Highway Safety Improvement Program

Data Driven Decisions

Vermont
Highway Safety Improvement Program
2015 Annual Report

Prepared by: VT

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 development of Highway Safety Improvement Projects was implemented following the methodology established in 2005. The Agency further continued to work with local municipalities in the review of high risk local roads and in the constructions of low cost improvements.

For the Federal Fiscal year the total amount of funding that was obligated during the reporting period was $10105953. Of these, $7,096,325 was obligated from HSIP Section 148 and $3,009,628 was obligated from Section 164.

During the reporting period, 37 projects were in a design stage and 27 were completed or being constructed.

Over the years, the HSIP and other related safety efforts have been efficient at reducing the number of major crashes (fatal + serious injury crashes). One of the principal measures of success that illustrates this is the reduction in the five-year average of major crashes which passed from 386 major crashes for the 2007-2011 period to 337 for the 2010-2014 period.

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.

Local roads that are part of the Federal Aid System are addressed the same way as state maintained roads, using the approved HSIP ranking methodology for the identification of locations with potential safety problems. The local roads that rank within the subset of top locations are reviewed through an engineering study. Low cost remedial actions are implemented via a statewide project, while high cost solutions are implemented by VTrans through the regular design process.

During the reporting period, rural local roads were considered for evaluation and improvement under our state high risk rural roads program. Locations were identified by the regional planning commissions

using crash data as well as anecdotal information. For these locations, safety corridor reviews were performed to identify signing, markings and guardrail improvements. These low cost treatments will be designed and implemented via a statewide project. The methodology used to select the HRRR projects is attached as an uploaded document under the Program Methodology Section.

Upon the request of a municipality, VTrans will perform a road safety audit of any local road to assist the municipality with local safety concerns. A multidisciplinary team is put together, a site visit is performed and a report outlying recommendations is provided to the municipality.

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.

Depending on the characteristics of the site to be reviewed, Design, Operations and/or Maintenance staff are asked to take part to the visit of the site and to formulate some recommendations. Key personal in Design and/or Maintenance are contacted several weeks in advance usually by email by the lead investigator. Along with a request to attend an on-site meeting, the lead investigator also sends relevant background information such as crash information and a general description of the problem.

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

☒ Metropolitan Planning Organizations

☐ Governors Highway Safety Office

☐ Local Government Association

☒Other: Other-Municipalities

☒Other: Other-Regional Planning Commissions

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-There has been no change since the last reporting period. We have almost completed the rewriting ouf our HSIP procedures.

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

There is a challenge in the deployment of HSIP countermeasure projects in that they follow the same design process as every other road and bridge project at VTrans. The solution may be identified quickly, however there is no priority put on an HSIP projects and therefore, implementation can several years as the project works through the same design process (PE, ROW and construction) as all VTrans projects.

This problem has also been an issue, to a lesser extent, with the delivery of low cost projects, such as the installation of signs or the upgrade of signal equipment on town highways.

While, since 2012, we have been developing and contracting regional projects to implement these low cost solutions on town and city owned roads (thus making sure that federal procurement procedures are followed), the time lag between the road reviews and the installation of the low cost improvements has been around two years. In addition, preparing formal plans for contacting purposes has also been time consuming.

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: Other-School Zone Safety

Program: **Low-Cost Spot Improvements**

Date of Program Methodology: **1/28/2005**

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

Program: **Local Safety**

Date of Program Methodology: **3/12/2009**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
☒ All crashes	☐ Traffic	☐ Median width

☐ Fatal crashes only	☐ Volume	☒ Horizontal curvature
☐ Fatal and serious injury crashes only	☐ Population	☒ Functional classification
☐ Other	☐ Lane miles	☐ Roadside features
	☐ Other	☒ Other-"rural" like roads

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 100

☐Incremental B/C

☐Ranking based on net benefit

☐Other

Program: **Other-School Zone Safety**

Date of Program Methodology: **1/1/2014**

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-Presence of a School

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-Participation in the safe route to school program

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-All sites are advanced for signs and markings

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

☐Relative Weight in Scoring

☒Rank of Priority Consideration

☐Ranking based on B/C

☐Available funding

☐Incremental B/C

☐Ranking based on net benefit

☐Other

☒All sites are advanced 1

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

13

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: Other-No change

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

The main challenge concerning our HSIP ranking methodology for spot improvements continues to be that it does not address roads that are off the Federal Aid System. The current HSIP ranking methodology generates locations based on the high crash locations that are generated by VTrans' Highway Safety Data Section. The data that the Highway Safety Data Section uses as input are only for the roads that fall under the Federal Aid highway system. Consequently, only locally maintained roads that are on the Federal Aid systems are considered as part of the ranking methodology of the HSIP.

