



Highway Safety Improvement Program  
*Data Driven Decisions*

Rhode Island  
Highway Safety Improvement Program  
2014 Annual Report

Prepared by: RI

## 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

Since 2010, the Rhode Island Department of Transportation (RIDOT) has followed the Highway Safety Manual process to guide their HSIP. For network screening, they currently use societal crash cost ranking using the KABCO scale to identify top crash site-specific locations as well as systemic type issues statewide. For the site-specific locations, they rank the locations with the highest crash costs. For systemic issues they run high-level queries to identify crash types (roadway departure, intersection-related). They then review the top crash lists/types and identify any ongoing non-safety projects that could incorporate safety improvements.

For diagnosis, the RIDOT performs road safety assessments at all HSIP identified site-specific locations. The RSAs follow federal RSA guidelines and RI has embraced the usefulness of the RSA process. For non-safety projects, RSAs are required to be considered on all RIDOT funded projects. This is the only time, unless an improvement project overlaps with a top crash location list, that a non-safety project gets incorporated into the HSIP process. It is RIDOT's wish to fully incorporate the HSM predictive methods in their entire HSIP process. Currently, RIDOT is undertaking a tremendous data collection, including collecting the majority of the MIRE elements, and integration effort to allow for predictive network screening and state-specific SPF development. RIDOT wishes to focus on systemic crash types and solutions so that not only can they develop more systemic type improvement projects but to help define countermeasures that can be weaved into policies and procedures so that non-safety improvement projects can incorporate safety improvements.

For countermeasure identification, the RIDOT uses many tools and resources, including the FHWA low-cost proven safety countermeasures, NCHRP and FHWA reports, and other safety documents. RIDOT is actively involved in peer-to-peer exchanges, conferences, etc. so they have staff with knowledge of the latest safety countermeasures.

For economic appraisal, RI uses societal costs used in the network screening process with the crash modification factors included in the CMF Clearinghouse (3 star minimum were applicable) in conjunction with Net Present Values of the estimated construction costs to help to develop benefit-to-cost ratios.

To help prioritize projects, the RIDOT uses a simple B/C ratio ranking to help identify projects. Projects that may have a lower B/C ratio but have a non-safety project in the planning, design, or construction stages may have greater preference than projects with higher B/C ratios. RIDOT is also in the process of developing programs and sub-programs to better help organize and track proposed improvements. The programs are anticipated to align with the SHSP and will include Roadway Departure, Local Safety, Low-Cost Improvements (RI\*STARS), Vulnerable Road Users, and Intersection Improvements. Sub-programs may include Median Barrier, Horizontal Curve, Skid Hazard, Safe Corridor, Pedestrian Safety, Signalized

Intersection, and Unsignalized Intersection. With the programs/sub-programs in place, RIDOT will begin to program HSIP funds at the beginning of the fiscal year and estimate time of obligation.

To determine the safety effectiveness of implemented projects, RI currently uses simple before and after crash data comparison on treatment sites only.

It is RIDOT wish to fully incorporate the HSM predictive methods in their entire HSIP process. Currently, RIDOT is undertaking a tremendous data collection and integration effort to allow for predictive network screening and state-specific SPF development. RIDOT wishes to focus on systemic crash types and solutions so that not only can develop more systemic type improvement projects but to help define countermeasures that can be weaved into policies and procedures so that non-safety improvement projects can incorporate safety improvements.

RIDOT has went thought the exercise to determine of they can accurately develop calibration factors for SPF, however, due to the crash and traffic data differences from other states, it was determined that state-specific SPFs would be most appropriate. RIDOT also wishes to develop state-specific CMFs as after crash data becomes available. Due to RI's size and only recent implementation of safety projects, there is a lack of available after data at this point in time to accurately develop statistically significant effectiveness evaluations.

RIDOT is also in the process of developing a local safety process that offers funding and assistance for municipalities to identify and develop safety projects. Currently RIDOT included all public roadways in the HSIP, however, due to the comparatively low crash history on local roadways, local roads often to not make the cut in terms of project prioritization. RIDOT incorporates local roads in systemic safety project's and hopes as they move to the predictive method to better identify local roads with higher potential for crashes.

RIDOT is in the process of revamping its project develop process. RIDOT has 5 different "on-call" consultant contracts. The first on-call contract involves one consultant to perform the network screening, diagnosis, and countermeasure selection. This consultant will then develop conceptual improvement [plans for RIDOT's review. RIDOT then distributes all improvement projects to the other 4 on-call consultants, which are charged with advancing the conceptual plans to final design and construction. Once the improvements have been implemented, the first on-call consultant tracks these projects and develops safety effectiveness evaluations.

In 2013 reporting period, the Older Driver special rule applied to RI. RIDOT has since then added Older Drivers as an emphasis area in the SHSP. RIDOT is planning in making Older Driver Improvement Program to ensure countermeasures proven to mitigate older driver crashes are incorporated in all safety projects were applicable.

## 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.**

Through the RIDOT's HSIP, all public roads are addressed, focusing on fatal and serious injury crashes, in line with their SHSP and the performance measures set forth in MAP-21. Most of the State-owned roadway network and some of the local roadways are mapped to a Linear Referencing System, however, the majority of the local roadways is not referenced and is manually reviewed to ensure their inclusion into the HSIP process. While this method confirms that all public roads are addressed, it involves intense manual input and process, making it susceptible to error.

As a result, the RIDOT is in the process of modifying the process for planning, implementing, and evaluating HSIP funded improvements and its relationship to other safety initiatives found in the SHSP. This will ensure that the limited HSIP funds are strategically allocated to all roadways (State and local) demonstrating the greatest need.

Over the past year, RIDOT has:

1. Began to update their linear referencing system to include all public roads.
2. Began to collect MIRE data elements on all public roads. This will enable the state to use the predictive method outlined in the HSM to make better data driven safety decisions versus basing on crash history only.
3. Began to develop strategies to share safety data with locals.
4. Developing a local safety program that will provide training and resources to municipalities to make data-driven decisions. Resources include setting up dedicated funding for local projects/programs, providing templates of low-cost improvements to locals, and assisting in the advertising of safety projects.

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

- Design
- Planning
- Maintenance
- Operations
- Governors Highway Safety Office
- Other: Other-GIS Analysts

**Briefly describe coordination with internal partners.**

The RIDOT works internally with transportation planners, design engineers, GIS analysts, safety engineers, and maintenance/operations staff as part of the entire HSIP process, including the identification of critical locations and the selection of appropriate countermeasures/

improvements. These partners are involved in Road Safety Assessments (RSAs) that were performed at many of these locations to facilitate this multidiscipline approach.

RIDOT implemented department-wide organizational changes to form the comprehensive Traffic Management and Highway Safety section. The HSIP, HSP, and SHSP are now aligned under a single Safety Champion focused on consistent safety goals. Safety initiatives are now implemented in a more integrated and multi-disciplinary manner, providing RIDOT with more flexibility to direct resources to address particular safety needs.

**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-RIDOT is in the process of revamping its project develop process. See Qustion 9 for additional information.

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

RIDOT is in the process of revamping its project develop process. RIDOT has 5 different "on-call" consultant contracts. The first on-call contract involves one consultant to perform the network screening, diagnosis, and countermeasure selection. This consultant will then develop



conceptual improvement plans for RIDOT's review. RIDOT then distributes all improvement projects to the other 4 on-call consultants, which are charged with advancing the conceptual plans to final design and construction. Once the improvements have been implemented, the first on-call consultant tracks these projects and develops safety effectiveness evaluations.

RIDOT is also in the process of developing programs and sub-programs to better help organize and track proposed improvements. The programs are anticipated to align with the SHSP and will include Roadway Departure, Local Safety, Low-Cost Improvements (RI\*STARS), Vulnerable Road Users, and Intersection Improvements. Sub-programs may include Median Barrier, Horizontal Curve, Skid Hazard, Safe Corridor, Pedestrian Safety, Signalized Intersection, and Unsignalized Intersection.

### Program Methodology

Select the programs that are administered under the HSIP.

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Median Barrier                                    | <input type="checkbox"/> Intersection                          | <input type="checkbox"/> Safe Corridor                    |
| <input type="checkbox"/> Horizontal Curve                                  | <input type="checkbox"/> Bicycle Safety                        | <input type="checkbox"/> Rural State Highways             |
| <input type="checkbox"/> Skid Hazard                                       | <input type="checkbox"/> Crash Data                            | <input type="checkbox"/> Red Light Running Prevention     |
| <input type="checkbox"/> Roadway Departure                                 | <input checked="" type="checkbox"/> Low-Cost Spot Improvements | <input type="checkbox"/> Sign Replacement And Improvement |
| <input type="checkbox"/> Local Safety                                      | <input checked="" type="checkbox"/> Pedestrian Safety          | <input type="checkbox"/> Right Angle Crash                |
| <input type="checkbox"/> Left Turn Crash                                   | <input type="checkbox"/> Shoulder Improvement                  | <input type="checkbox"/> Segments                         |
| <input checked="" type="checkbox"/> Other: Other-HSIP Design Study Program |  |   |

**Program:** Low-Cost Spot Improvements

**Date of Program Methodology:** 10/1/2012

**What data types were used in the program methodology?**

*Crashes*

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

*Exposure*

- Traffic
- Volume
- Population
- Lane miles
- Other-Congestion

*Roadway*

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

**What project identification methodology was used for this program?**

- Crash frequency
- Expected crash frequency with EB adjustment
- Equivalent property damage only (EPDO Crash frequency)
- EPDO crash frequency with EB adjustment
- Relative severity index
- Crash rate
- Critical rate
- Level of service of safety (LOSS)
- Excess expected crash frequency using SPFs
- Excess expected crash frequency with the EB adjustment
- Excess expected crash frequency using method of moments
- Probability of specific crash types
- Excess proportions of specific crash types
- Other-Delay/Congestion

**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                      50 Available funding Incremental B/C Ranking based on net benefit Other Reduction in  
Delay/Congestion                      50

**Program:** Pedestrian Safety

**Date of Program Methodology:** 10/1/2012

**What data types were used in the program methodology?**

*Crashes*

- All crashes
- Fatal crashes only
- Fatal and serious injury crashes only
- Other-Pedestrian

*Exposure*

- Traffic
- Volume
- Population
- Lane miles
- Other

*Roadway*

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

**What project identification methodology was used for this program?**

- Crash frequency
- Expected crash frequency with EB adjustment
- Equivalent property damage only (EPDO Crash frequency)
- EPDO crash frequency with EB adjustment
- Relative severity index
- Crash rate
- Critical rate
- Level of service of safety (LOSS)
- Excess expected crash frequency using SPFs
- Excess expected crash frequency with the EB adjustment
- Excess expected crash frequency using method of moments

- Probability of specific crash types
- Excess proportions of specific crash types
- Other

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

- Yes
- No

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                      1
- Available funding                              2
- Incremental B/C

Ranking based on net benefit

Other

**Program:** Other-HSIP Design Study Program

**Date of Program Methodology:** 10/1/2013

**What data types were used in the program methodology?**

*Crashes*

All crashes

Fatal crashes only

Fatal and serious injury crashes only

Other

*Exposure*

Traffic

Volume

Population

Lane miles

Other

*Roadway*

Median width

Horizontal curvature

Functional classification

Roadside features

Other

**What project identification methodology was used for this program?**

Crash frequency

Expected crash frequency with EB adjustment

Equivalent property damage only (EPDO Crash frequency)

EPDO crash frequency with EB adjustment

Relative severity index

Crash rate

Critical rate

- Level of service of safety (LOSS)
- Excess expected crash frequency using SPFs
- Excess expected crash frequency with the EB adjustment
- Excess expected crash frequency using method of moments
- Probability of specific crash types
- Excess proportions of specific crash types
- Other

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

- Yes
- No

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

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Ranking based on B/C | 2 |
| <input type="checkbox"/> Available funding               |   |
| <input type="checkbox"/> Incremental B/C                 |   |
| <input type="checkbox"/> Ranking based on net benefit    |   |
| <input checked="" type="checkbox"/> Cost Effectiveness   | 3 |
| <input checked="" type="checkbox"/> SHSP Emphasis Areas  | 1 |

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

39

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

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Cable Median Barriers                    | <input checked="" type="checkbox"/> Rumble Strips                                       |
| <input type="checkbox"/> Traffic Control Device Rehabilitation               | <input type="checkbox"/> Pavement/Shoulder Widening                                     |
| <input checked="" type="checkbox"/> Install/Improve Signing                  | <input checked="" type="checkbox"/> Install/Improve Pavement Marking and/or Delineation |
| <input checked="" type="checkbox"/> Upgrade Guard Rails                      | <input checked="" type="checkbox"/> Clear Zone Improvements                             |
| <input checked="" type="checkbox"/> Safety Edge                              | <input type="checkbox"/> Install/Improve Lighting                                       |
| <input checked="" type="checkbox"/> Add/Upgrade/Modify/Remove Traffic Signal | <input checked="" type="checkbox"/> Other Other-Wrong-Way Driving                       |
| <input checked="" type="checkbox"/> Other Other-Blunt End Terminal           | <input checked="" type="checkbox"/> Other Other-High Friction Surface Treatments        |
| <input checked="" type="checkbox"/> Other Other-Road Diets                   |   |



**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-RIDOT continues to use HSM methodologies in the HSIP process.
- Other: Other-RIDOT continues to use RSAs and Systemic approach in the HSIP process.

