



Highway Safety Improvement Program
Data Driven Decisions

Rhode Island
Highway Safety Improvement Program
2013 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

The State of Rhode Island, through efforts undertaken by the Rhode Island Department of Transportation (RIDOT), has demonstrated itself as a safety champion through actions designed to reduce fatalities and serious injuries of all roadway users on its roadways. In recent years, RIDOT has revamped their HSIP to align with the Highway Safety Manual methodology, identifying local and systemic improvements through this process with the focus on the reduction of fatal and serious injuries on all public roads.

The following are highlights of what RIDOT has accomplished in Fiscal Year 2013 regarding as part of the HSIP:

- Identified locations statewide exhibiting the most severe safety needs using a site-specific and systemic approach.
- Began to enhance RIDOT's safety decision making process, including enhanced traffic and roadway data collection efforts, crash data improvements, and the development of more sophisticated project evaluation methods.
- Performed Road Safety Assessments (RSAs) at 25 locations statewide based on the top locations exhibiting the most severe safety needs.
- Obligated 16 design, data collection, and infrastructure construction projects using HSIP safety funds. RIDOT also programmed 13 other infrastructure construction projects that should be obligated over the next 2 years.
- Constructed over 10 miles of median cable/guardrail on limited access facilities with medians less than 70 feet wide.
- Installed enhanced signage, striping and enhanced pedestrian signal equipment improvements at 25 locations on Aquidneck Island, including the America's Cup Avenue in Downtown Newport.
- Replaced 4-lane cross section roadways with a 3-lane cross section with bicycle facilities (aka road diet) along Coddington Highway and Memorial Boulevard.
- Began the construction of a systemic project implementing enhanced unsignalized intersection regulatory and warning signage improvements at more than 100 rural intersections and improving lane and horizontal curve delineation of over 150 miles of rural roads.
- 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.

- Experienced a reduction in fatalities and serious injuries in the state and their respective crash rates, meeting MAP-21 performance requirements. The latest 5-year moving average indicates a steady decline in fatalities/ fatality rate, decreasing 10% since 2008. While fatalities have slightly decreased over the past few years, serious injuries have decreased by 25% since 2010.
- Experienced a reduction in fatalities and serious injuries at intersections, a SHSP Emphasis Area. While there was a slight decrease in intersection-related fatalities and serious injuries between 2009 and 2011, there was a significant decrease in serious injuries occurring at intersections in 2012.
- Experienced a reduction of 50% of all crashes where enhanced horizontal delineation has been implemented over the past few years.
- Experienced a reduction of 35% of all crashes where road diets have been implemented over the past 5 years. Specifically, serious injury crashes have been reduced by 50%.

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 intends to modify 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.

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 to identify critical locations and to select the appropriate countermeasures/improvements. These partners were involved in Road Safety Assessments (RSAs) that were performed at many of these locations to facilitate this multidiscipline approach.

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 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.

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

Program Methodology

Select the programs that are administered under the HSIP.

- | | | |
|--|--|---|
| <input type="checkbox"/> Median Barrier | <input checked="" 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 type="checkbox"/> Other: | | |

Program: Intersection

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

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
- Cost Effectiveness

Program: Low-Cost Spot Improvements

Date of Program Methodology: 10/1/2012

What data types were used in the program methodology?

- | <i>Crashes</i> | <i>Exposure</i> | <i>Roadway</i> |
|--|--|---|
| <input checked="" type="checkbox"/> All crashes | <input checked="" type="checkbox"/> Traffic | <input type="checkbox"/> Median width |
| <input type="checkbox"/> Fatal crashes only | <input checked="" type="checkbox"/> Volume | <input type="checkbox"/> Horizontal curvature |
| <input type="checkbox"/> Fatal and serious injury crashes only | <input type="checkbox"/> Population | <input type="checkbox"/> Functional classification |
| <input type="checkbox"/> Other | <input type="checkbox"/> Lane miles | <input checked="" type="checkbox"/> Roadside features |
| | <input checked="" type="checkbox"/> Other-Congestion | <input type="checkbox"/> 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 Cost Effectiveness 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

Cost Effectiveness

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

20

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

Cable Median Barriers

Rumble Strips

Traffic Control Device Rehabilitation

Pavement/Shoulder Widening

Install/Improve Signing

Install/Improve Pavement Marking and/or Delineation

Upgrade Guard Rails

Clear Zone Improvements

Safety Edge Install/Improve Lighting Add/Upgrade/Modify/Remove Traffic Signal Other**What process is used to identify potential countermeasures?** Engineering Study Road Safety Assessment Other:**Identify any program methodology practices used to implement the HSIP that have changed since the last reporting period.** Highway Safety Manual Road Safety audits Systemic Approach Other:

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

For the Highway Safety Improvement Project Design Study Program (HSIP DSP), the RIDOT identifies all critical safety locations Statewide. Under the program, low-cost improvements that can be implemented quickly are favored. In addition, treatments with minimal right-of-way and utility impacts (in many cases, upgrades to traffic control devices or to the roadway within its existing cross section) receive preference.

The HSIP DSP reviews all crash types and severity, with the focus on fatal and serious injury crashes on all public roads. Locations are identified based on a weighted average of severity (using the KABCO scale) and are ranked by functional class. The top locations for each functional class are reviewed and addressed, with the total number of locations selected based on available funding and improvements planned/recently implemented. Once the top locations are chosen by functional class, RSAs are performed to identify countermeasures, and the improvements are ranked using the benefit/cost (B/C) ratio method. Under this program, both spot improvements and systemic improvements are identified. Systemic improvements that have been identified and proposed include cable median barriers on all limited access facilities with medians less than 70 feet wide, rumble strips on all limited access facilities and on applicable highways with frequent roadway departure histories, signing and striping enhancements, and safety edge on some limited access facilities. Proposed improvements are implemented through RIDOT work-orders and/or stand-alone projects. Some proposed improvements can be incorporated into existing projects.

For the 2012 reporting period (2009-2011 crash data), the RIDOT has identified the top locations exhibiting the most severe safety needs based on crash severity. RIDOT uses crash data one year behind (e.g. crash data for 2009-2011 for 2013 reporting period) to allow sufficient time to summarize, review, and validate raw crash data to identify and eliminate errors.

Rhode Island Strategically Targeted Affordable Roadway Solutions (RISTARS) is a new initiative, introduced in 2011, to deliver low-cost and high-benefit safety and mobility improvements. The RIDOT identifies all critical safety and congestion locations within a targeted region and works with the municipalities to develop a detailed improvement plan for selected locations. Under the program, low-cost improvements that can be implemented quickly are favored. In addition, treatments with minimal right-of-way and utility impacts (in many cases, upgrades to traffic control devices or to the roadway within its existing cross section) receive preference. Under RISTARS, all crash types and severity are reviewed, identifying locations based on a weighted

average of frequency, severity, and congestion delay. Locations are occasionally derived from the HSIP Design Study Program list. Local roads were not included in the 2011 program but were included in the 2013 program. RSAs are used to identify countermeasures, and the improvements are ranked using the B/C ratio method. Under this program, both spot improvements and systemic improvements are identified. Systemic improvements that have been identified and proposed include signing and striping enhancements and improved pedestrian signal equipment (countdown timers) and signage/striping in high pedestrian activity corridors. Proposed improvement projects are implemented through RIDOT work-orders and/or stand-alone projects and are also incorporated into existing projects. The following is a brief description of the RISTARS projects:

RISTARS/Aquidneck Island – In 2011, RISTARS kicked-off with a pilot program on Aquidneck Island. Twenty-five intersections were investigated for safety and congestion countermeasures. From this report, three separate construction contracts were developed. Contract 1 involved mostly short-term signing and striping, as well as enhanced pedestrian signal equipment. This contract was completed in Spring 2013. Contracts 2 and 3 involve roadway construction, such as enhanced sidewalks and ADA ramps, the addition of bicycle facilities, and the installation of a roundabout at an existing signalized intersection.

RISTARS Localized Bottleneck Reduction (LBR) Program – Starting in 2013, the RIDOT incorporated the LBR program into RISTARS. As part of this project, 20 freeway segments and signalized intersections experiencing fatal and serious injury crashes as well as high delay/congestion are being investigated. Mitigation measures range from restriping for auxiliary lanes to longer-term projects involving roadway widening. A majority of the locations included were identified as part of the HSIP Design Study Program in the past few years.

The RIDOT has incorporated pedestrian safety into their HSIP planning process. Several pedestrian-focused RSAs were performed in 2012 at high fatal and injury crash locations. Local roads were included in this process as well. Improvements identified in these RSAs are in the design stage and will be either incorporated into existing projects or will be a stand-alone project in the upcoming year. In 2012, the RIDOT started the HSIP-targeted program Pedestrian Safety in Rhode Island (PedS RI). One of the first objectives of this program was to develop a Statewide Vulnerable Safety Action Plan

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)	17800000	90 %	15611875	100 %
HRRRP (SAFETEA-LU)				
HRRR Special Rule	900000	5 %	0	0 %
Penalty Transfer - Section 154				
Penalty Transfer – Section 164				
Incentive Grants - Section 163				
Incentive Grants (Section 406)				
Other Federal-aid Funds (i.e. STP, NHPP)	1000000	5 %	0	0 %
State and Local Funds				
Totals	19700000	100%	15611875	100%

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

5 %

How much funding is obligated to local safety projects?

15 %

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

0 %

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

34 %

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. The delay involved in awarding consultant contracts results in HSIP projects being implemented well beyond the timeframe in which a safety problem was identified. This has resulted in missed opportunities to prevent traffic fatalities and injuries, and may also result in the spending of funds for a problem that is no longer prevalent.

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. The RIDOT is in the process of soliciting on-call consultants to help administer the HSIP, as well as advance projects identified as part of the HSIP process into final design.

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

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
RISTARS Aquidneck Island Contract 2	Pedestrians and bicyclists Pedestrian signal - install new at intersection	15 Number s	250000 0	250000 0	HSIP (Section 148)	Urban Principal Arterial - Other		25	State Highway Agency	Improving the design and operation of highway intersections	Add Turn Lanes, Road Diet, Enhanced Pedestrian Facilities
Master Price Agreement – Statewide Signs and Delineator Installation	Roadway signs and traffic control Roadway signs (including post) - new or updated	100 Number s	750000	750000	HSIP (Section 148)	Urban Principal Arterial - Other			State Highway Agency	Keeping vehicles in the roadway	Enhanced Delineation
Highway Safety Improvement	Intersection traffic control	5 Number	100000 0	100000 0	HSIP (Section	Urban Principal Arterial -			State Highway	Improving the design and	Enhanced traffic signal

t Project – Interstate C-1 (Old Hazard-Elimination)	Intersection traffic control - other	s			148)	Other			Agency	operation of highway intersections	equipment
Improvements to Fruit Hill Avenue Contract 2	Intersection traffic control Modify control - two-way stop to roundabout	1 Number s	665000	665000	Penalty Transfer – Section 164	Urban Minor Arterial			Town or Township Highway Agency	Improving the design and operation of highway intersections	Install Roundabout
Route 165 Reclamation Contract	Roadway delineation Roadway delineation - other	100 Miles	200000	820000 0	HSIP (Section 148)	Rural Principal Arterial - Other			State Highway Agency	Minimizing the consequences of leaving the road	Install Rumble Strips
1R Improvements to Route 102 Contract 2	Roadway Roadway - other	5 Miles	250000	268500 0	HSIP (Section 148)	Rural Principal Arterial - Other			State Highway Agency	Keeping vehicles in the roadway	Install Delineators
Wrong-Way Driving Mitigation	Intersection traffic control Intersection	225 Number s	200000 0	200000 0	HSIP (Section 148)	Urban Principal Arterial -			State Highway Agency	Sustaining proficiency in older	Enhanced Signing/Striping Install/ITS

Contract	traffic control - other					Interstate				drivers	Equipment
2014 HSIP Short-Term Statewide Improvement Contract	Intersection traffic control Intersection traffic control - other	20 Number s	100000 0	100000 0	HSIP (Section 148)	Urban Principal Arterial - Other			State Highway Agency	Keeping vehicles in the roadway	Add Turn Lanes, Road Diet, and Rumble Strips, Horizontal Delineation
Highway Safety Improvement Project – East Bay C-1 (Old Hazard-Elimination)	Intersection traffic control Intersection traffic control - other	2 Number s	150000 0	150000 0	HSIP (Section 148)	Urban Principal Arterial - Other			State Highway Agency	Improving the design and operation of highway intersections	Enhanced traffic signal equipment
Highway Safety Improvement Project – East Bay C-2 (Old Hazard-Elimination)	Intersection traffic control Intersection traffic control - other	2 Number s	500000	500000	HSIP (Section 148)	Urban Principal Arterial - Other			State Highway Agency	Improving the design and operation of highway intersections	Enhanced traffic signal equipment
2014 Highway Safety	Roadway Pavement surface -	10 Number	100000 0	100000 0	HSIP (Section	Urban Principal Arterial -			State Highway	Keeping vehicles in	High friction surface

