Highway Safety Improvement Program

Data Driven Decisions

West Virginia
Highway Safety Improvement Program
2015 Annual Report

Prepared by: WV

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

West Virginia's Highway Safety Improvement Program is coordinated by the Mobility and Safety Section of the WVDOH's Traffic Engineering Division. The Section is responsible for reviewing and evaluating any project that is a candidate for highway safety funds. The initial review and evaluation of a potential project will include the analysis of crash data for the location, a field review of the site, and the collection of any other information found appropriate to evaluate the proposed project.

Once a positive safety benefit is determined to exist for a project, the methodology discussed later is used to select the prioritze projects for the State's HSIP. Once a project is selected for the HSIP, the Section is responsible for selecting an HSIP funding category for the project and submitting appropriate programming documents where HSIP funds are encumbered and projects are assigned to the State's Statewide Transportation Improvement Program (STIP). The Mobility and Safety Section remains responsible for monitoring and balancing the use of HSIP funds, and evaluating the effectiveness of a project following its completion.

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.

West Virginia Division of Transportation maintains approximately ninety-five percent (95%) of the roads in the State, including all secondary or county routes. As such, all HSIP funds are typically used for highway safety projects on State Highway System. Very few of the State's municipalities own city streets. These are typically lower volume and do not have significant numbers of fatal or serious injury crashes occurring on them; however, should a safety concern exist on a municipal street, the project would be eligible to compete for available HSIP funds.

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.

Maintenance and operations identify potential projects throughout the state. They contact the Mobility and Safety Section to see if safety funds can be used to fund the proposed projects. Often during road safety assessments, their expertise is often sought for potential solutions to found safety issues.

Once a project is programmed, it is often the responsible for the design division to prepare all necessary plans for the project. The Mobility and Safety Section will provide them with the proposed location of the improvement and provide any necessary expertise throughout the design phase. Planning Division helps coordinate with all external partners, mainly the Metropolitan Planning Organizations.

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 change

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

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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: **Roadway Departure**

Date of Program Methodology: **9/17/2007**

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

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

25

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

- ☒ Cable Median Barriers
- ☒ 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

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: Other-no change

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

The overall purpose of the HSIP is to achieve a signficant reduction in traffic fatalities and incapacitating injuries through the implementation of infrastructure related highway safety improvements. Components of West Virgina's HSIP include the Strategic Highway Safety Program (SHSP), the Highway

Safety Improvement Program (HSIP), the High Risk Rural Roads Program (HRRRP), the Railway-Highway Grade Crossing Program (HRGX), and the Pentality Transfer (Section 154).

The High Risk Rural Road Program (HRRRP) no longer has a set aside amount, and was absobed by the larger HSIP. In West Virginia, the HRRRP is manage through the Traffic Engineering Division's Traffic Mobility and Safety Section, as a part of the overall HSIP. Rural collectors or rural local roads generally correlate to the county route highway class and WVDOH maintains all of the State's more than 28,000 miles in county routes. The State has been able to allocate HSIP funds to some of the routes; however, as County Routes are the most rural and low-volume of the highway classes, they often lose out when competing for funding against projects on routes in highway classifications. The availability of HRRRP funding has provided WVDOH with the ability to combat this problem by utilizing HRRRP funding to implement safety improvements on routes within this system which have fatal and/or serious injury crash rates above the statewide average for county routes.

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)	49828238	76 %	13187844	78 %
HRRRP (SAFETEA-LU)	1596359	2 %	343000	2 %
HRRR Special Rule				
Penalty Transfer - Section 154	14549386	22 %	3341061	20 %
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	65973983	100%	16871905	100%

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

$0.00

How much funding is obligated to local safety projects?

$0.00

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

$15,985,729.00

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

$15,985,729.00

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

$0.00

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

$0.00

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

The Mobility and Safety Section is actively working towards improving the process but it still incredible hampered by staffing issues. In order to improve their ability to progress, they have requested a consultant to assist with crash data location and analysis

West Virginia has observed several impediments to obligating Highway Safety Improvement Program funds. First, many throughout the DOH organization are not familiar with the safety program. Often they are unaware that there are potential funds to correct a safety problem. Second, even though the Mobility and Safety Section is responsible for monitoring and balancing the use of HSIP funds, they do not handle the design of the project. We have found that people who are responsible for the design of the project have too much work. Often these people have other projects from other core programs.

To overcome this, members of the Mobility and Safety Section are attempting to reach out to the districts and other divisions to familiarize them with the safety program. They are also keeping contact with people who are responsible for the design during the entire process and checking with their workload before assigning the design of the project to them.

On September 23, 2014, WVDOH hosted a HSIP peer exchange. Staff from surrounding states came to West Virginia to discuss how to streamline the HSIP project delivery. Recommendations from this exchange includeing refining HSIP elements, expanding HSIP resources and steamlining the project delivery.

The WVDOH made a commitment to be able to do systemic analysis and evaluation encompassing the entire state-owned highway network. When this commitment was made this was under the assumption that the ERP system would be fully functional and operating at full capacity. While the ERP did go live in 2014 and was functioning properly, it was discovered that there was some major crash mapping and data quality issues that needed to be remedied. At launch there were approximately 60% of the crashes statewide that were able to be mapped. This means that all of the data analysis as well as network screening (sliding window analysis) were only able to utilize 60% of the total crashes.

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

Additional work is still needed to improve crash locations in addition to the mapping issues. It is WVDOH to work with consultant over the next years to improve accuracy of crash location.

At the present time, the WVDOH has rectified the data quality issue to where the percenrage is up to 80% of the crashes are able to be mapped. As such the network screening and analysis can be run against 80% of the total crashes. It is anticipated that this percentage will continue to climb into the 90%+ range within the next 1-2 years.

It is being recommended that the WVDOH begin utilizing the SMS functionality for the identification of hotspots. This means that sliding window analysis will analyze and rank hotspots using the 80% of crashes that were able to be mapped. Once the hotspots have been identified, a further indepth analysis will be necessary as usual to identify potential countermeasures at the identified locations.

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
Safety Culture Assessment	Miscellaneous	1 Numbers	200000	200000	Penalty Transfer - Section 154	Statewide			State Highway Agency	Assessment	
WVSP Cad System Feasibility	Non-infrastructure Non-infrastructure - other	1 Numbers	100000	100000	Penalty Transfer - Section 154	Statewide			State Highway Agency	Study	
WV Graduated Driver License	Non-infrastructure Non-infrastructure - other	1 Numbers	80000	80000	Penalty Transfer - Section 154	Statewide			State Highway Agency	Study	
Evaluation of School Zone	Non-infrastructure Non-infrastructure - other	1 Numbers	90000	90000	Penalty Transfer - Section	Statewide			State Highway Agency	Study	

					154						
Continuum of Care Server	Non-infrastructure Data/traffic records	1 Numbers	70000	70000	Penalty Transfer - Section 154	Statewide			State Highway Agency	Data	
Tucker US 219 Survey	Alignment Horizontal and vertical alignment	28 Miles	10000	10000	Penalty Transfer - Section 154	Rural Principal Arterial - Other	2100	55	State Highway Agency	Data	
US 119 Survey	Alignment Horizontal and vertical alignment	2 Miles	10000	10000	Penalty Transfer - Section 154	Rural Principal Arterial - Other	7200	65	State Highway Agency	Data	
District 2 Guardrail	Roadside Barrier- metal	1 Numbers	2104185	2104185	Penalty Transfer - Section 154	Districtwide			State Highway Agency	Roadway Departure	
GSHP Highway Safety Plan Coordinati	Non-infrastructure Non-infrastructure - other	1 Numbers	80000	80000	Penalty Transfer - Section	Statewide			State Highway Agency	Coordination	

on					154						
Belo - Myrtle Road	Roadway Rumble strips - edge or shoulder	3 Miles	727832	2945790	Penalty Transfer - Section 154	Rural Principal Arterial - Other	6000	65	State Highway Agency	Roadway Departure	
Safety Sign Plan Allegheny Mountain	Roadway signs and traffic control Roadway signs (including post) - new or updated	2 Miles	120500	120500	Penalty Transfer - Section 154	Rural Minor Arterial	1700	55	State Highway Agency	Signage	
Alta Interchange Road	Roadway delineation Longitudinal pavement markings - remarking	1 Miles	89300	1929500	Penalty Transfer - Section 154	Rural Principal Arterial - Interstate	15552	70	State Highway Agency	Roadway Departure	
Kanawha Line - Ambler Ridge	Roadway Pavement surface - high friction surface	6 Miles	278900	3531900	Penalty Transfer - Section 154	Rural Major Collector	2000	55	State Highway Agency	Roadway Departure	
Saturation Patrols for Law Enforceme	Non-infrastructure Enforcement	1 Numbers	2020000	2020000	Penalty Transfer - Section	Statewide			State Highway Agency	Enforcement	

nt					154						
Davis - Bismarck Sec 6, 7, 8	Roadway delineation Longitudinal pavement markings - new	6 Miles	1223955	96971548	Penalty Transfer - Section 154	Rural Principal Arterial - Other	5000	65	State Highway Agency	Roadway Departure	
US 19 Harrison Guardrail	Roadside Barrier- metal	2 Miles	105500	105500	Penalty Transfer - Section 154	Urban Minor Arterial	6300	45	State Highway Agency	Roadway Departure	
WV 7 Monongalia Guardrail	Roadside Barrier- metal	6 Miles	285000	285000	Penalty Transfer - Section 154	Rural Principal Arterial - Other	1200	25	State Highway Agency	Roadway Departure	
Upgrade ITS and Traffic Control	Advanced technology and ITS Advanced technology and ITS - other	1 Numbers	2323500	5119355	HSIP (Section 148)	Statewide			State Highway Agency	Data	
District 2 Guardrail	Roadside Barrier- metal	1 Numbers	274	2124185	HSIP (Section 148)	Districtwide			State Highway Agency	Roadway Departure	
Interstate 81	Roadside Barrier- metal	5 Miles	55280	552800	HSIP (Sectio	Rural Principal	4600	70	State Highway	Roadway	

Guardrail			0		n 148)	Arterial - Interstate	0		Agency	Departure	
Doc Bailey Road Traffic Signal	Intersection traffic control Modify traffic signal - modernization/replacement	1 Numbers	144780	160889	HSIP (Section 148)	Urban Minor Arterial	20300	35	State Highway Agency	Intersections	
I-64 Truck Excape Ramp Renovation	Speed management Speed management - other	1 Miles	293555	326172	HSIP (Section 148)	Rural Principal Arterial - Interstate	13212	70	State Highway Agency	Speed	
Riverside Drive - WV 16	Roadway Rumble strips - edge or shoulder	2 Miles	13900	727100	HSIP (Section 148)	Rural Principal Arterial - Other	2700	45	State Highway Agency	Roadway Departure	
Pennsylvania Avenue	Roadway Rumble strips - edge or shoulder	1 Miles	47200	1165200	HSIP (Section 148)	Urban Minor Arterial	10100	35	State Highway Agency	Roadway Departure	
Freedom Way Road	Roadway Rumble strips - edge or shoulder	1 Miles	9400	349802	HSIP (Section 148)	Urban Minor Arterial	6000	40	State Highway Agency	Roadway Departure	
Guardrail Barbour CR 1	Roadside Barrier - cable	1 Miles	9000	10000	HSIP (Section 148)	Rural Local Road or Street	200	55	State Highway Agency	Roadway Departure	

Newhouse Branch - Edens Fork	Roadside Barrier- metal	4 Miles	461199	461199	Penalty Transfer - Section 154	Urban Principal Arterial - Interstate	52000	70	State Highway Agency	Roadway Departure	
Intersection Flasher	Intersection traffic control Intersection flashers - add advance intersection warning sign-mounted	1 Numbers	34732	34732	Penalty Transfer - Section 154	Urban Minor Arterial	9000	40	State Highway Agency	Intersections	
WV 20 Guardrail and Signage	Roadside Barrier- metal	2 Miles	229413	229413	HSIP (Section 148)	Rural Major Collector	2300	55	State Highway Agency	Roadway Departure	
RWIS Install	Advanced technology and ITS Advanced technology and ITS - other	1 Numbers	616500	685000	HSIP (Section 148)	Statewide			State Highway Agency	Data	
Wood WV 2 TWLTL	Roadway Roadway widening - add lane(s) along segment	1 Miles	1260000	1400000	HSIP (Section 148)	Rural Principal Arterial - Other	13000	55	State Highway Agency	Intersections	
WVSP ATMS Integration	Non-infrastructure Enforcement	1 Numbers	2125000	2125000	HSIP (Section 148)	Statewide			State Highway Agency	Enforcement	

I-70 Roadway Lighting	Lighting Continuous roadway lighting	5 Miles	5476122	6084580	HSIP (Section 148)	Urban Principal Arterial - Interstate	42000	65	State Highway Agency	Lighting	
I-68 / I-79 Interchange Lighting	Lighting Site lighting - interchange	1 Numbers	1102068	1224517	HSIP (Section 148)	Urban Principal Arterial - Interstate	41500	70	State Highway Agency	Lighting	
US 250 / WV 7 HFST	Roadway Pavement surface - high friction surface	1 Miles	249884	275605	HSIP (Section 148)	Districtwide			State Highway Agency	Roadway Departure	
Melrose Square I/S Improvement	Intersection traffic control Intersection traffic control - other	1 Numbers	374004	415560	HSIP (Section 148)	Urban Minor Arterial	7900	35	State Highway Agency	Intersections	
Ohio CR 23 Guardrail	Roadside Barrier- metal	6 Miles	73350	81500	HSIP (Section 148)	Urban Major Collector	2000	35	State Highway Agency	Roadway Departure	
I-70 Roadway Lighting	Lighting Continuous roadway lighting	6 Miles	4362385	4847050	HSIP (Section 148)	Urban Principal Arterial - Interstate	53000	55	State Highway Agency	Lighting	
West Run Road	Roadway Roadway widening - travel lanes	2 Miles	90000	100000	HSIP (Section 148)	Urban Major Collector	1750	25	State Highway Agency	Roadway Departure	