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

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RIDOT is also in the process of developing programs and sub-programs to better help organize and track proposed improvements. The programs are anticipated to align with the SHSP and will include Roadway Departure, Local Safety, Low-Cost Improvements (RI\*STARS), Vulnerable Road Users, and Intersection Improvements. Sub-programs may include Median Barrier, Horizontal Curve, Skid Hazard, Safe Corridor, Pedestrian Safety, Signalized Intersection, and Unsignalized Intersection.

## 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)	11470082	68 %	7719420.13	40 %
HRRRP (SAFETEA-LU)				
HRRR Special Rule	900000	5 %	900000	5 %
Penalty Transfer - Section 154				
Penalty Transfer - Section 164	4392354	26 %	10543843.3	55 %
Incentive Grants - Section 163				
Incentive Grants (Section 406)				
Other Federal-aid Funds (i.e. STP, NHPP)				
State and Local Funds				

<b>Totals</b>	16762436	100%	19163263.43	100%
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**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?**

\$100,000.00

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

\$0.00

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

\$4,830,322.00

**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 RIDOT has experienced delays in programming and allocating safety funds primarily due to the time needed for the consultant procurement process. This problem was identified in a 2010 HSIP review in which the RIDOT participated. Since this review, the RIDOT conducted a workshop to evaluate the current contract award process and has developed mechanisms to streamline a consultant award with priority on safety projects.

RIDOT is in the process of revamping its project develop process. RIDOT has 5 different "on-call" consultant contracts. The first on-call contract involves one consultant to perform the network screening, diagnosis, and countermeasure selection. This consultant will then develop conceptual improvement plans for RIDOT's review. RIDOT then distributes all improvement projects to the other 4 on-call consultants, which are charged with advancing the conceptual plans to final design and construction. Once the improvements have been implemented, the first on-call consultant tracks these projects and develops safety effectiveness evaluations.

RIDOT is also developing a local safety program that will provide training and resources to municipalities to make data-driven decisions. Resources include setting up dedicated funding for local projects/programs, providing templates of low-cost improvements to locals, and assisting in the advertising of safety projects.

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

None

**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
<b>Appanoag Circulator</b>	Intersection traffic control Modify control - traffic signal to roundabout	5 Numbers	4824409	29992583	HSIP (Section 148)	Urban Principal Arterial - Other			State Highway Agency	Intersections	Replace Traffic Signal with Roundabout
<b>2014 Statewide Signing and Striping Improvements</b>	Roadway signs and traffic control Roadway signs and traffic control - other	25 Numbers	500000	500000	HSIP (Section 148)	Multiple FCs			State Highway Agency	Roadway Departure	Signing and striping enhancements
<b>Statewide</b>	Roadside Barrier -	11	766043	766043	HSIP (Section 148)	Urban Principal			State Highway Agency	Roadway	Install Median

<b>Median</b>	other	Miles			n 148)	Arterial - Interstate			Agency	Departure	Barrier
<b>Roadway Safety Improvements to Route 102, Route 146, and Francis Street/Memorial Blvd</b>	Roadway - restripe to revise separation between opposing lanes and/or shoulder widths	5 Miles	2713521	2713521	HSIP (Section 148)	Urban Principal Arterial - Other	10000	50	State Highway Agency	Roadway Departure	Implement Safety Corridor
<b>High Risk Rural Roads Contract 2</b>	Intersection traffic control - Modify control - two-way stop to roundabout	1 Numbers	900000	900000	HRRR Special Rule	Rural Major Collector	10000	50	State Highway Agency	Intersections	Replace Unsignalized Intersection with Roundabout
<b>I-95 Highway Lighting Improvements Exits 1, 2, 4, 5 and Weigh Station</b>	Lighting - Site lighting - interchange	5 Numbers	3528853.13	3528853.13	Penalty Transfer - Section 164	Rural Principal Arterial - Interstate	140000	65	State Highway Agency	Roadway Departure	Install LED lighting

<b>Roadway Safety Improvements to America's Cup Avenue and Memorial Blvd - RISTARS</b>	Pedestrians and bicyclists Miscellaneous pedestrians and bicyclists	Miles	871146.87	2777000	Penalty Transfer - Section 164	Urban Principal Arterial - Other	10000	25	State Highway Agency	Vulnerable Road Users	Enhanced pedestrian and bicycle facilities
<b>Improvements to US Route 1 - Charlestown and South Kingstown</b>	Roadway Rumble strips - edge or shoulder	4 Miles	117680.28	5600000	HSIP (Section 148)	Urban Principal Arterial - Other	30000	50	State Highway Agency	Roadway Departure	Install Rumble Strips



## Progress in Achieving Safety Performance Targets

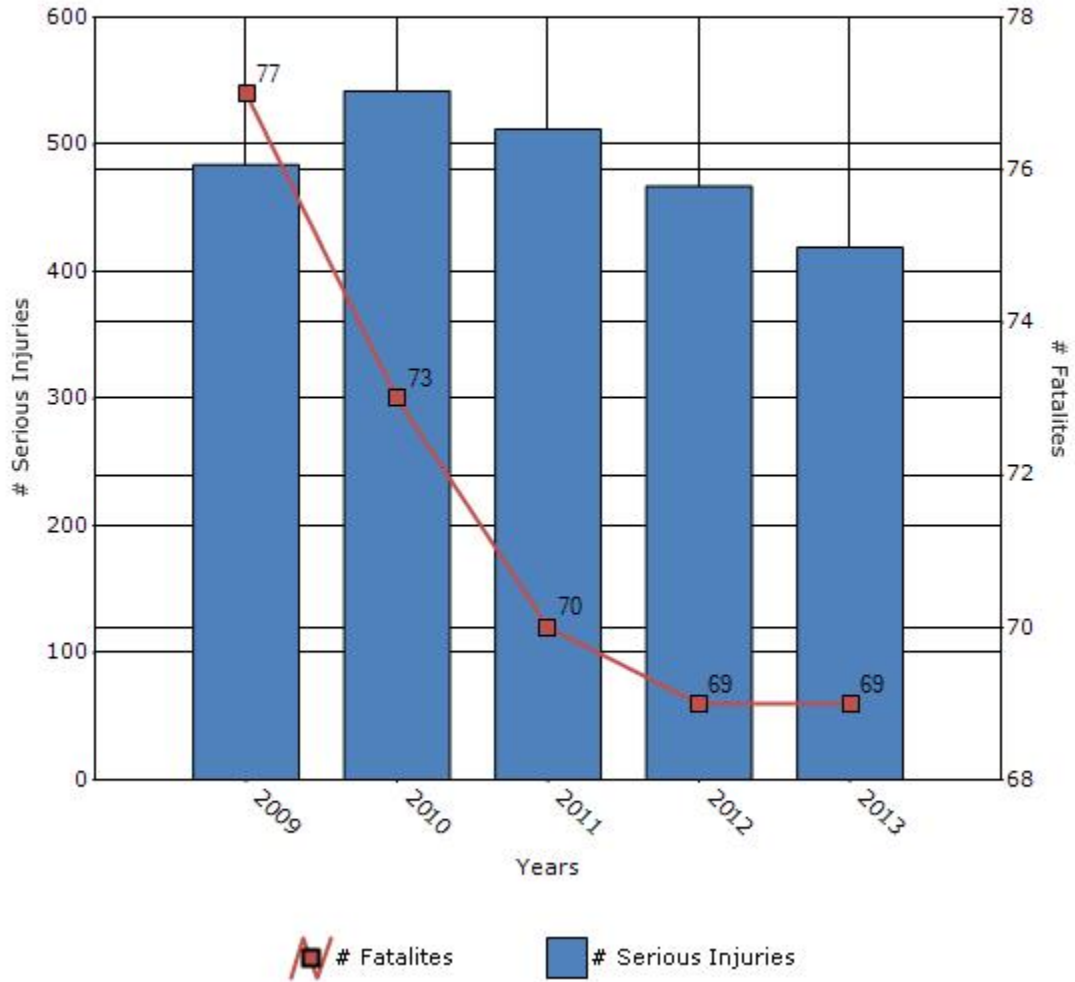
### Overview of General Safety Trends

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

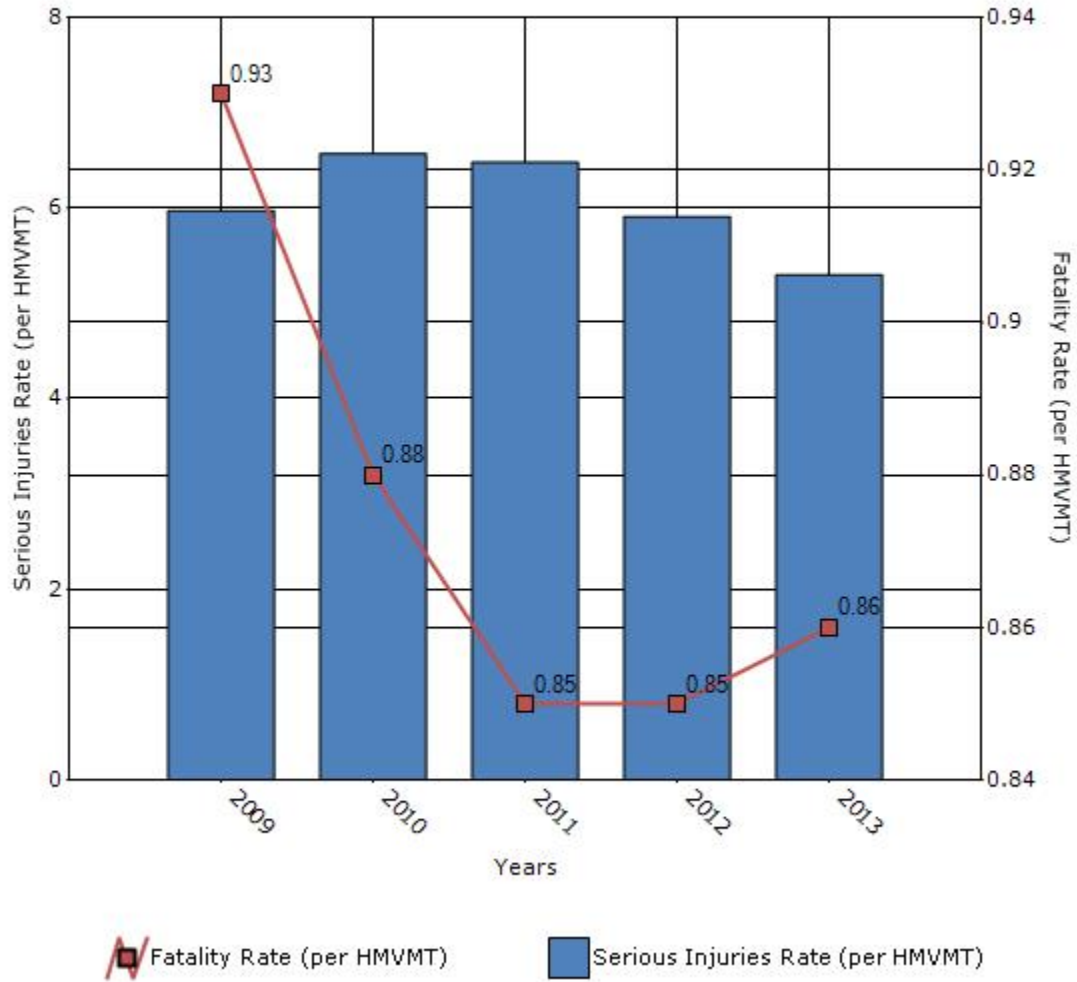
Performance Measures*	2009	2010	2011	2012	2013
Number of fatalities	77	73	70	69	69
Number of serious injuries	484	542	512	467	419
Fatality rate (per HMVMT)	0.93	0.88	0.85	0.85	0.86
Serious injury rate (per HMVMT)	5.97	6.57	6.48	5.91	5.3

