and flashers				148)				Agency	Departure	
Christian I-24	Roadside Barrier - cable	7.87 Miles	102362	102362	HSIP (Section 148)	Rural Principal Arterial - Interstate	40207	70	State Highway Agency	Roadway Departure	
Daviess KY 2127	Roadside Roadside - other	5.76 Miles	1033160	1033160	HSIP (Section 148)	Rural Local Road or Street	744	55	State Highway Agency	Roadway Departure	
Henderson KY 351	Roadside Roadside - other	0.736 Miles	1780000	1780000	HSIP (Section 148)	Rural Major Collector	3204	55	State Highway Agency	Roadway Departure	
Ohio KY 54	Roadside Roadside - other	6.02 Miles	250000	250000	HSIP (Section 148)	Rural Major Collector	3116	55	State Highway Agency	Design funds for Low Cost Safety Improvements	
District 2 Various	Roadway signs and traffic control Roadway signs (including post) - new or	0	450000	450000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	

	updated										
Barren US 68	Intersection geometry Auxiliary lanes - add right-turn lane	0.16 Miles	202493	202493	HSIP (Section 148)	Rural Major Collector	5473	55	State Highway Agency	Intersections	
Logan KY 100	Roadside Drainage improvements	9.08 Miles	18000	18000	HSIP (Section 148)	Rural Minor Arterial	2782	55	State Highway Agency	Roadway Departure	
Simpson KY 100	Roadside Roadside - other	8.38 Miles	250000	250000	HSIP (Section 148)	Rural Minor Arterial	2569	55	State Highway Agency	Design funds for Low Cost Safety Improvements	
Warren Various	Roadway Pavement surface - high friction surface	0	571975	571975	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Green KY 61	Roadside Barrier- metal	0.25 Miles	79925	79925	HSIP (Section 148)	Rural Minor Arterial	1445	55	State Highway Agency	Roadway Departure	

Hardin US 31W	Roadway signs and traffic control Roadway signs and traffic control - other	1.44 Miles	388363	388363	HSIP (Section 148)	Urban Principal Arterial - Other	29514	55	State Highway Agency	Roadway Departure	
Hardin KY 1600	Roadside Roadside - other	5.21 Miles	250000	250000	HSIP (Section 148)	Rural Minor Arterial	4765	55	State Highway Agency	Design funds for Low Cost Safety Improvements	
Meade KY 1638	Shoulder treatments Widen shoulder - paved or other	4.26 Miles	698832	698832	HSIP (Section 148)	Rural Minor Arterial	7482	55	State Highway Agency	Roadway Departure	
Nelson KY 49	Roadway Superelevation / cross slope	0.8 Miles	399029	399029	HSIP (Section 148)	Rural Major Collector	3179	45	State Highway Agency	Roadway Departure	
Nelson KY 162	Roadside Removal of roadside objects (trees, poles,	8.16 Miles	43123	43123	HSIP (Section 148)	Rural Minor Collector	1014	55	State Highway Agency	Roadway Departure	

	etc.)										
Taylor KY 55	Roadside Barrier end treatments (crash cushions, terminals)	6.19 Miles	747503	747503	HSIP (Section 148)	Rural Principal Arterial - Other	7358	55	State Highway Agency	Roadway Departure	
Bullitt KY 44	Roadside Roadside - other	9.285 Miles	1437500	1437500	HSIP (Section 148)	Rural Major Collector	3701	55	State Highway Agency	Roadway Departure	
Bullitt KY 480	Roadside Roadside - other	8.43 Miles	250000	250000	HSIP (Section 148)	Rural Minor Collector	4526	55	State Highway Agency	Design funds for Low Cost Safety Improvements	
Jefferson KY 155	Roadside Roadside - other	0.1 Miles	95000	95000	HSIP (Section 148)	Urban Principal Arterial - Other	34200	45	State Highway Agency	Design funds for Low Cost Safety Improvements	
Jefferson Various	Roadway Pavement surface - high friction surface	0	853082	853082	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	

Oldham I-71	Roadside Barrier - cable	2.18 Miles	610118	610118	HSIP (Section 148)	Rural Principal Arterial - Interstate	38076	70	State Highway Agency	Roadway Departure	
Trimble KY 625	Roadside Barrier- metal	0.11 Miles	2832	2832	HSIP (Section 148)	Rural Minor Collector	1030	55	State Highway Agency	Roadway Departure	
Boone I-71	Roadside Barrier - cable	0.1 Miles	1099571	1099571	HSIP (Section 148)	Rural Principal Arterial - Interstate	38517	70	State Highway Agency	Roadway Departure	
Boone I-75	Roadside Drainage improvements	1 Numbers	385000	385000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Boone US 42	Roadside Roadside - other	5.67 Miles	250000	250000	HSIP (Section 148)	Rural Major Collector	3516	55	State Highway Agency	Design funds for Low Cost Safety Improvements	
Boone US 42	Roadway Pavement surface - miscellaneous	2.24 Miles	56000	56000	HSIP (Section 148)	Rural Major Collector	3516	55	State Highway Agency	Roadway Departure	

Campbell KY 2345	Roadway Pavement surface - miscellaneous	0.3 Miles	127773	127773	HSIP (Section 148)	Urban Local Road or Street	2480	35	State Highway Agency	Roadway Departure	
Carroll I-71	Roadside Barrier - cable	11.99 Miles	1790208	1790208	HSIP (Section 148)	Rural Principal Arterial - Interstate	36466	70	State Highway Agency	Roadway Departure	
Carroll KY 36/277	Roadside Roadside - other	0	67000	67000	HSIP (Section 148)		0	0	State Highway Agency	Design funds for Low Cost Safety Improvements	
Gallatin I-71 SB	Roadway Pavement surface - high friction surface	0.2 Miles	25043	25043	HSIP (Section 148)	Rural Principal Arterial - Interstate	38517	70	State Highway Agency	Roadway Departure	
Kenton KY 1486	Roadway Pavement surface - high friction surface	0.01 Miles	194928	194928	HSIP (Section 148)	Urban Local Road or Street	653	45	State Highway Agency	Roadway Departure	
Kenton KY 1303	Roadway Pavement surface -	0.28 Miles	12000	12000	HSIP (Section	Urban Minor	6028	45	State Highway	Roadway Departure	

	miscellaneous				148)	Arterial			Agency		
Kenton I-275	Roadway Pavement surface - high friction surface	1 Numbers	1179	1179	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Pendleton KY 17	Roadway Superelevation / cross slope	1.81 Miles	75000	75000	HSIP (Section 148)	Rural Major Collector	1602	55	State Highway Agency	Roadway Departure	
Kenton & Grant Various	Roadway Pavement surface - high friction surface	0	198257	198257	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Bourbon US 460	Roadway Superelevation / cross slope	1.77 Miles	310430	310430	HSIP (Section 148)	Rural Minor Arterial	1740	55	State Highway Agency	Roadway Departure	
Clark US 60	Roadway Superelevation / cross slope	1.04 Miles	142364	142364	HSIP (Section 148)	Rural Major Collector	2429	55	State Highway Agency	Roadway Departure	
Fayette Various	Roadside Roadside -	0	169898	169898	HSIP (Section		0	0	State Highway	Roadway	

	other				148)				Agency	Departure	
Fayette US 25	Access management Access management - other	0.93 Miles	50000	50000	HSIP (Section 148)	Urban Principal Arterial - Other	28374	45	State Highway Agency	Roadway Departure	
Jessamine KY 3374/2338	Roadway signs and traffic control Roadway signs (including post) - new or updated	0	43120	43120	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Madison KY 52	Roadway Pavement surface - high friction surface	0.7 Miles	60000	60000	HSIP (Section 148)	Rural Major Collector	1994	55	State Highway Agency	Roadway Departure	
Mercer US 68	Roadside Roadside - other	7.555 Miles	2535861	2535861	HSIP (Section 148)	Rural Minor Arterial	2321	55	State Highway Agency	Roadway Departure	
Mercer US 68	Roadside Roadside - other	9 Miles	34193	34193	HSIP (Section 148)	Rural Minor Arterial	2321	55	State Highway Agency	Design funds for Low Cost Safety Improvement	

										s	
Montgomery US 460	Roadway signs and traffic control Sign sheeting - upgrade or replacement	7.32 Miles	50000	50000	HSIP (Section 148)	Rural Minor Arterial	1941	55	State Highway Agency	Roadway Departure	
Scott US 460	Roadside Roadside - other	6.83 Miles	250000	250000	HSIP (Section 148)	Rural Minor Arterial	5040	55	State Highway Agency	Design funds for Low Cost Safety Improvements	
Woodford KY 1964	Roadside Removal of roadside objects (trees, poles, etc.)	2.68 Miles	223942	223942	HSIP (Section 148)	Rural Minor Collector	1234	55	State Highway Agency	Roadway Departure	
District 7 Various	Roadway Pavement surface - high friction surface	0	532345	532345	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Casey US 127	Roadside Barrier end treatments	4.21 Miles	510000	510000	HSIP (Section	Rural Principal Arterial -	7060	55	State Highway	Roadway Departure	

	(crash cushions, terminals)				148)	Other			Agency		
Casey US 127	Roadside Barrier end treatments (crash cushions, terminals)	4.77 Miles	435022	435022	HSIP (Section 148)	Rural Principal Arterial - Other	5163	55	State Highway Agency	Roadway Departure	
Pulaski KY 70	Roadway Superelevation / cross slope	10.26 Miles	606730	606730	HSIP (Section 148)	Rural Major Collector	2013	55	State Highway Agency	Roadway Departure	
Pulaski KY 790	Roadside Roadside - other	5.55 Miles	250000	250000	HSIP (Section 148)	Rural Minor Collector	2713	55	State Highway Agency	Design funds for Low Cost Safety Improvements	
Pulaski KY 790	Roadway Superelevation / cross slope	0.5 Miles	15000	15000	HSIP (Section 148)	Rural Minor Collector	2087	55	State Highway Agency	Roadway Departure	
Russell KY 76	Roadway Superelevation / cross	0.21 Miles	147686	147686	HSIP (Section 148)	Rural Minor Collector	2068	55	State Highway Agency	Roadway Departure	

	slope										
Pulaski & Whitley Various	Roadway Pavement surface - high friction surface	0	143548	143548	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Bath KY 36	Roadside Removal of roadside objects (trees, poles, etc.)	4.44 Miles	15000	15000	HSIP (Section 148)	Rural Major Collector	816	55	State Highway Agency	Roadway Departure	
Boyd KY 3294	Roadside Roadside - other	5.4 Miles	39627	39627	HSIP (Section 148)	Urban Local Road or Street	2876	55	State Highway Agency	Added funds to cover cots for FY 2014 Project	
Carter KY 9	Roadside Barrier end treatments (crash cushions, terminals)	18.26 Miles	747326	747326	HSIP (Section 148)	Rural Principal Arterial - Other	4428	55	State Highway Agency	Roadway Departure	
Carter I-64	Roadside Barrier - cable	19.1 Miles	2550000	2550000	HSIP (Section 148)	Rural Principal Arterial -	21129	70	State Highway Agency	Roadway Departure	

						Interstate					
Greenup KY 10	Roadside Barrier end treatments (crash cushions, terminals)	12.84 Miles	606808	606808	HSIP (Section 148)	Rural Principal Arterial - Other	7770	55	State Highway Agency	Roadway Departure	
Lewis KY 10	Roadside Barrier end treatments (crash cushions, terminals)	19.83 Miles	943985	943985	HSIP (Section 148)	Rural Principal Arterial - Other	2863	55	State Highway Agency	Roadway Departure	
Lewis KY 9	Roadside Barrier end treatments (crash cushions, terminals)	31.22 Miles	127746 0	127746 0	HSIP (Section 148)	Rural Principal Arterial - Other	5196	55	State Highway Agency	Roadway Departure	
Mason KY 9	Roadside Barrier end treatments (crash cushions, terminals)	19.54 Miles	124487 2	124487 2	HSIP (Section 148)	Rural Principal Arterial - Other	1358 1	55	State Highway Agency	Roadway Departure	

Rowan KY 158	Roadside Roadside - other	2.77 Miles	250000	250000	HSIP (Section 148)	Rural Minor Collector	2354	55	State Highway Agency	Design funds for Low Cost Safety Improvements	
District 9 Various	Roadway signs and traffic control Curve-related warning signs and flashers	0	579162	579162	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
District 9 Various	Roadway signs and traffic control Curve-related warning signs and flashers	0	579162	579162	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Estill KY 52	Intersection geometry Auxiliary lanes - add right-turn lane	0.31 Miles	470741	470741	HSIP (Section 148)	Rural Minor Arterial	9074	55	State Highway Agency	Intersections	
Estill KY 52	Intersection geometry Auxiliary lanes - add	0.43 Miles	90893	90893	HSIP (Section 148)	Rural Minor Arterial	10887	55	State Highway Agency	Intersections	

	left-turn lane										
Lee KY 52	Pedestrians and bicyclists Install sidewalk	0	100000	100000	HSIP (Section 148)		0	0	State Highway Agency	Pedestrians	
Magoffin KY 114/ US 460	Roadside Barrier end treatments (crash cushions, terminals)	4.7 Miles	121219	121219	HSIP (Section 148)	Rural Principal Arterial - Other	5764	55	State Highway Agency	Roadway Departure	
Morgan US 460	Shoulder treatments Widen shoulder - paved or other	0.65 Miles	443600	443600	HSIP (Section 148)	Rural Minor Arterial	8985	55	State Highway Agency	Roadway Departure	
Morgan KY 772	Roadside Barrier end treatments (crash cushions, terminals)	11.334 Miles	1505000	1505000	HSIP (Section 148)	Rural Minor Collector	698	55	State Highway Agency	Roadway Departure	
Morgan KY 772	Interchange design Interchange	0.1 Miles	50000	50000	HSIP (Section	Rural Minor Collector	361	55	State Highway	Intersections	

	design - other				148)				Agency		
Perry KY 550	Shoulder treatments Widen shoulder - paved or other	0.41 Miles	471500	471500	HSIP (Section 148)	Urban Local Road or Street	7374	45	State Highway Agency	Roadway Departure	
Perry KY 80	Intersection geometry Intersection geometry - other	0.01 Miles	100000	100000	HSIP (Section 148)	Urban Principal Arterial - Other	12038	55	State Highway Agency	Intersections	
Perry KY 451	Roadside Barrier- metal	0.07 Miles	12548	12548	HSIP (Section 148)	Rural Minor Collector	1606	35	State Highway Agency	Roadway Departure	
Powell KY 11	Roadside Roadside - other	4.07 Miles	250000	250000	HSIP (Section 148)	Rural Minor Arterial	10861	55	State Highway Agency	Design funds for Low Cost Safety Improvements	
District 10 Various	Roadway signs and traffic control Curve-related warning signs	0	576724	576724	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	

	and flashers										
Bell KY 2402	Roadway Pavement surface - high friction surface	0.02 Miles	15841	15841	HSIP (Section 148)	Urban Minor Arterial	4154	35	State Highway Agency	Roadway Departure	
Clay KY 11	Roadside Barrier end treatments (crash cushions, terminals)	17.73 Miles	250000	250000	HSIP (Section 148)	Rural Major Collector	2902	55	State Highway Agency	Roadway Departure	
Clay KY 3472	Roadway Pavement surface - high friction surface	0.4 Miles	23142	23142	HSIP (Section 148)	Rural Major Collector	2902	55	State Highway Agency	Roadway Departure	
Harlan US 421	Roadway Roadway widening - curve	0.4 Miles	338102	338102	HSIP (Section 148)	Rural Minor Arterial	1894	55	State Highway Agency	Roadway Departure	
Harlan US 421	Roadway Roadway widening - curve	0.5 Miles	376816	376816	HSIP (Section 148)	Rural Minor Arterial	1894	55	State Highway Agency	Roadway Departure	