Davis - Bismarck Sec 1-5	Roadway delineation Longitudinal pavement markings - new	10 Miles	1950951	66145373	HSIP (Section 148)	Rural Principal Arterial - Other	5000	65	State Highway Agency	Roadway Departure	

Progress in Achieving Safety Performance Targets

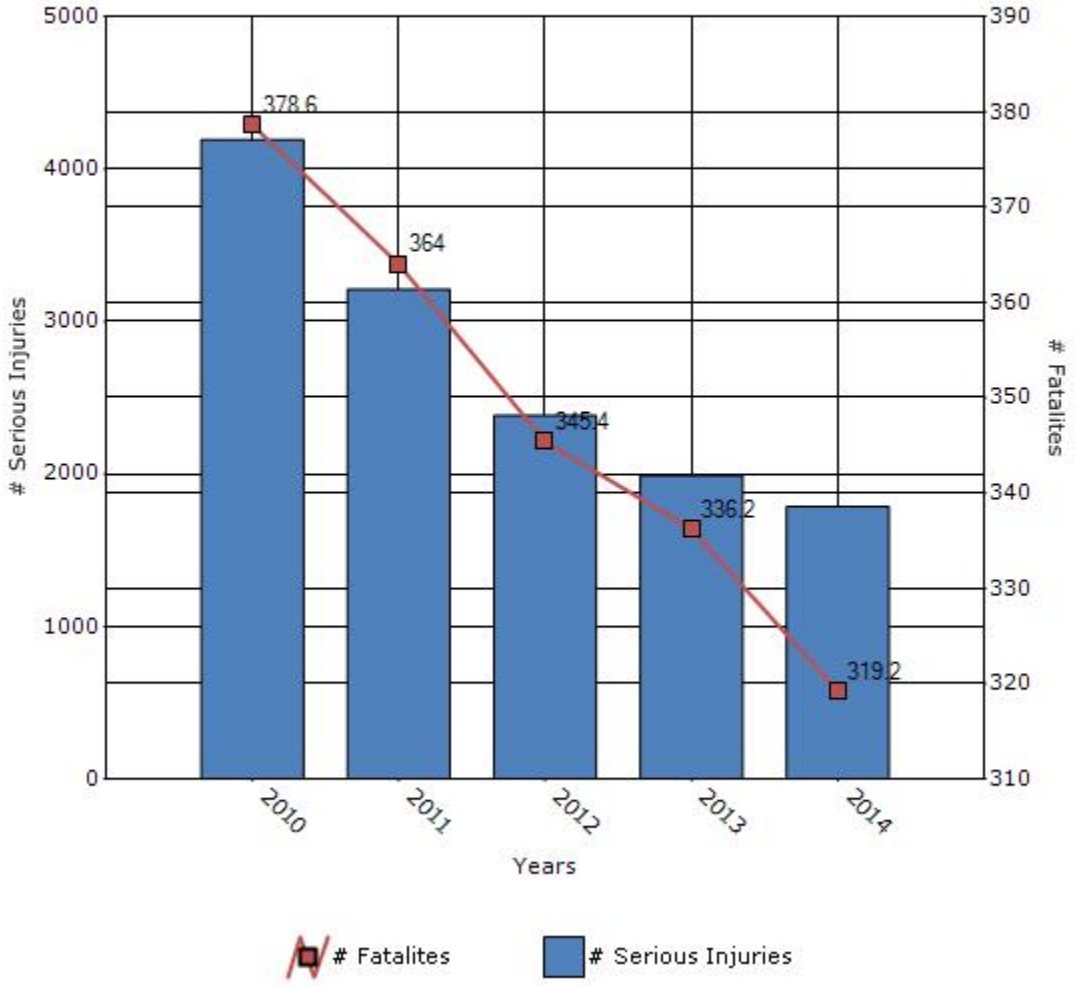
Overview of General Safety Trends

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

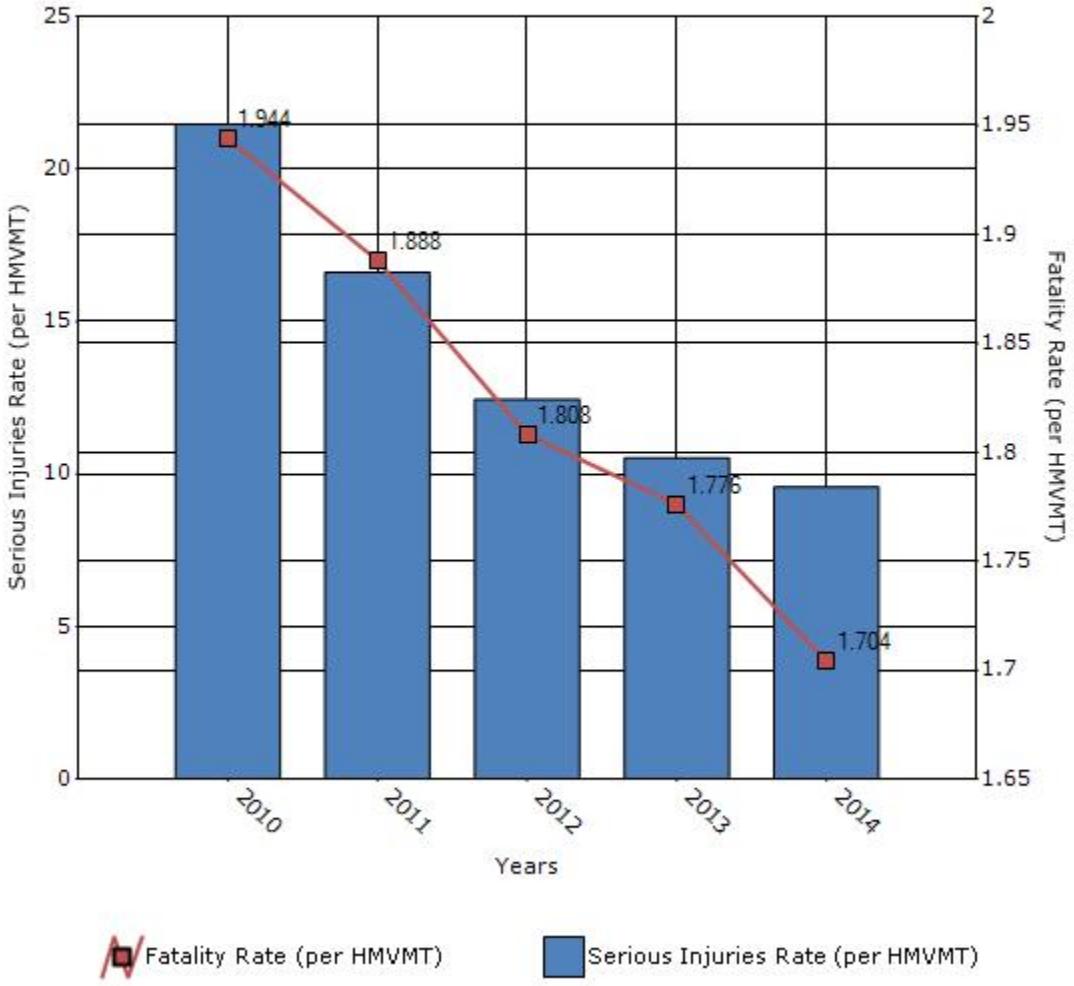
Performance Measures*	2010	2011	2012	2013	2014
Number of fatalities	378.6	364	345.4	336.2	319.2
Number of serious injuries	4192	3211.8	2382.8	1990.6	1786.8
Fatality rate (per HMVMT)	1.944	1.888	1.808	1.776	1.704
Serious injury rate (per HMVMT)	21.47	16.612	12.448	10.526	9.564

*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

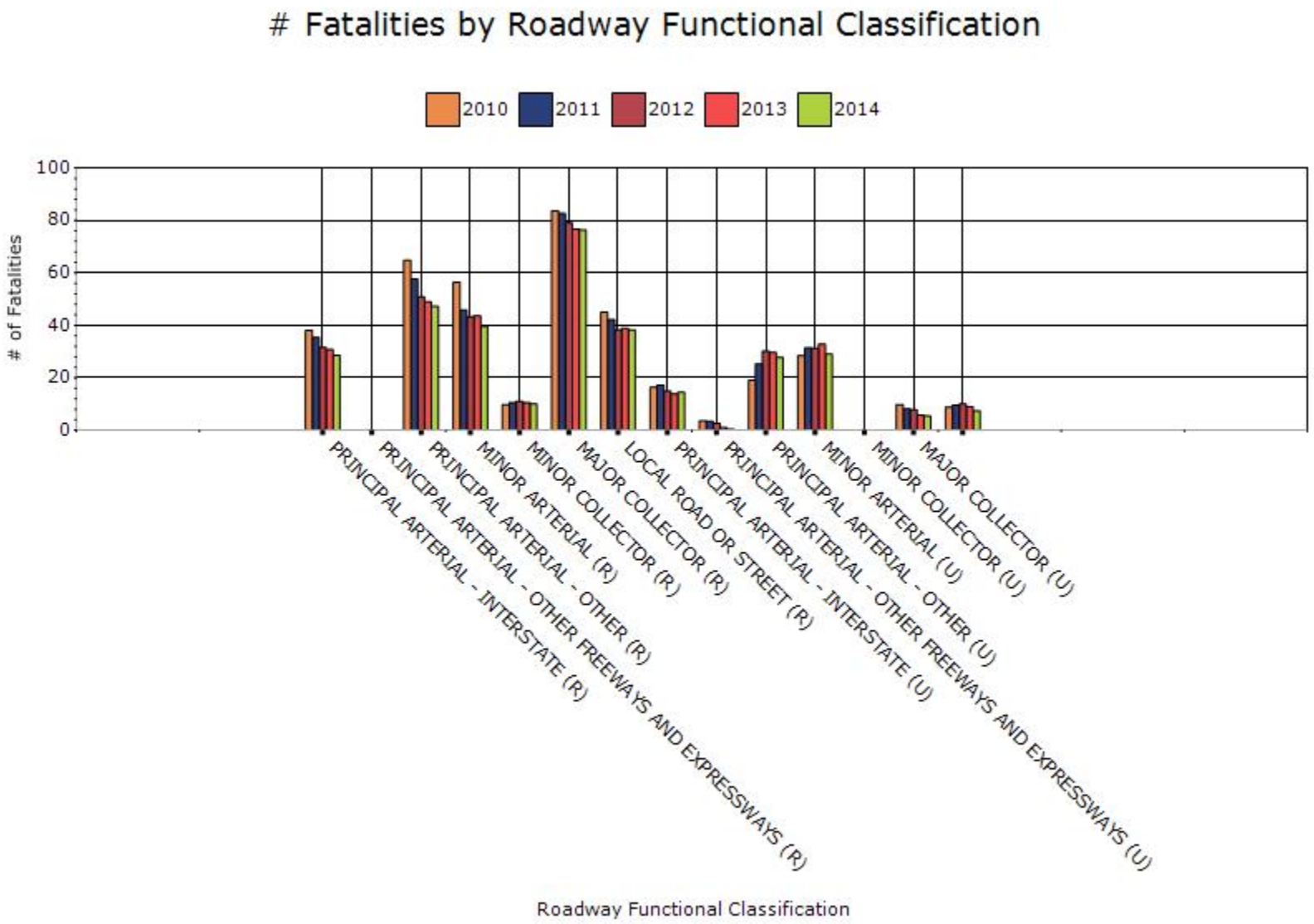


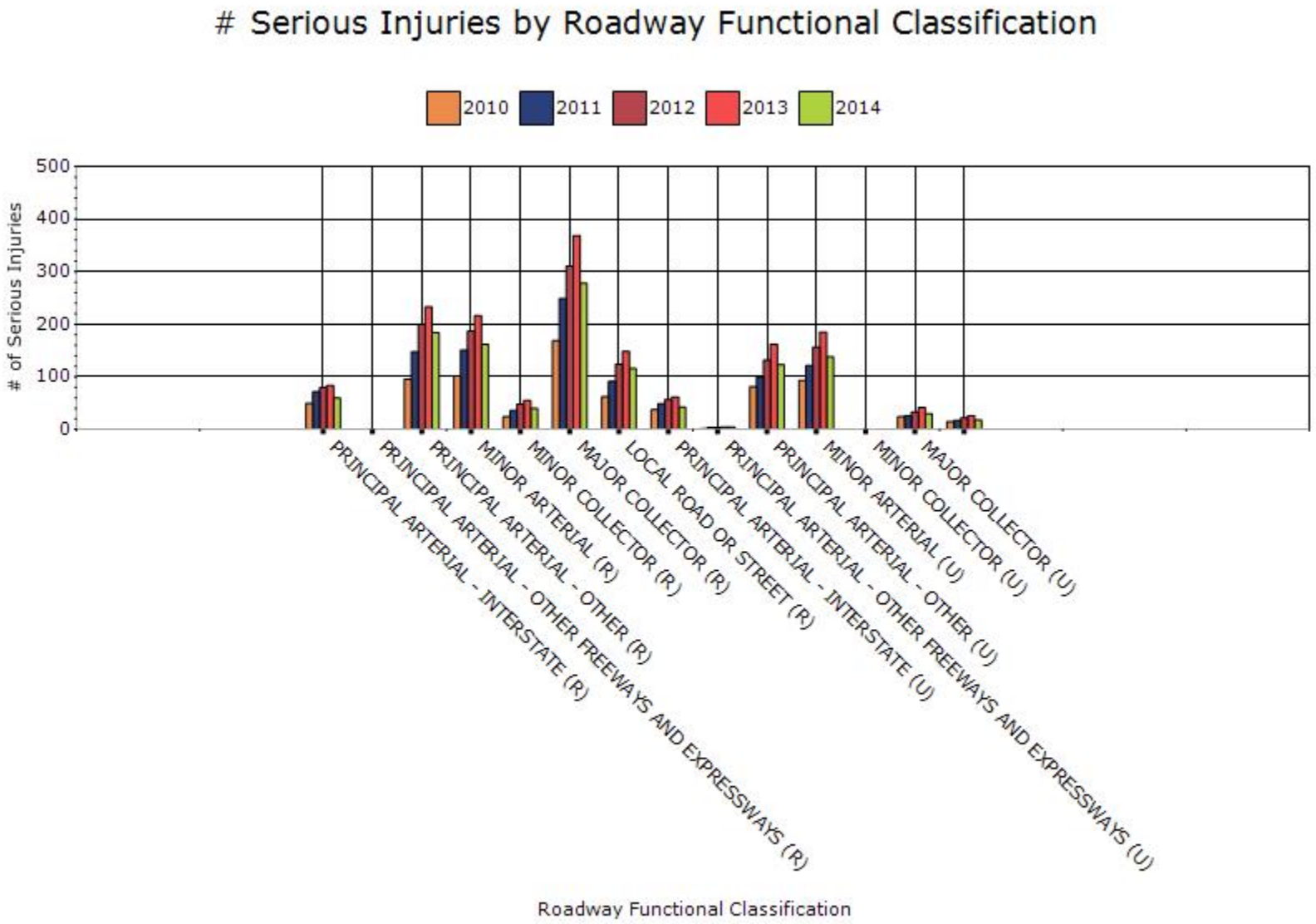
To the maximum extent possible, present performance measure* data by functional classification and ownership.