Improvement Project – High Friction Surface Treatment	high friction surface	s			148)	Other Freeways and Expressways			Agency	the roadway	treatment
MIRE Safety Data Collection Project	Non-infrastructure		3000000	3000000	HSIP (Section 148)	All roadways			All roadways	Improving information and decision support systems	Enhanced safety data
2014-2018 Highway Safety Improvement Final Design Consultants (4 Contracts)	Non-infrastructure		2600000	2600000	HSIP (Section 148)	TBD			State and Local	TBD	TBD
Strategic Highway Safety Program Support	Non-infrastructure		500000	500000	HSIP (Section 148)					All Areas	
2015 Highway Safety Improvement	Non-infrastructure		250000	250000	HSIP (Section 148)	Urban Principal Arterial -			State and Local	Improving the design and operation of	

t Project – Long-Term C-1 Final Design						Other				highway intersection s	

Progress in Achieving Safety Performance Targets

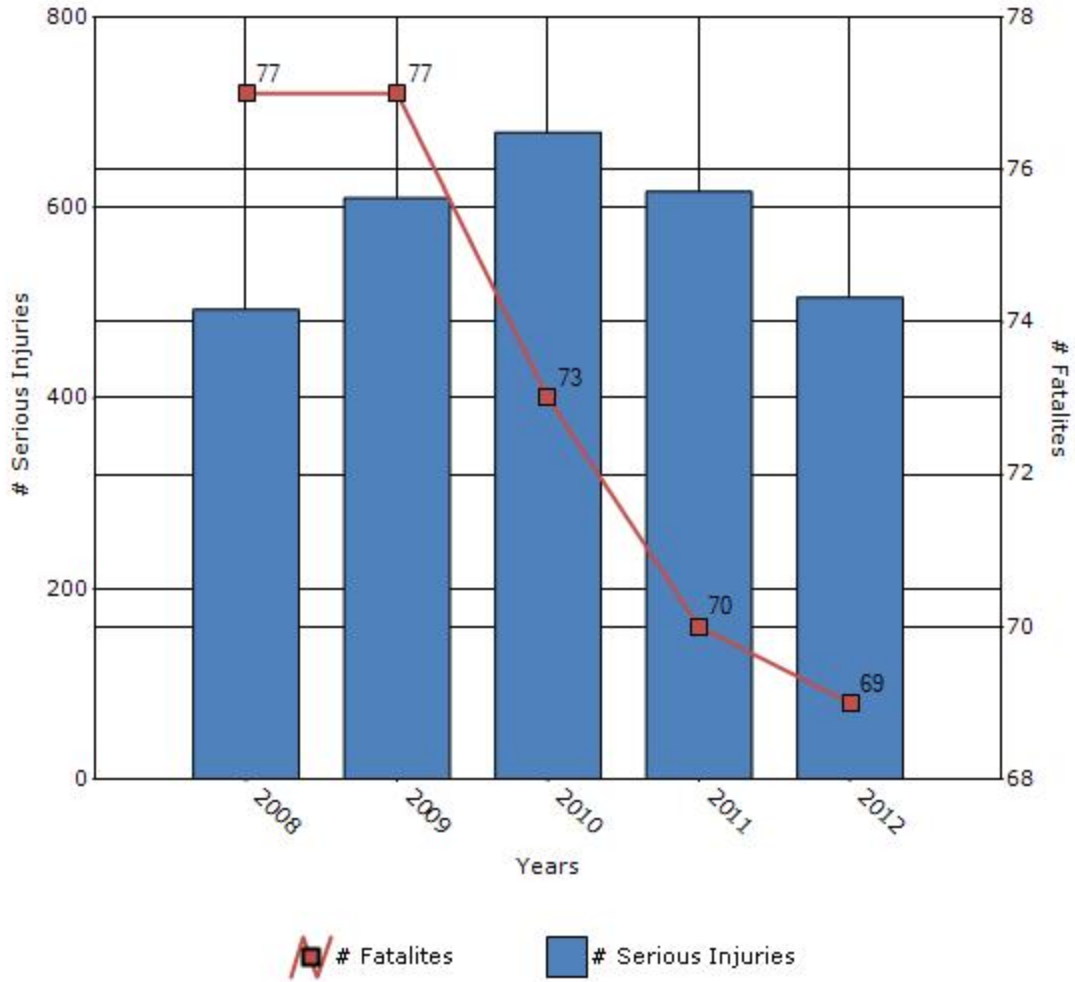
Overview of General Safety Trends

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

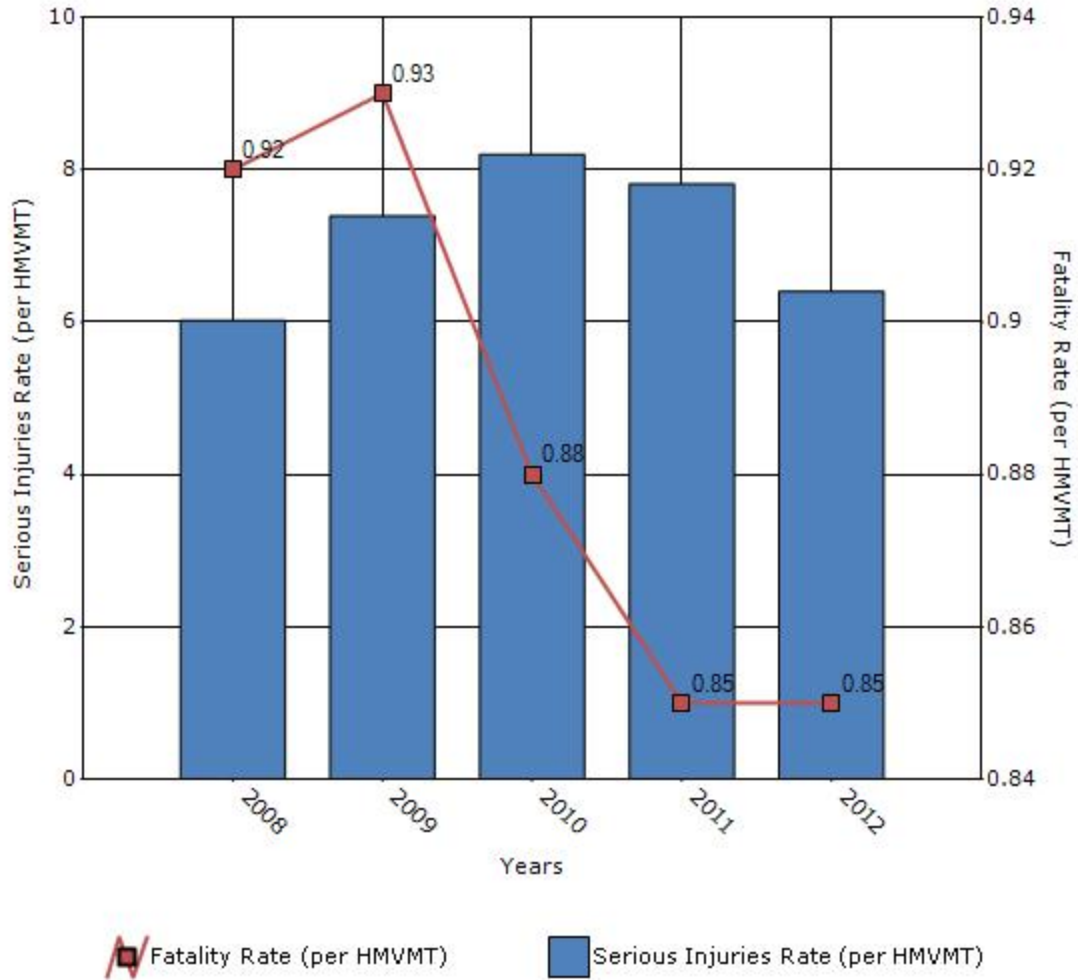
Performance Measures*	2008	2009	2010	2011	2012
Number of fatalities	77	77	73	70	69
Number of serious injuries	493	610	679	617	506
Fatality rate (per HMVMT)	0.92	0.93	0.88	0.85	0.85
Serious injury rate (per HMVMT)	6.02	7.39	8.2	7.81	6.4

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

Number of Fatalities and Serious injuries for the Last Five Years



Rate of Fatalities and Serious injuries for the Last Five Years



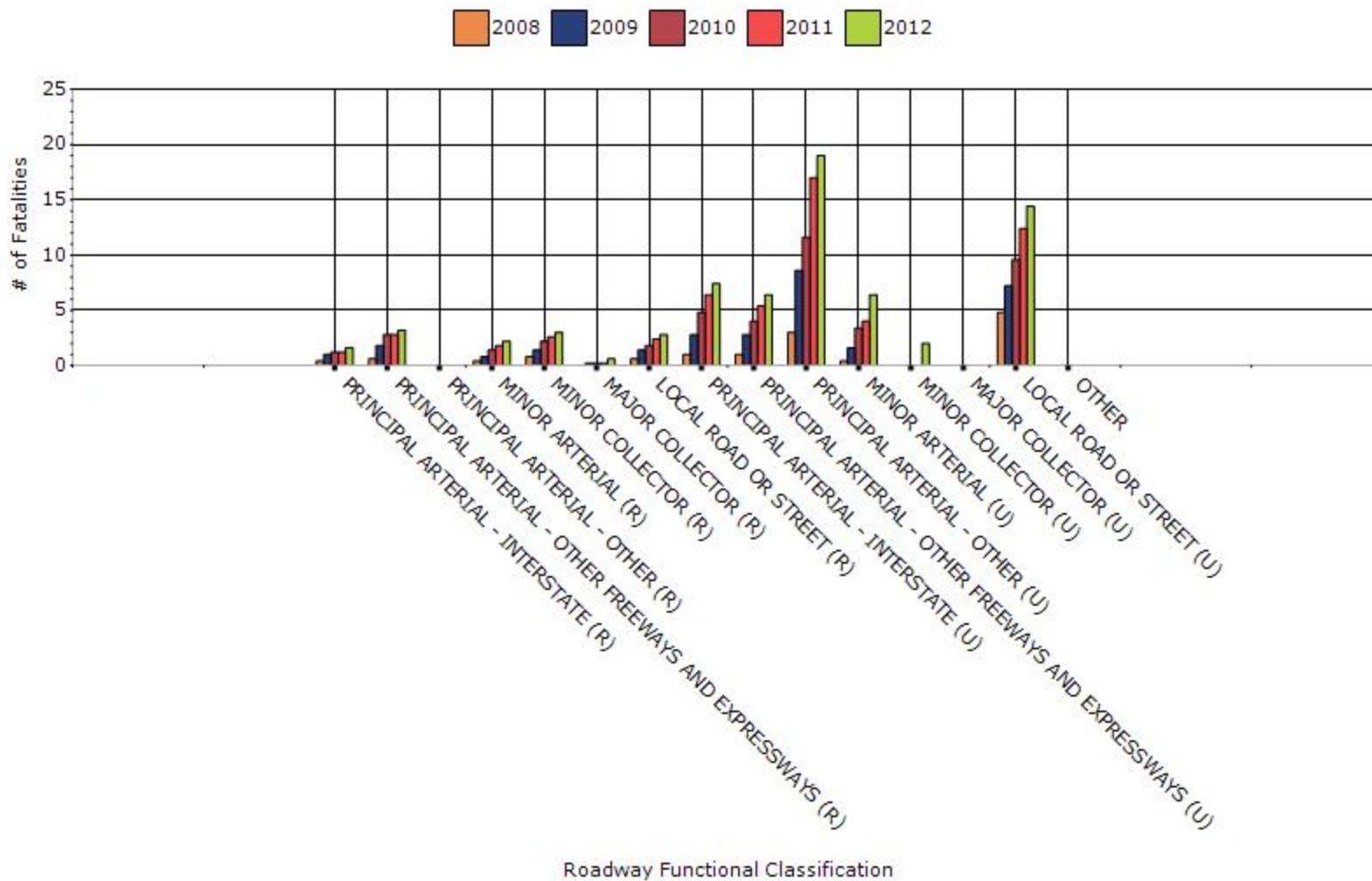
To the maximum extent possible, present performance measure* data by functional classification and ownership.