Given that Vermont is a rural state with crashes that tend to be dispersed, another ongoing challenge with our current sport improvement methodology is that it tends to identify rural locations with very few crashes or urban locations with a large number of crashes at high traffic intersections.

A consultant has been reviewing our HSIP ranking process and has proposed a new process that will better align with the SHSP. We hope to be implementing this process in the next reporting period.

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)	7096325.57	70 %	7096325.57	70 %
HRRRP (SAFETEA-LU)				
HRRR Special Rule				
Penalty Transfer - Section 154				
Penalty Transfer – Section 164	3009628.54	30 %	3009628.54	30 %
Incentive Grants - Section 163				
Incentive Grants (Section 406)				
Other Federal-aid Funds (i.e. STP, NHPP)				
State and Local Funds				

Totals	10105954.11	100%	10105954.11	100%

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

26 %

How much funding is obligated to local safety projects?

26 %

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

1 %

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

1 %

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.

Safety projects should have a quick turnaround to have a significant impact. Major construction projects that follow the rigid design process are an impediment to obligating funds. Producing more systemic projects with little or no right-of-way and little environmental impacts is one way to design and construct more projects and thus spending more money on safety.

Our updated Draft HSIP Manual, that is currently being worked on by a consultant, suggests that VTrans explores alternative contracting methods for low cost safety improvements.

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

A consultant has been helping us reviewing our HSIP methodology. As part of this review, a mechanism to track progress will be developed.

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
BARRE CITY HES 037-1(8) - Design	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	1635000	1635000	Penalty Transfer – Section 164	Urban Major Collector	4900	25	City of Municipal Highway Agency	Intersections	Improve Geometry
BARRE TOWN HES STPG 6100(6) - Preliminary	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	1665000	1665000	PE: Penalty Transfer – Section 164, ROW: HSIP (Section 148)	Urban Minor Arterial	2700	35	State Highway Agency	Intersections	Improve Geometry
BERLIN STPG	Intersection traffic control Modify traffic	1 Numb	20200	20200	HSIP (Sectio	Urban Principal	114	50	State Highway	Intersecti	Improve

SGNL(40) - Design	signal - modernization/replacement	ers	00	00	n 148)	Arterial - Other	59		Agency	ons	Operations
BRISTOL HES 021-1(28) - Design	Intersection traffic control Modify traffic signal - modernization/replacement	1 Numbers	820000	820000	Penalty Transfer – Section 164	Rural Minor Arterial	5900	30	Town or Township Highway Agency	Intersections	Improve Operations
BURLINGTON HES 5000 (18) - Design	Intersection traffic control Modify control - all-way stop to roundabout	1 Numbers	2835000	2835000	Penalty Transfer – Section 164	Urban Principal Arterial - Other	19400	30	City of Municipal Highway Agency	Intersections	Improve Operations
CAMBRIDGE STP 030-2(27) - Complete	Intersection traffic control Modify control - all-way stop to roundabout	1 Numbers	2230000	2230000	Penalty Transfer – Section 164	Rural Minor Arterial	7150	40	State Highway Agency	Intersections	Improve Operations
COLCHESTER HES028-1(28) - Design	Intersection geometry Auxiliary lanes - add left-turn lane	2 Numbers	855000	855000	Penalty Transfer – Sectio	Rural Principal Arterial - Other	11450	55	State Highway Agency	Intersections	Improve Geometry

					n 164						
COLCHESTER HES NH 5600(14) - Design	Intersection geometry Intersection geometry - other	2 Numbers	9800000	9800000	PE: Penalty Transfer – Section 164, ROW: HSIP (Section 148)	Urban Principal Arterial - Other	21150	30	State Highway Agency	Intersections	Improve Geometry
ESSEX STPG SGNL(41) - Complete	Intersection traffic control Modify traffic signal - modernization/replacement	1 Numbers	385425	385425	HSIP (Section 148)	Urban Minor Arterial	13200	40	State Highway Agency	Intersections	Improve Operations
ESSEX TOWN STP HES 5400(5) - Complete	Intersection traffic control Intersection traffic control - other	1 Numbers	1038199	1038199	HSIP (Section 148)	Urban Minor Arterial	8950	40	State Highway Agency	Intersections	Improve Operations
FERRISBURGH NHG SGNL(42) - Design	Intersection traffic control Intersection traffic control - other	1 Numbers	660000	660000	HSIP (Section 148)	Rural Principal Arterial - Other	12300	40	State Highway Agency	Intersections	Improve Operations