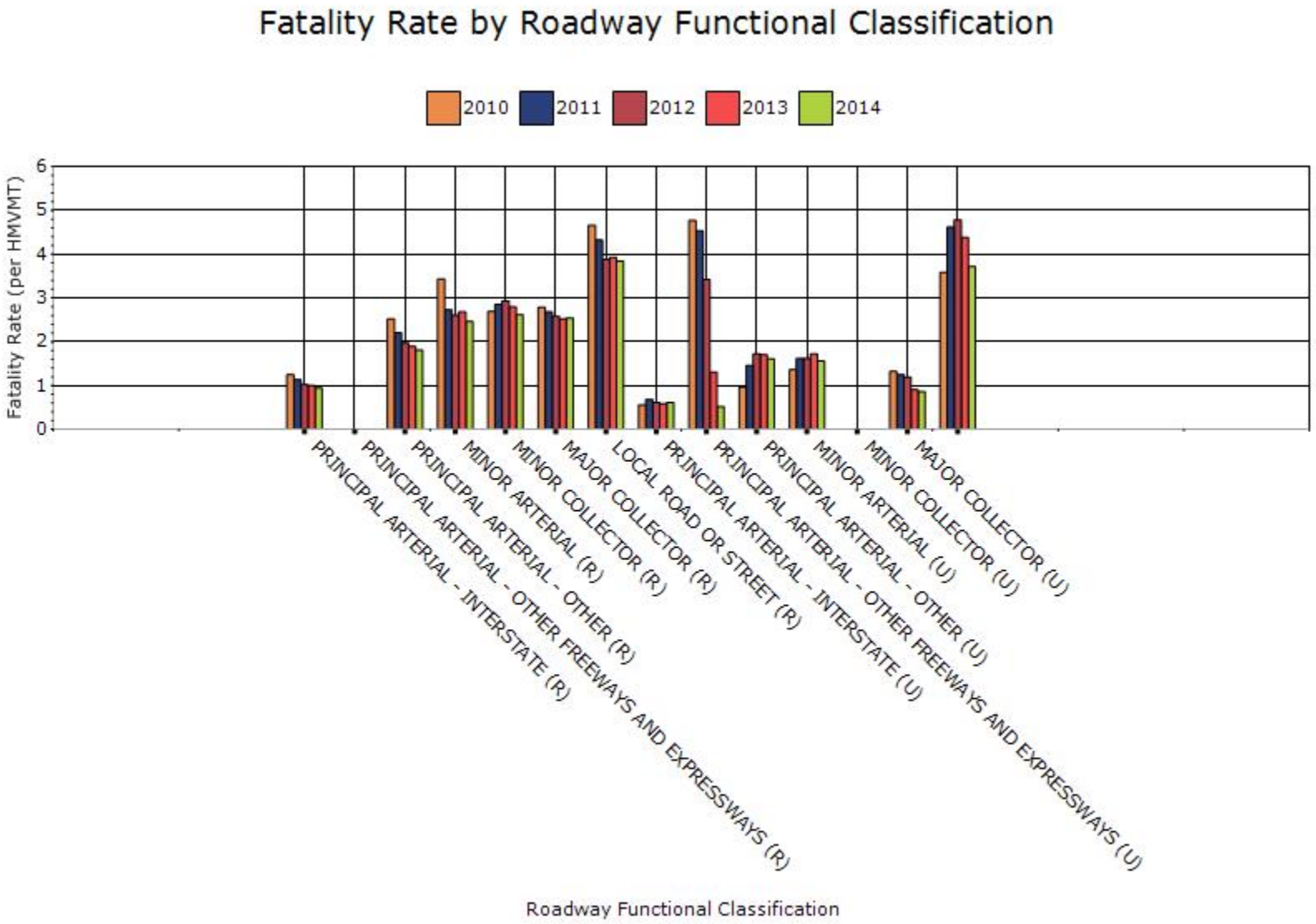
Year - 2014

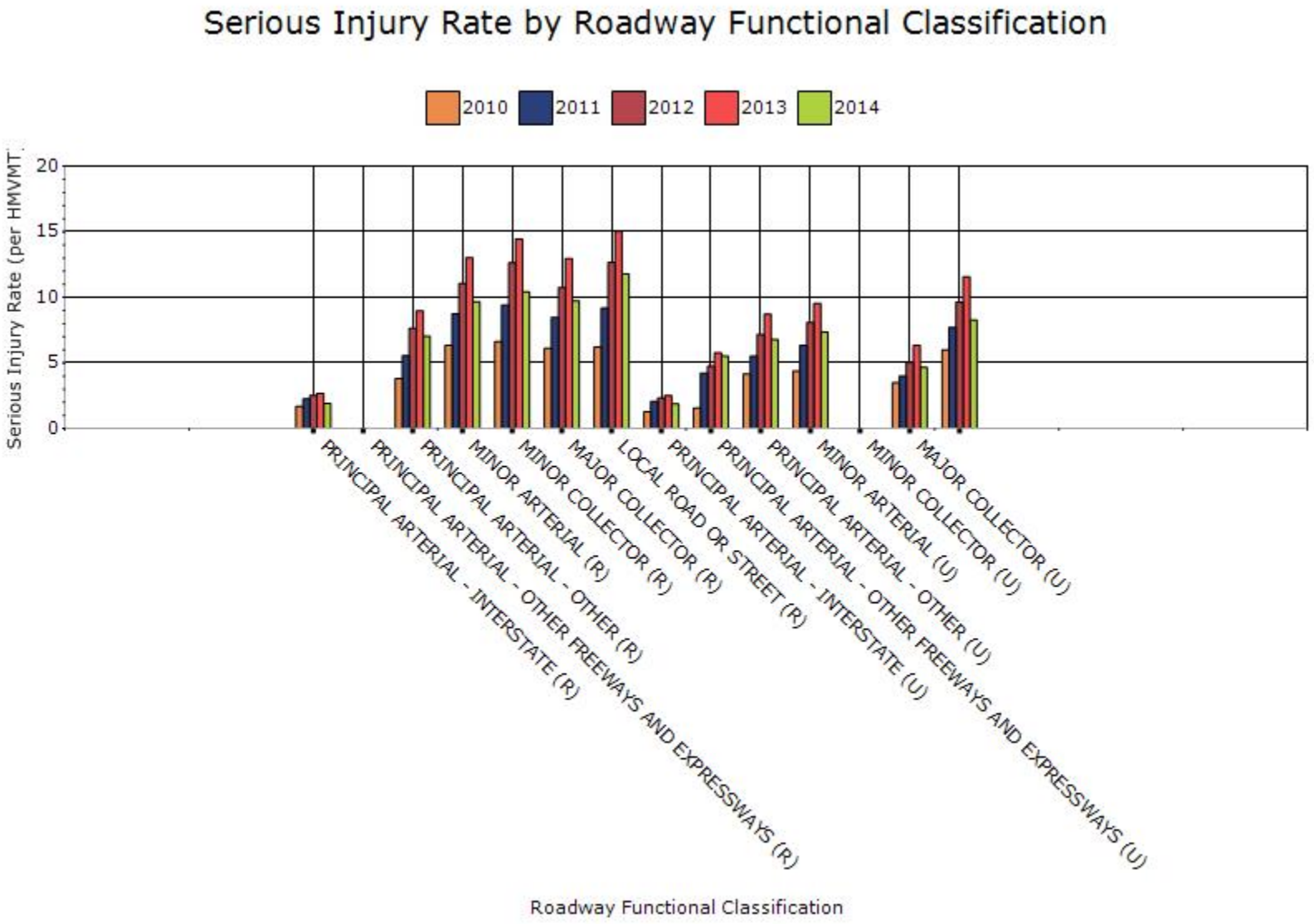
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	28.6	59.4	0.94	1.9
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	0	0	0	0
RURAL PRINCIPAL ARTERIAL - OTHER	47.2	184.2	1.81	7.04
RURAL MINOR ARTERIAL	39.6	162	2.46	9.67
RURAL MINOR COLLECTOR	10	39.8	2.62	10.42
RURAL MAJOR COLLECTOR	76.4	278	2.54	9.74
RURAL LOCAL ROAD OR STREET	38.2	115.6	3.84	11.78
URBAN PRINCIPAL	14.4	42	0.61	1.88

ARTERIAL - INTERSTATE				
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	0.4	4.2	0.52	5.52
URBAN PRINCIPAL ARTERIAL - OTHER	27.8	123.4	1.61	6.79
URBAN MINOR ARTERIAL	29	138	1.56	7.36
URBAN MINOR COLLECTOR	0	0	0	0
URBAN MAJOR COLLECTOR	5.4	30	0.86	4.66
URBAN LOCAL ROAD OR STREET	7.4	18	3.72	8.28


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

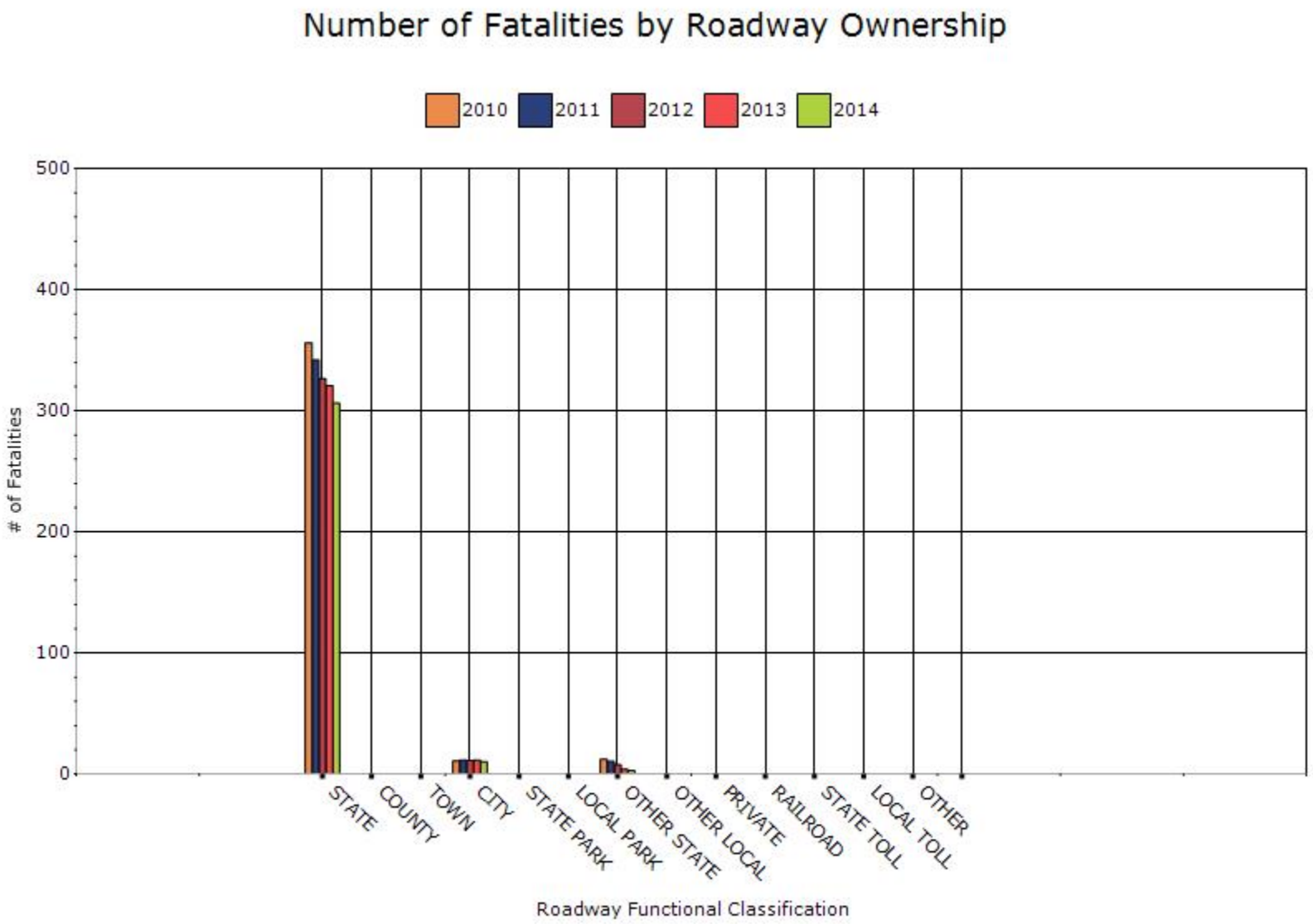

Serious Injuries by Roadway Functional Classification
2010
2011
2012
2013
2014
# of Serious Injuries
500
400
300
200
100
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (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