Year - 2012

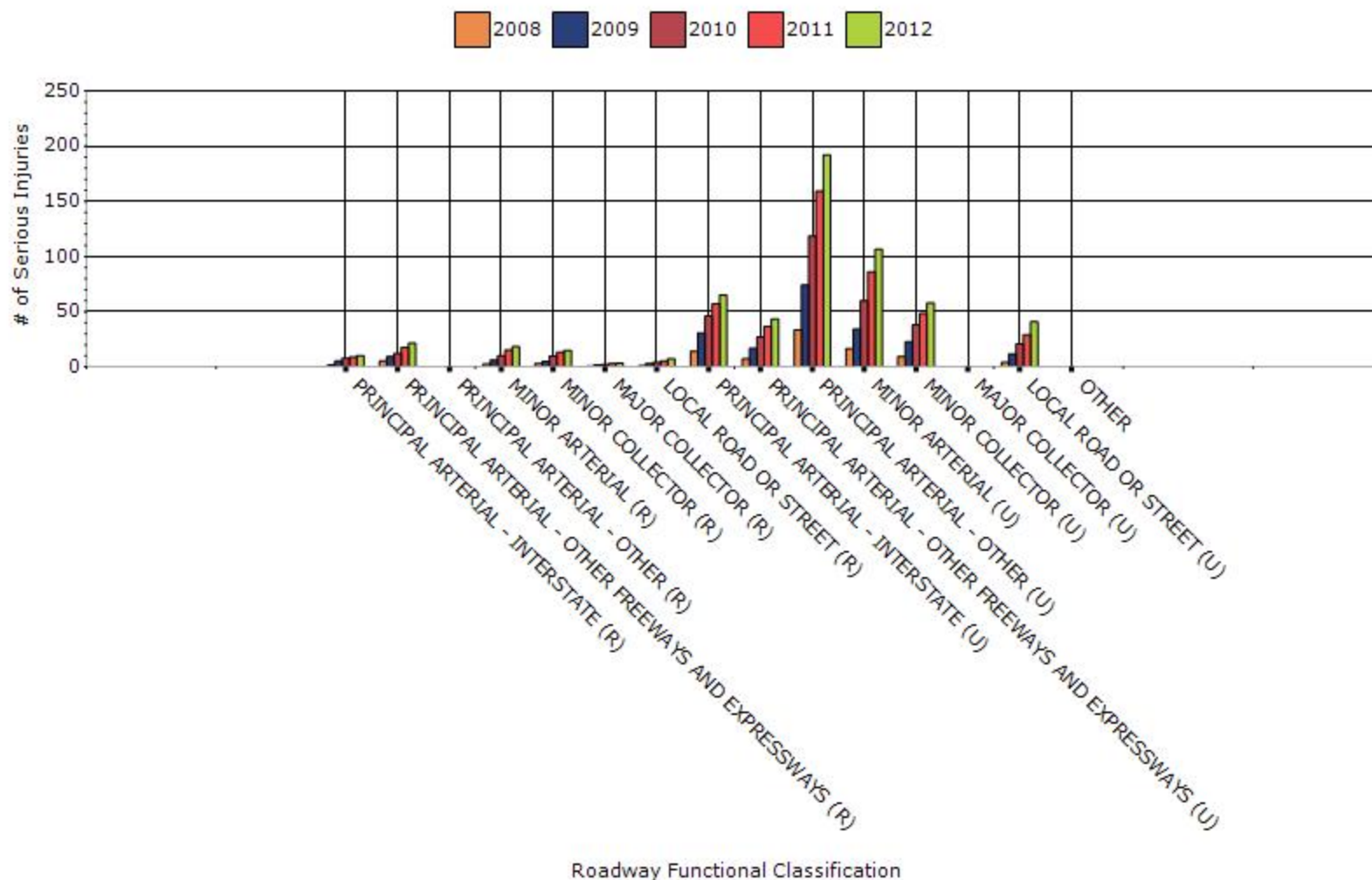
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	1.6	10.2	0.398	2.532
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	3.2	21.4	2.518	16.606
RURAL PRINCIPAL ARTERIAL - OTHER	0	0	0	0
RURAL MINOR ARTERIAL	2.2	18.2	1.666	13.814
RURAL MINOR COLLECTOR	3	15	1.932	9.57
RURAL MAJOR COLLECTOR	0.6	3.2	1.674	8.864
RURAL LOCAL ROAD OR STREET	2.8	7.4	12.474	32.904
URBAN PRINCIPAL	7.4	65	0.428	3.746

ARTERIAL - INTERSTATE				
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	6.4	43.4	0.526	3.564
URBAN PRINCIPAL ARTERIAL - OTHER	19	192	0.904	9.122
URBAN MINOR ARTERIAL	6.4	106.6	0.62	10.234
URBAN MINOR COLLECTOR	2	57.8	0.252	6.996
URBAN MAJOR COLLECTOR	0	0	0	0
URBAN LOCAL ROAD OR STREET	14.4	40.8	5.014	14.218
OTHER	0	0	0	0
OTHER	0	0	0	0

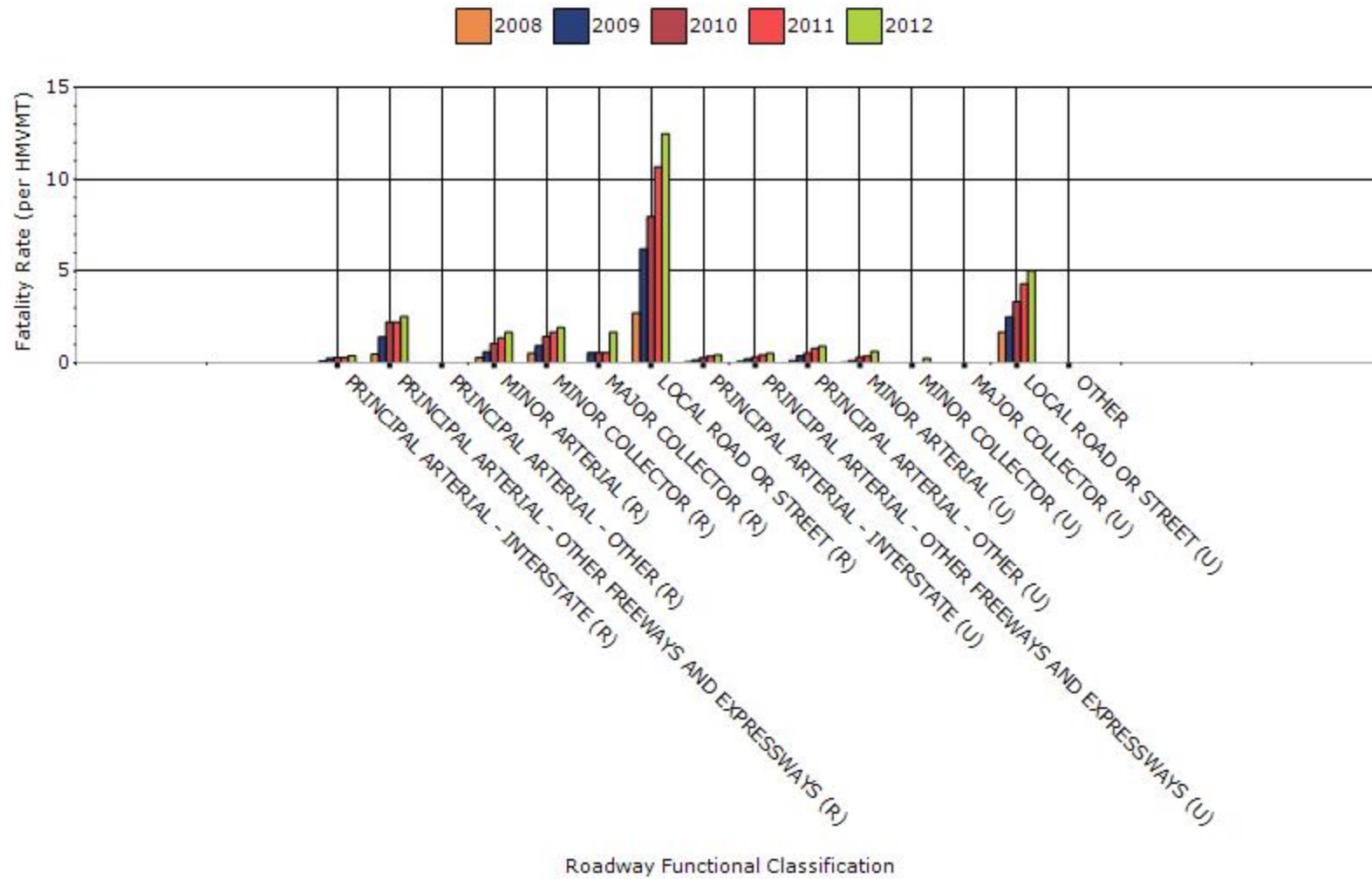
Fatalities by Roadway Functional Classification



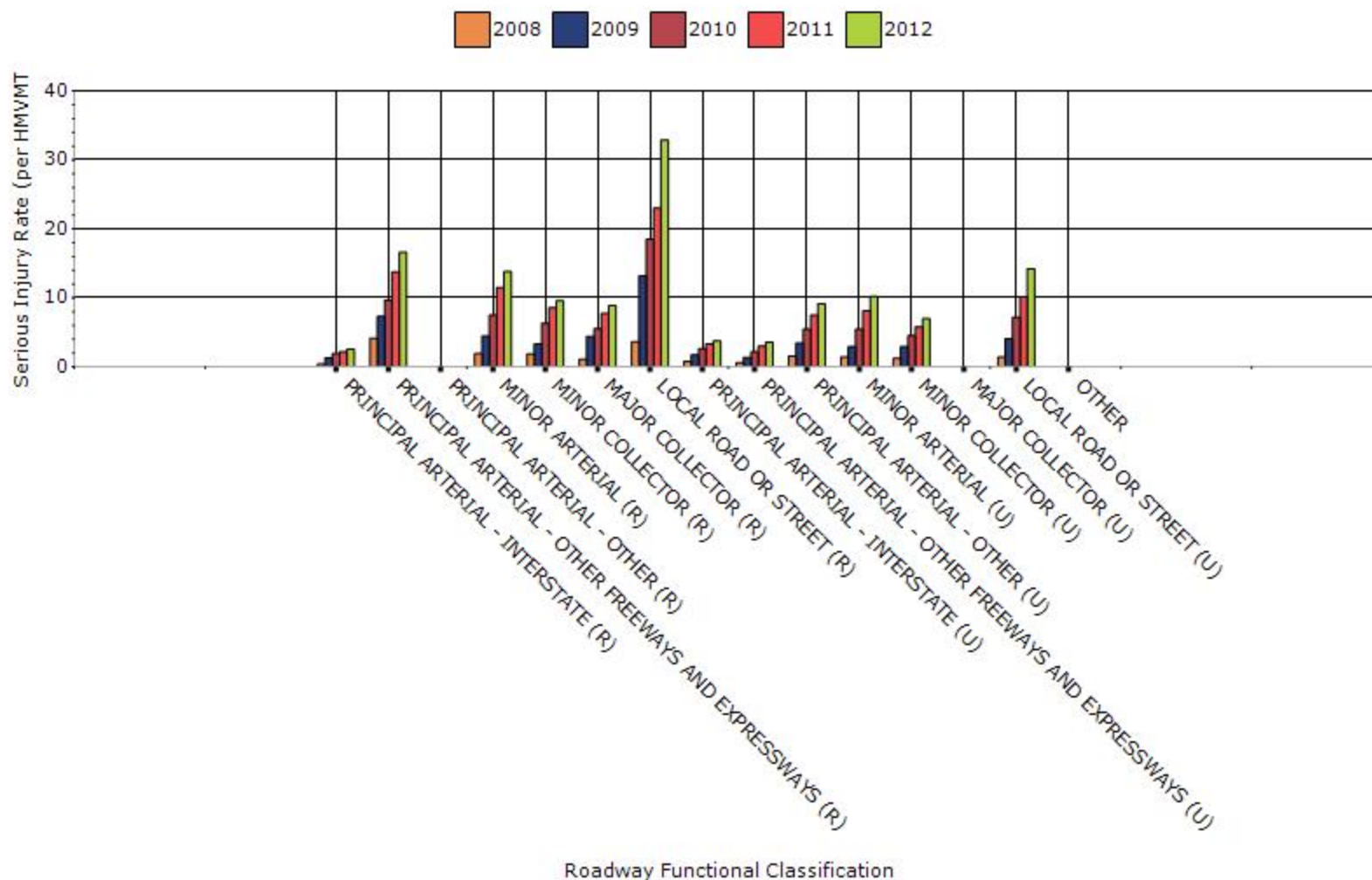
Serious Injuries by Roadway Functional Classification