HINESBURG HES 021-1(19) - Design	Intersection geometry Auxiliary lanes - add left-turn lane	2 Numbers	2120000	2120000	Penalty Transfer – Section 164	Rural Minor Arterial	8550	40	State Highway Agency	Intersections	Improve Geometry
JERICHO STP HES 030-1(21) - Design	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	2280000	2280000	HSIP (Section 148)	Rural Minor Arterial	10149	50	State Highway Agency	Intersections	Improve Geometry
MILTON HES 028-1(27) - Design	Roadway signs and traffic control Roadway signs and traffic control - other	0.3 Miles	30000	30000	Penalty Transfer – Section 164	Rural Principal Arterial - Other	9500	55	State Highway Agency	Intersections	Improve Operations
MORRISTOWN STP HES 030-2(28) Design	Intersection geometry Intersection geometrics - modify skew angle	1 Numbers	146000	146000	HSIP (Section 148)	Rural Minor Arterial	6700	50	State Highway Agency	Intersections	Improve Geometry
NEW HAVEN HES 032-1(8) - Design	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	1 Numbers	1580000	1580000	Penalty Transfer – Sectio	Rural Minor Arterial	4050	45	State Highway Agency	Intersections	Improve Geometry

					n 164						
SOUTH BURLINGTON HES 5200(20) - Complete	Intersection traffic control Modify traffic signal - add long vehicle detection	4 Numbers	10400	10400	Penalty Transfer – Section 164	Urban Minor Collector	6350	25	City of Municipal Highway Agency	Intersections	Improve Operations
SOUTH HERO STP HES 028-1(22) - Design	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	1800000	1800000	HSIP (Section 148)	Rural Principal Arterial - Other	6950	35	State Highway Agency	Intersections	Improve Geometry
STATEWIDE HES CRSH	Non-infrastructure Data/traffic records	1 Numbers	29137	29137	Penalty Transfer – Section 164	Not Applicable, Crash Management	0	0	State Highway Agency	Data	Improve Data Quality
Statewide STPHRRR(16) - Complete	Roadway signs and traffic control Roadway signs (including post) - new or updated	17.9 Miles	290000	290000	HSIP (Section 148)	Rural Major, Minor and Local Roads	0	0	Town or Township Highway Agency	Roadway Departure	Low Cost Improvements
Statewide STPHRRR(17) -	Roadway signs and traffic control Roadway signs (including post) - new or	23.3 Miles	260000	260000	HSIP (Sectio	Rural Major, Minor and	0	0	Town or Township	Roadway Departur	Low Cost Improvem

Complete	updated				n 148)	Local Roads			Highway Agency	e	ents
Statewide STPHRRR(18) - Complete	Roadway signs and traffic control Roadway signs (including post) - new or updated	9.56 Miles	18000 0	18000 0	HSIP (Sectio n 148)	Rural Major, Minor and Local Roads	0	0	Town or Townshi p Highway Agency	Roadway Departur e	Low Cost Improvem ents
Statewide STPHRRR(19) - Complete	Roadway signs and traffic control Roadway signs (including post) - new or updated	17.339 Miles	33500 0	33500 0	HSIP (Sectio n 148)	Rural Major, Minor and Local Roads	0	0	Town or Townshi p Highway Agency	Roadway Departur e	Low Cost Improvem ents
Statewide STPHRRR(22) - Design	Roadway signs and traffic control Roadway signs (including post) - new or updated	0 Miles	45000 0	45000 0	HSIP (Sectio n 148)	Rural Major, Minor and Local Roads	0	0	Town or Townshi p Highway Agency	Roadway Departur e	Low Cost Improvem ents
Statewide STPHRRR(23) - Design	Roadway signs and traffic control Roadway signs (including post) - new or updated	0 Miles	45000 0	45000 0	HSIP (Sectio n 148)	Rural Major, Minor and Local Roads	0	0	Town or Townshi p Highway Agency	Roadway Departur e	Low Cost Improvem ents
Statewide Southwest STPG SIGN(47) -	Roadway signs and traffic control Roadway signs (including post) - new or	32.8 Miles	24500 0	24500 0	HSIP (Sectio n 148)	Rural Major Collector	0	0	State Highway Agency	Older Drivers	Improve Infrastruct ues for all