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

### Number of Fatalities and Serious injuries for the Last Five Years



### Rate of Fatalities and Serious injuries for the Last Five Years



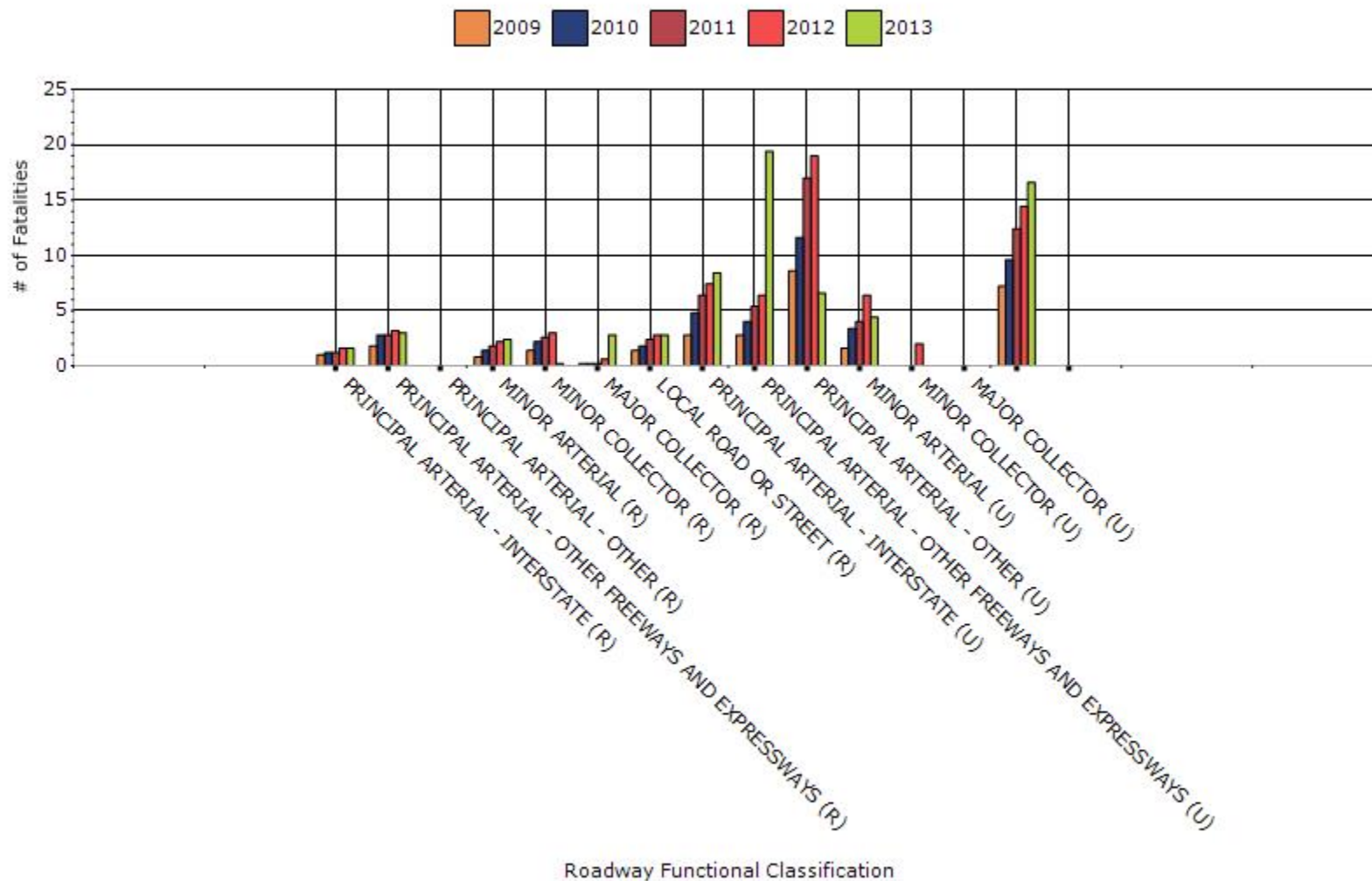
To the maximum extent possible, present performance measure\* data by functional classification and ownership.

### Year - 2013

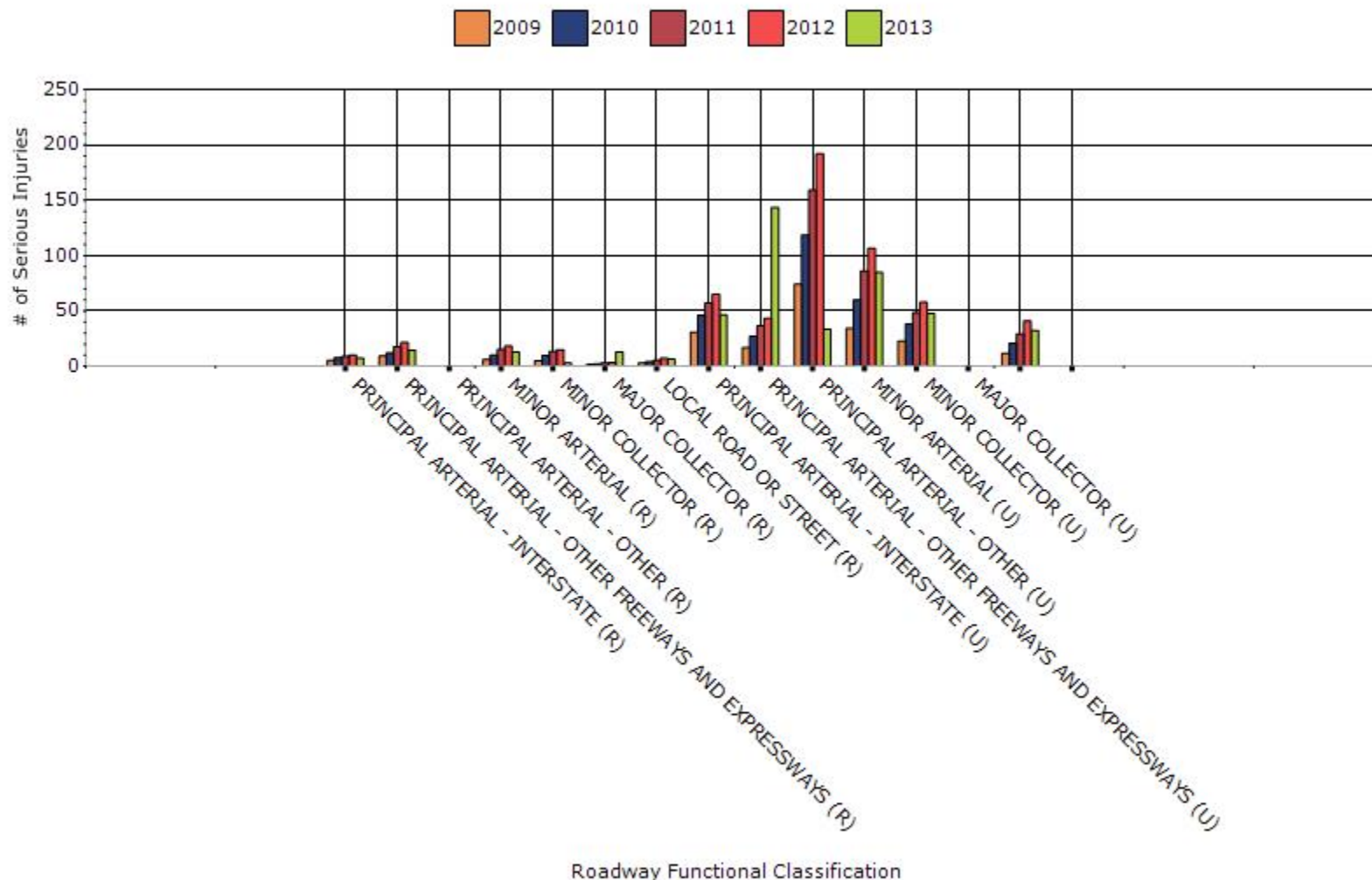
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	1.6	7.4	0.4	1.83
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	3	14.6	2.37	11.33
RURAL PRINCIPAL ARTERIAL - OTHER	0	0	0	0
RURAL MINOR ARTERIAL	2.4	13	1.82	9.88
RURAL MINOR COLLECTOR	0.2	3	0.56	8.3
RURAL MAJOR COLLECTOR	2.8	13	1.81	8.3
RURAL LOCAL ROAD OR STREET	2.8	6.6	12.46	29.39
URBAN PRINCIPAL	8.4	46.6	0.48	2.69

<b>ARTERIAL - INTERSTATE</b>				
<b>URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS</b>	19.4	143.4	0.92	6.82
<b>URBAN PRINCIPAL ARTERIAL - OTHER</b>	6.6	33.6	0.54	2.76
<b>URBAN MINOR ARTERIAL</b>	4.4	84.8	0.42	8.15
<b>URBAN MINOR COLLECTOR</b>	0	47.6	0	5.76
<b>URBAN MAJOR COLLECTOR</b>	0	0	0	0
<b>URBAN LOCAL ROAD OR STREET</b>	16.6	32.4	5.79	11.29
<b>OTHER</b>	0	0	0	0

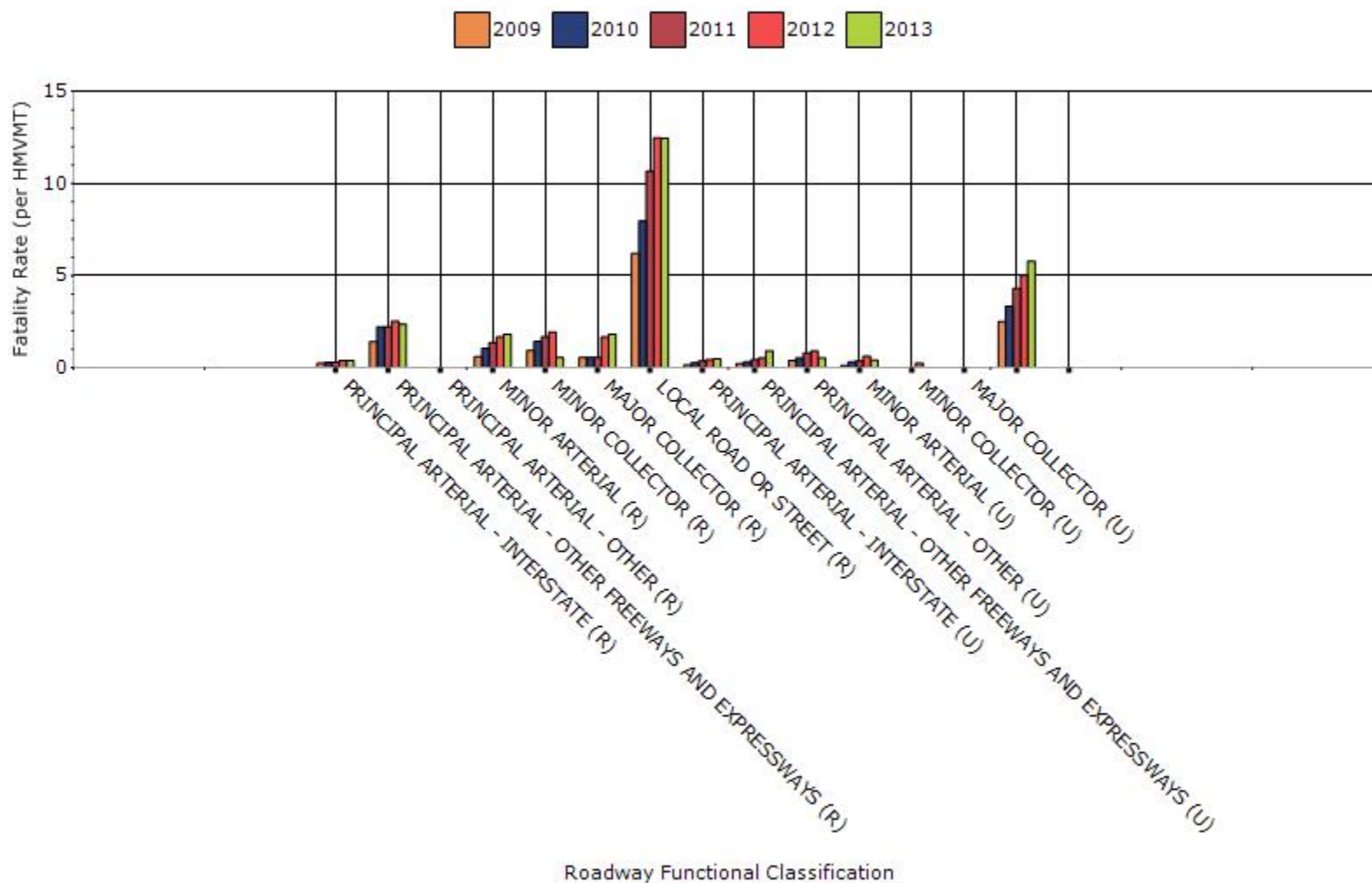
### # Fatalities by Roadway Functional Classification