Fatality Rate by Roadway Functional Classification



Serious Injury Rate by Roadway Functional Classification

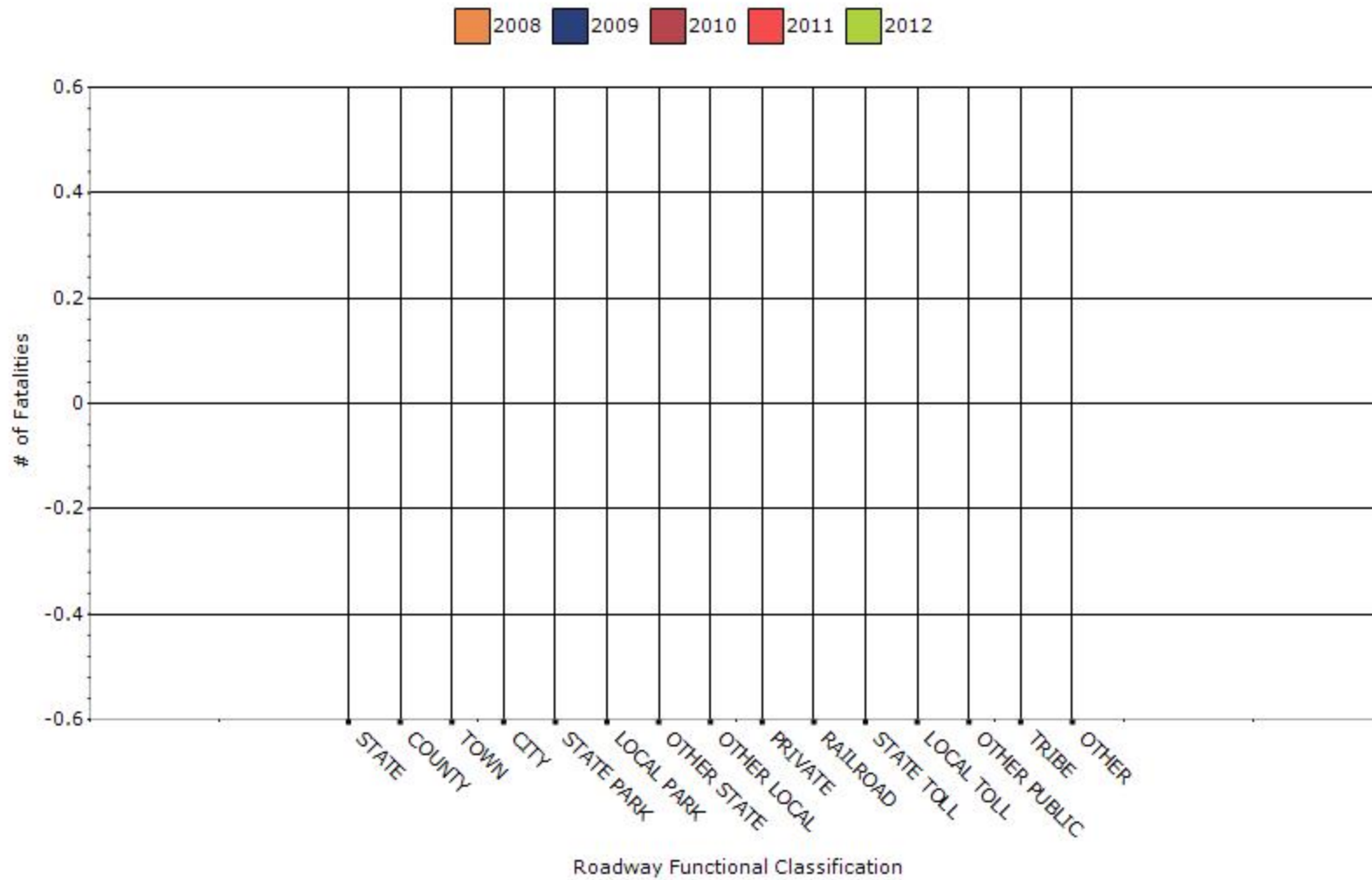


Year - 2012

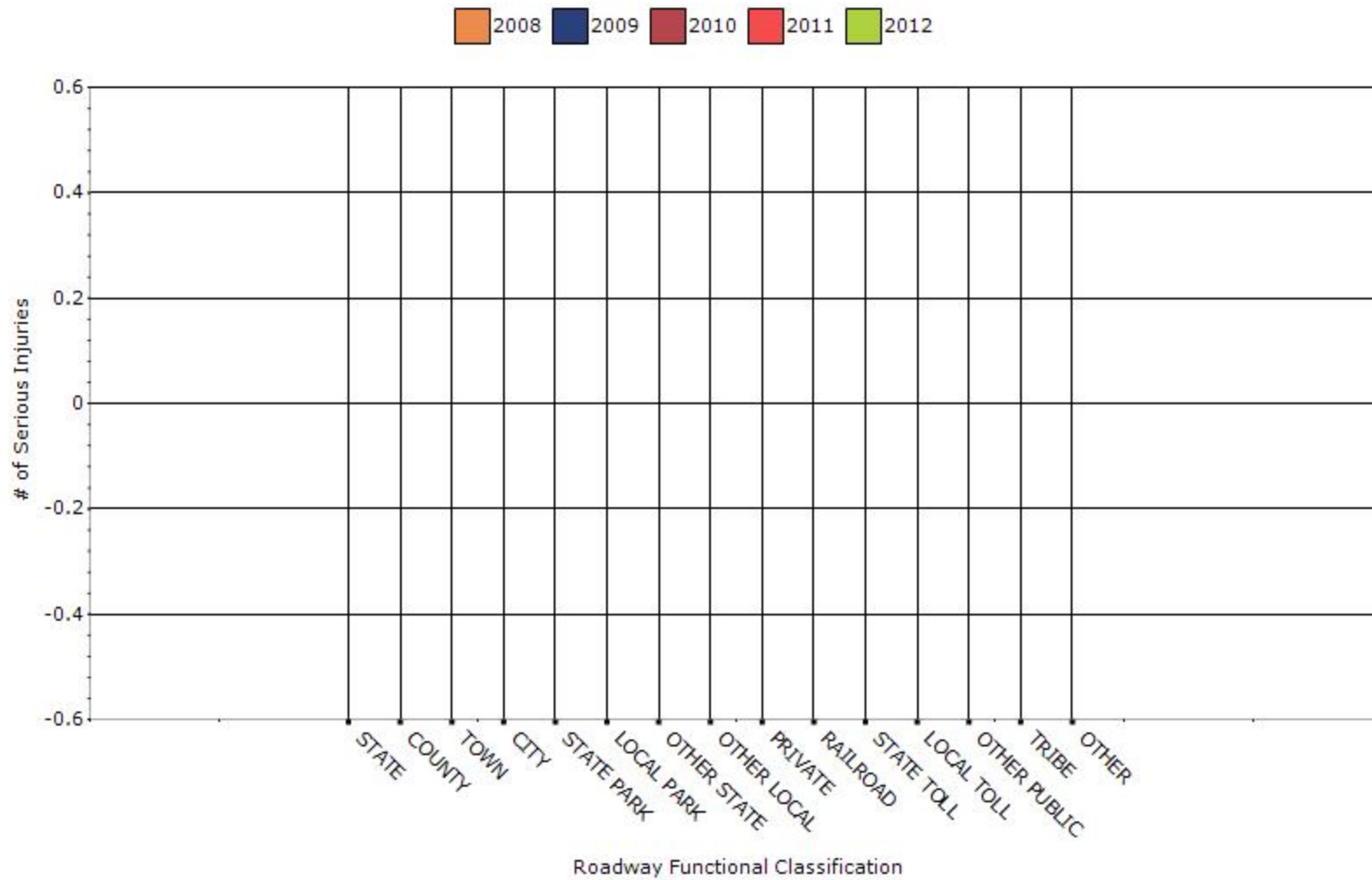
Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	0	0	0	0
COUNTY HIGHWAY AGENCY	0	0	0	0
TOWN OR TOWNSHIP HIGHWAY AGENCY	0	0	0	0
CITY OF MUNICIPAL HIGHWAY AGENCY	0	0	0	0
STATE PARK, FOREST, OR RESERVATION AGENCY	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
INDIAN TRIBE NATION	0	0	0	0
OTHER	0	0	0	0
OTHER	0	0	0	0

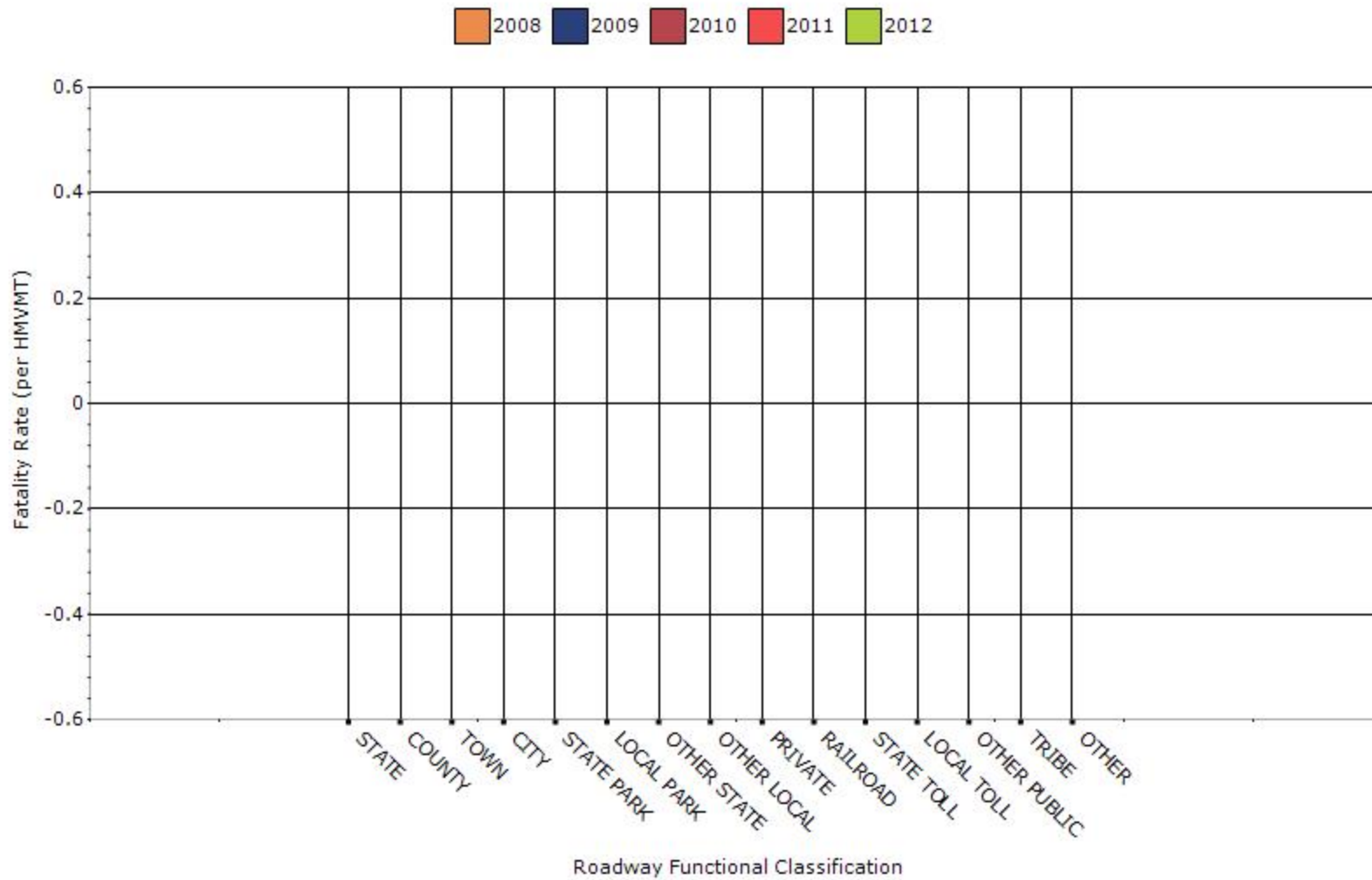
Number of Fatalities by Roadway Ownership