Knox Ky 1304	Roadside Barrier end treatments (crash cushions, terminals)	6.11 Miles	250000	250000	HSIP (Section 148)	Rural Minor Collector	2008	55	State Highway Agency	Roadway Departure	
Knox KY 3439	Pedestrians and bicyclists Install sidewalk	0.9 Miles	250000	250000	HSIP (Section 148)	Urban Local Road or Street	7206	35	State Highway Agency	Pedestrians	
Laurel KY 80	Interchange design Installation of new lane on ramp	0.45 Miles	380642	380642	HSIP (Section 148)	Urban Principal Arterial - Other	19133	45	State Highway Agency	Intersections	
Laurel KY 80	Roadside Barrier end treatments (crash cushions, terminals)	0.2 Miles	76646	76646	HSIP (Section 148)	Rural Principal Arterial - Other	6124	55	State Highway Agency	Roadway Departure	
Laurel KY 363	Intersection geometry Intersection geometry - other	0.01 Miles	814657	814657	HSIP (Section 148)	Urban Minor Arterial	6230	55	State Highway Agency	Intersections	

Whitley US 25W	Roadway Superelevation / cross slope	0.4 Miles	25000	25000	HSIP (Section 148)	Rural Minor Arterial	6107	55	State Highway Agency	Roadway Departure	
Floyd KY 1929	Roadside Barrier- metal	0.16 Miles	25000	25000	HSIP (Section 148)	Rural Local Road or Street	1226	55	State Highway Agency	Roadway Departure	
Floyd KY 979	Roadside Barrier end treatments (crash cushions, terminals)	15.43 Miles	3582308	3582308	HSIP (Section 148)	Rural Major Collector	3113	55	State Highway Agency	Roadway Departure	
Floyd KY 939	Roadside Barrier end treatments (crash cushions, terminals)	0.25 Miles	65000	65000	HSIP (Section 148)	Rural Major Collector	1108	55	State Highway Agency	Roadway Departure	
Knott KY 160	Roadside Roadside - other	0	250000	250000	HSIP (Section 148)		0	0	State Highway Agency	Design funds for Low Cost Safety Improvements	
Letcher KY	Roadside	0.64	61160	61160	HSIP (Section	Rural Major	2059	55	State Highway	Roadway	

7	Barrier- metal	Miles			148)	Collector			Agency	Departure	
Martin KY 292	Roadside Barrier- metal	0.14 Miles	20000	20000	HSIP (Section 148)	Rural Minor Collector	2570	55	State Highway Agency	Roadway Departure	
Martin KY 292	Roadside Barrier- metal	0.17 Miles	31075	31075	HSIP (Section 148)	Rural Minor Collector	2570	55	State Highway Agency	Roadway Departure	
Martin KY 1439	Roadside Barrier- metal	0.34 Miles	44880	44880	HSIP (Section 148)	Rural Local Road or Street	484	55	State Highway Agency	Roadway Departure	
Pike KY 1469	Roadside Barrier- metal	1.05 Miles	118000	118000	HSIP (Section 148)	Rural Minor Collector	2299	55	State Highway Agency	Roadway Departure	
Pike KY 1469	Roadside Barrier- metal	0.26 Miles	76878	76878	HSIP (Section 148)	Rural Minor Collector	1212	55	State Highway Agency	Roadway Departure	
Pike US 460	Roadside Drainage improvements	0.33 Miles	123748	123748	HSIP (Section 148)	Rural Principal Arterial - Other	2669	55	State Highway Agency	Roadway Departure	
Various	Non-infrastructure Training and workforce	0	137559	137559	HSIP (Section 148)		0	0	State Highway Agency	Traffic Incident Management Training	

	development										
Various	Non-infrastructure Transportation safety planning	0	500000	500000	HSIP (Section 148)		0	0	State Highway Agency	Data	
Districts 1,2,3,5,8 & 12 Various	Roadside Roadside - other	0	4050000	4050000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Districts 1,2,3,5,8 & 12 Various	Roadway Roadway - restripe to revise separation between opposing lanes and/or shoulder widths	0	200000	200000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Districts 4,6,7,9,10 & 11 Various	Roadside Roadside - other	0	3164700	3164700	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	
Various	Intersection geometry Intersection geometry -	0	360000	360000	HSIP (Section 148)		0	0	State Highway Agency	Intersections	

	other										
Various	Non-infrastructure Training and workforce development	0	413800	413800	HSIP (Section 148)		0	0	State Highway Agency	Data	
Various	Non-infrastructure Transportation safety planning	0	75000	75000	HSIP (Section 148)		0	0	State Highway Agency	Data	
Various	Non-infrastructure Educational efforts	0	200000	200000	HSIP (Section 148)		0	0	State Highway Agency	Transportation Safety Academy	
Various	Non-infrastructure Transportation safety planning	0	200000	200000	HSIP (Section 148)		0	0	State Highway Agency	Data	
Various	Non-infrastructure Transportation safety planning	0	2000000	2000000	HSIP (Section 148)		0	0	State Highway Agency	Data	

Various	Non-infrastructure Transportation safety planning	0	215000	215000	HSIP (Section 148)		0	0	State Highway Agency	Data	

Progress in Achieving Safety Performance Targets

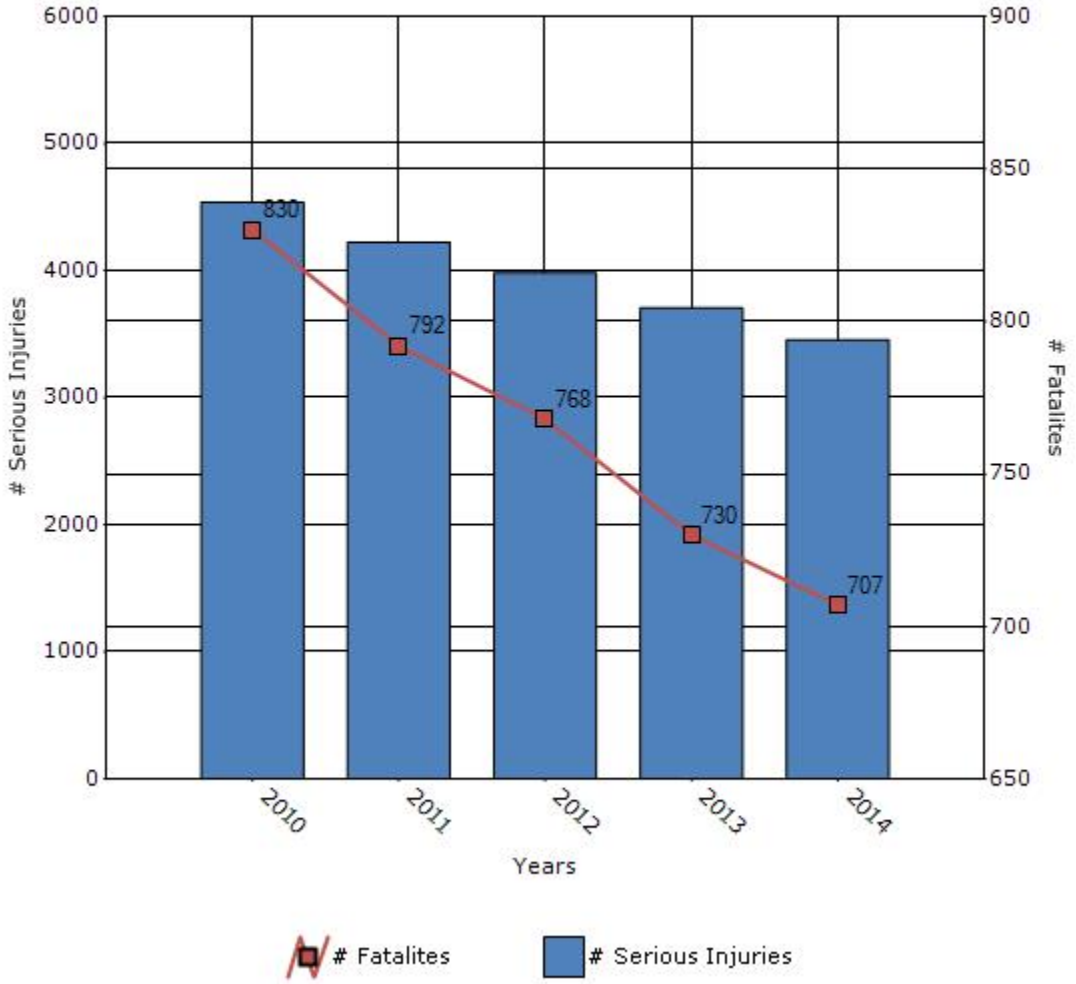
Overview of General Safety Trends

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

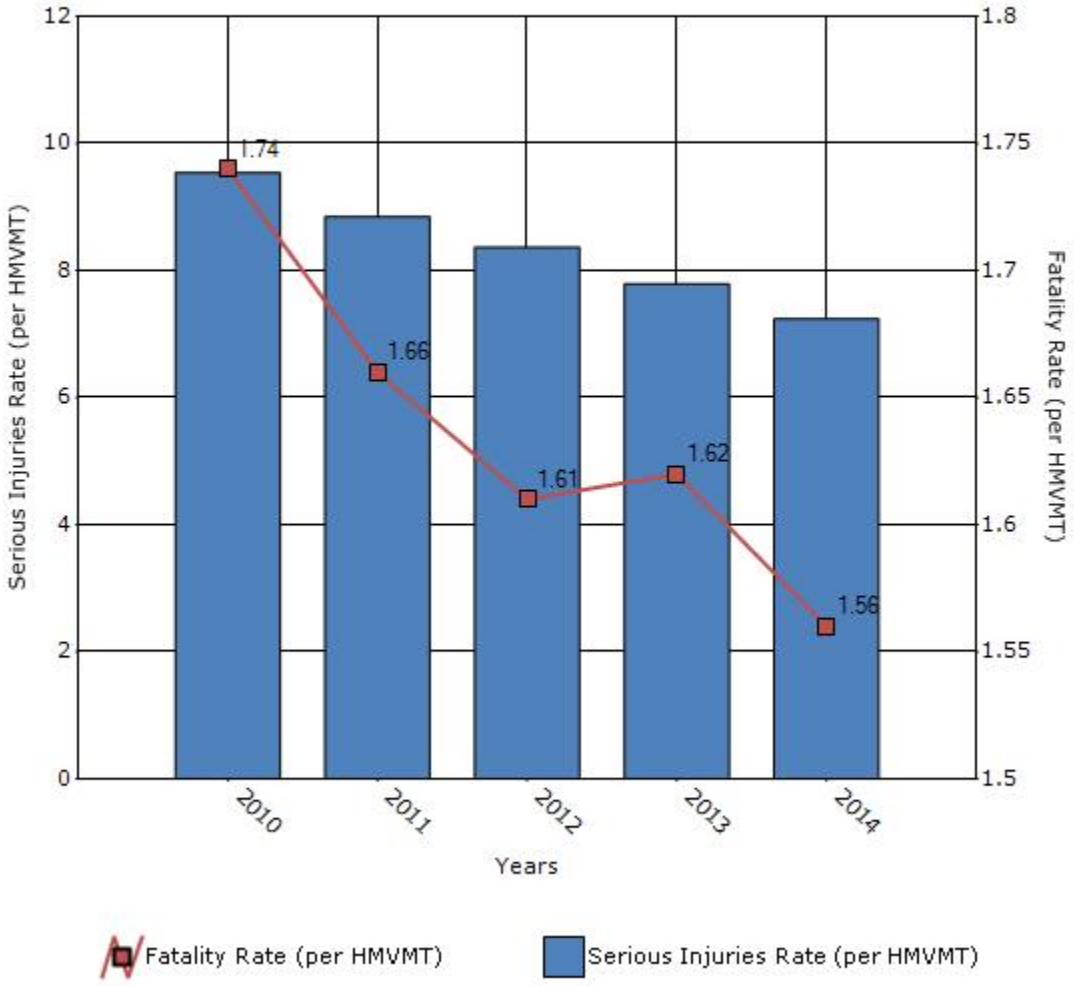
Performance Measures*	2010	2011	2012	2013	2014
Number of fatalities	830	792	768	730	707
Number of serious injuries	4538	4222	3982	3705	3455
Fatality rate (per HMVMT)	1.74	1.66	1.61	1.62	1.56
Serious injury rate (per HMVMT)	9.54	8.85	8.37	7.79	7.24