### # Serious Injuries by Roadway Functional Classification

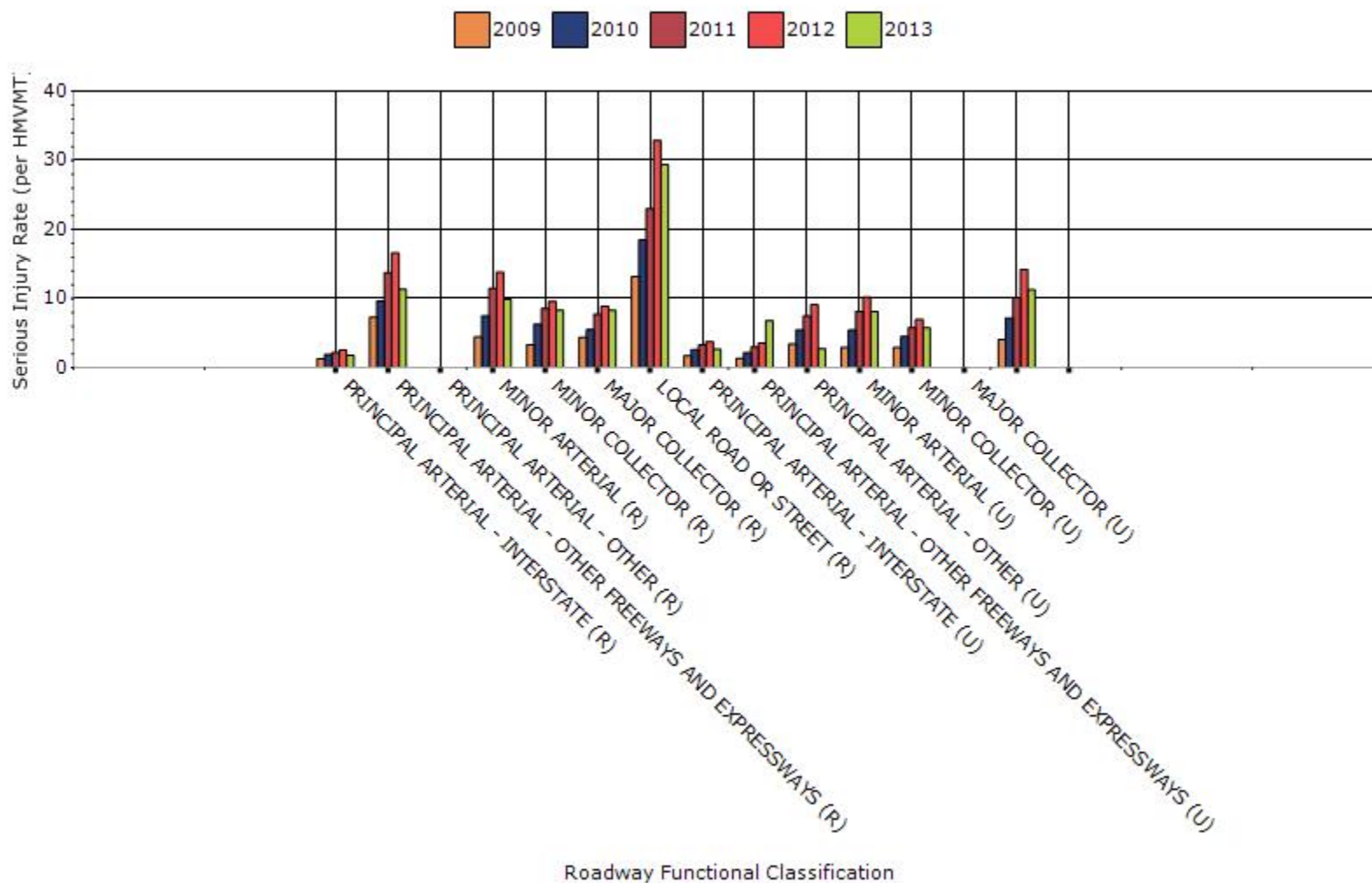


### Fatality Rate by Roadway Functional Classification





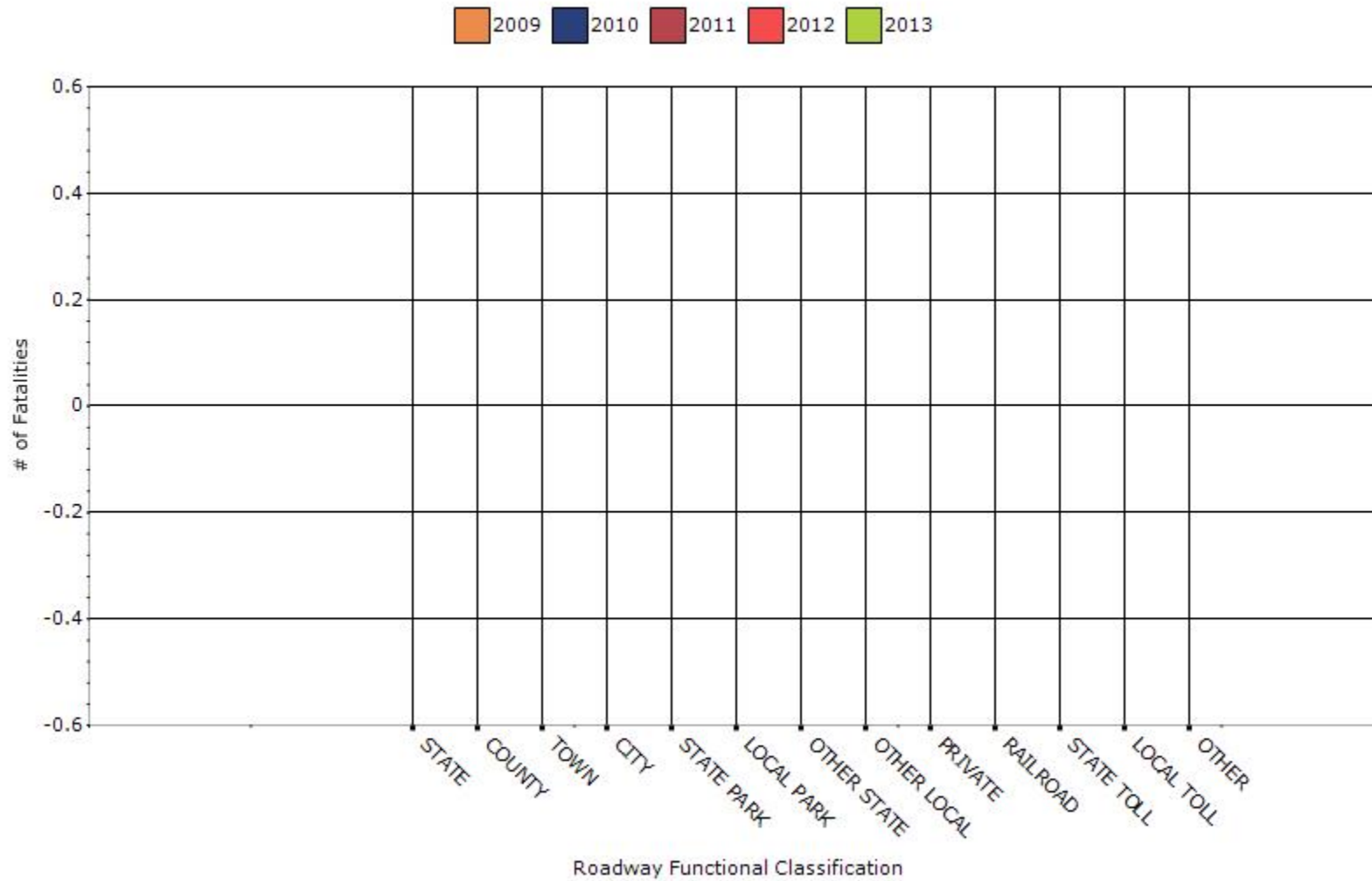
### Serious Injury Rate by Roadway Functional Classification



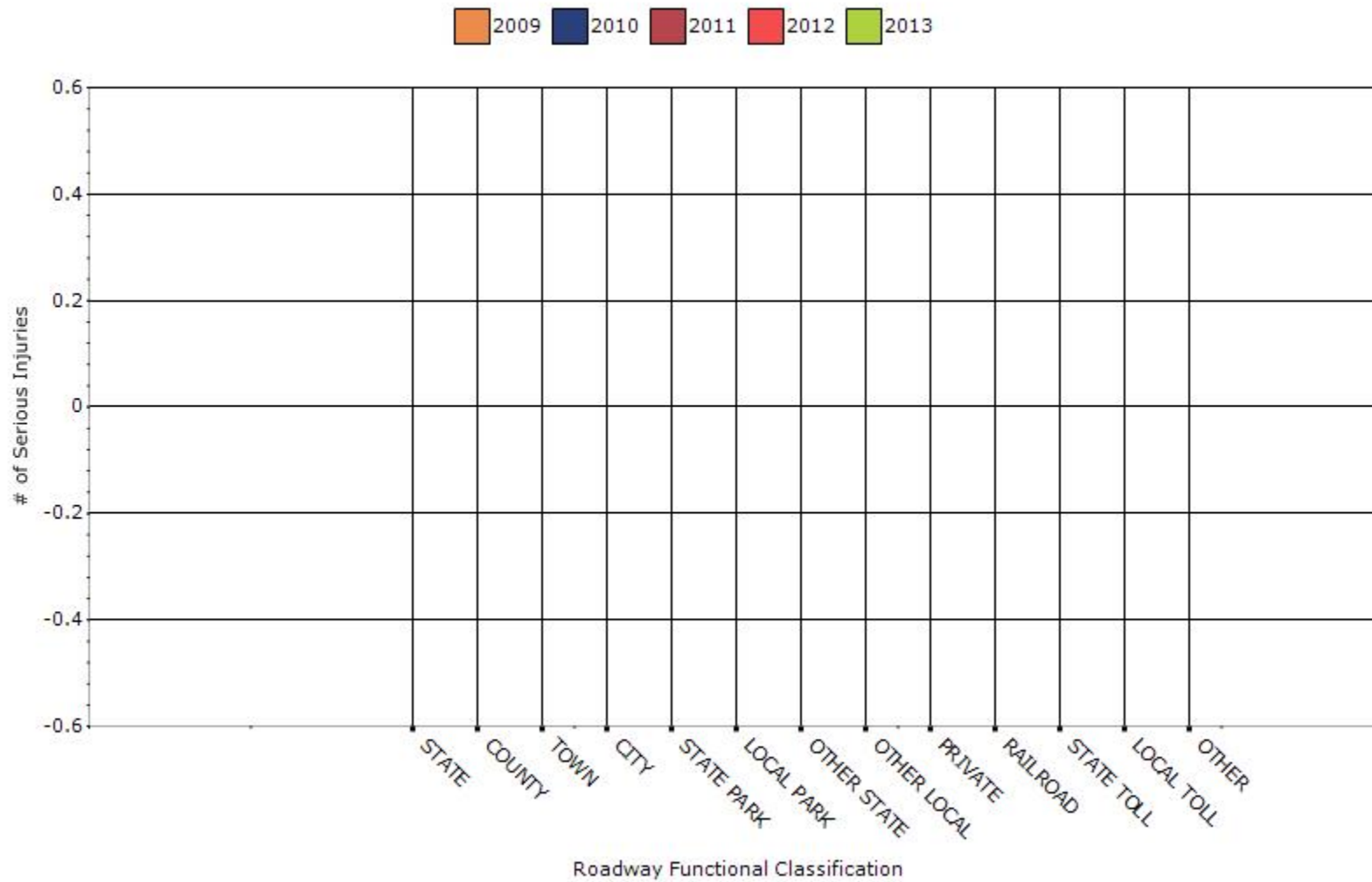
## Year - 2013

Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	0	0	0	0
COUNTY HIGHWAY AGENCY	0	0	0	0
TOWN OR TOWNSHIP HIGHWAY AGENCY	0	0	0	0
CITY OF MUNICIPAL HIGHWAY AGENCY	0	0	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