Complete	updated										Users
Statewide Southwest STPG SIGN(51) - Construction	Roadway signs and traffic control Roadway signs (including post) - new or updated	22.7 Miles	306000	306000	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
Stowe-Berksire STPG SIGN(49) - Design	Roadway signs and traffic control Roadway signs (including post) - new or updated	33.9 Miles	436000	436000	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
Alburgh-Colchester STPG SIGN(45) - Substantially Complete	Roadway signs and traffic control Roadway signs (including post) - new or updated	39 Miles	335000	335000	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
Barre Town STP HES 0169(8) - Design	Intersection geometry Intersection geometrics - modify skew angle	1 Numbers	480000	480000	HSIP (Section 148)	Rural Major Collector	4500	35	State Highway Agency	Intersections	Improve Geometry
Barton-Derby STPG	Roadway signs and traffic control Roadway signs (including post) - new or	25.3 Miles	210000	210000	HSIP (Sectio	Rural Major	0	0	State Highway	Older Drivers	Improve Infrastructues for all

SIGN(46) - Substantially Complete	updated				n 148)	Collector			Agency		Users
Brattleboro NHG SIGN(53) - Design	Roadway signs and traffic control Roadway signs (including post) - new or updated	1 Numbers	565000	565000	HSIP (Section 148)	Urban Principal Arterial - Other	13200	30	Town or Township Highway Agency	Intersections	Improve Driver Compliance
Calais-Greensboro STPG SIGN(50) - Construction	Roadway signs and traffic control Roadway signs (including post) - new or updated	22.52 Miles	220000	220000	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
Colchester STPG 5600(17) - Design	Intersection traffic control Modify traffic signal - modernization/replacement	1 Numbers	5300000	5300000	HSIP (Section 148)	Rural Principal Arterial - Other	11700	50	State Highway Agency	Intersections	Improve Operations
Colchester-Essex STPG SGNL(45) - Design	Intersection traffic control Modify traffic signal - modernization/replacement	4 Numbers	135000	135000	HSIP (Section 148)	Urban Minor Arterial	0	0	State Highway Agency	Intersections	Improve Operations
Essex STP	Intersection traffic	1	16800	16800	HSIP	Urban	110	40	State	Intersecti	Improve

5400(7) - Design	control Modify traffic signal - modernization/replacement	Numbers	00	00	(Section 148)	Minor Arterial	00		Highway Agency	ons	Operations
Essex STPG 030-1(22) - Design	Intersection traffic control Modify traffic signal - miscellaneous/other/unspecified	1 Numbers	134000	134000	HSIP (Section 148)	Rural Principal Arterial - Other	11500	35	State Highway Agency	Intersections	Improve Operations
Guilford-Rockingham IMG SIGN(44) - Construction	Roadway signs and traffic control Roadway signs (including post) - new or updated	39 Miles	2265000	2265000	HSIP (Section 148)	Rural Principal Arterial - Interstate	0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
Hartford STP 0113(59)S - Design	Intersection traffic control Modify control - modifications to roundabout	1 Numbers	316700	316700	HSIP (Section 148)	Rural Minor Arterial	9400	40	Town or Township Highway Agency	Intersections	Improve Geometry
Hartford-Royalton IMG SIGN(48) - Design	Roadway signs and traffic control Roadway signs (including post) - new or updated	21.32 Miles	184000	184000	HSIP (Section 148)	Rural Principal Arterial - Interstate	0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
Hyde Park	Intersection traffic	1	33000	33000	HSIP	Rural	780	40	State	Intersecti	Improve

HES 030-2(34) - Design	control Modify control - modifications to roundabout	Numbers	0	0	(Section 148)	Minor Arterial	0		Highway Agency	ons	Geometry
Ludlow HES SGNL(44) - Design	Intersection traffic control Modify traffic signal - miscellaneous/other/unspecified	1 Numbers	650000	650000	Penalty Transfer – Section 164	Rural Principal Arterial - Other	6750	50	State Highway Agency	Intersections	Improve Operations
Milton STP 5800(3) - Design	Intersection traffic control Modify traffic signal - miscellaneous/other/unspecified	1 Numbers	385000	385000	HSIP (Section 148)	Urban Minor Arterial	11100	25	State Highway Agency	Intersections	Improve Operations
Randolph-Berlin STPG SIGN(52) - Construction	Roadway signs and traffic control Roadway signs (including post) - new or updated	23.45 Miles	300000	300000	HSIP (Section 148)	Rural Major Collector	0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
Statewide HES GARD(2) - Design	Roadside Barrier - other	16 Miles	142500	142500	Penalty Transfer – Section 164	Rural Minor Arterial	0	0	State Highway Agency	Roadway Departure	