*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

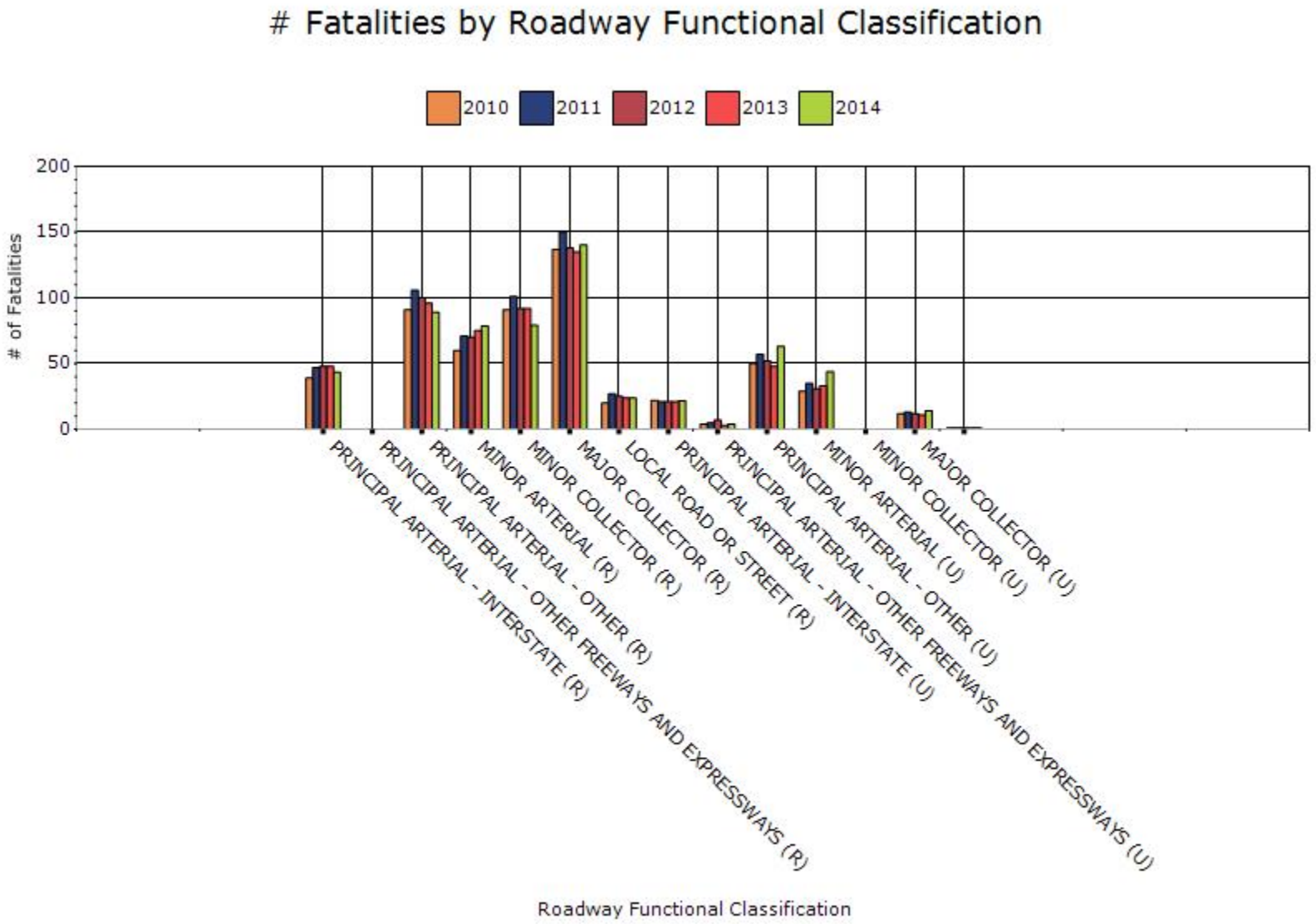


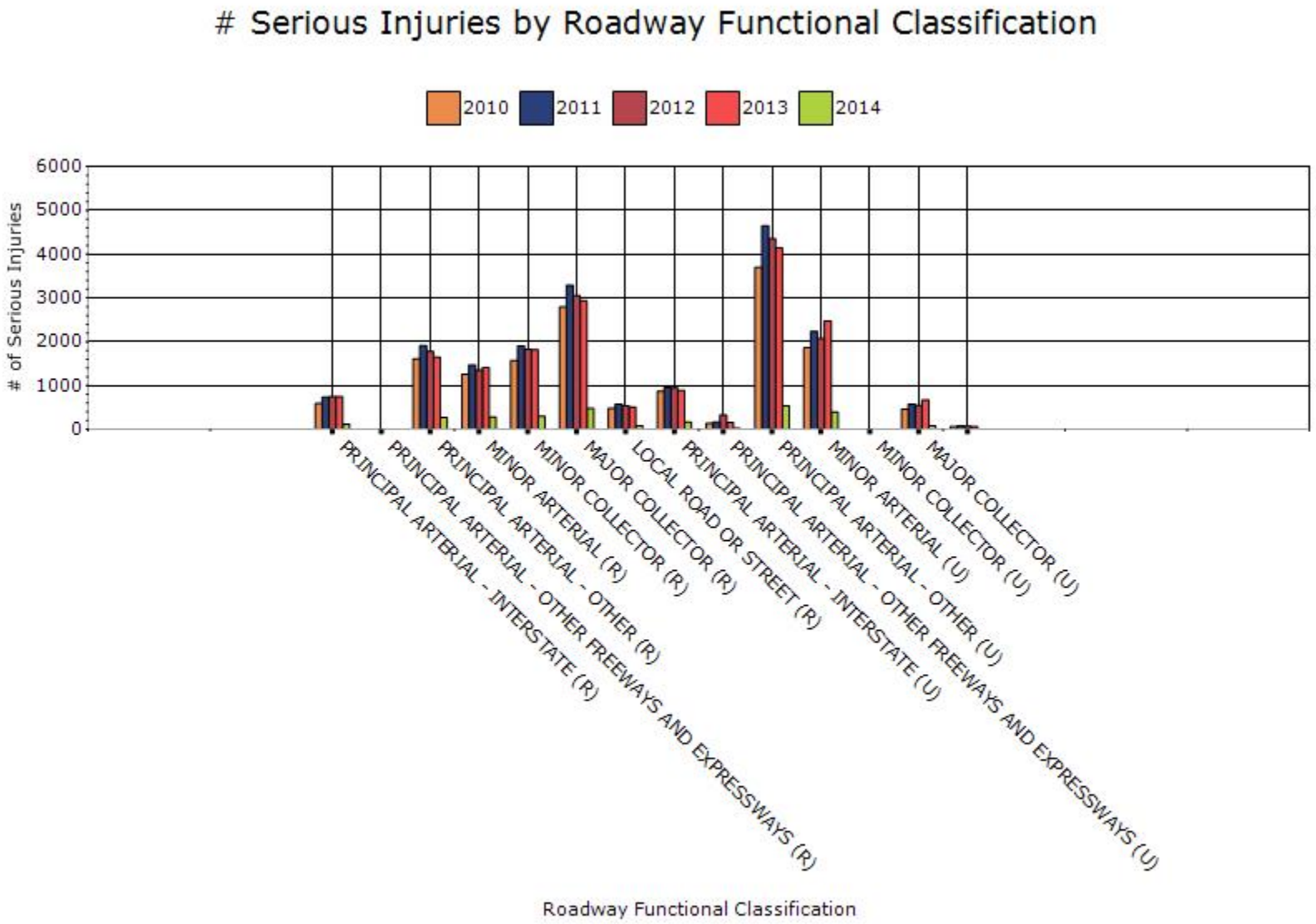
To the maximum extent possible, present performance measure* data by functional classification and ownership.

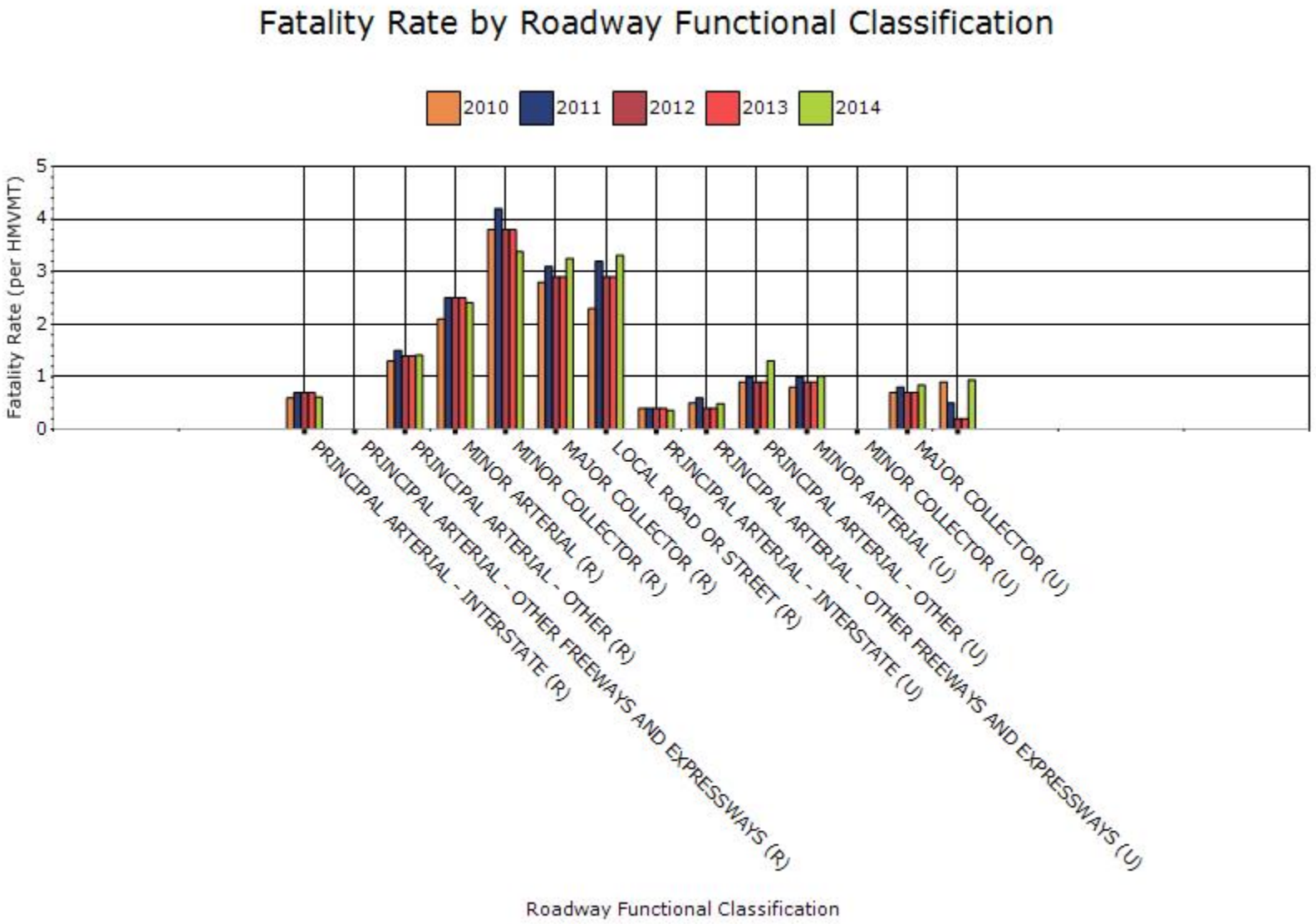
Year - 2014

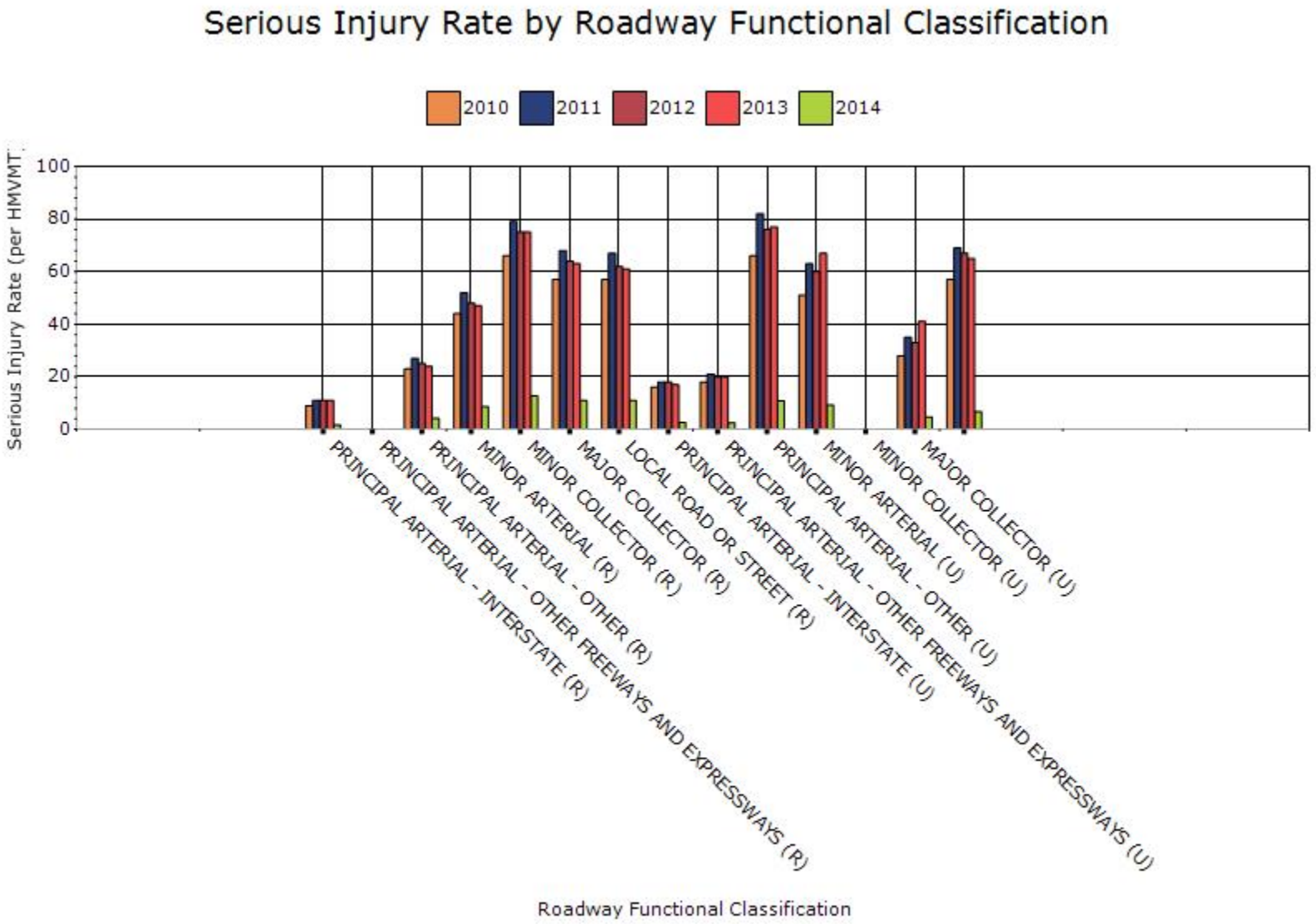
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	43.4	122.4	0.61	1.72
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	0	0	0	0
RURAL PRINCIPAL ARTERIAL - OTHER	89.2	267.8	1.41	4.2
RURAL MINOR ARTERIAL	78.6	279.2	2.41	8.6
RURAL MINOR COLLECTOR	79.2	299	3.38	12.72
RURAL MAJOR COLLECTOR	140.4	475.4	3.25	10.96
RURAL LOCAL ROAD OR STREET	23.8	80.8	3.31	10.99
URBAN PRINCIPAL	21.8	161.8	0.36	2.66