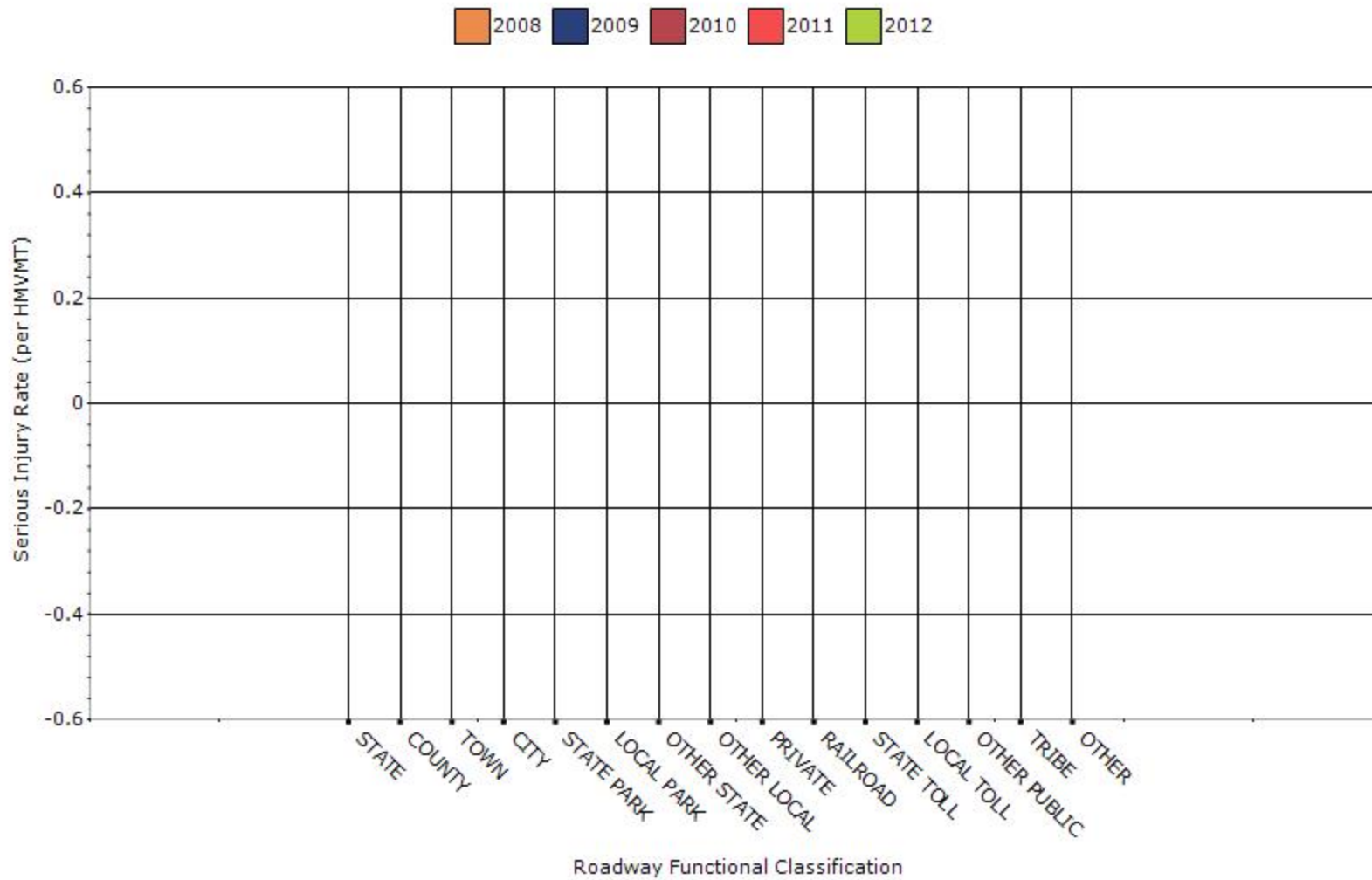
Number of Serious Injuries by Roadway Ownership



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.

Urban Local roads and Rural Arterials, Collectors, and Local roads have the highest crash rate for fatalities and serious injuries. Rural road fatalities and serious injuries in Rhode Island are primarily random in nature, making it difficult to identify a “hot-spot”. Therefore, the RIDOT is shifting towards more systemic safety projects, including implementing unsignalized intersection improvements at more than 100 rural intersections and improving lane delineation of over 150 miles of rural roads.

Per HSIP reporting guidance, States should report a five-year rolling average of these performance measures where possible. The RIDOT was able to report the five-year rolling average for fatalities; however, serious injuries were not able to be represented in a five-year rolling average and instead are listed on an annual basis. The definition of a serious crash was changed prior to 2008 on police reporting forms, resulting in a significance decrease in the number of reported serious injuries. In future reports, the RIDOT will begin to report five-year rolling averages for both fatalities and serious injuries.

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	2008	2009	2010	2011	2012
Fatality rate (per capita)	0.12	0.13	0.12	0.12	0
Serious injury rate (per capita)	0.27	0.26	0.31	0.18	0
Fatality and serious injury rate (per capita)	0.39	0.39	0.43	0.3	0

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

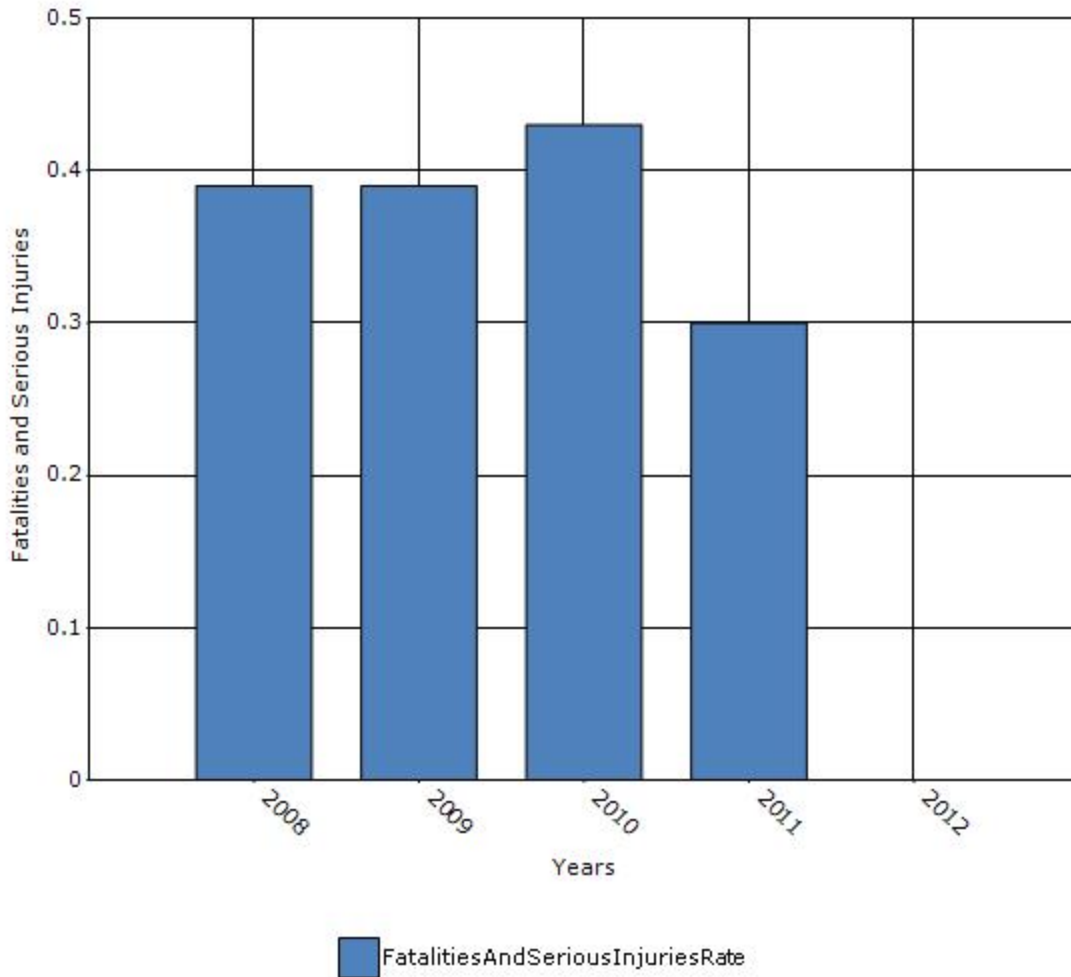
Calculate Rate for 2011

1. $(F+SI \text{ 2011 Drivers and Pedestrians 65 years of age and older} / 2011 \text{ Population Figure}) + (F+SI \text{ 2010 Drivers and Pedestrians 65 years of age and older} / 2010 \text{ Population Figure}) + (F+SI \text{ 2009 Drivers and Pedestrians 65 years of age and older} / 2009 \text{ Population Figure}) + (F+SI \text{ 2008 Drivers and Pedestrians 65 years of age and older} / 2008 \text{ Population Figure}) + (F+SI \text{ 2007 Drivers and Pedestrians 65 years of age and older} / 2007 \text{ Population Figure}) / 5$

Calculate Rate for 2009

2. $(F+SI\ 2009\ Drivers\ and\ Pedestrians\ 65\ years\ of\ age\ and\ older / 2009\ Population\ Figure) + (F+SI\ 2008\ Drivers\ and\ Pedestrians\ 65\ years\ of\ age\ and\ older / 2008\ Population\ Figure) + (F+SI\ 2007\ Drivers\ and\ Pedestrians\ 65\ years\ of\ age\ and\ older / 2007\ Population\ Figure) + (F+SI\ 2006\ Drivers\ and\ Pedestrians\ 65\ years\ of\ age\ and\ older / 2006\ Population\ Figure) + (F+SI\ 2005\ Drivers\ and\ Pedestrians\ 65\ years\ of\ age\ and\ over / 2005\ Population\ Figure) / 5$

Rate of Fatalities and Serious injuries for the Last Five Years



Does the older driver special rule apply to your state?

Yes

If yes, describe the approach to include respective strategies to address the increase in those rates in the State SHSP.

The rate of traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65 has increased between the periods 2005-2009 and 2007-2011; therefore, the older driver special rule does apply to Rhode Island. Rhode Island will be addressing Older Drivers in their SHSP. In addition, in FY 2013, the RIDOT has allocated funding for a Wrong-Way Driving Mitigation systemic project to address wrong-way driving on the State's limited access facilities. National and local studies have shown that older drivers are over-represented in fatal and serious crashes resulting from wrong-way driving.

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-Reduction of fatalities and serious 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:

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

RIDOT is shifting towards more systemic safety projects including installing roadside delineators on all limited access facilities, enhancing signage and striping to deter wrong-way driving on limited access facilities, unsignalized intersection improvements at more than 100 rural intersections, and improved lane delineation of over 150 miles of rural roads.

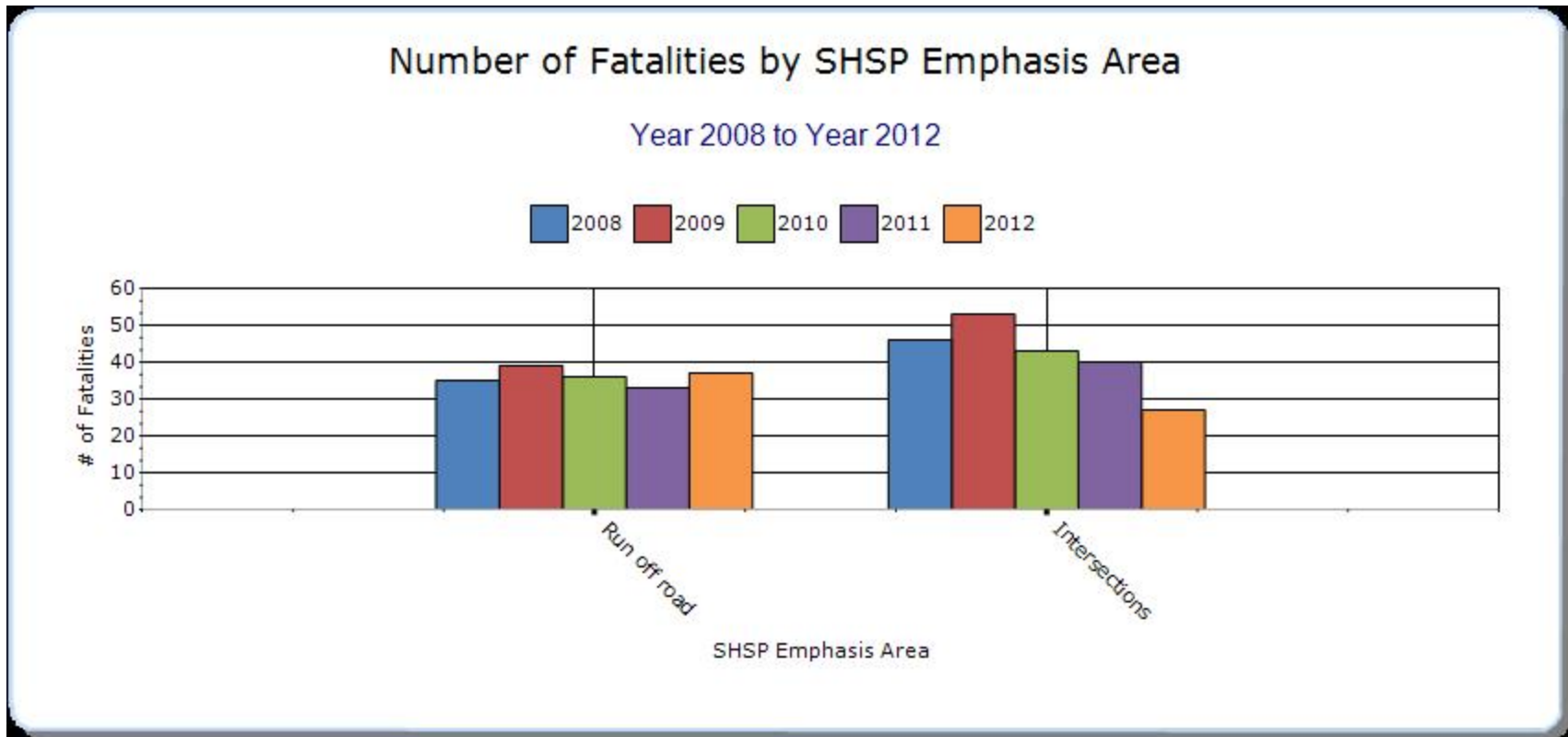
Programmatic changes include a reorganization that resulted in a Traffic Management and Highway Safety section, combining the Traffic Design and the Office of Highway Safety sections.