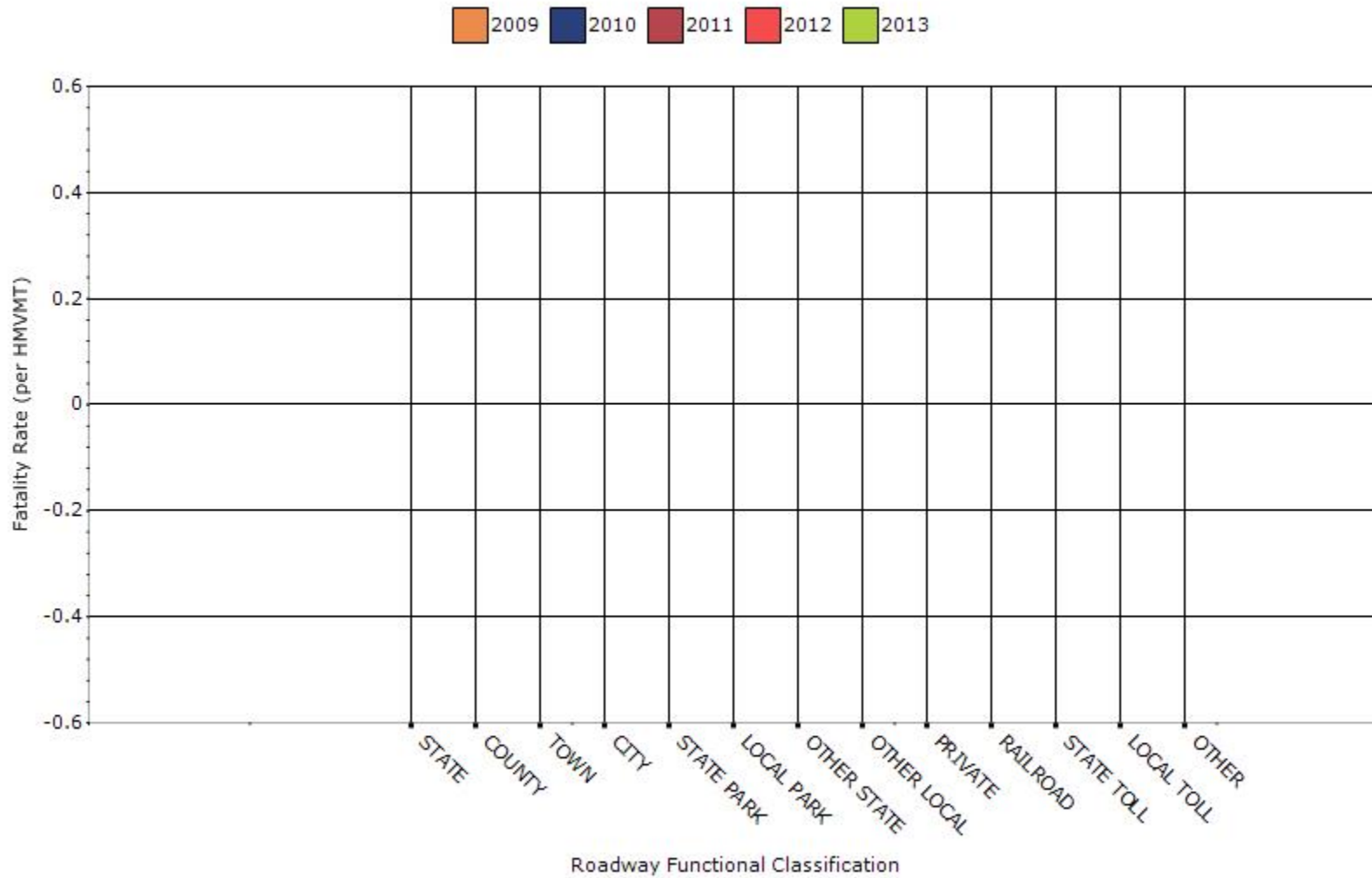
### Number of Fatalities by Roadway Ownership



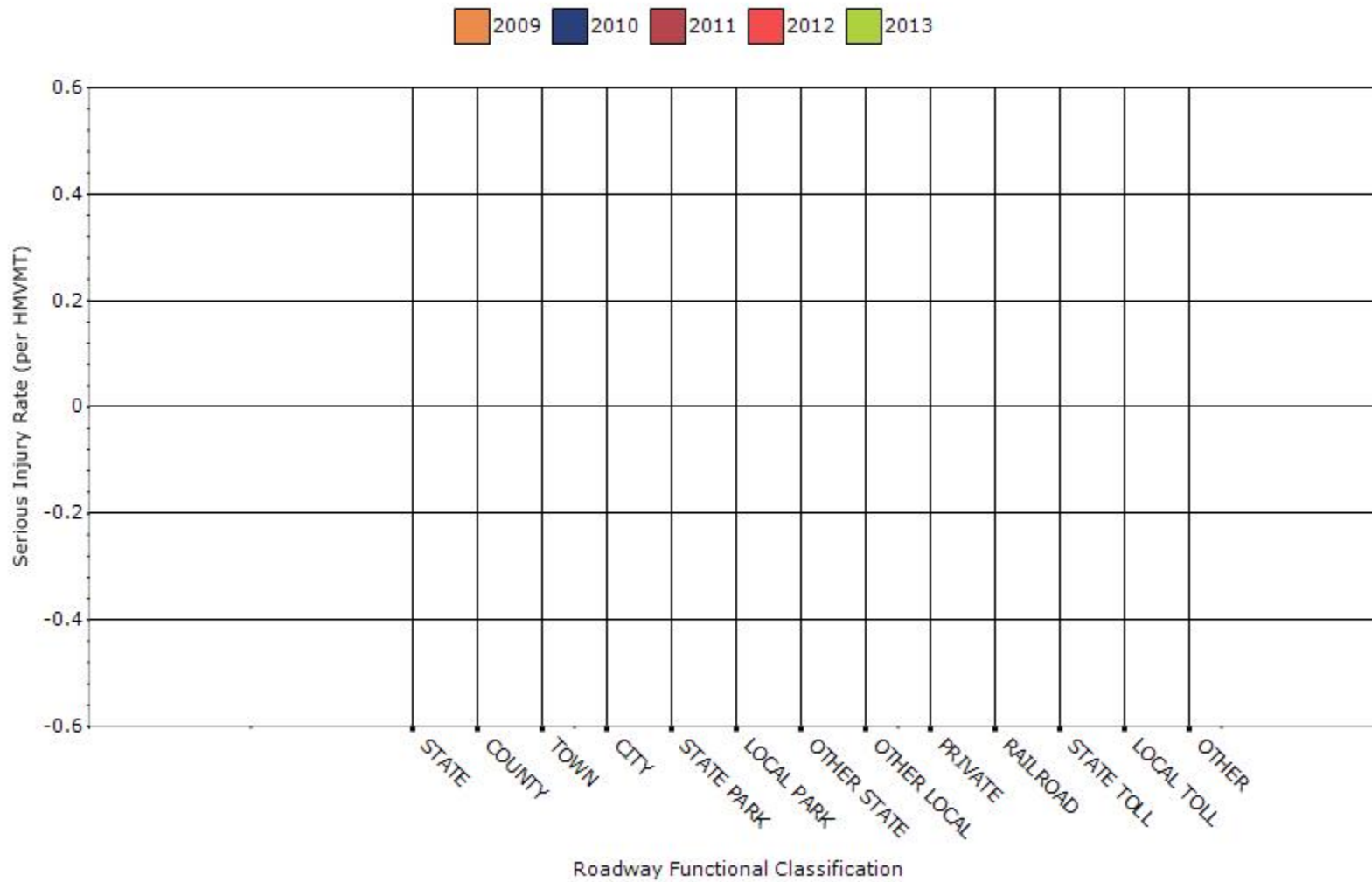
### Number of Serious Injuries by Roadway Ownership



### Fatality Rate by Roadway Ownership



### Serious Injury Rate by Roadway Ownership



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

Please note that RIDOT reports fatalities using a 5 year rolling average however they are only able to report serious injuries on an annual basis. RIDOT will move to using the 5 year moving (rolling) average for reporting serious injuries starting on 2015. This will give enough time to include periods between 2008-2014 as serious injury crash data prior to 2008 used a different definition.

### 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
<b>Fatality rate (per capita)</b>	0.09	0.086	0.088	0.084	0.086
<b>Serious injury rate (per capita)</b>	0.268	0.338	0.356	0.37	0.374
<b>Fatality and serious injury rate (per capita)</b>	0.358	0.422	0.442	0.452	0.458

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

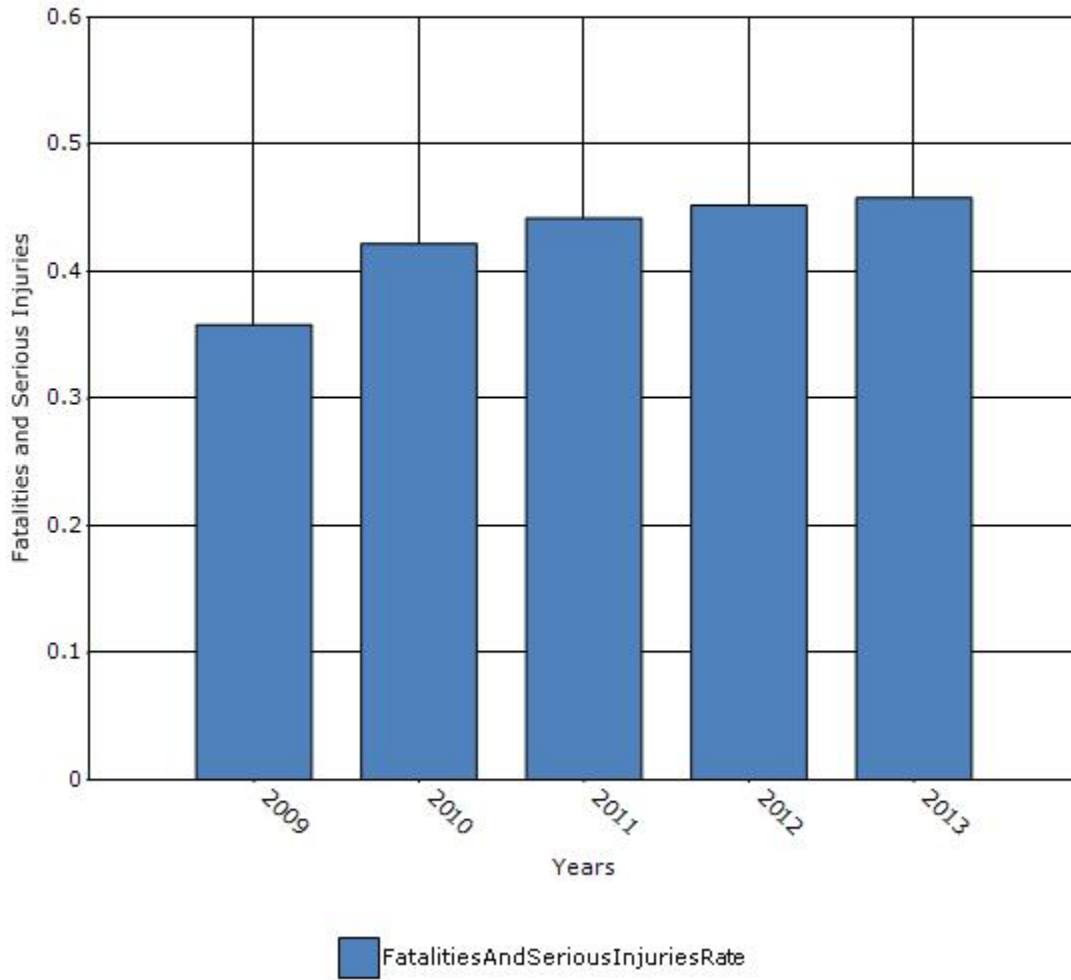
2011 Rate (2007-2011)

$$(((10+36)/138)) + ((17+35)/142) + ((18+37)/144) + ((17+45)/145) + ((17+38)/146) / 5 = 0.4$$

2009 Rate (2005-2009)

$$(((13+15)/136) + ((10+36)/138) + ((10+36)/138) + ((17+35)/142) + ((18+37)/144)) / 5 = 0.3$$

### Rate of Fatalities and Serious injuries for the Last Five Years



**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-Fatalities and serious injuries are declining based on the 5-year averages.

**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-RIDOT has started to move towards the predictive method listed in the HSM.
- Other: Other-RIDOT is using the systemic method more frequently.
- Other: Other-RIDOT is defining sub-programs to better track improvements.
- Other: Other-In previous years, RIDOT made organization changes and shifted the focus to fatalities and SI.
- Other: Other-RIDOT is in the process of developing a local road safety program.

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

RIDOT is in the process of revamping its project develop process. RIDOT has 5 different “on-call” consultant contracts. The first on-call contract involves one consultant to perform the network screening, diagnosis, and countermeasure selection. This consultant will then develop conceptual improvement [plans for RIDOT’s review. RIDOT then distributes all improvement projects to the other 4 on-call consultants, which are charged with advancing the conceptual plans to final design and construction. Once the improvements have been implemented, the first on-call consultant tracks these projects and develops safety effectiveness evaluations.