ARTERIAL - INTERSTATE				
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	4	20.2	0.49	2.51
URBAN PRINCIPAL ARTERIAL - OTHER	63.2	537.4	1.3	10.86
URBAN MINOR ARTERIAL	43.8	395.4	1.01	9.31
URBAN MINOR COLLECTOR	0	0	0	0
URBAN MAJOR COLLECTOR	14.2	80.2	0.84	4.72
URBAN LOCAL ROAD OR STREET	1	7.2	0.94	6.72


Fatalities by Roadway Functional Classification
2010
2011
2012
2013
2014
# of Fatalities
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

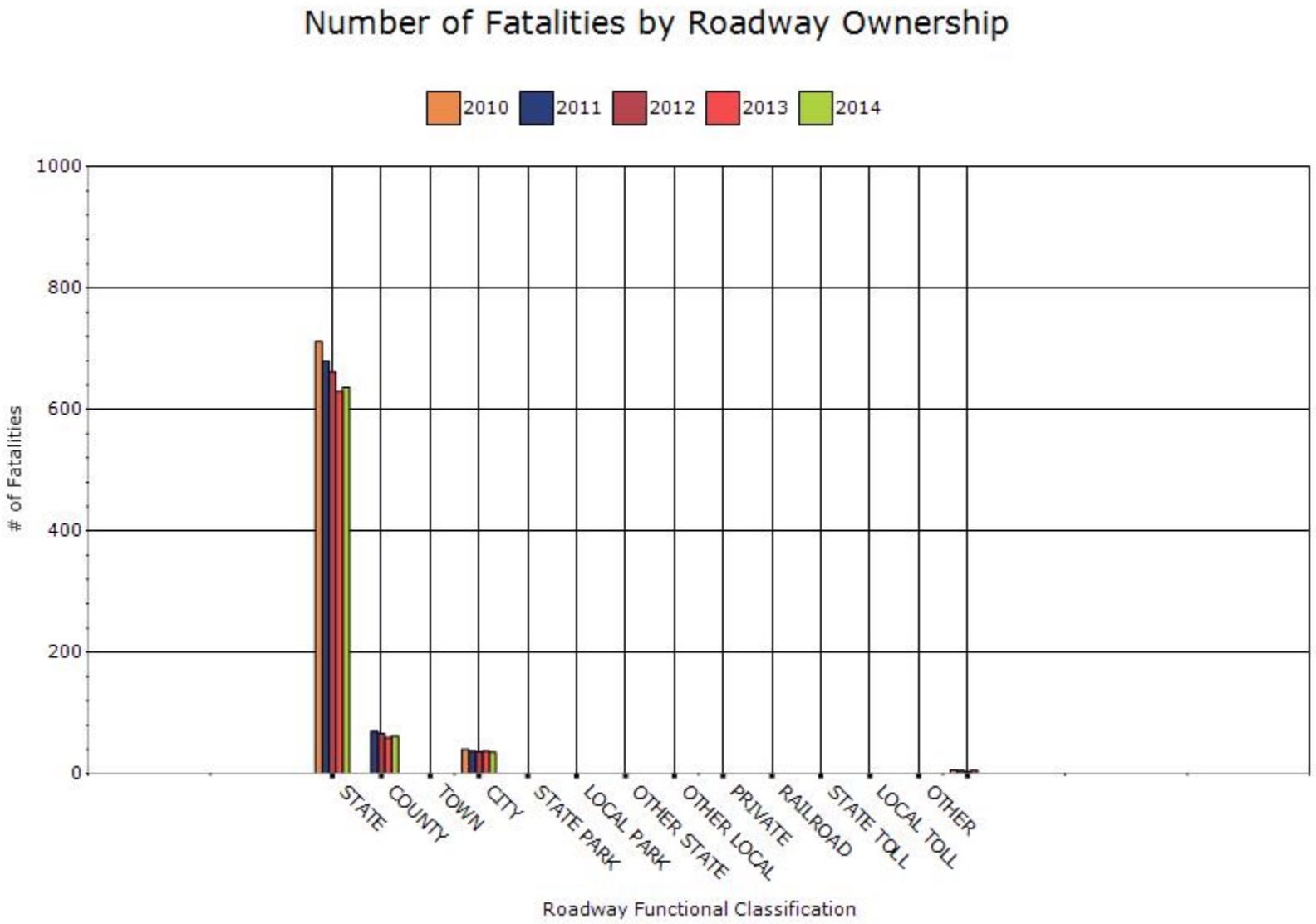

Serious Injuries by Roadway Functional Classification
2010
2011
2012
2013
2014
# of Serious Injuries
6000
5000
4000
3000
2000
1000
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR 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

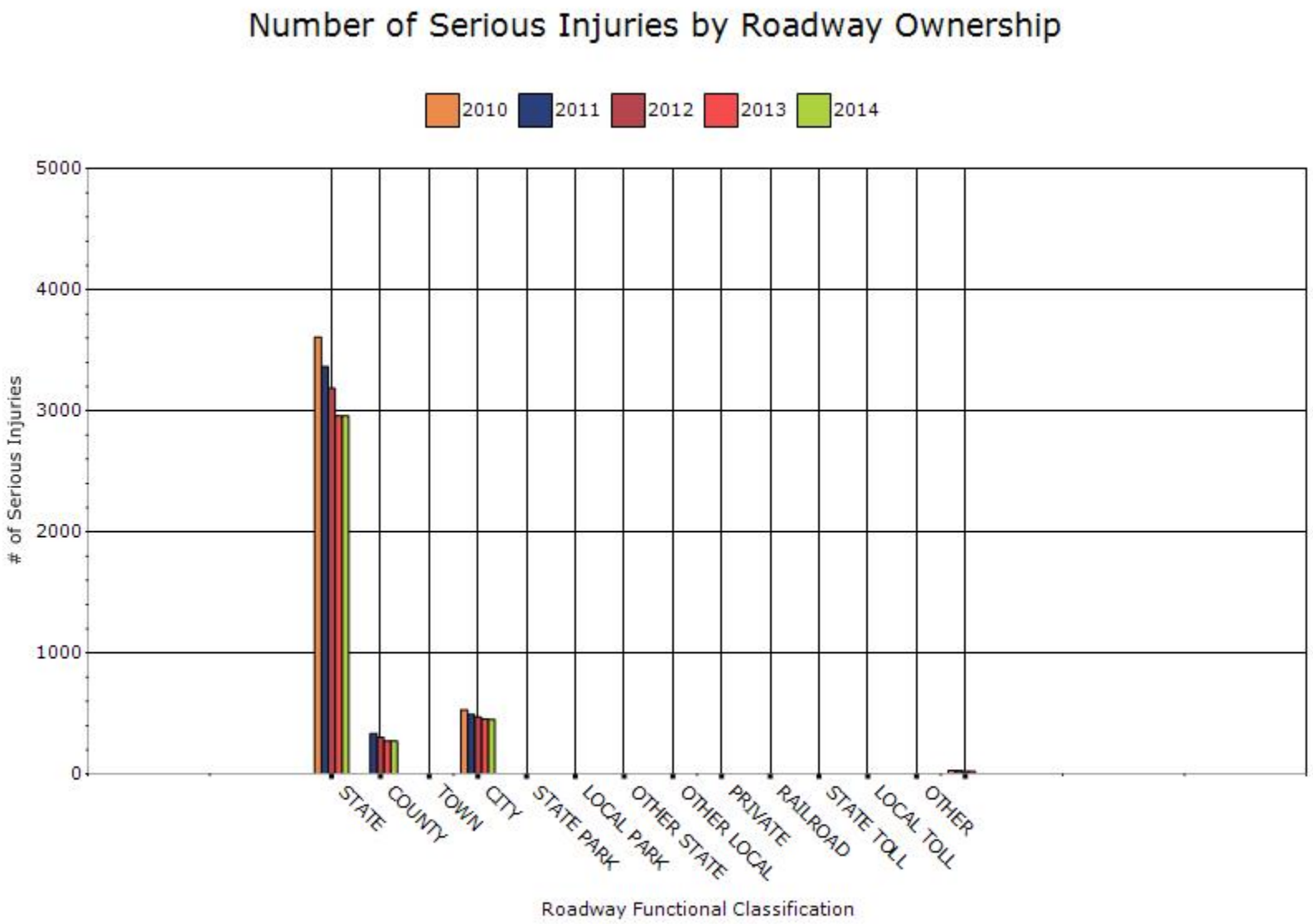

Fatality Rate by Roadway Functional Classification
2010
2011
2012
2013
2014
Fatality Rate (per HMVMT)
0
1
2
3
4
5
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL 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

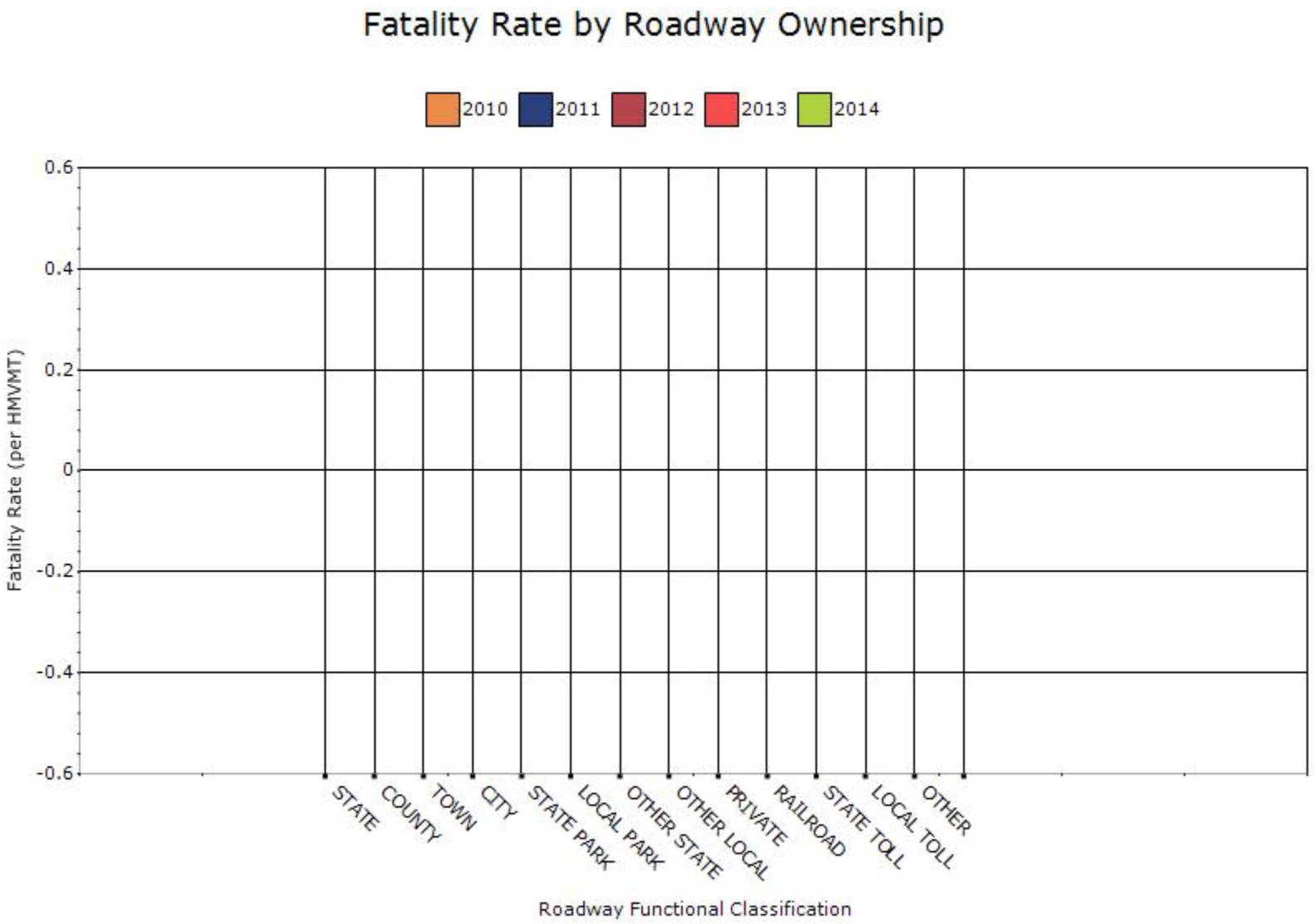

Serious Injury Rate by Roadway Functional Classification
2010
2011
2012
2013
2014
Serious Injury Rate (per HMVMT)
100
80
60
40
20
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (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