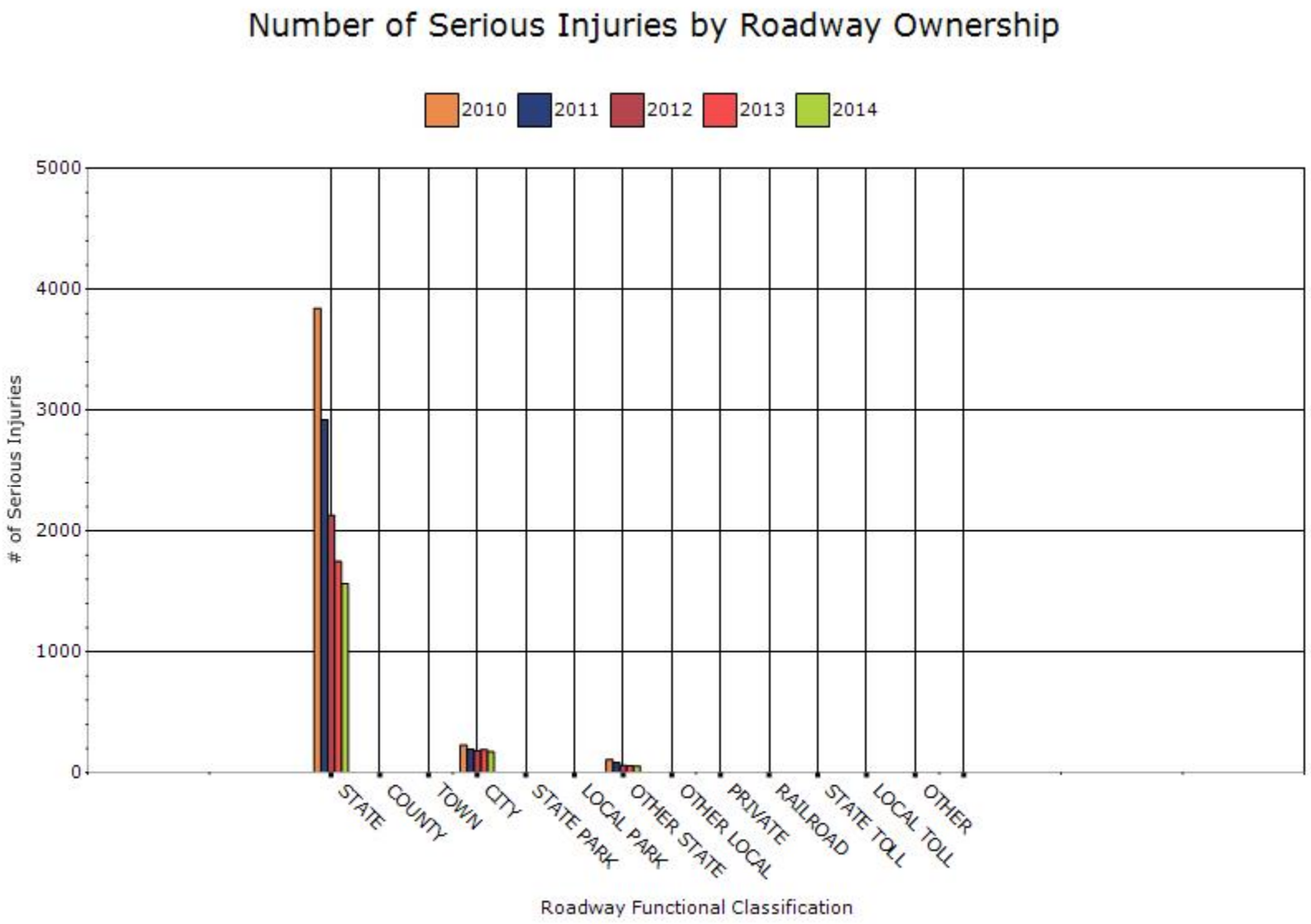

Fatality Rate by Roadway Functional Classification
2010
2011
2012
2013
2014
Fatality Rate (per HMVMT)
0
1
2
3
4
5
6
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL 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

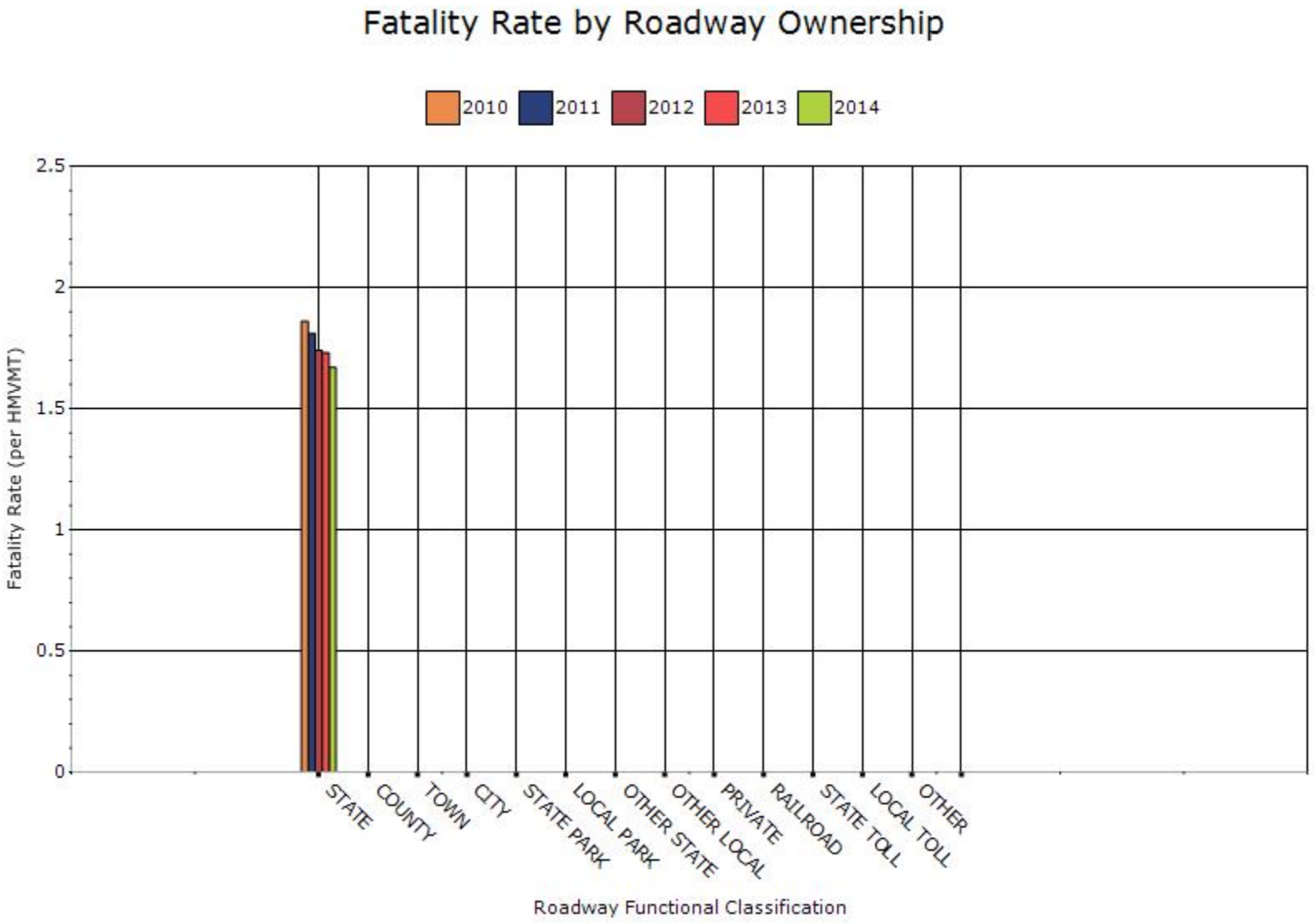

Serious Injury Rate by Roadway Functional Classification
2010
2011
2012
2013
2014
Serious Injury Rate (per HMVMT)
20
15
10
5
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (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

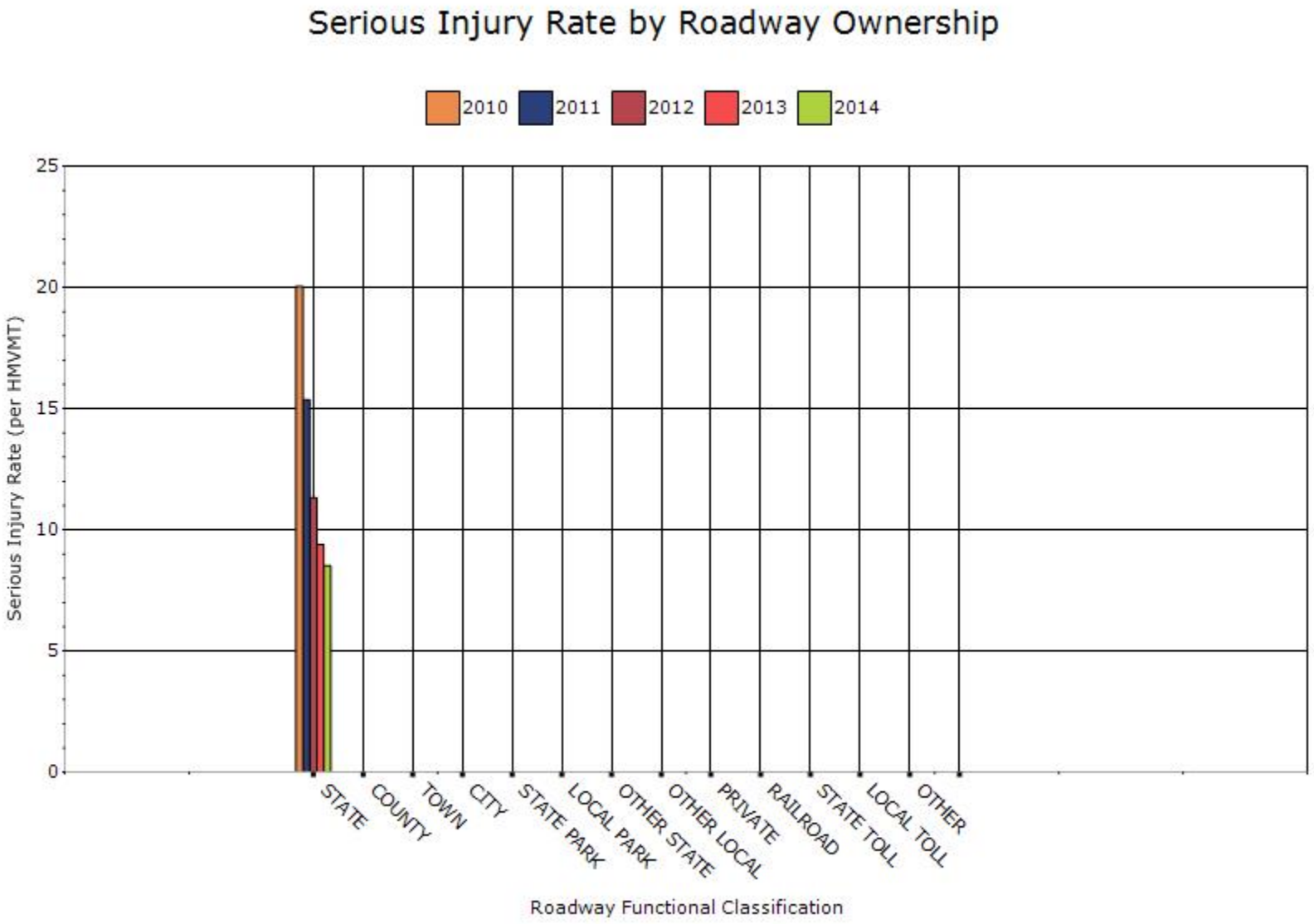
Year - 2014

Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	306.2	1564.2	1.67	8.52
COUNTY HIGHWAY AGENCY	0	0	0	0
TOWN OR TOWNSHIP HIGHWAY AGENCY	0	0	0	0
CITY OF MUNICIPAL HIGHWAY AGENCY	10.2	171.6	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	2.8	52.2	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
INDIAN TRIBE NATION	0	0	0	0


Number of Fatalities by Roadway Ownership
2010
2011
2012
2013
2014
500
400
300
200
100
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
2.5
2
1.5
1
0.5
0
Fatality Rate (per HMVMT)
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification


Serious Injury Rate by Roadway Ownership
2010
2011
2012
2013
2014
Serious Injury Rate (per HMVMT)
25
20
15
10
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.

West Virginia has seen the numnber of fatalities decrease since 2006. In 2006, there were 411 fatalities. This number dropped to 272 in 2014. The number of serious injuries has decreased over the past 9 years. In 2006, there were 6,855 serious injuries. By 2014, the number has decreased to 1,384.