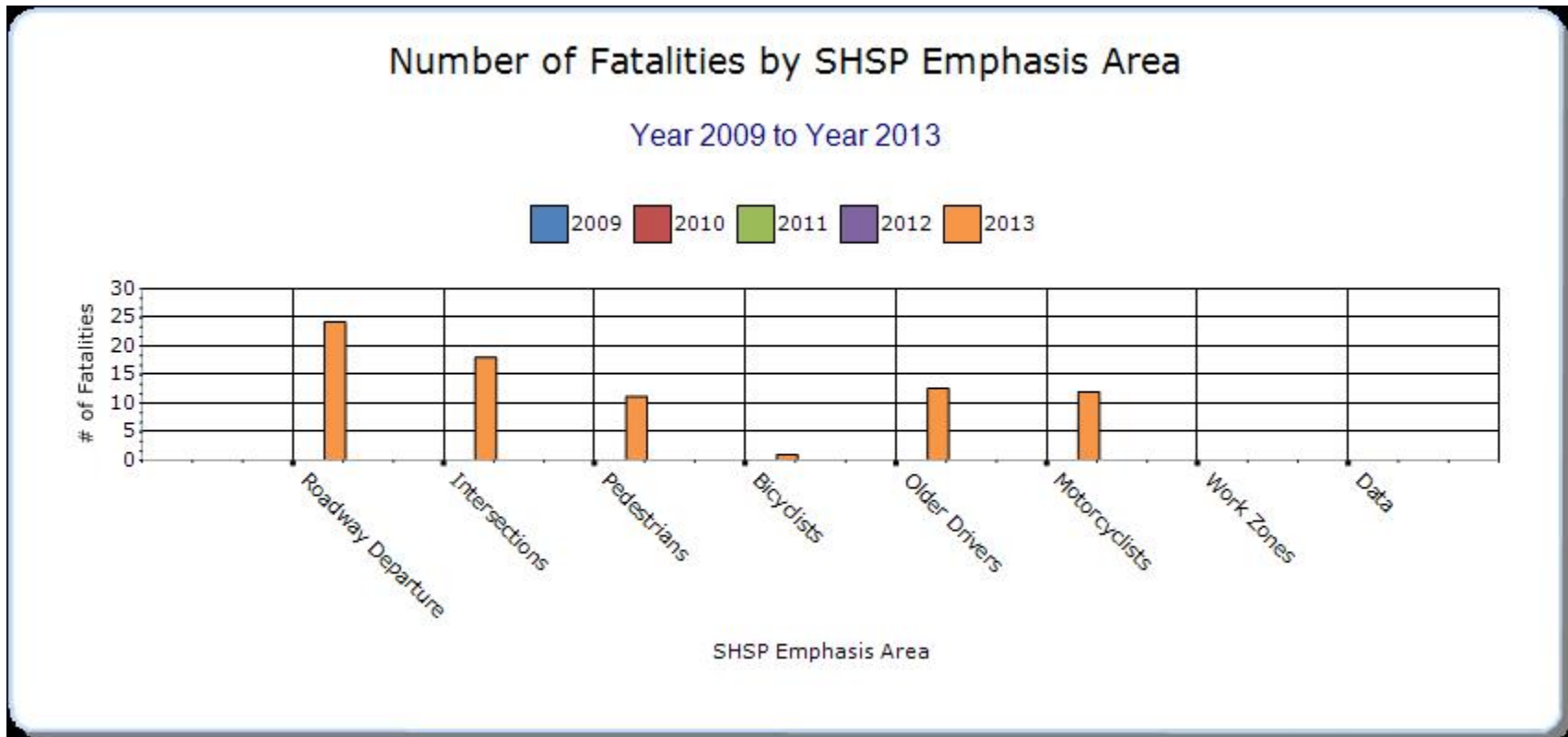
RIDOT has went thought the exercise to determine if they can accurately develop calibration factors for SPF, however, due to the crash and traffic data differences from other states, it was determined that state-specific SPFs would be most appropriate. RIDOT also wishes to develop state-specific CMFs as after crash data becomes available. Due to RI’s size and only recent implementation of safety projects, there is a lack of available after data at this point in time to accurately develop statistically significant effectiveness evaluations.

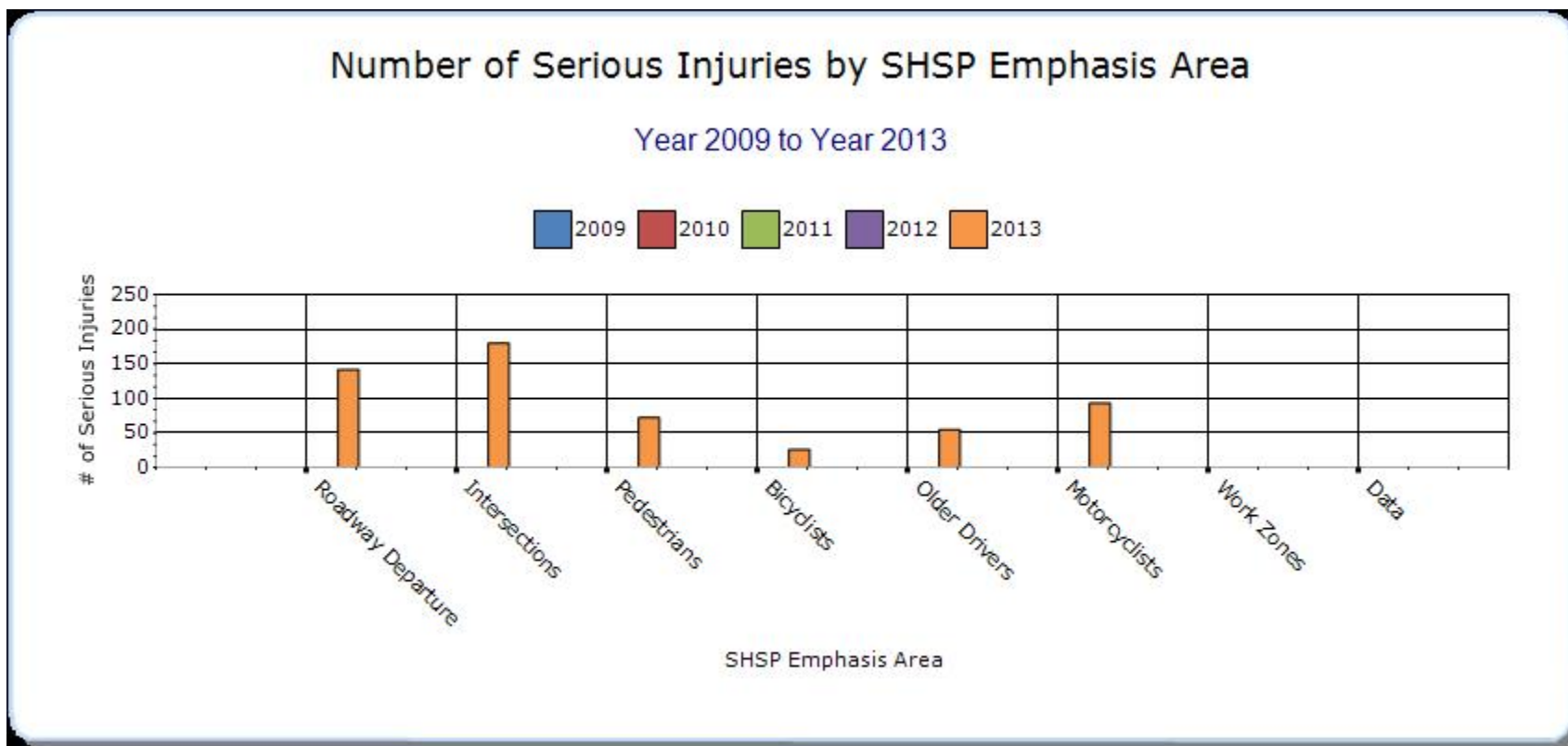
## SHSP Emphasis Areas

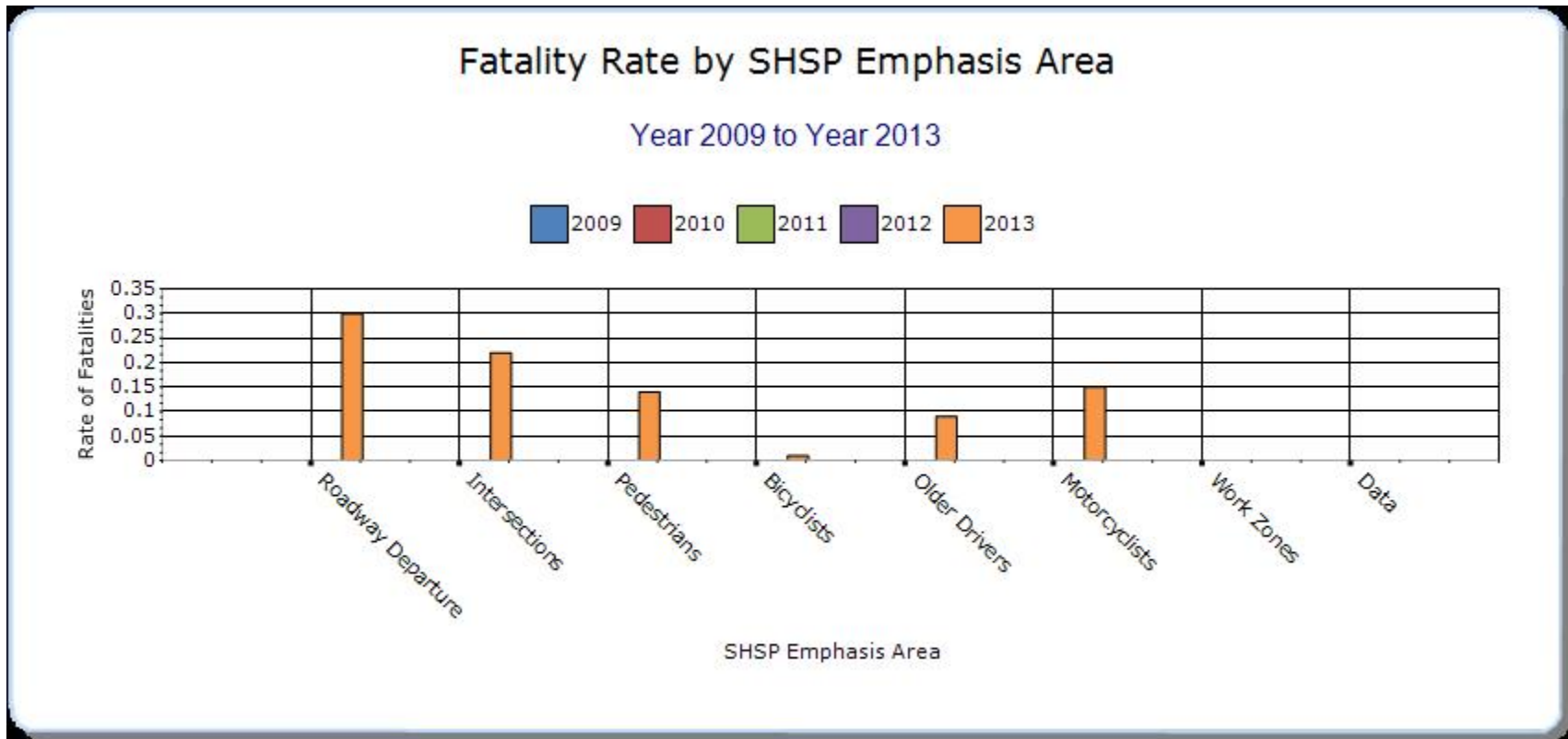
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