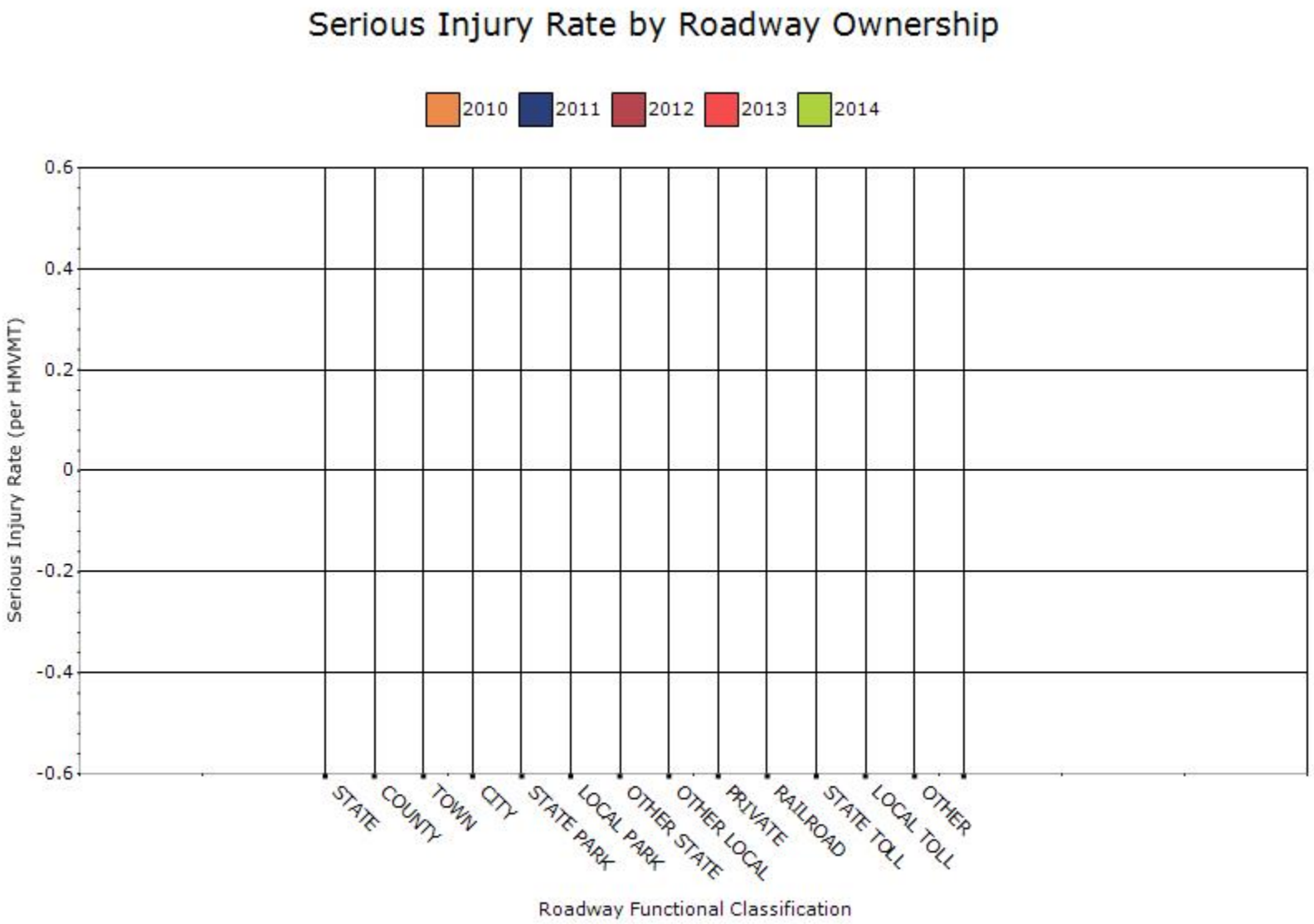
Year - 2014

Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	636	2958	0	0
COUNTY HIGHWAY AGENCY	62	271	0	0
TOWN OR TOWNSHIP HIGHWAY AGENCY	0	0	0	0
CITY OF MUNICIPAL HIGHWAY AGENCY	35	450	0	0
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	0	0	0
RAILROAD	0	0	0	0
STATE TOLL AUTHORITY	0	0	0	0
LOCAL TOLL AUTHORITY	0	0	0	0
OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, UNIVERSITY)	0	0	0	0
OTHER	0	0	0	0


Number of Fatalities by Roadway Ownership
2010
2011
2012
2013
2014
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
5000
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
2010
2011
2012
2013
2014
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
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
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Serious Injury 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

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

No additional comments.

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)	1.22	1.164	1.072	1.04	1.054
Serious injury rate (per capita)	5.202	4.97	4.602	4.41	4.252
Fatality and serious injury rate (per capita)	6.422	6.134	5.672	5.448	5.302

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

Calculate Rate for 2013

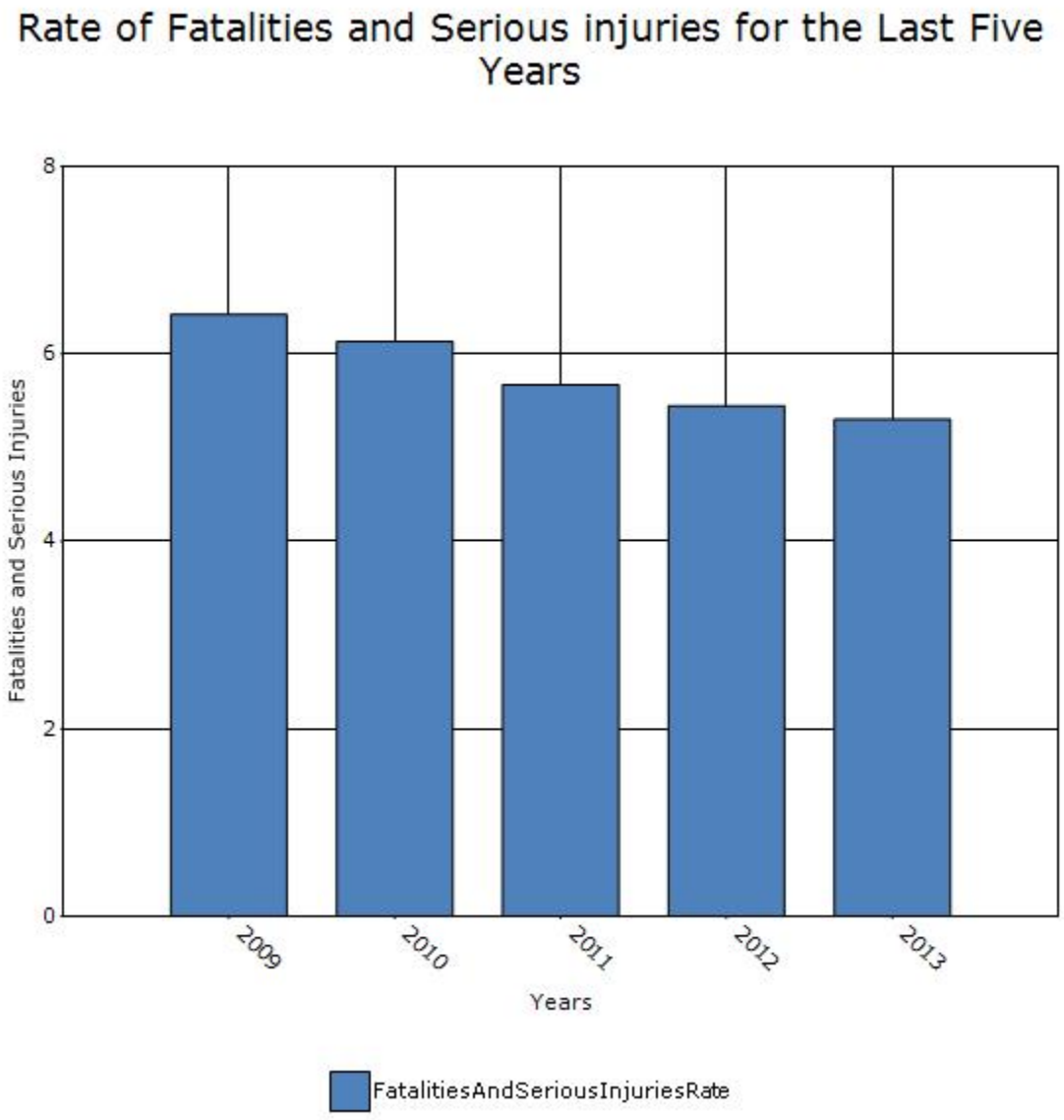
1. (F+SI 2013 Drivers and Pedestrians 65 years of age and older/2013 Population Figure*) + (F+SI 2012 Drivers and Pedestrians 65 years of age and older /2012 Population Figure) + (F+SI 2011 Drivers and Pedestrians 65 years of age and older/2011 Population Figure) + (F+SI 2010 Drivers and Pedestrians 65 years of age and older/2010 Population Figure) + (F+SI 2009 Drivers and Pedestrians 65 years of age and older/2009 Population Figure) / 5 = 5.80

Calculate Rate for 2011

2. (F+SI 2011 Drivers and Pedestrians 65 years of age and older/2011 Population Figure) + (F+SI 2010 Drivers and Pedestrians 65 years of age and older/2010 Population Figure) + (F+SI 2009 Drivers and Pedestrians 65 years of age and older/2009 Population Figure) + (F+SI 2008 Drivers and Pedestrians 65 years of age and older/2008 Population Figure) + (F+SI 2007 Drivers and Pedestrians 65 years of age and over/2007 Population Figure/5 = 6.42

Compare Rate for 2011 to Rate for 2013

3. Is there an increase in the calculated rates between the periods ending in 2011 and 2013? N0; therefore the Special Rule does not apply.



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: Other-HSM methods were used to evaluate the effectiveness of three types of systemic treatments (cable barriers, rumble stripes, and high-friction surfaces)

☒ Other: Other-Optional Description used to describe the effectiveness evaluation results and benefit-cost analysis

Effectiveness evaluations were performed and benefits/costs were calculated, with results presented for the following three types of systemic improvements:

MEDIAN CABLE BARRIERS

Wilcoxon Signed-Rank Test for "before and after shift in proportions of cross-median or impacted object in median crashes"- significant reduction at 99% confidence level.

Empirical Bayes analysis of "before and after cross-median crashes" results indicated the change in crashes (effect of the treatment) was significant at the 95% confidence level.

Benefit/Cost analysis results; 3.7:1 based on Comprehensive Cost of motor vehicle collisions (National Safety Council).

RUMBLE STRIPS

Wilcoxon Signed-Rank Test for "before and after shift in proportions of wet-weather nighttime crashes"- significant reduction at 95% confidence level.

Empirical Bayes analysis of "before and after lane departure crashes" results indicated the change in crashes (effect of the treatment) was significant at the 95% confidence level.

Benefit/Cost analysis results; 3.8:1 based on Comprehensive Cost of motor vehicle collisions (National Safety Council).

HIGH-FRICTION SURFACE TREATMENTS

Wilcoxon Signed-Rank Test for "before and after shift in proportions of wet-weather lane departure crashes"- significant reduction at 95% confidence level.

Empirical Bayes analysis of "before and after wet-weather lane departure crashes" results indicated the change in crashes (effect of the treatment) was significant at the 95% confidence level.

Benefit/Cost analysis results; 10.7:1 based on Comprehensive Cost of motor vehicle collisions (National Safety Council).

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.

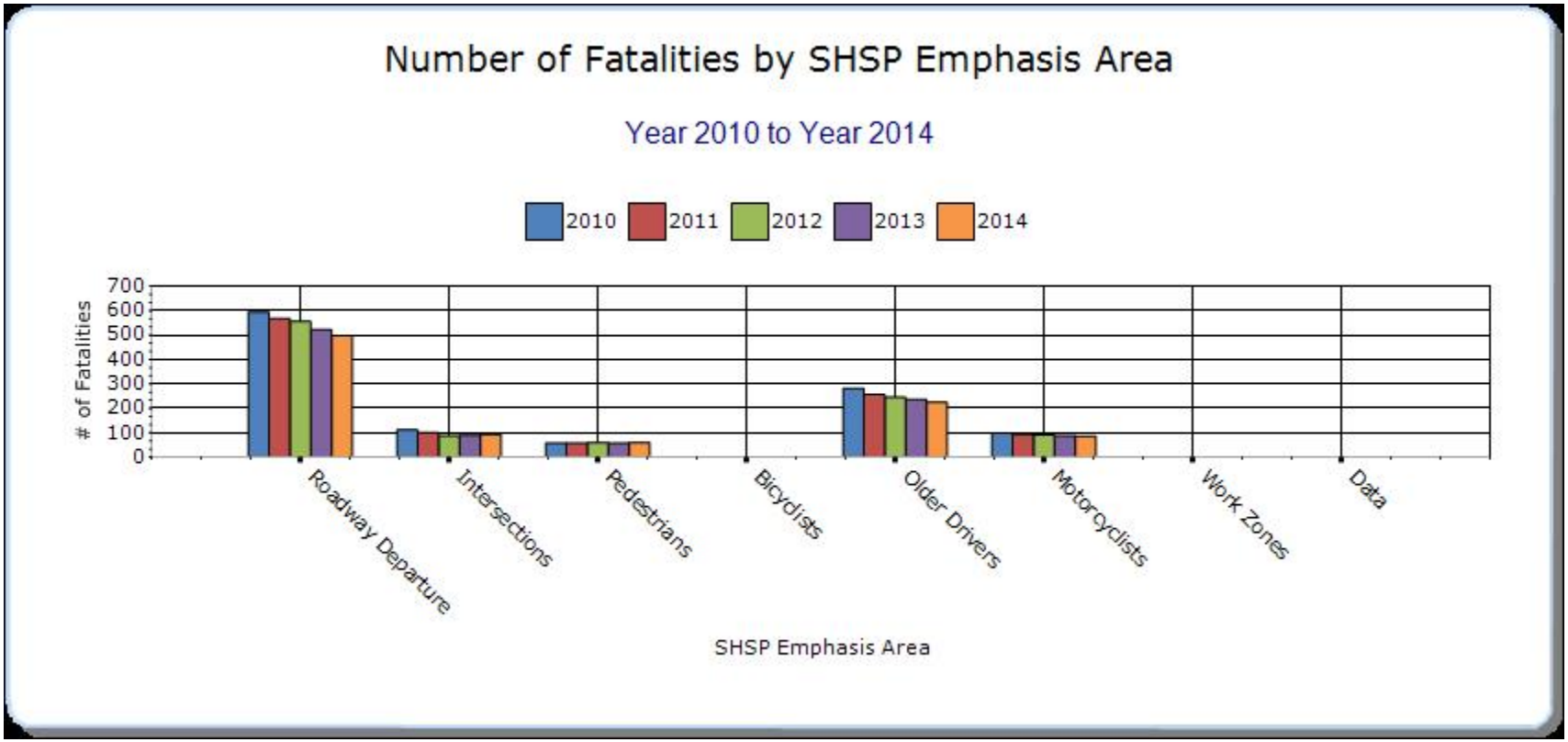
No significant program changes have occurred since the last reporting period.