The fatality rate has decreased in 2014. In 2006, it was 2.09 per HMVMT and in 2014, it was 1.44 per HMVMT. The serious injury rate has dropped significantly. In 2006, it was 34.83 per HMVMT and in 2014, it was 7.34 per HMVMT.

Application of Special Rules

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

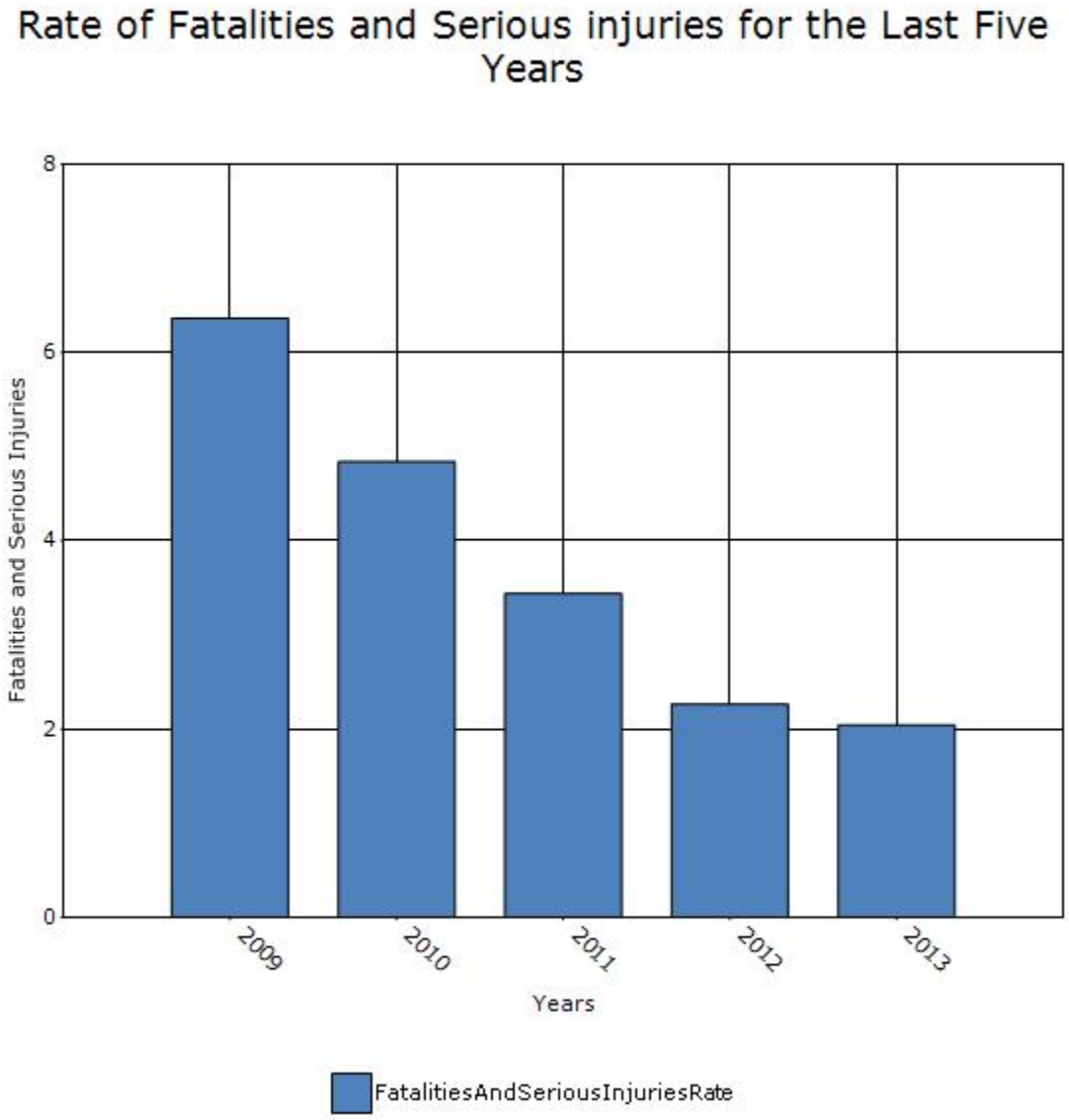
Older Driver Performance Measures	2009	2010	2011	2012	2013
Fatality rate (per capita)	0.468	0.494	0.534	0.538	0.542
Serious injury rate (per capita)	5.896	4.344	2.904	1.726	1.484
Fatality and serious injury rate (per capita)	6.364	4.84	3.44	2.266	2.044

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

In 2013, the population of WV was 1,853,994. Therefore the population per 10,000 was 173. There were 81 fatalities and 232 serious injuries for people 65 and over.

The fatality rate for drivers over 65 is 81 divided by 173 and the serious injury rate is 232 divided by 173.

The population numbers are different from the 2014 report. In 2014, we used an estimated population. In 2015, we used numbers from MAP-21 / guidance / Section 148: Older DRivers and Pedestrian Special Rule Interim Guidance.



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-Significant reduction in traffic fatalities and incapacitating injuries

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-ERP

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

West Virginia is beginning to use a new system called the electronic report system. With this new system, people are able to pull accident data covering the entire state from their computer.

Implementation of the system has been delayed for several years. Right now, it is a working system and people are pulling accident data.

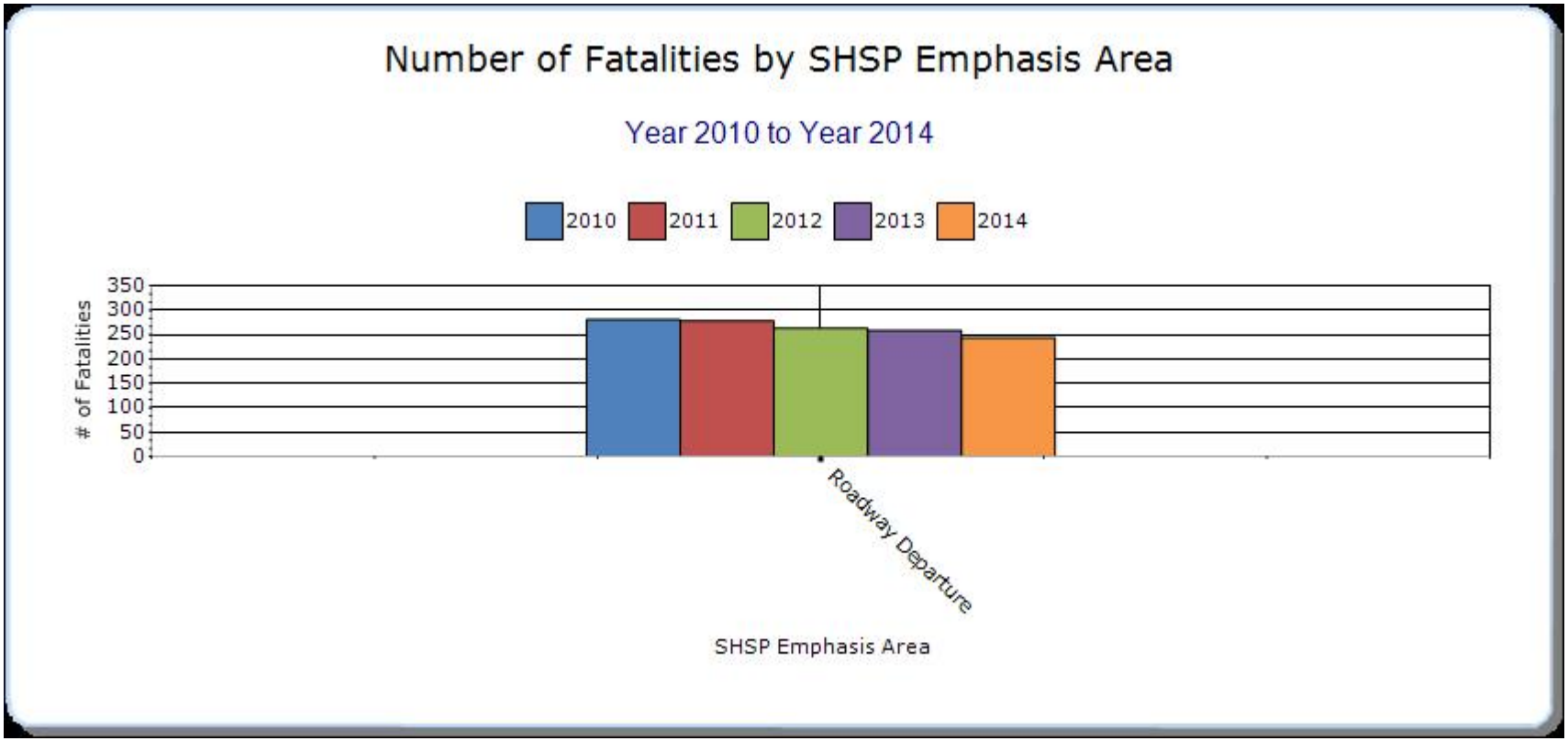
At this time, there are several issues with this system. Many times the milepoint associated with particular accidents are entered wrong in the system. To address this, people still have to read the individual accident report and change the milepost when appropriate.