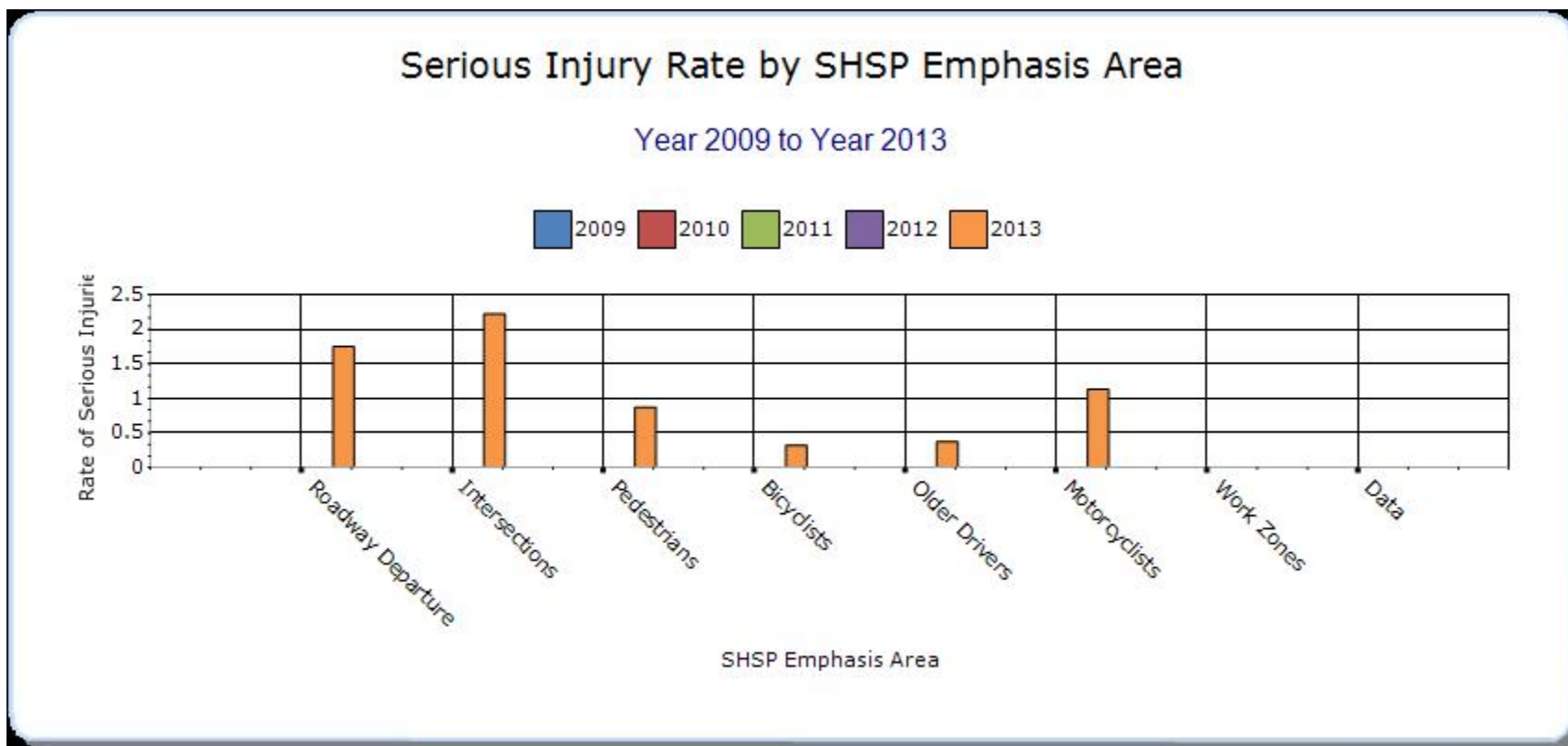
### Year - 2013

HSIP-related SHSP Emphasis Areas	Target Crash Type	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)	Other-1	Other-2	Other-3
<b>Roadway Departure</b>	Run-off-road	24.2	141.4	0.3	1.75	0	0	0
<b>Intersections</b>	Intersection-Related	18	180	0.22	2.22	0	0	0
<b>Pedestrians</b>	Vehicle/pedestrian	11.2	72	0.14	0.87	0	0	0
<b>Bicyclists</b>	Vehicle/bicycle	1	26	0.01	0.32	0	0	0
<b>Older Drivers</b>	All	12.6	55	0.09	0.37	0	0	0
<b>Motorcyclists</b>	All	12	93	0.15	1.13	0	0	0









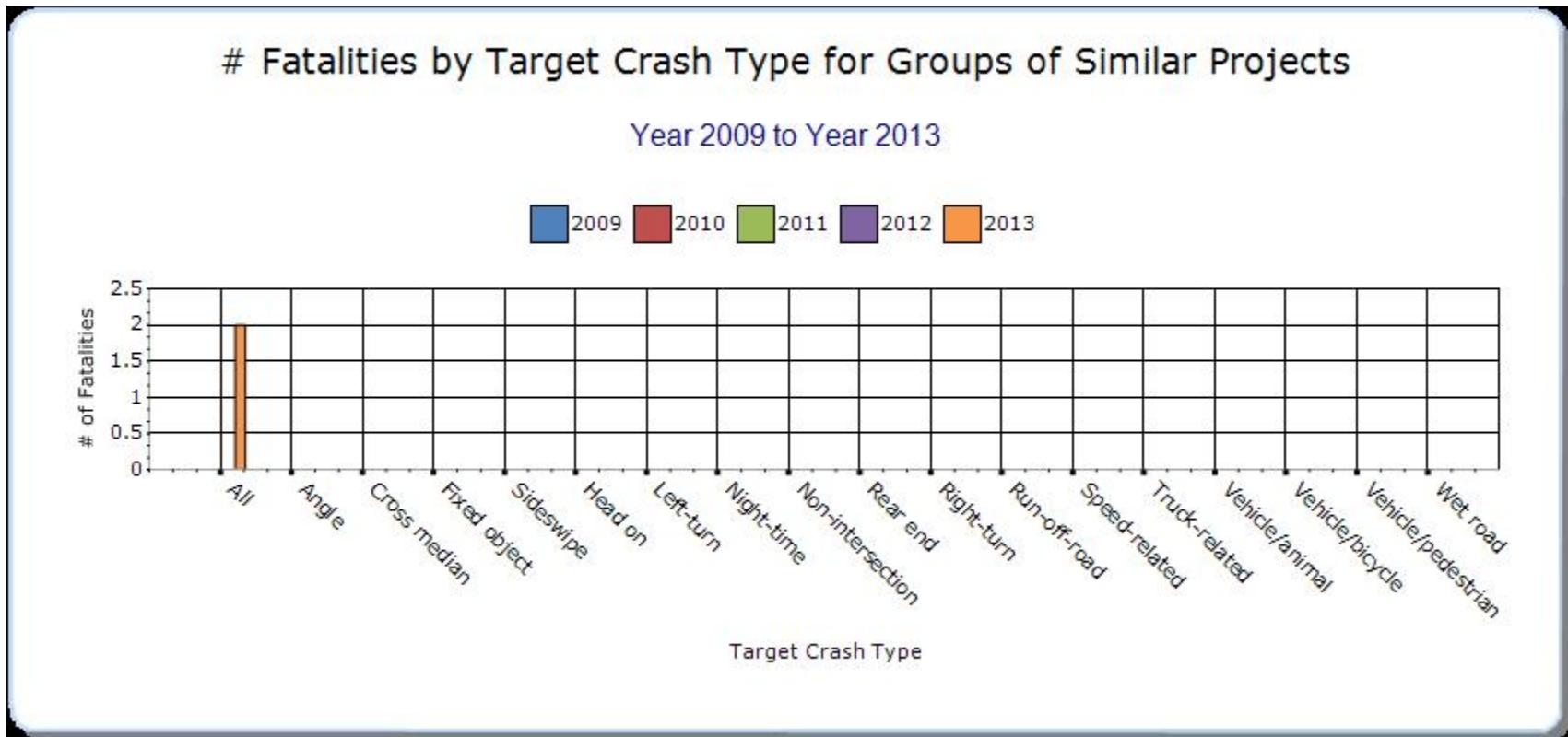
**Groups of similar project types**

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

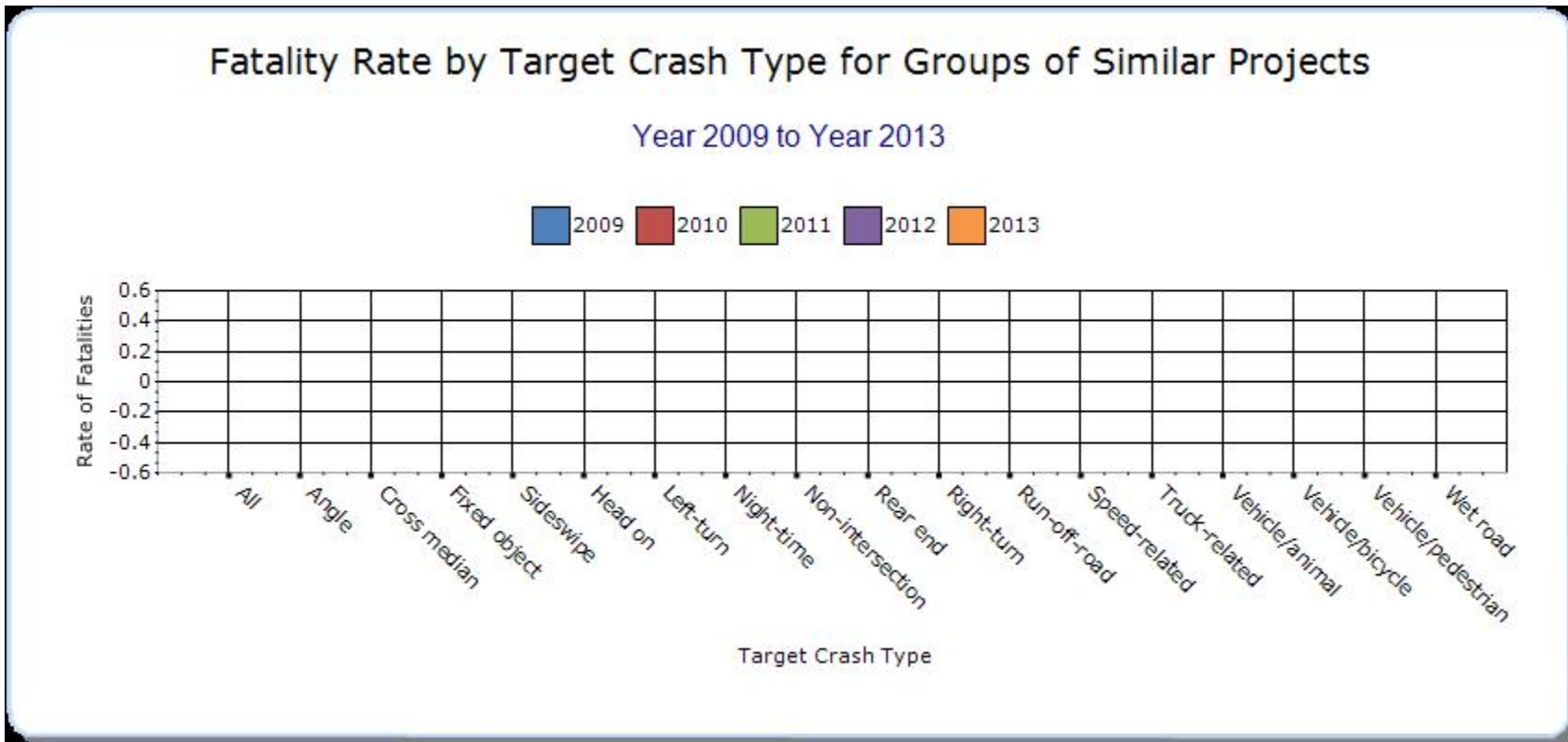
**Year - 2013**

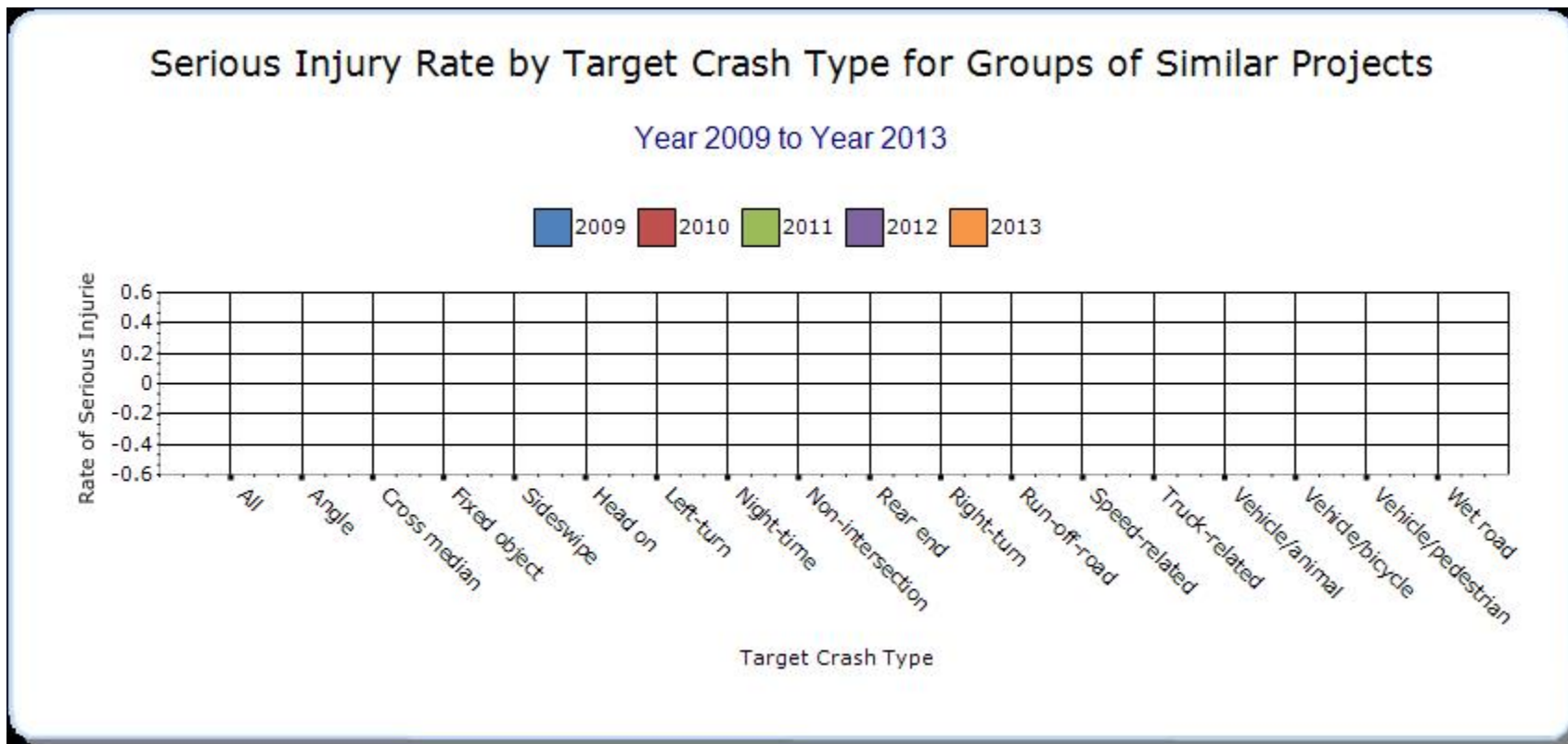
HSIP Sub-program Types	Target Crash Type	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)	Other-1	Other-2	Other-3
Low-Cost Spot Improvements	All	2	10	0	0	0	0	0











Sufficient after data is not available as of this reporting period. RIDOT continues to gather data and will report outcomes in future years once sufficient after data is available.