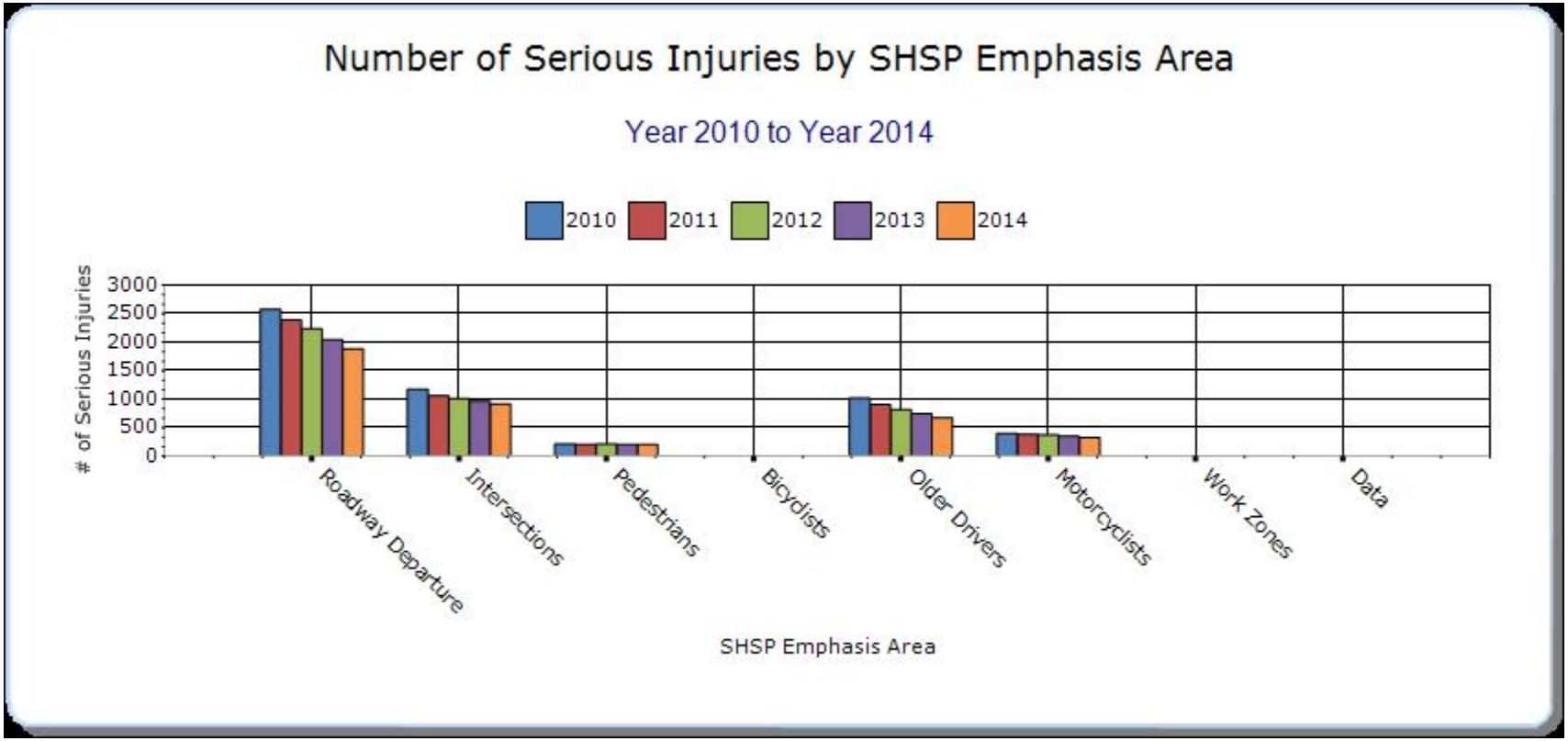
SHSP Emphasis Areas

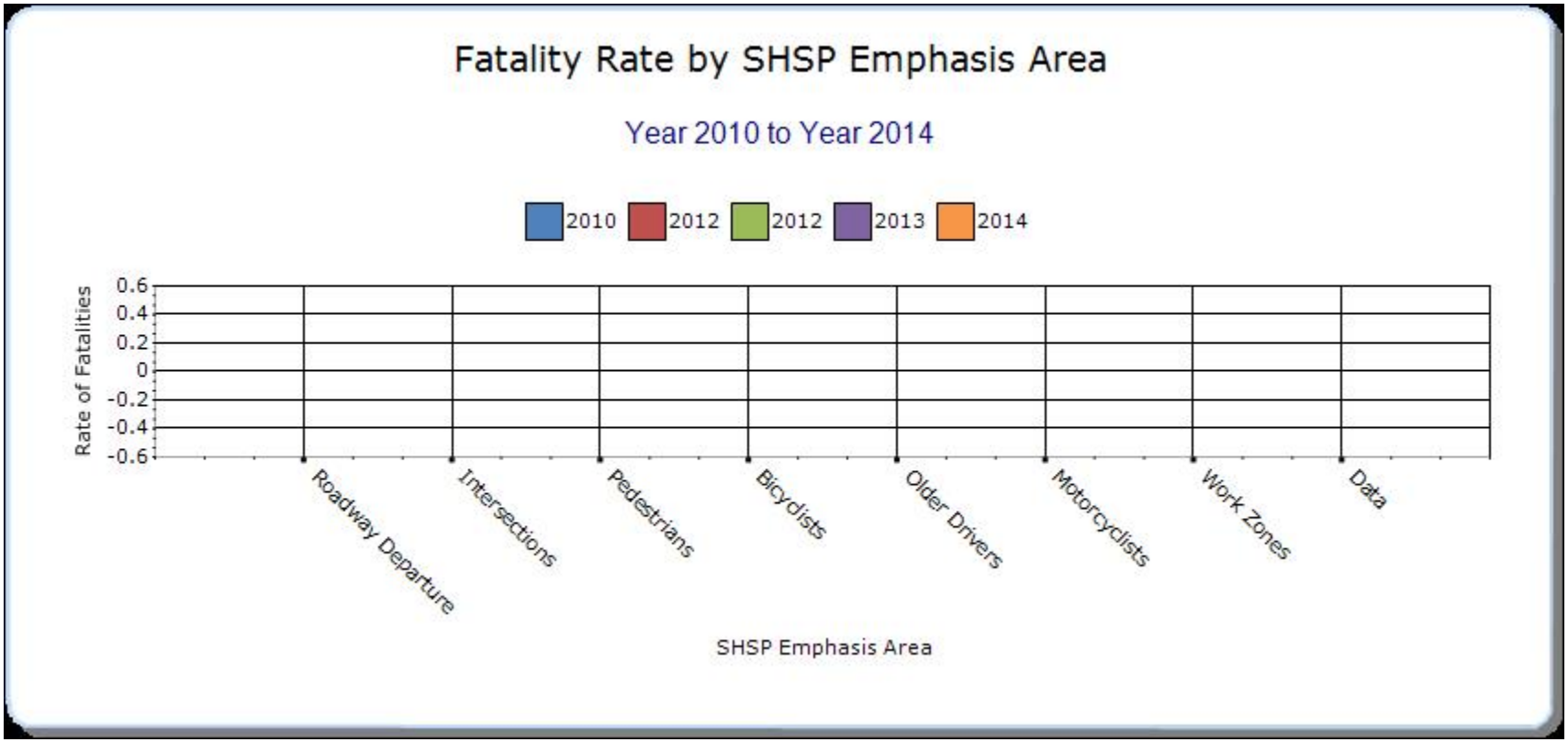
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

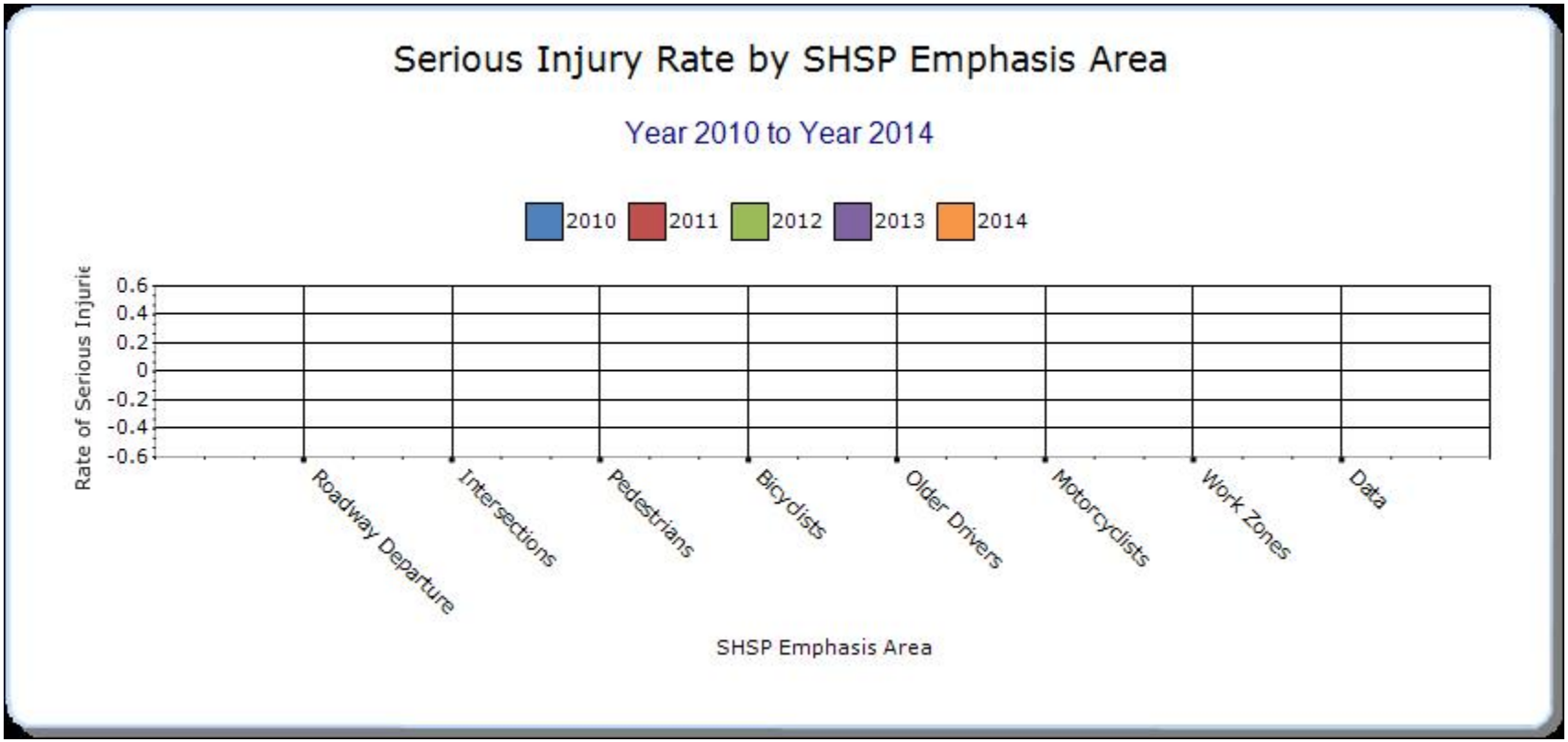
Year - 2014

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 and lane departure	497	1886	0	0	0	0	0
Intersections	Crashes within limits of intersection	93	916	0	0	0	0	0
Pedestrians	Pedestrians & Bicyclists	60	202	0	0	0	0	0
Older Drivers	Older and Young Drivers	225	676	0	0	0	0	0
Motorcyclists	Motorcycle-Related	86	328	0	0	0	0	0


Number of Fatalities by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# of Fatalities
700
600
500
400
300
200
100
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
3000
2500
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
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area

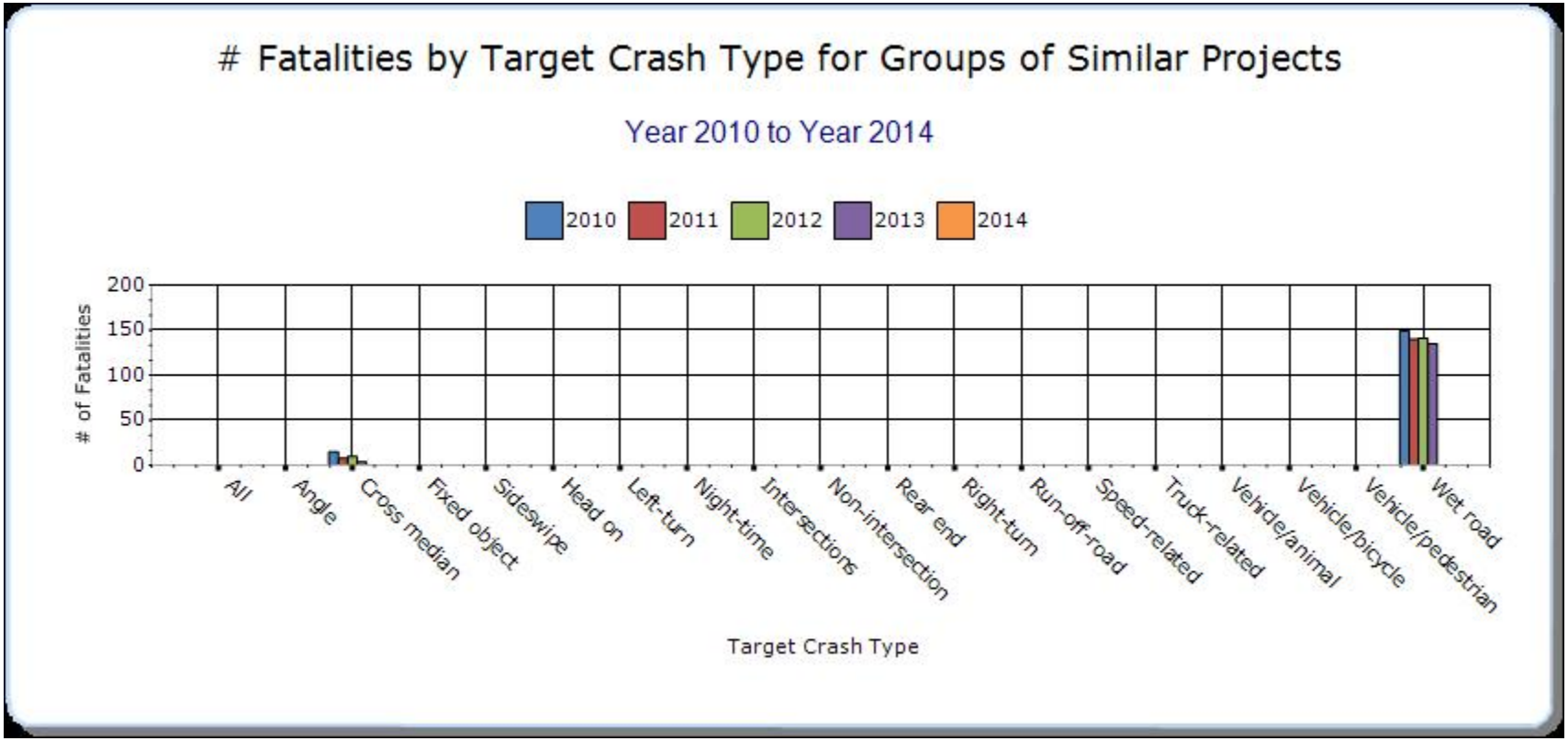

Serious Injury Rate by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2011
2012
2013
2014
Rate of Serious Injurie
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area