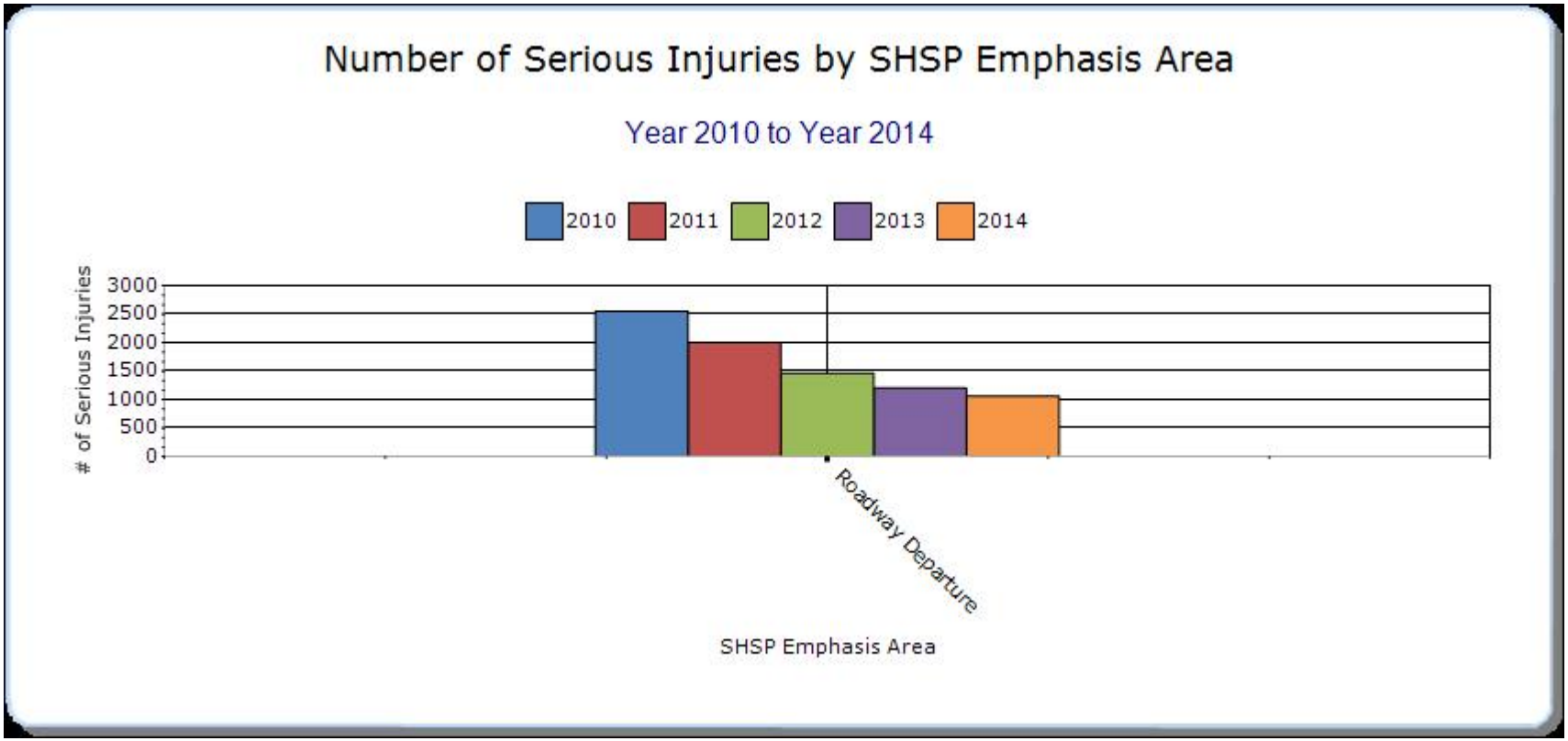
SHSP Emphasis Areas

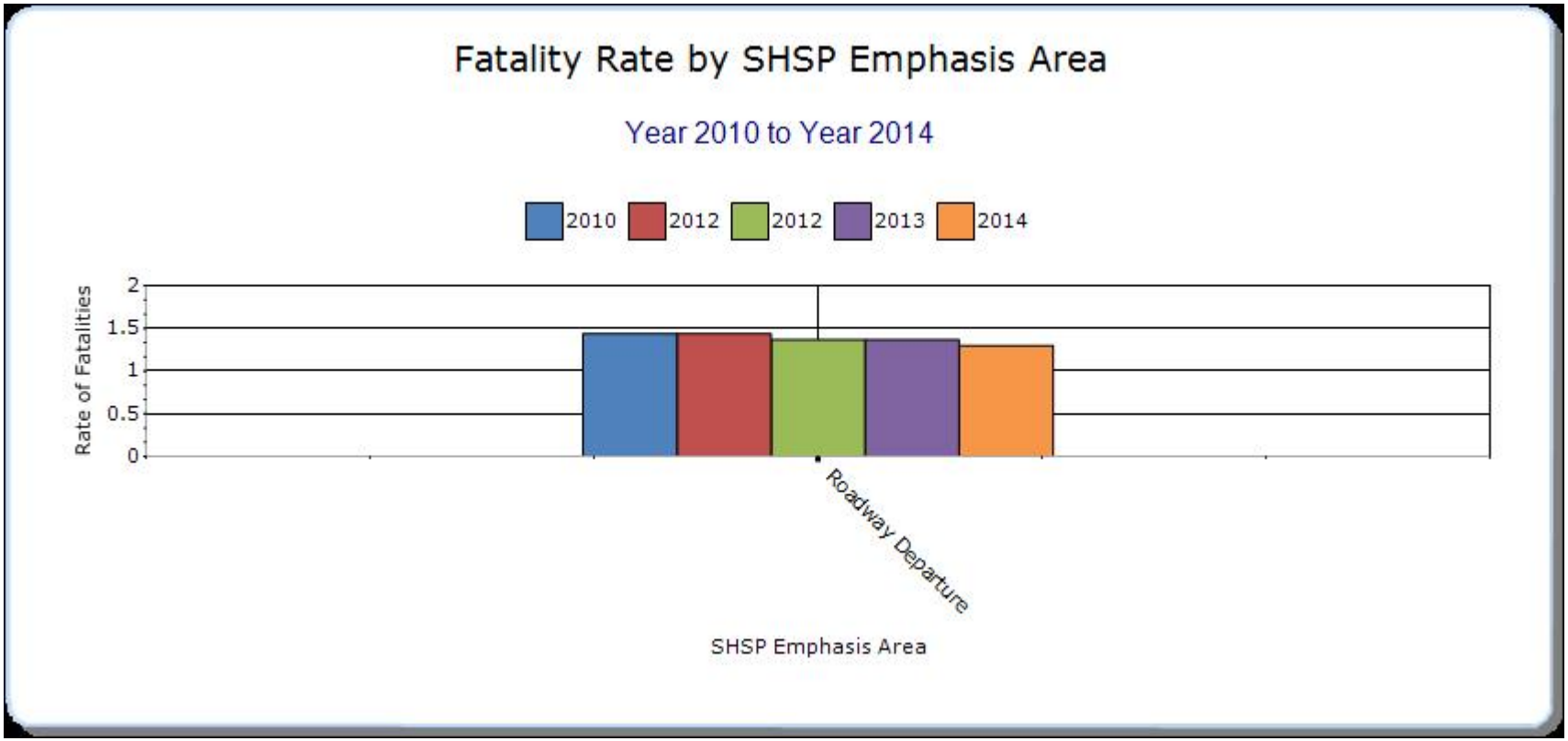
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

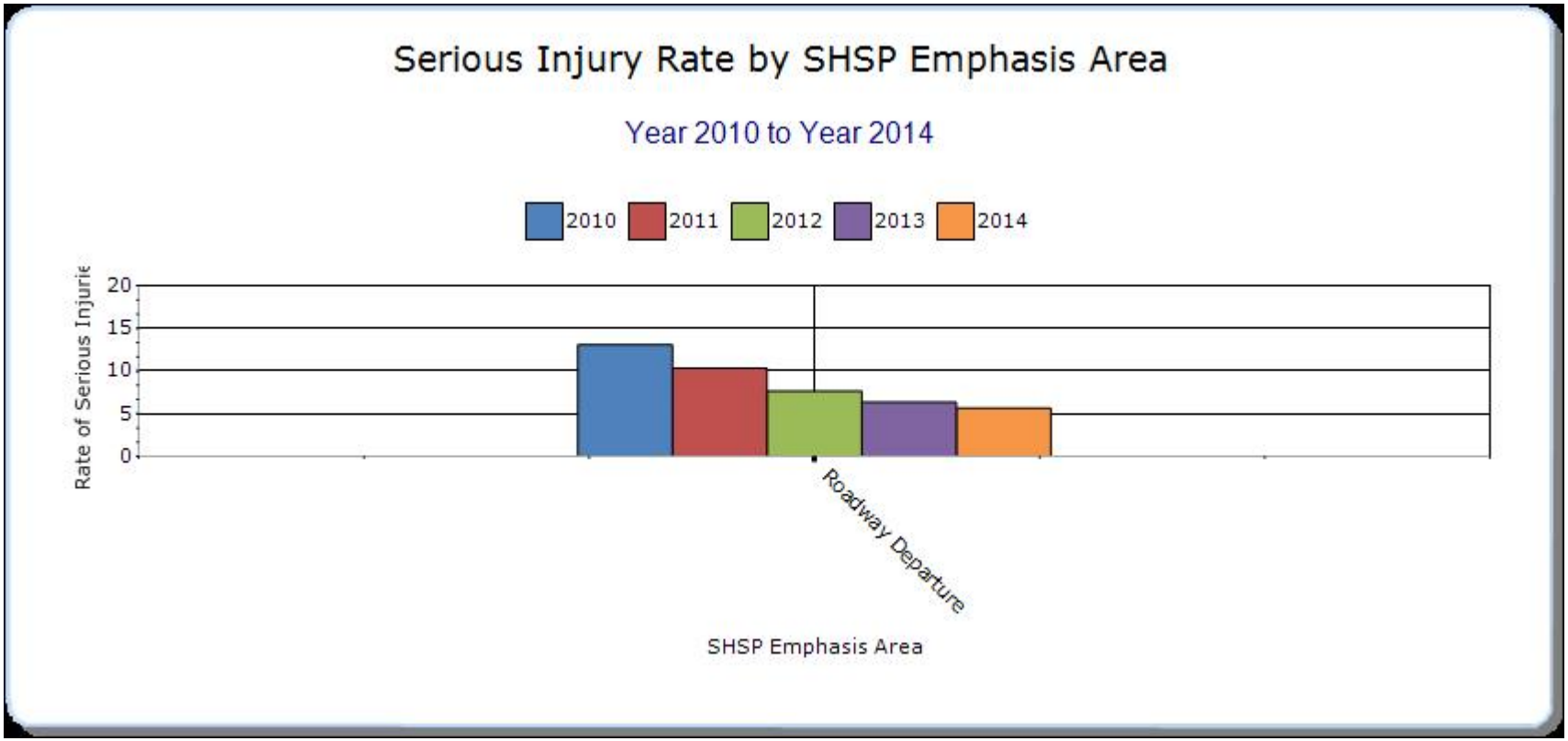
Year - 2014

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		243.2	1058.8	1.3	5.66	0	0	0


Number of Fatalities by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# of Fatalities
350
300
250
200
150
100
50
0
Roadway Departure
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
SHSP Emphasis Area


Fatality Rate by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2012
2012
2013
2014
Rate of Fatalities
2
1.5
1
0.5
0
Roadway Departure
SHSP Emphasis Area

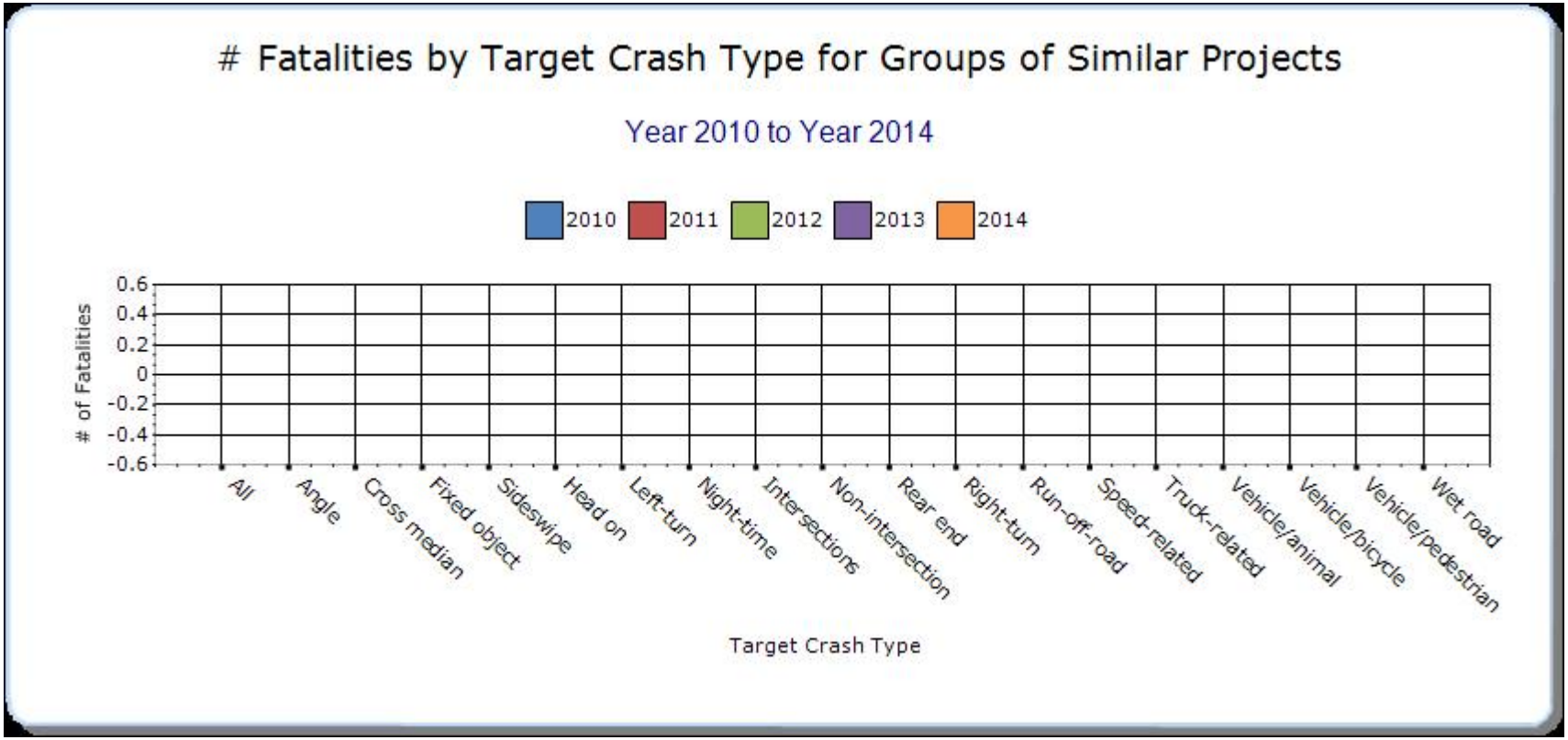

Serious Injury Rate by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2011
2012
2013
2014
Rate of Serious Injurie
20
15
10
5
0
Roadway Departure
SHSP Emphasis Area