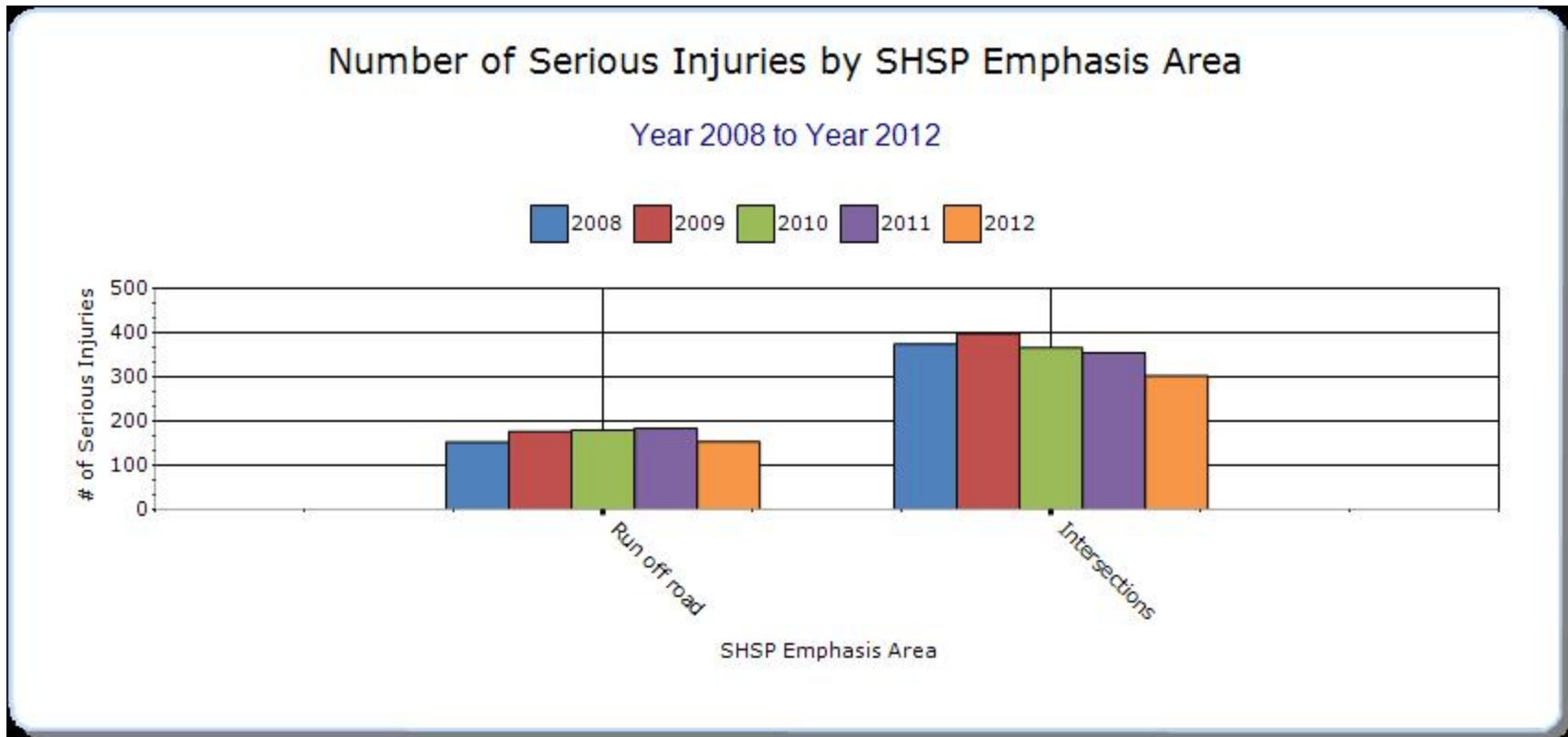
SHSP Emphasis Areas

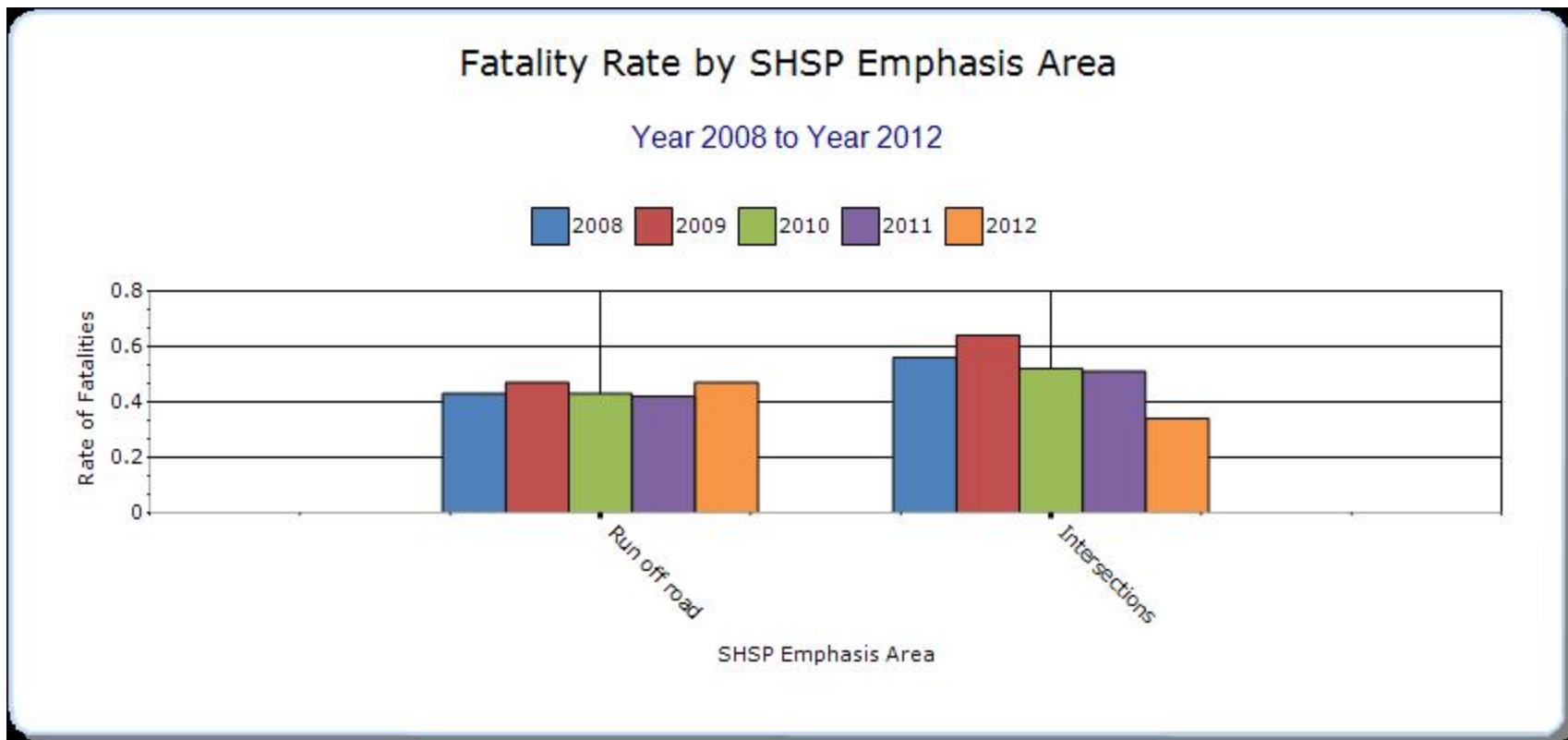
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

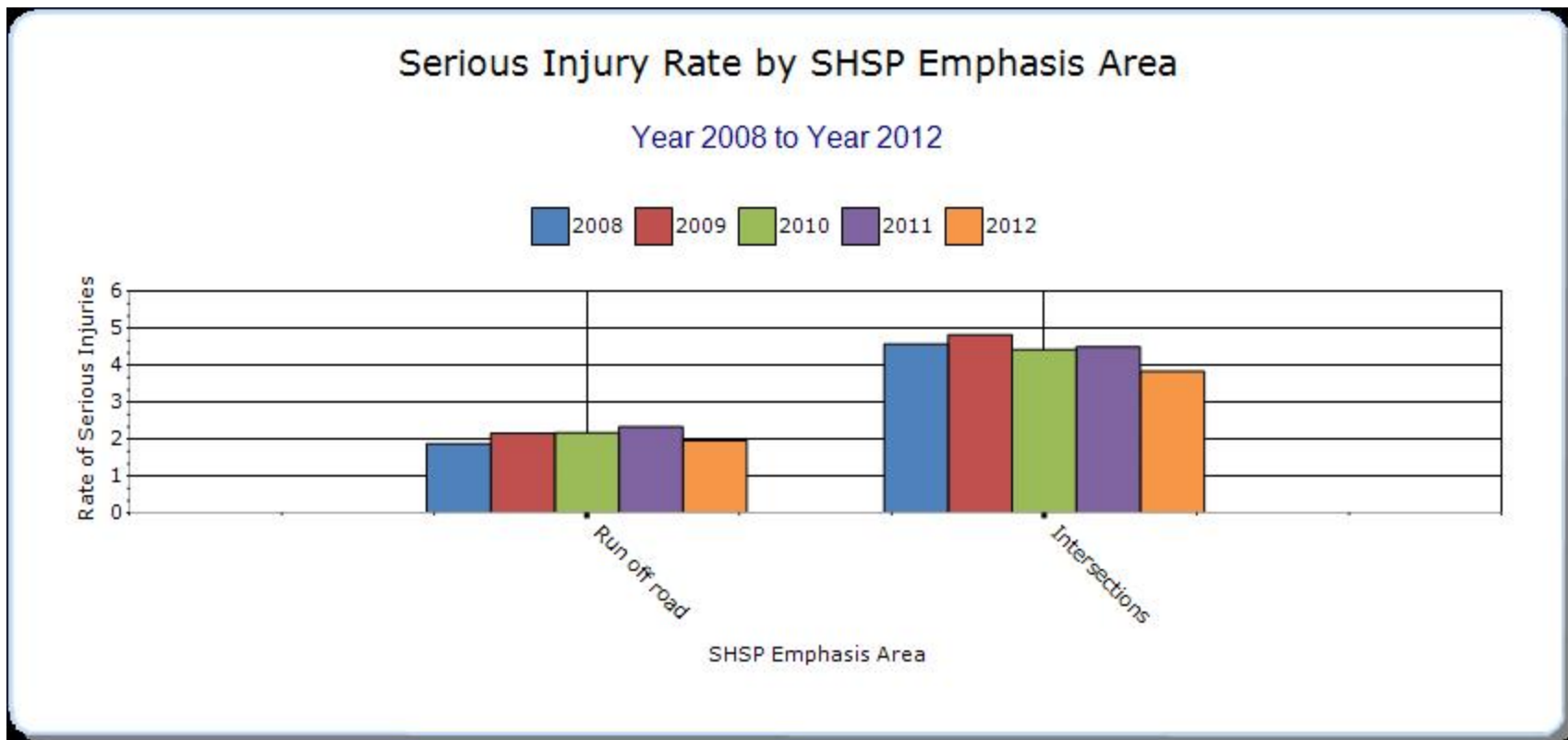
Year - 2012

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
Keeping vehicles in the roadway	Run-off-road	37	154	0.47	1.95	0	0	0
Improving the design and operation of highway intersections	Intersection-Related	27	303	0.34	3.83	0	0	0