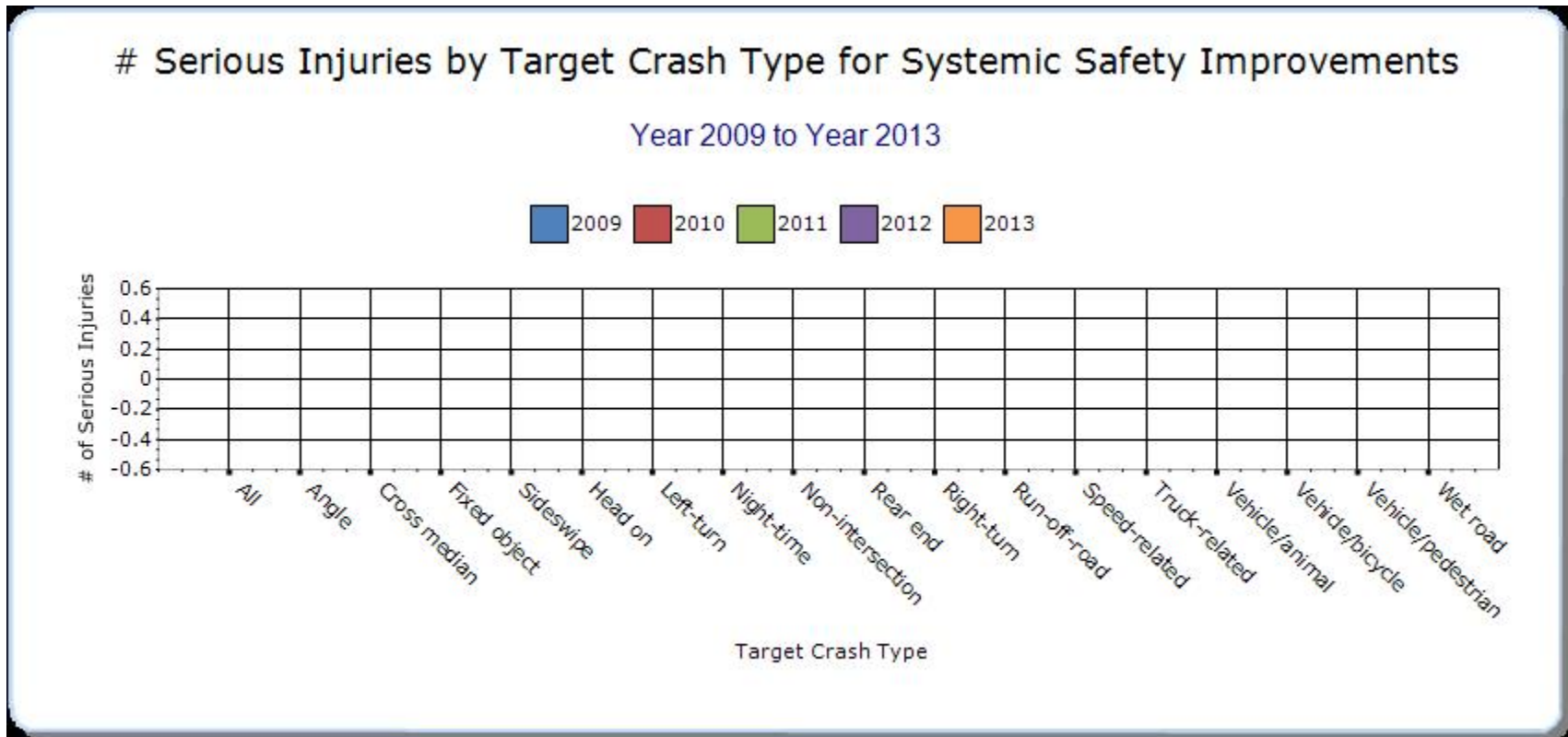
### Systemic Treatments

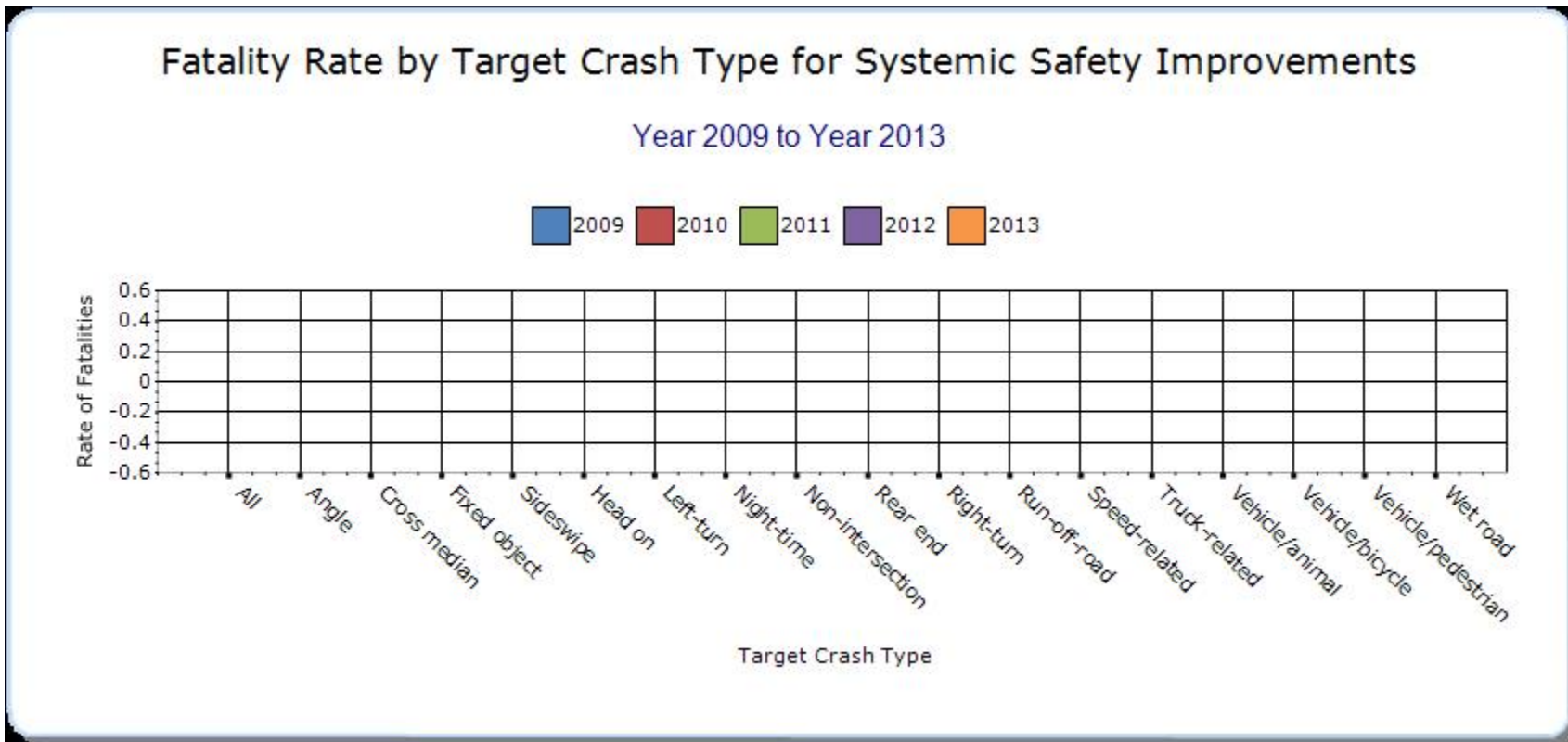
Present the overall effectiveness of systemic treatments.

#### Year - 2013

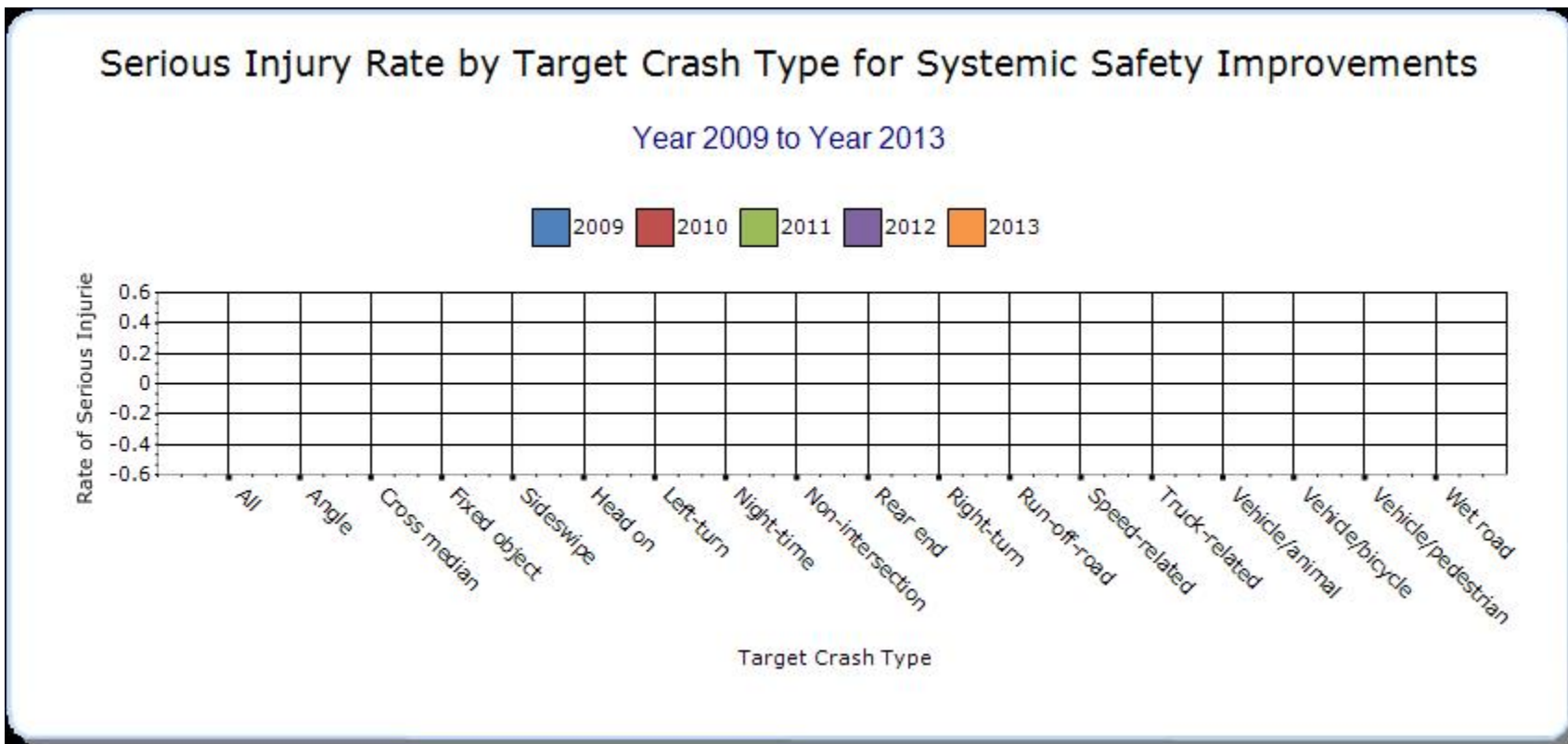
Systemic improvement	Target Crash Type	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)	Other-1	Other-2	Other-3
Cable Median Barriers		0.4	1.6	0	0	0	0	0











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

RIDOT has recently installed numerous systemic improvements along its roadways, including wrong-way driving, median guardrail, roadside delineation, unsignalized intersection signing, and high friction surface treatments. Once sufficient crash data is available, RIDOT will include in future reports.

Provide project evaluation data for completed projects (optional).

Location	Functional Class	Improvement Category	Improvement Type	Bef-Fatal	Bef-Serious Injury	Bef-Other Injury	Bef-PDO	Bef-Total	Aft-Fatal	Aft-Serious Injury	Aft-Other Injury	Aft-PDO	Aft-Total	Evaluation Results (Benefit/Cost Ratio)
N/A	N/A													

## **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.