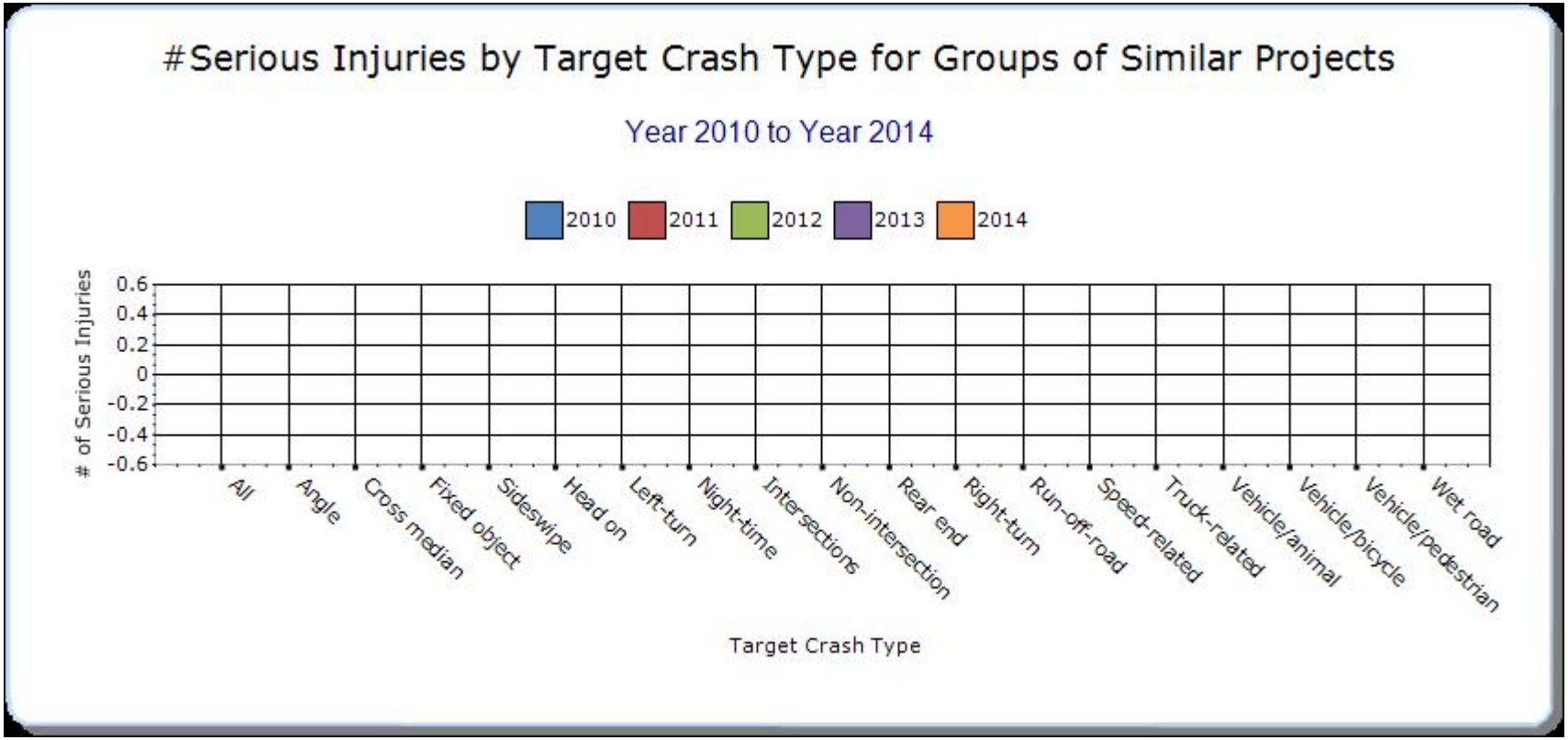
Groups of similar project types

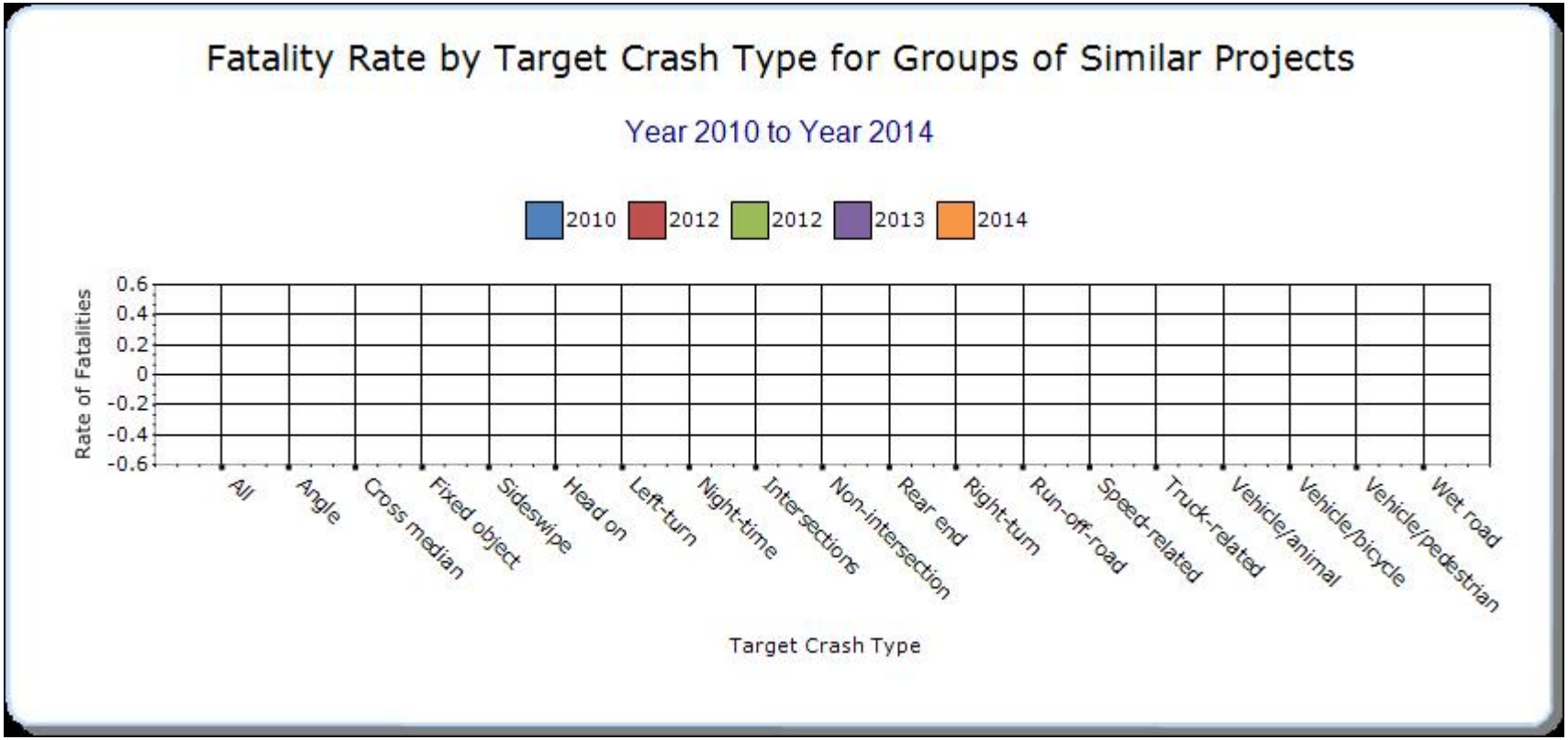
Present the overall effectiveness of groups of similar types of projects.

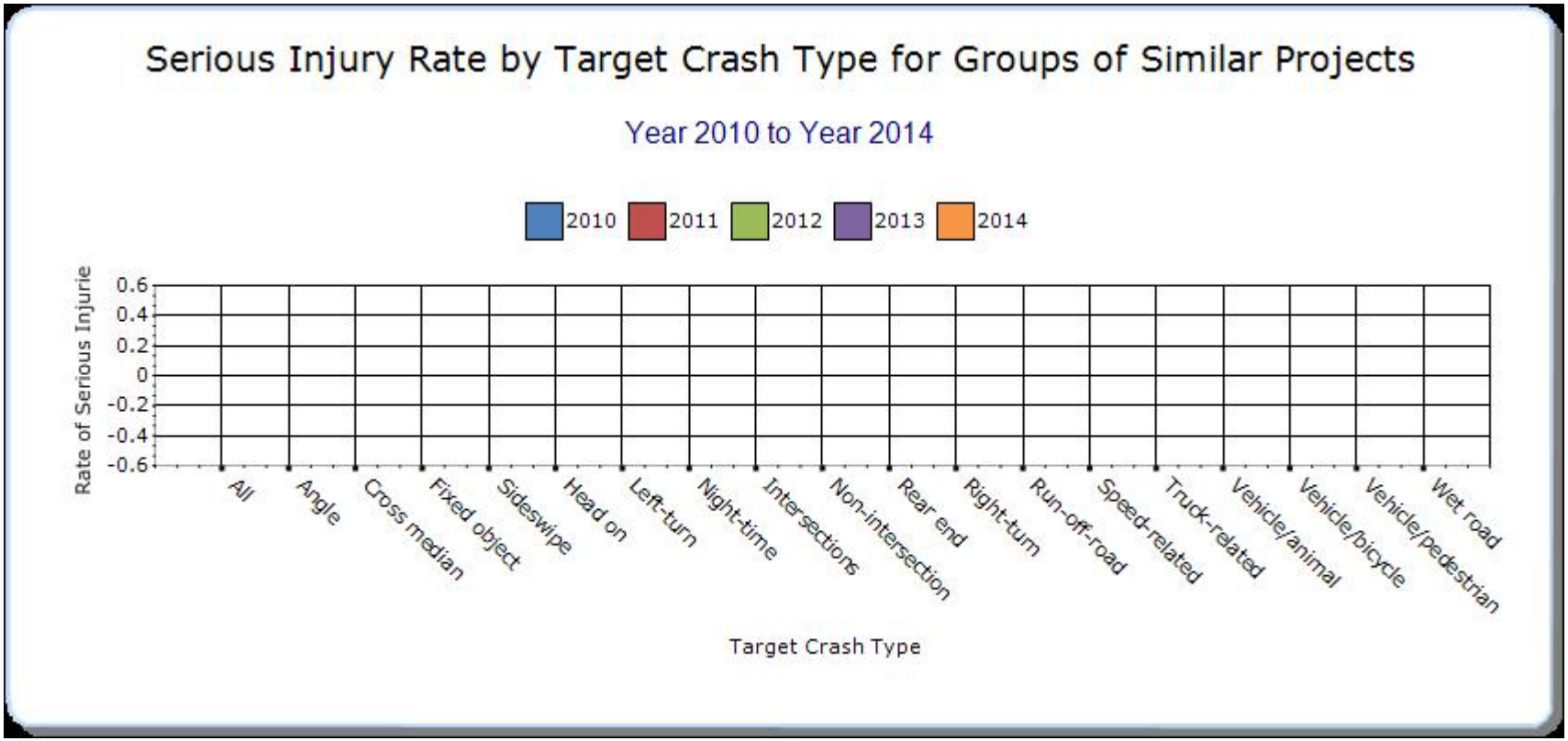
Year - 2014

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
Roadway Departure		243.2	1058.8	1.3	5.66	0	0	0


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


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

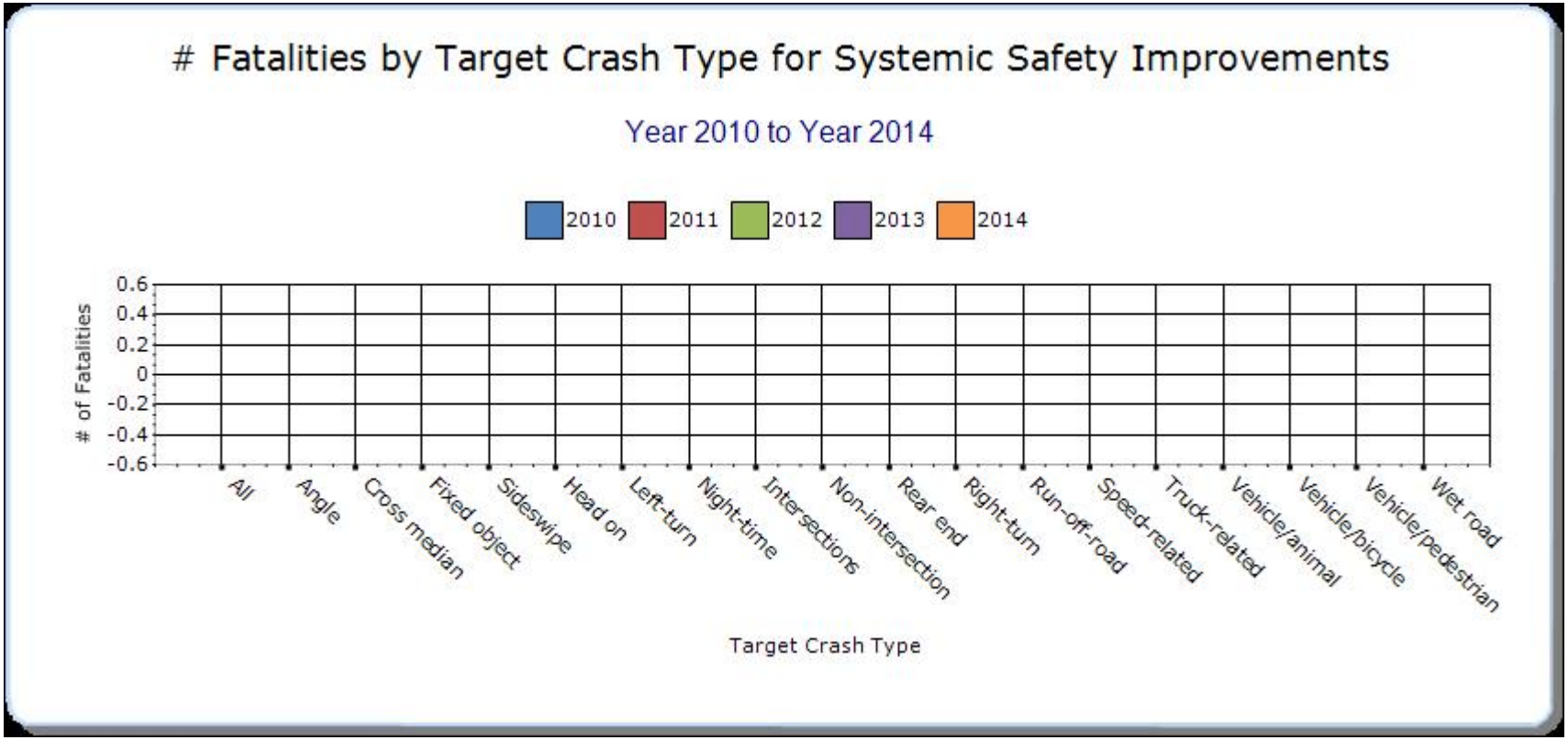

Serious Injury Rate by Target Crash Type for Groups of Similar Projects
Year 2010 to Year 2014
2010
2011
2012
2013
2014
Rate of Serious Injurie
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road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