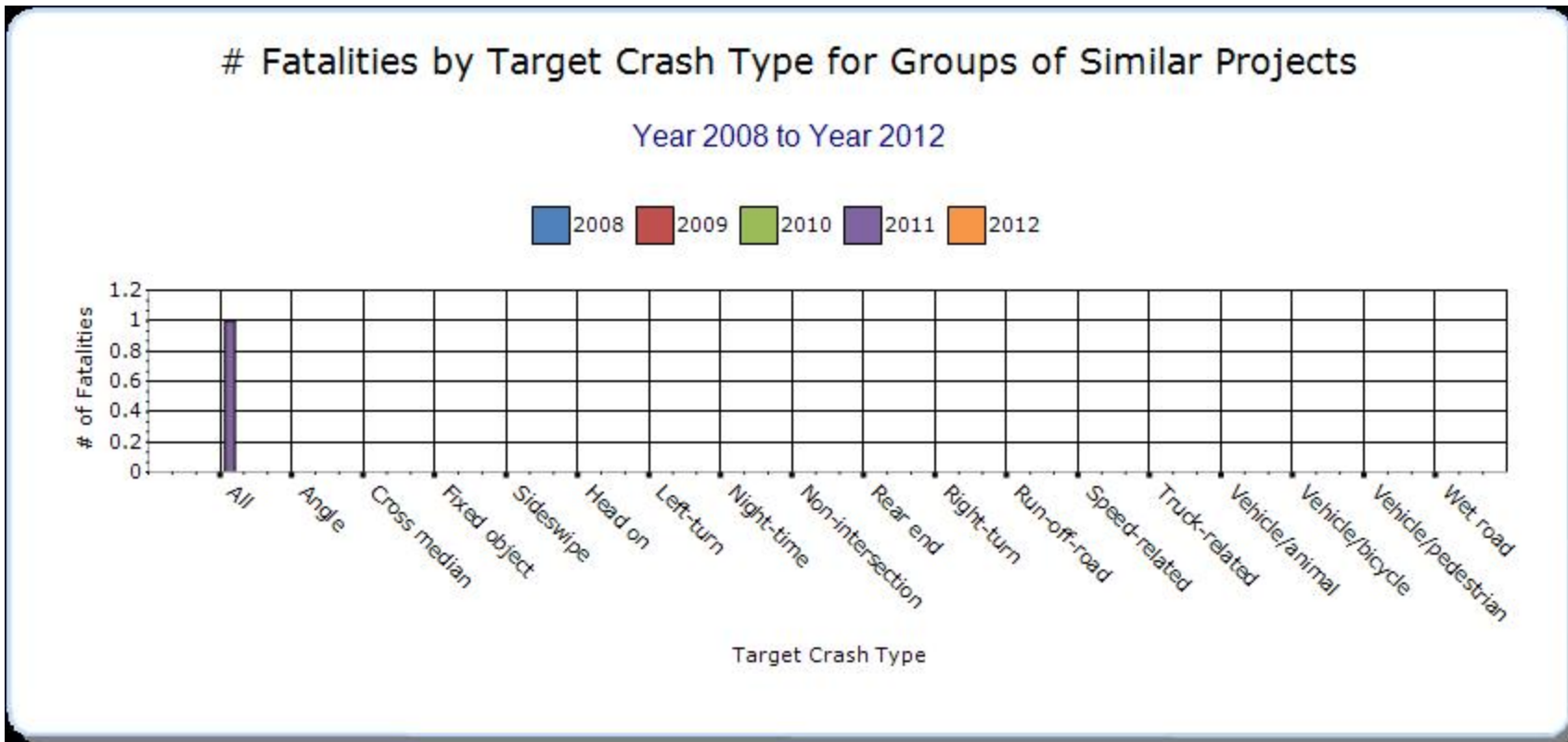


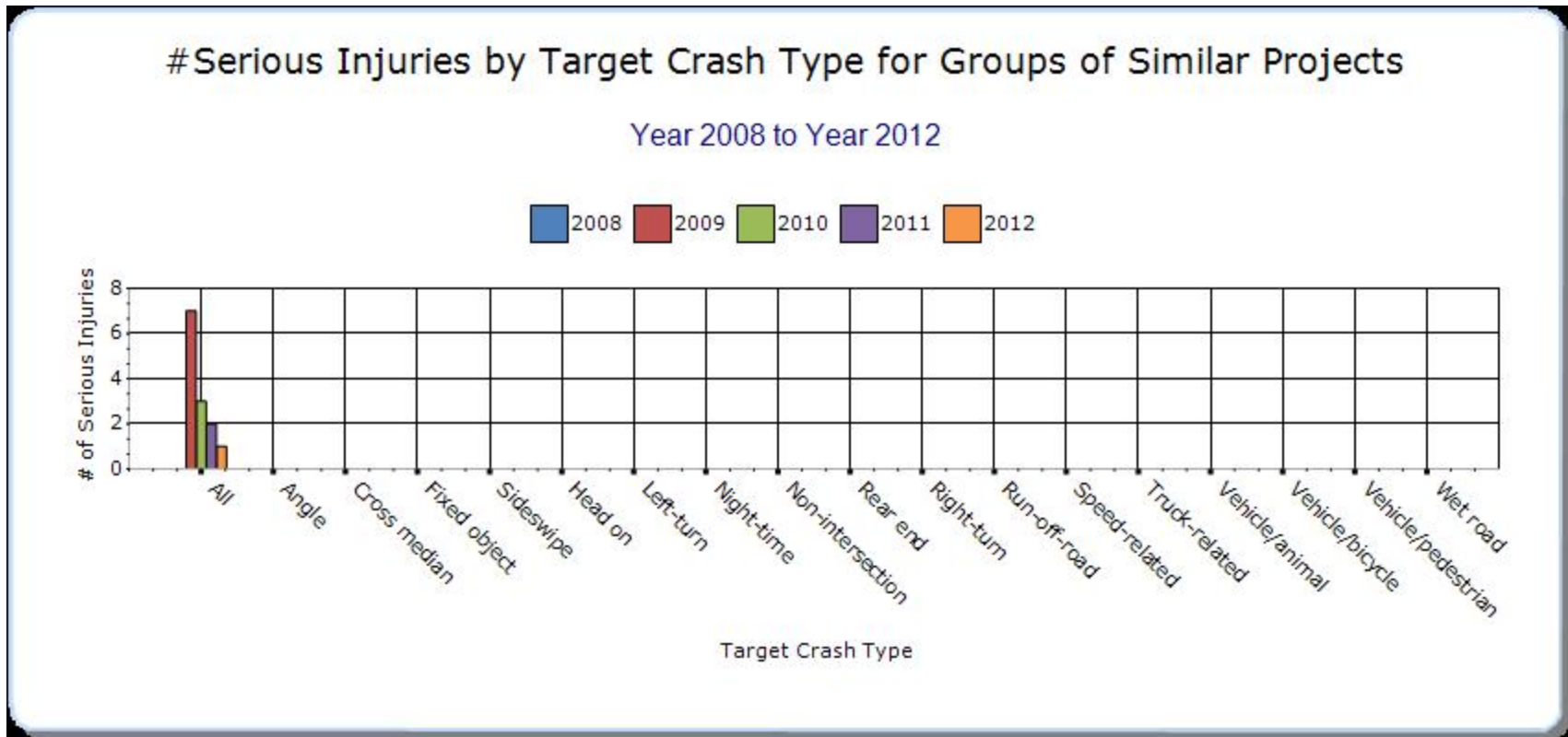
Groups of similar project types

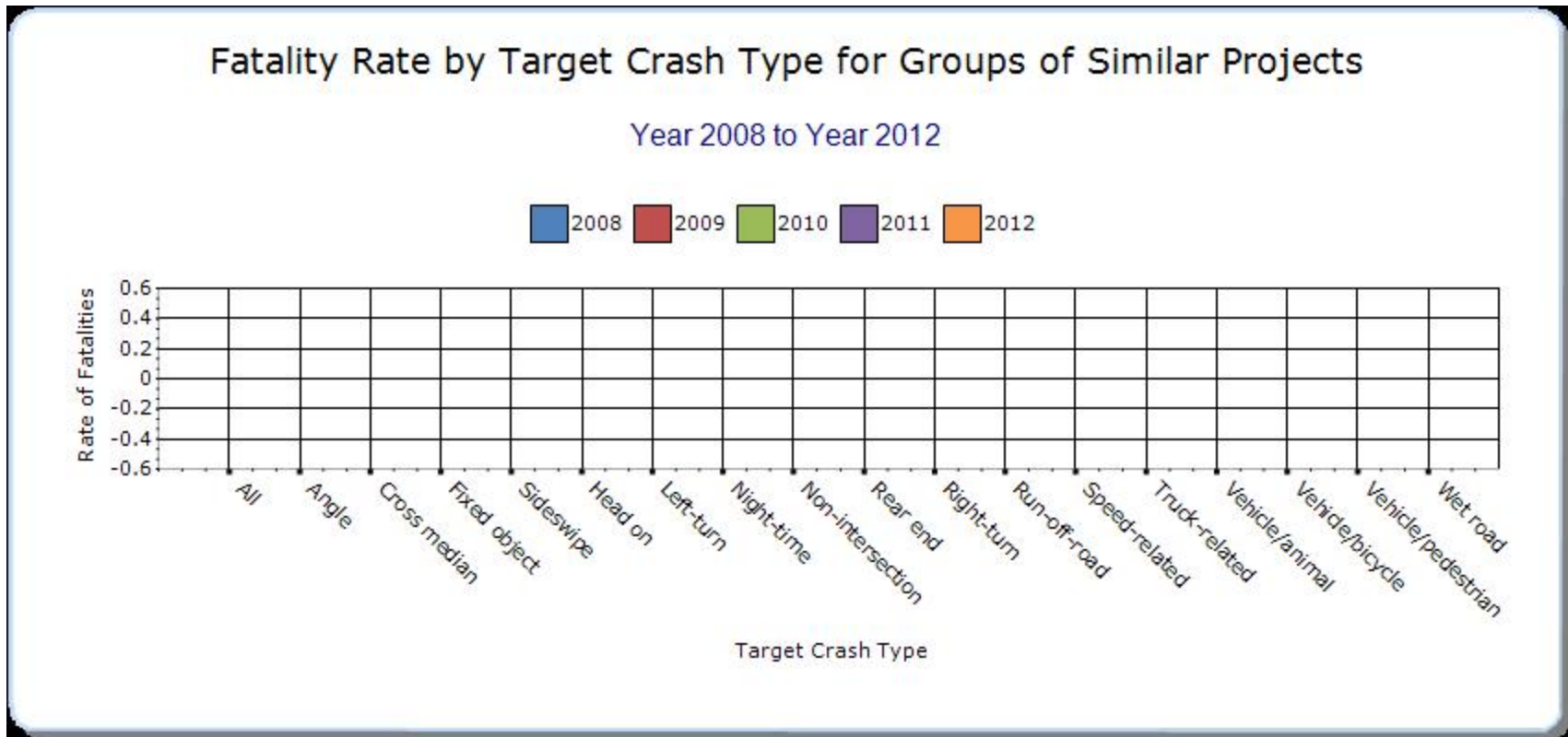
Present the overall effectiveness of groups of similar types of projects.