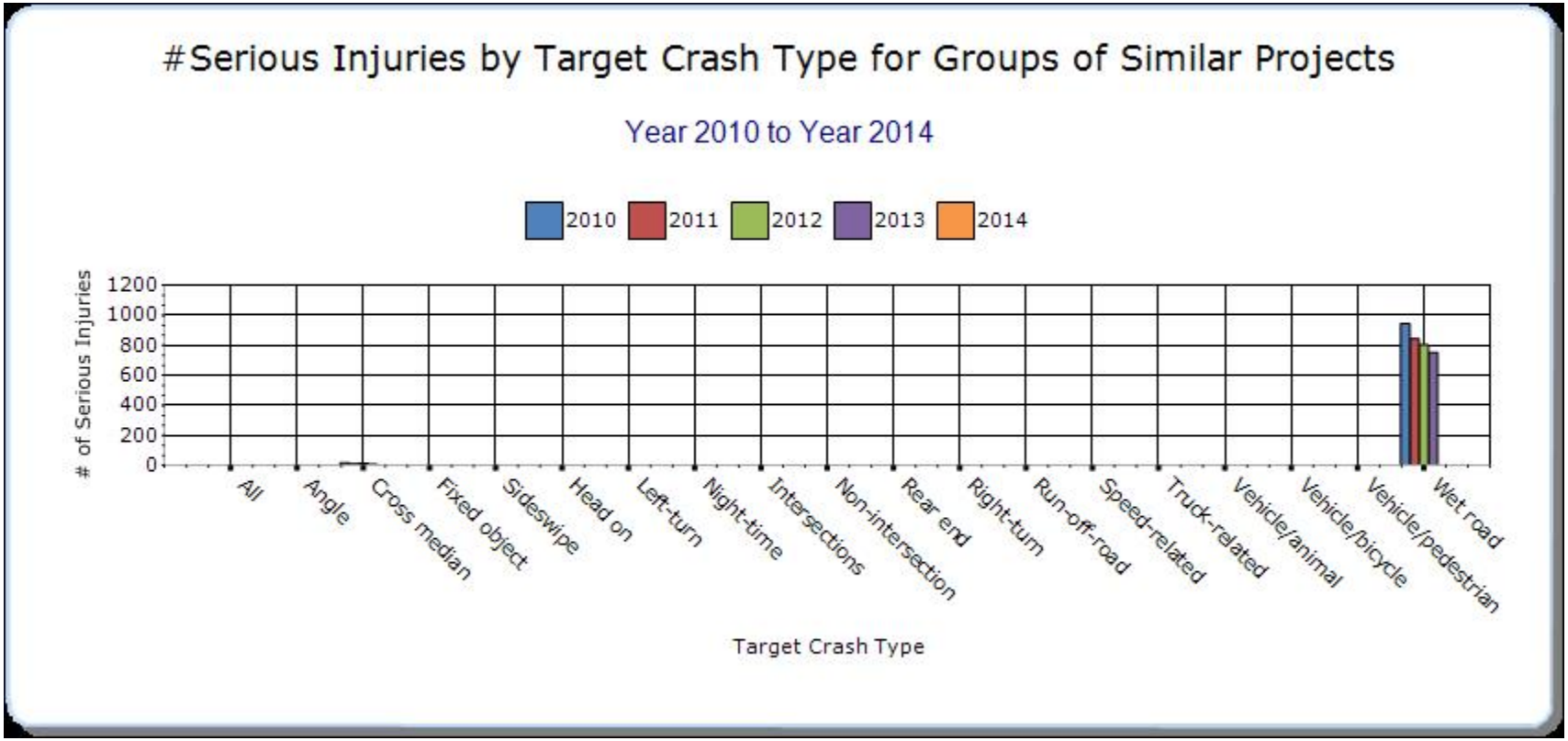
Groups of similar project types

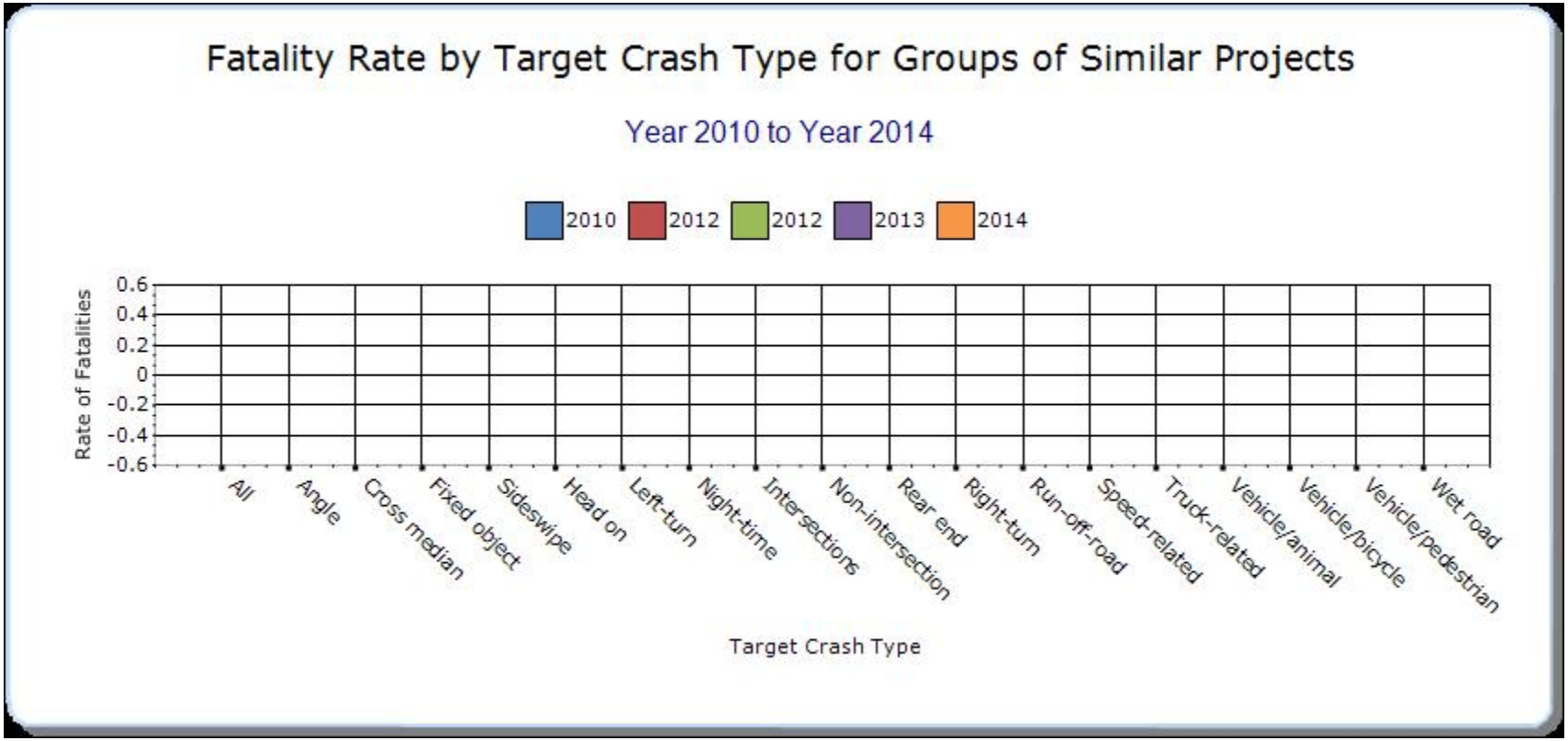
Present the overall effectiveness of groups of similar types of projects.

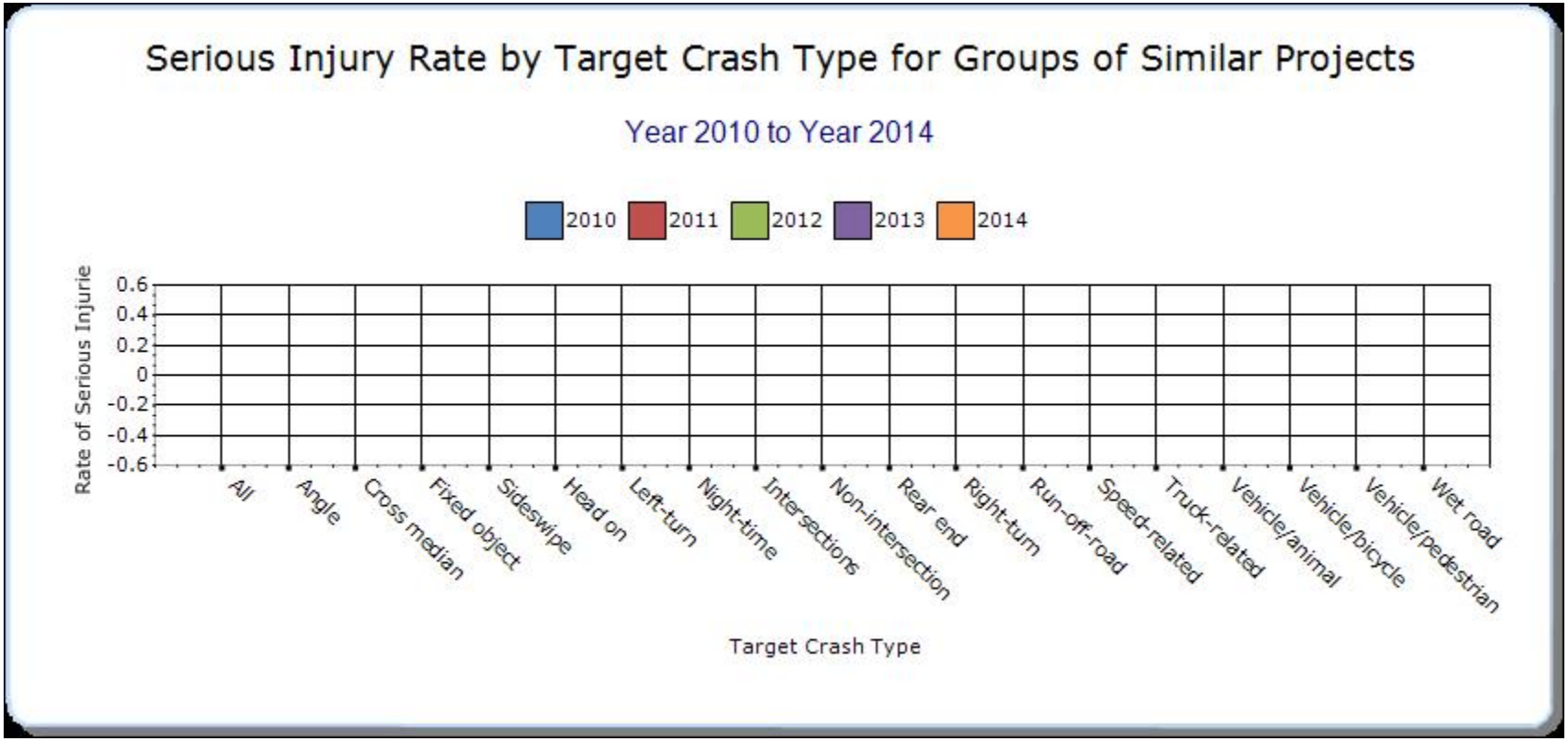
Year - 2014

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		93	916	0	0	32366	0	0
Skid Hazard		129	661	0	0	25562	0	0
Median Barrier		7	8	0	0	139	0	0
Roadway Departure		497	1886	0	0	39250	0	0


Fatalities by Target Crash Type for Groups of Similar Projects
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# of Fatalities
200
150
100
50
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
1200
1000
800
600
400
200
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
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
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