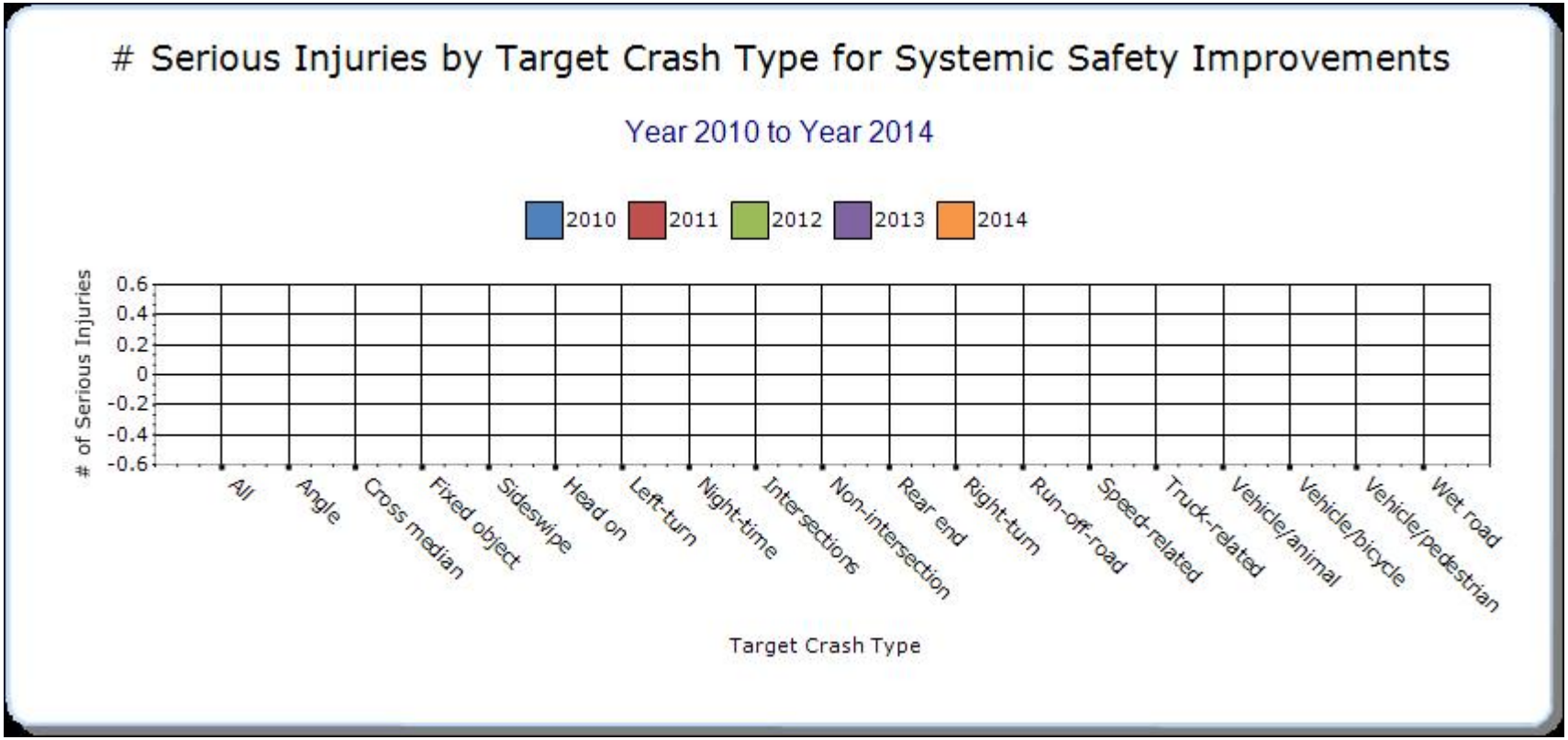
Systemic Treatments

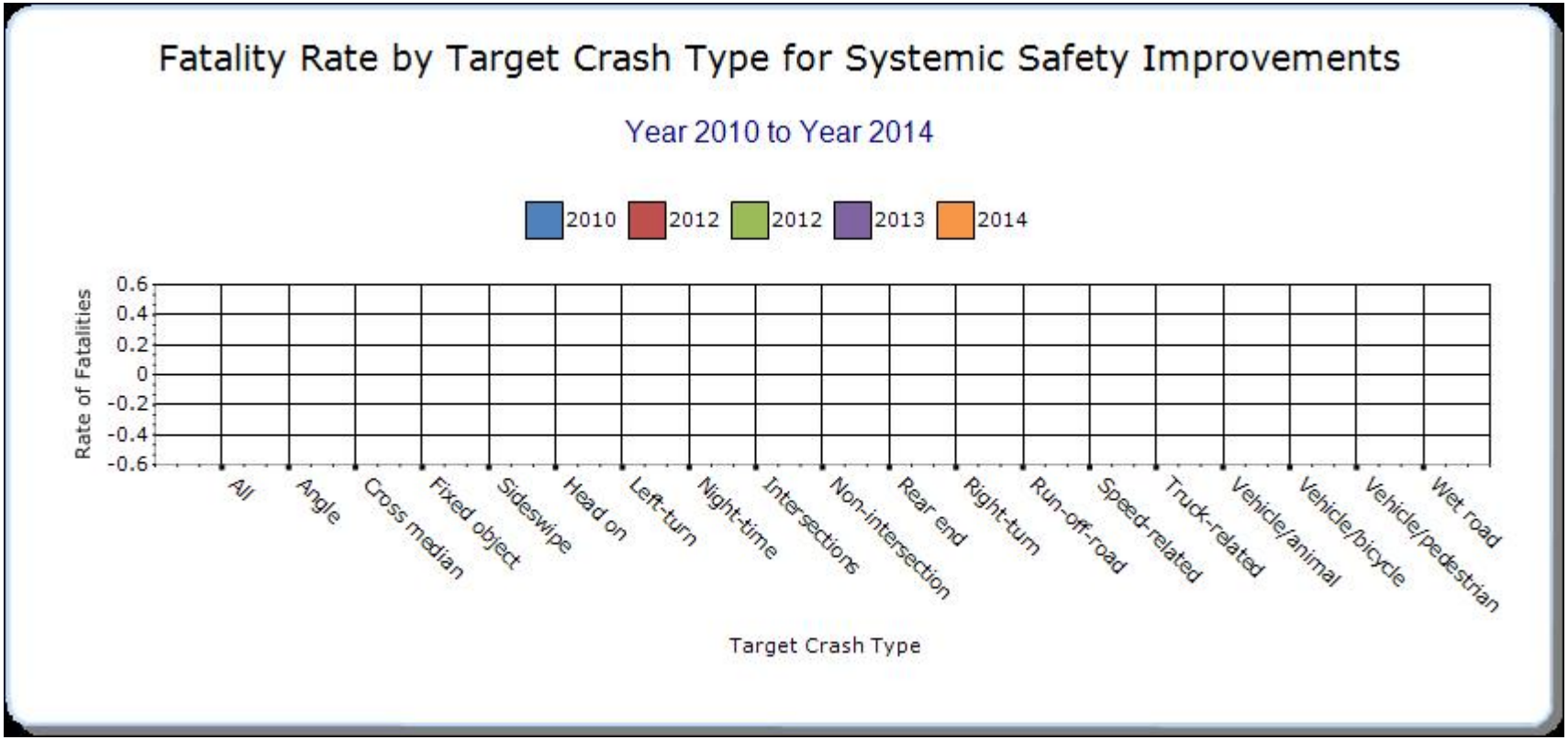
Present the overall effectiveness of systemic treatments.

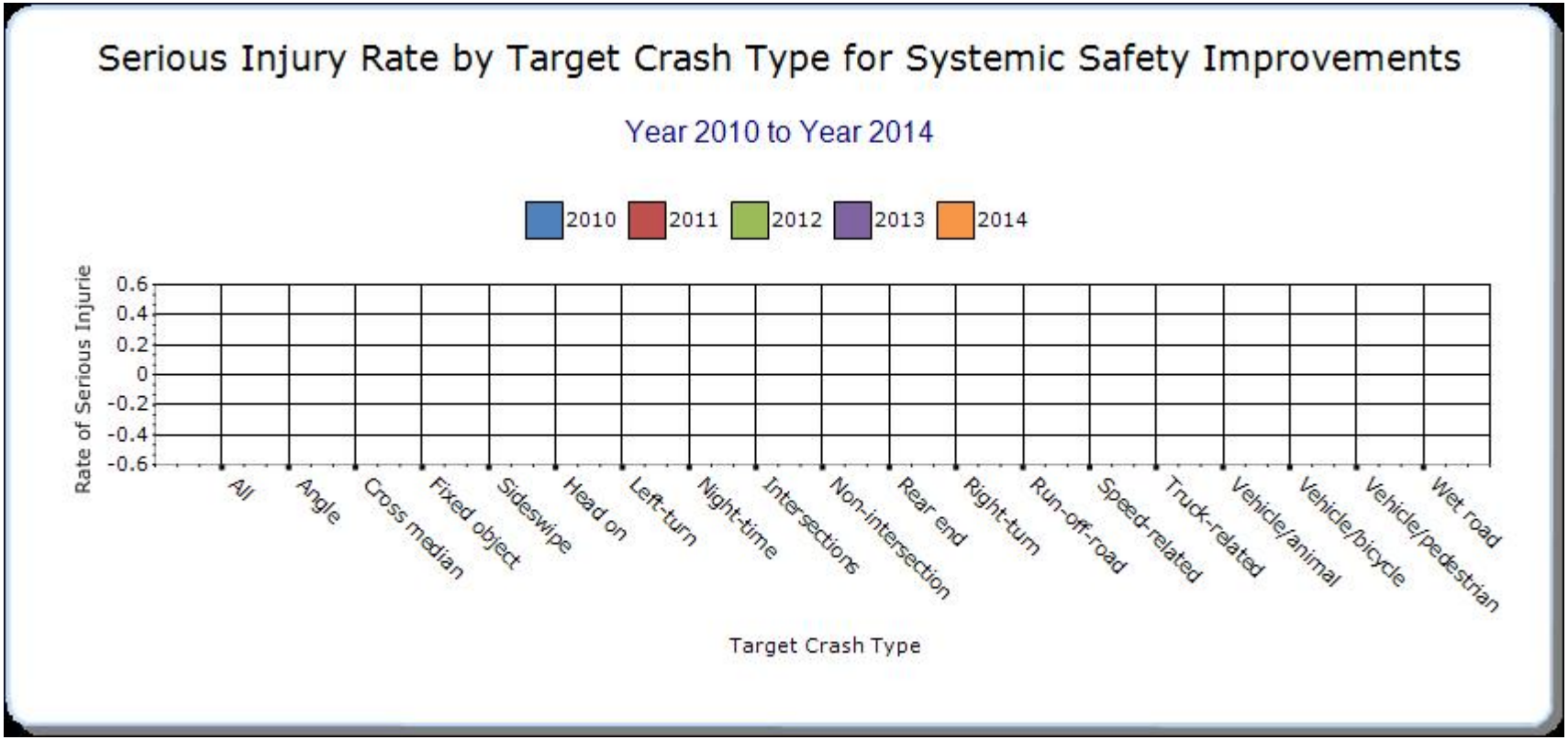
Year - 2014

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
Install/Improve Pavement Marking and/or Delineation		243.2	1058.8	1.36	5.66	0	0	0
Rumble Strips		243.2	1058.8	1.36	5.66	0	0	0
Add/Upgrade/Modify/Remove Traffic Signal		319.2	1789	1.71	9.56	0	0	0
Install/Improve Signing		319.2	1789	1.71	9.56	0	0	0


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


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.

The number of fatalities has generally decreased between 2006 and 2014. In 2005, there were 411 fatalities and it decreased to 272 in 2014. The number of serious injuries has decreased between 2006 and 2014. In 2006, there were 6,855 serious injuries. By 2014, this number has decreased to 1,384.

The fatality rate has decreased between 2005 and 2014. In 2006 the fatality rate was 2.09 per HMVMT. In 2014, the fatality rate was 1.44 per HMVMT. The serious injury rate also decreased between 2006 and 2014. In 2006 the serious injury rate was 34.83 per HMVMT. In 2014, the serious injury rate was 7.34 per HMVMT.

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)
Upshur County CR 9/2	Urban Local Road or Street	Roadway	Roadway widening - curve	0	1	2	5	8	0	0	1	7	8	0.85
Wood County CR 50/5	Rural Local Road or Street	Roadside	Barrier- metal	0	1	3	8	12	0	0	1	7	8	96.40
Berkeley County WV 45	Urban Minor Arterial	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	0	0	4	14	18	0	1	3	12	16	-1.10
Berkeley County US 11	Urban Minor Arterial	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	0	0	3	1	4	0	1	2	2	5	-2.48
Putnam County CR	Urban Minor	Roadway signs and	Roadway signs (including post) - new or updated	2	5	47	111	165	0	5	23	102	130	266.68

33	Arterial	traffic control												
Boone County WV 3	Rural Major Collector	Roadway	Pavement surface - high friction surface	0	0	1	2	3	0	0	0	1	1	0.67
Nicholas County US 19	Rural Principal Arterial - Other	Roadway delineation	Raised pavement markers	1	3	15	36	55	0	3	12	43	58	2.01
Raleigh County I-64	Rural Principal Arterial - Interstate	Roadway delineation	Raised pavement markers	3	26	88	196	313	1	2	24	65	92	15.44
Logan County US 119	Rural Principal Arterial - Other	Roadway signs and traffic control	Roadway signs (including post) - new or updated	0	2	0	0	2	0	1	1	5	7	89.82
Putnam County WV 34	Urban Minor Arterial	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	0	1	1	8	10	0	0	2	6	8	1.94
Kanawha County US 60	Urban Principal Arterial - Other	Roadside	Barrier- metal	0	0	0	0	0	0	0	0	1	1	-1.76
Monongal	Urban	Intersection	Modify traffic signal -	0	0	2	24	26	0	0	6	23	29	-15.36

ia County WV 705	Principal Arterial - Other	traffic control	miscellaneous/other/unspecified											
Mercer County I-77	Rural Principal Arterial - Interstate	Roadway	Pavement surface - high friction surface	0	0	4	16	20	0	0	0	1	1	0.51
Brooke County WV 2	Urban Principal Arterial - Other	Roadside	Barrier- metal	0	0	3	2	5	0	0	4	9	13	-0.82
Lincoln County WV 10	Rural Minor Arterial	Roadway delineation	Roadway delineation - other	0	0	1	3	4	0	0	2	2	4	-0.04
Lincoln County WV 10	Rural Minor Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane	0	0	1	1	2	0	0	0	0	0	0.19
Brooke County WV 2	Urban Principal Arterial - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	0	8	15	37	60	0	7	17	57	81	-0.10

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.