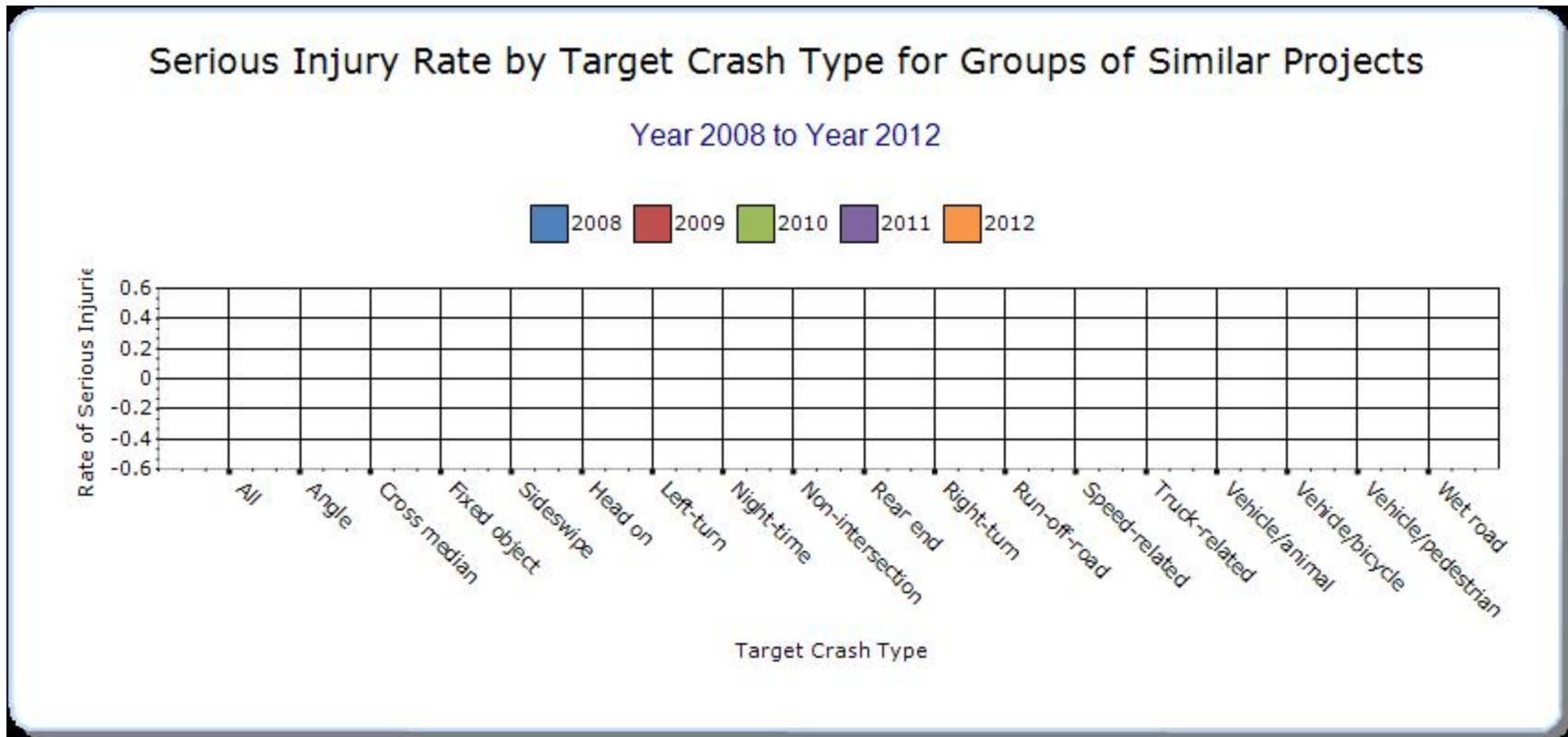
Year - 2012

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	0	1	0	0	0	0	0







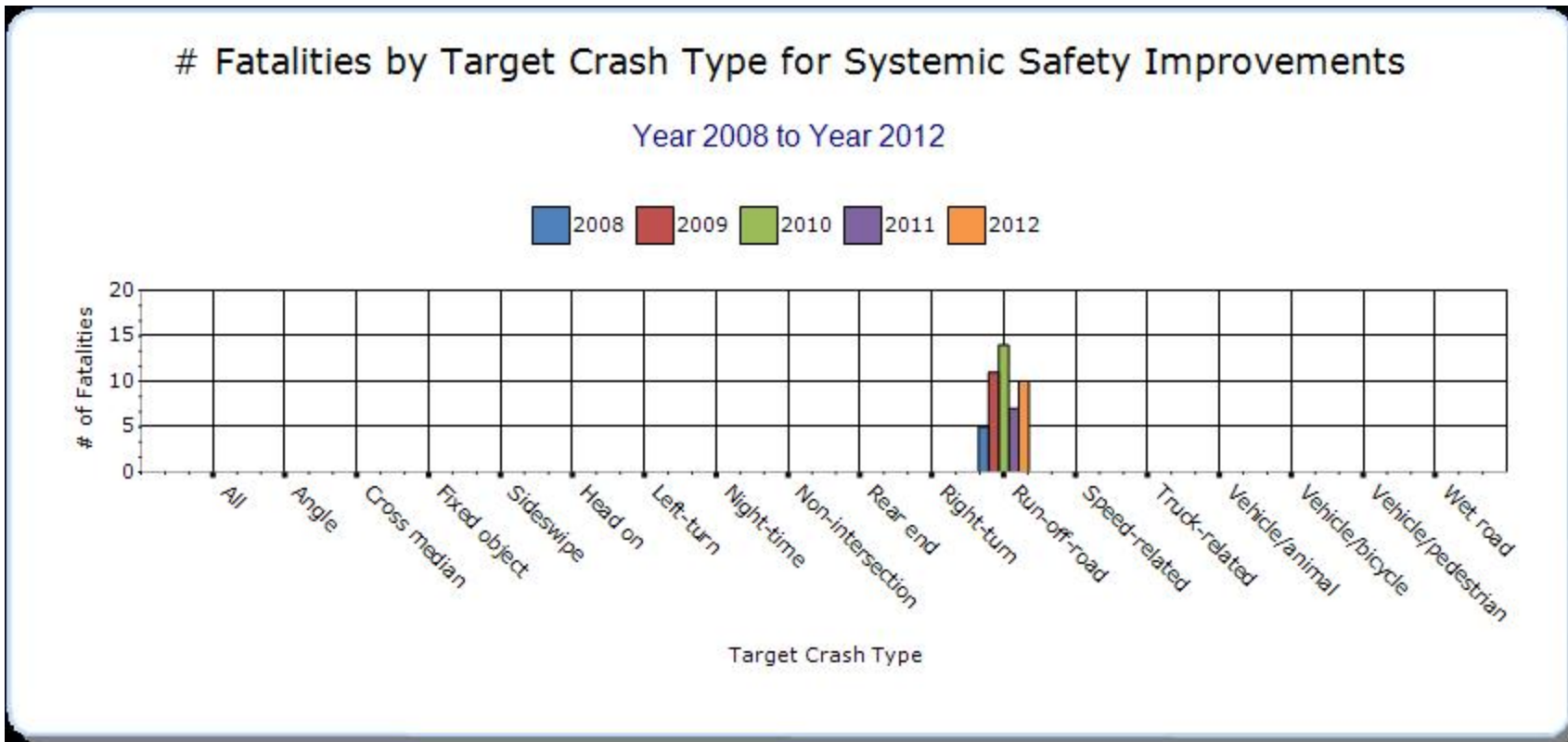


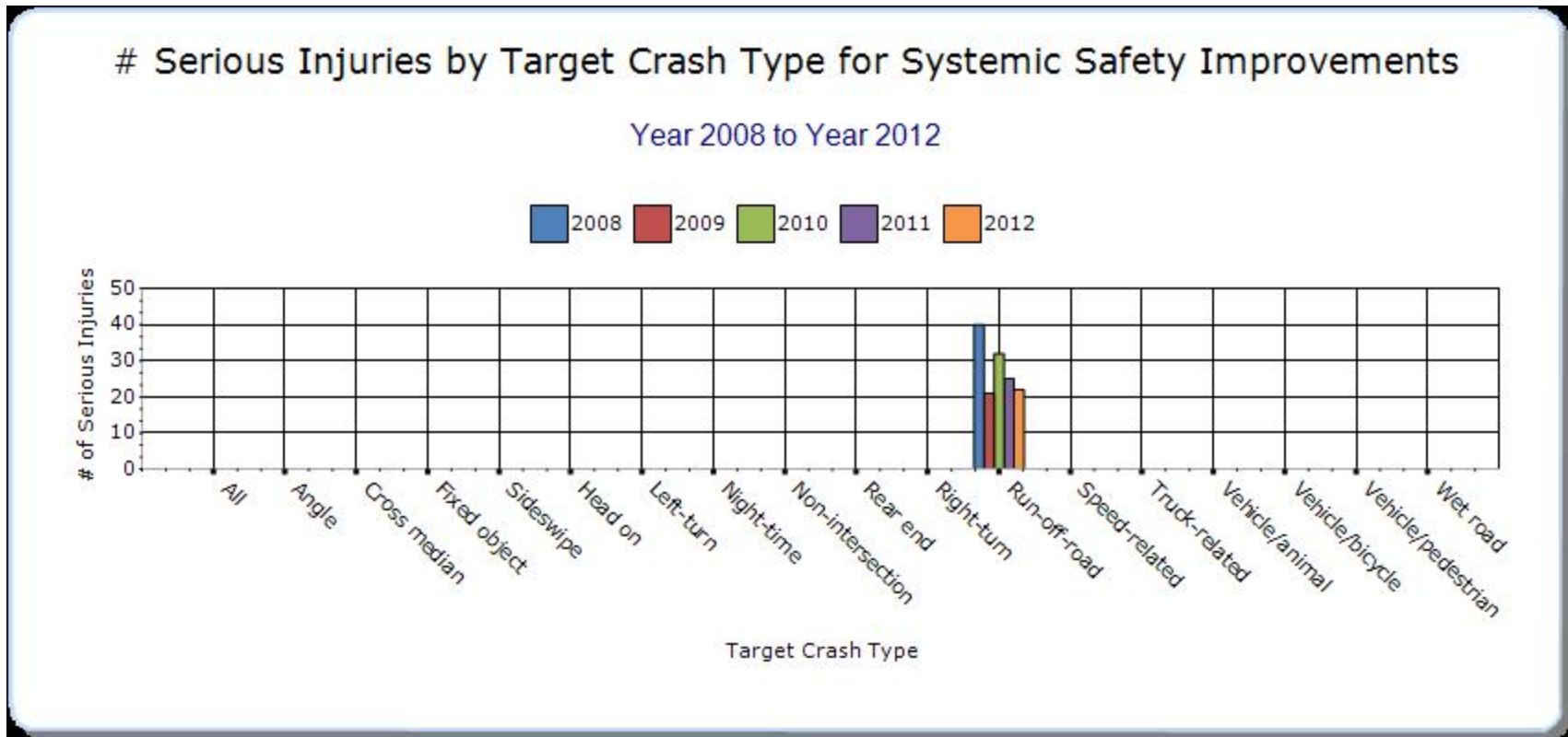
Systemic Treatments

Present the overall effectiveness of systemic treatments..

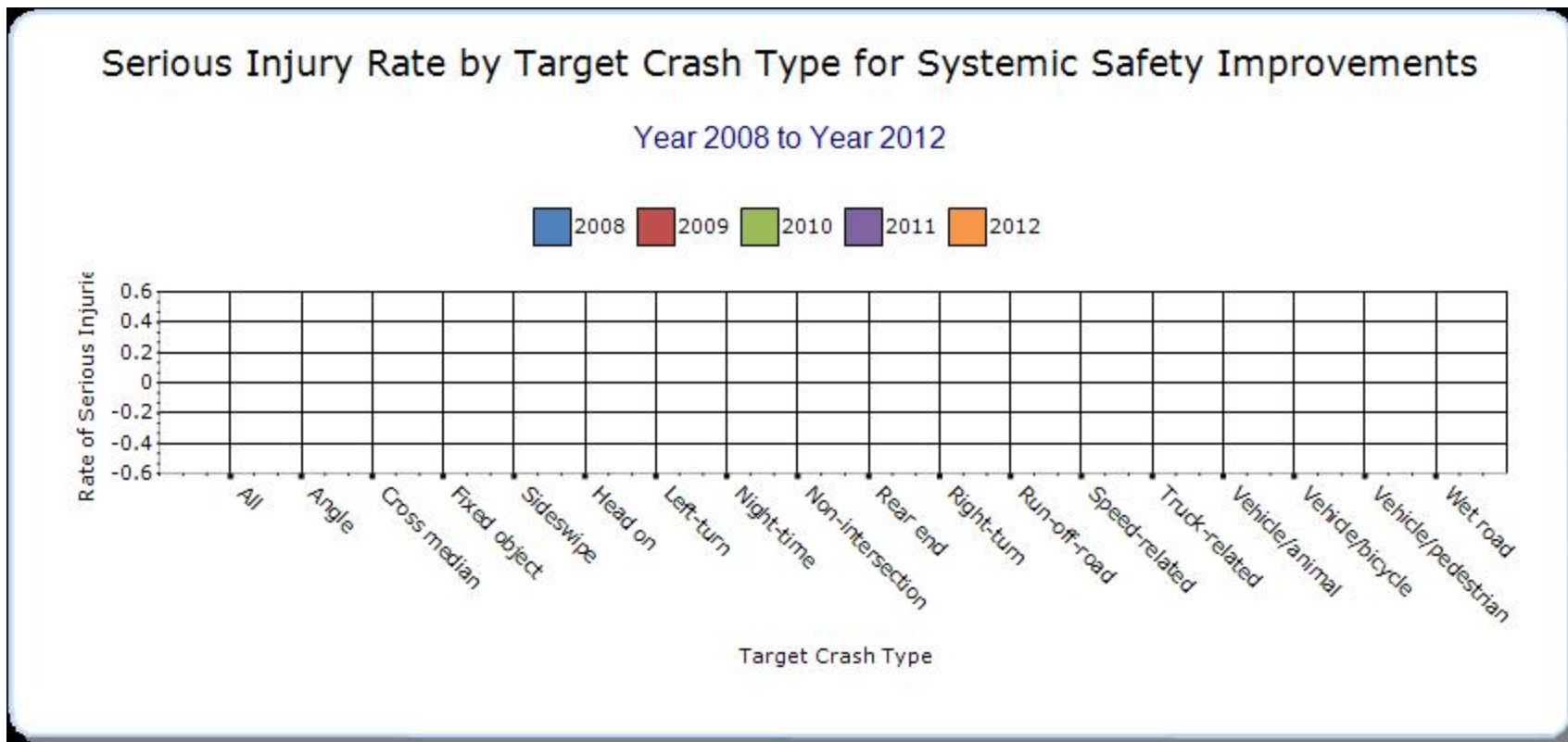
Year - 2012

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
Roadside Delineators	Run-off-road	10	22	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 evaluates HSIP projects and program to see if they are achieving the desired results outlined in the SHSP and to continuously improve the HSIP process and future planning. These project evaluations provide quantitative estimates of the specific countermeasure, project, or group of projects. The results from the evaluation are used to make design and data standards changes when performing the HSIP process in following years.

RIDOT identifies the related SHSP performance measures for each evaluation and measure conditions both before and after a change is made. Effectiveness is calculated by comparing the observed change in the performance measure with the change that would have been expected if the site had not been treated. RIDOT's current use of observational before/after studies is susceptible to regression-to-the-mean (RTM) errors.

RIDOT is working on moving towards more sophisticated project evaluation methods that handle RTM bias and draw more statistically valid conclusions. This included working with the University of Rhode Island on the development of calibration factors for Safety Performance Functions (SPFs). Using SPFs calibrated for local conditions enabled RIDOT to perform more sophisticated project evaluation methods outlined in the HSM.

The majority of the HSIP programs and projects have only been recently implemented and therefore sufficient crash data is not available yet to determine the effectiveness of the safety projects RIDOT implemented.

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)
Interstate 95	Urban Principal Arterial - Interstate	Roadway delineation	Roadway delineation - other	2	3	27	44	76	0	2	10	18	30	80/1

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.