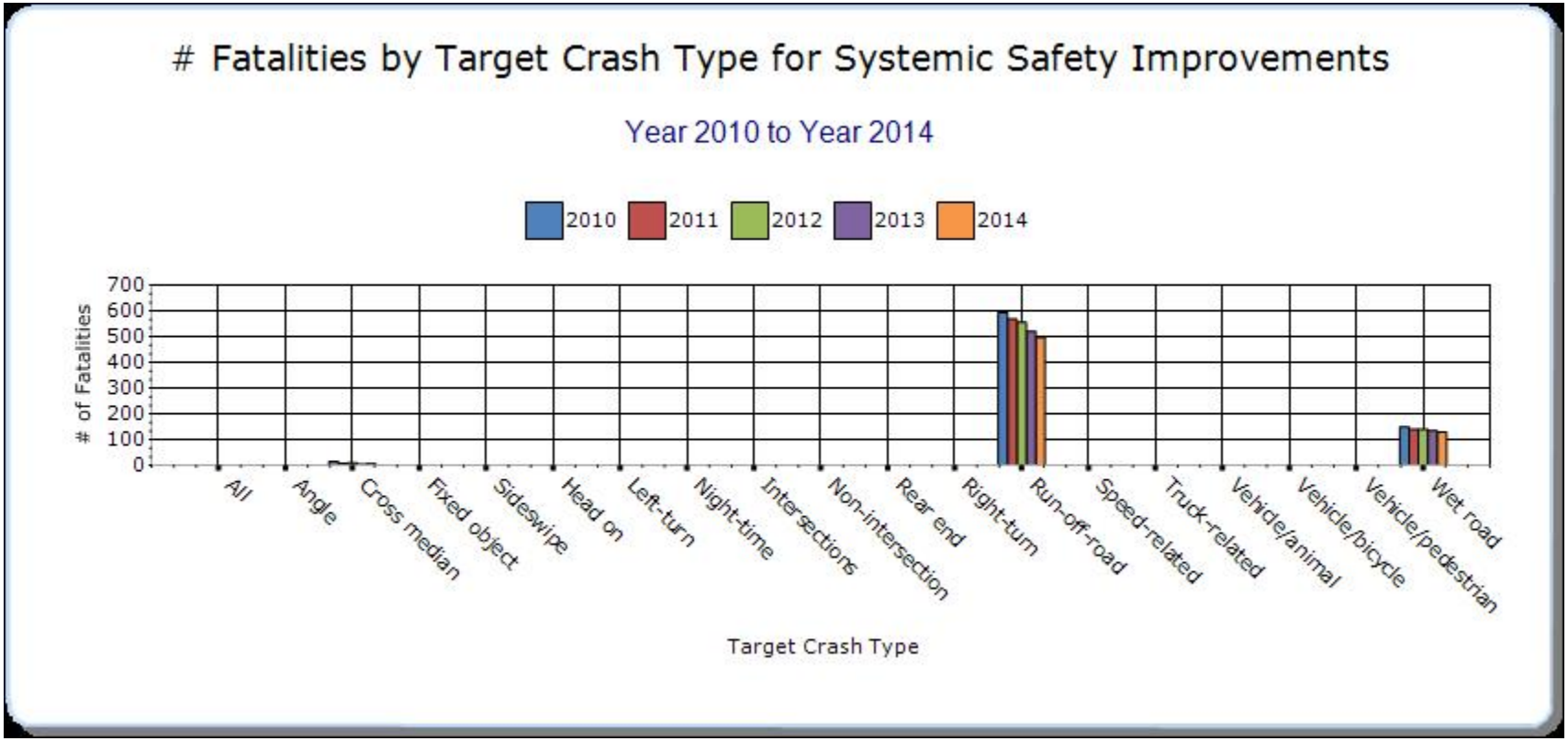

Serious Injury Rate by Target Crash Type for Groups of Similar Projects
Year 2010 to Year 2014
2010
2011
2012
2013
2014
Rate of Serious Injurie
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

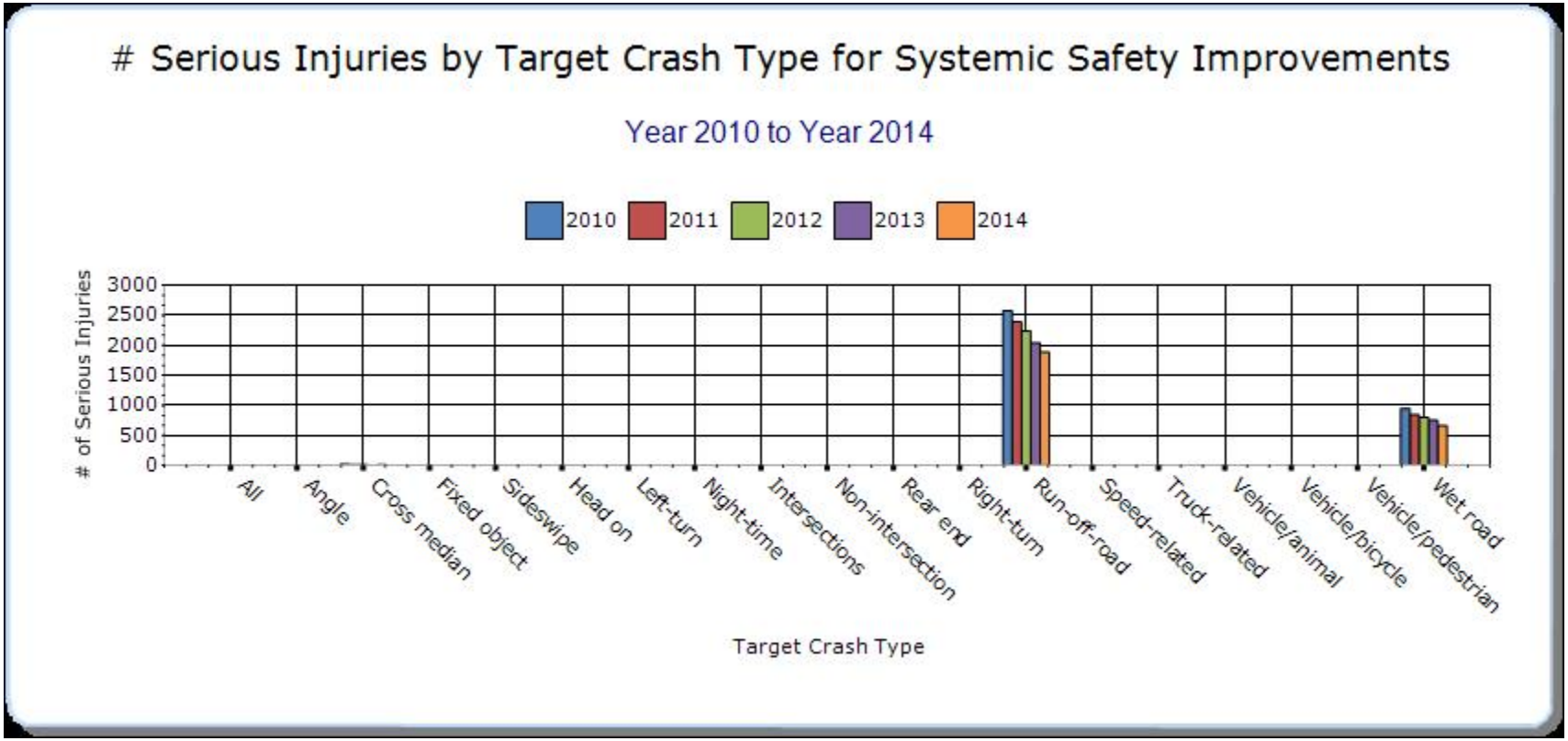
Systemic Treatments

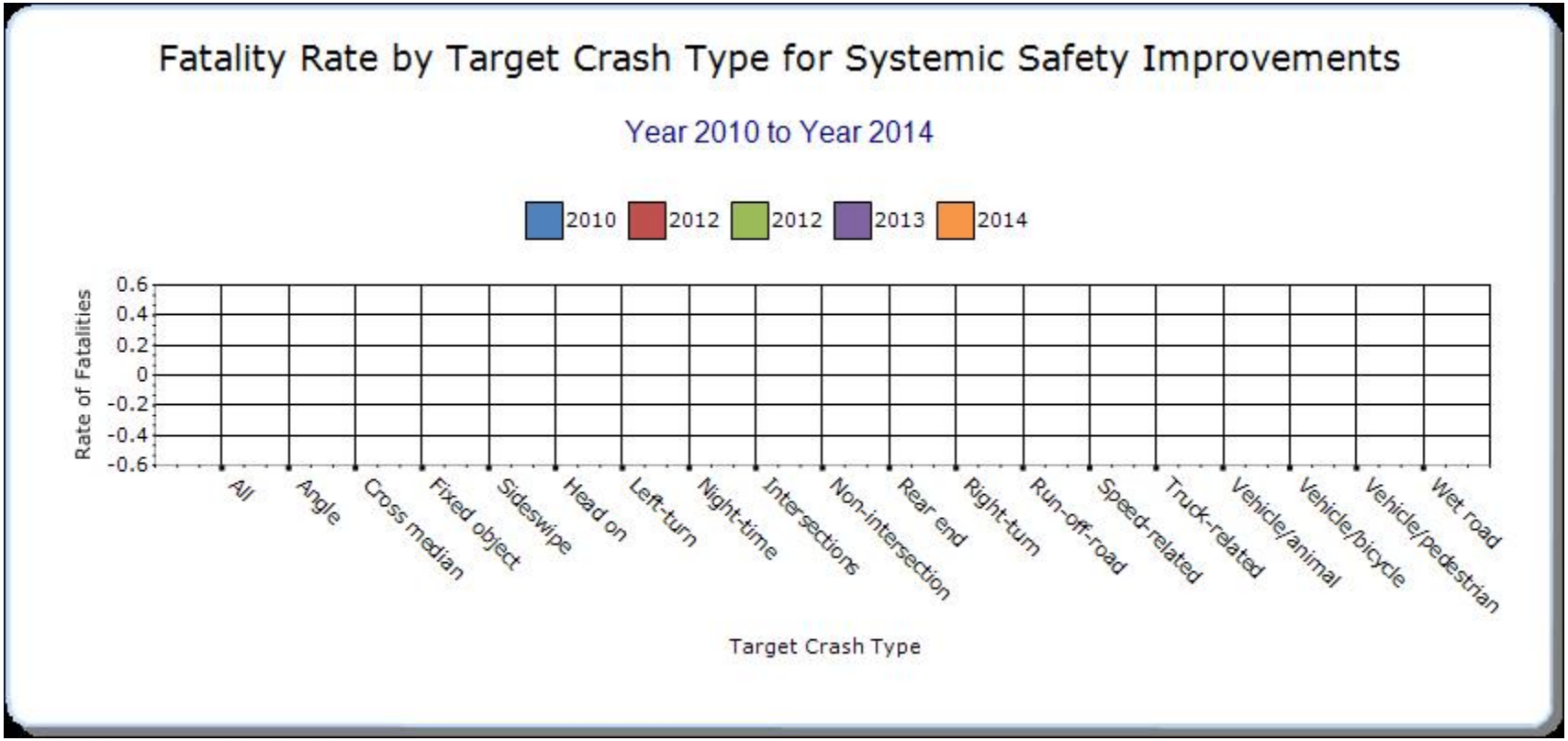
Present the overall effectiveness of systemic treatments.

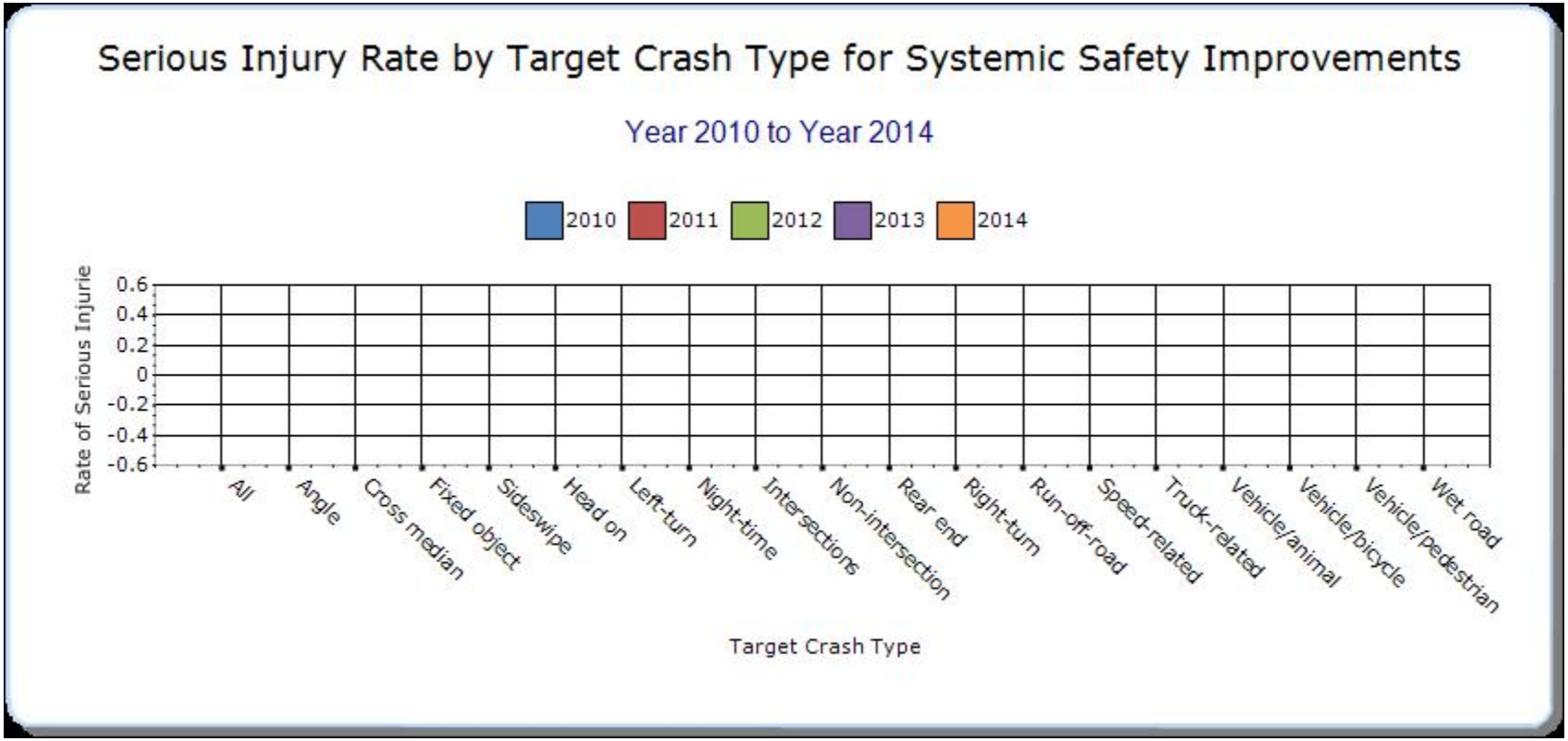
Year - 2014

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
Rumble Strips	Run-off-road	497	1886	0	0	32053	0	0
Cable Median Barriers	Cross median	7	8	0	0	139	0	0
Other-High-Friction Treatments at Curves	Wet road	129	661	0	0	25562	0	0


Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# of Fatalities
700
600
500
400
300
200
100
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
3000
2500
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


Fatality Rate by Target Crash Type for Systemic Safety Improvements
Year 2010 to Year 2014
2010
2012
2012
2013
2014
Rate of Fatalities
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
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
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
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.

No additional comments.

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)
None														

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.