Statewide IMG MARK(114) - Complete	Roadway delineation Longitudinal pavement markings - remarking	339 Miles	766734	766734	HSIP (Section 148)	Rural Principal Arterial - Interstate	0	0	State Highway Agency	Roadway Departure	Improve Highway Delineation
Statewide North HES MARK(402) - Complete	Roadway delineation Longitudinal pavement markings - remarking	1147 Miles	880000	880000	Penalty Transfer – Section 164	Rural Major Collector	0	0	Town or Township Highway Agency	Roadway Departure	Improve Highway Delineation
Statewide South HES MARK(401) - Complete	Roadway delineation Longitudinal pavement markings - remarking	1017 Miles	766484	766484	HSIP (Section 148)	Rural Local Road or Street	0	0	Town or Township Highway Agency	Roadway Departure	Improve Highway Delineation
Statewide South HES MARK(403) - Compelete	Roadway delineation Longitudinal pavement markings - remarking	1022 Miles	655000	655000	Penalty Transfer – Section 164	Rural Major Collector	0	0	Town or Township Highway Agency	Roadway Departure	Improve Highway Delineation
Waterbury NHG SIGNL(43) -	Intersection traffic control Modify traffic signal - miscellaneous/other/uns	2 Numbers	306000	306000	HSIP (Section 148)	Rural Minor Arterial	14000	40	State Highway Agency	Intersections	Improve Operations

Compelete	pecified										
Waterbury STP SGNL(18) - Complete	Intersection traffic control Modify control - two-way stop to roundabout	1 Numbers	508500	508500	HSIP (Section 148)	Rural Minor Arterial	10450	25	Town or Township Highway Agency	Intersections	Improve Operations
Waterbury Area STP WKZN(9) - Design	Work Zone	0	985000	985000	HSIP (Section 148)	Various Roads	0	0	State Highway Agency	Work Zones	Improve Operations
Williston STPG 5500(14) - Design	Intersection traffic control Modify traffic signal - miscellaneous/other/unspecified	1 Numbers	142500	142500	HSIP (Section 148)	Rural Principal Arterial - Other	18700	40	State Highway Agency	Intersections	Improve Operations
Winooski HES 5100(13) - Design	Pedestrians and bicyclists Pedestrian beacons	1 Numbers	87000	87000	Penalty Transfer – Section 164	Urban Principal Arterial - Other	22200	25	City of Municipal Highway Agency	Intersections	Improve Operations
Rutland Town NHG 019-3(60) - Design	Intersection traffic control Modify traffic signal - modernization/replacem	1 Numbers	370000	370000	HSIP (Section 148)	Urban Principal Arterial - Other	21500	40	State Highway Agency	Intersections	

	ent										
Statewide - North Region STPG MARK(302) - Construction	Roadway delineation Longitudinal pavement markings - remarking	0 Miles	1980000	1980000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	Improve Highway Delineation
Statewide - South Region STPG MARK(303) - Construction	Roadway delineation Longitudinal pavement markings - remarking	0 Miles	1460000	1460000	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	Improve Highway Delineation
Statewide IMG MARK(115) - Construction	Roadway delineation Longitudinal pavement markings - remarking	0 Miles	2745000	2745000	HSIP (Section 148)	Rural Principal Arterial - Interstate	0	0	State Highway Agency	Roadway Departure	Improve Highway Delineation
Statewide HES MARK(404) - Constructi	Roadway delineation Longitudinal pavement markings - remarking	0 Miles	2885000	2885000	HSIP (Section 148)		0	0	Town or Township Highway	Roadway Departure	Improve Highway Delineation

on									Agency		
Rockingham - Hartford IMG SIGN(54) - Design	Roadway signs and traffic control Roadway signs (including post) - new or updated	34 Miles	1700000	1700000	HSIP (Section 148)	Rural Principal Arterial - Interstate	0	65	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
Winooski - Cambridge STPG SIGN(55) - Design	Roadway signs and traffic control Roadway signs (including post) - new or updated	23.9 Miles	300000	300000	HSIP (Section 148)		0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
Statewide - Northeast STPG SIGN(56) - Design	Roadway signs and traffic control Roadway signs (including post) - new or updated	56.3 Miles	435000	435000	HSIP (Section 148)		0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
Williston STP 5500(16) - Construction	Intersection traffic control Modify traffic signal - miscellaneous/other/unspecified	1 Numbers	90000	90000	HSIP (Section 148)	Urban Principal Arterial - Other	12300	35	State Highway Agency	Intersections	Improve Operations
Williston - Essex STPG SGNL(46) - Design	Intersection traffic control Modify traffic signal - modernization/replacem	15 Numbers	1100000	1100000	HSIP (Section 148)		0	0	State Highway Agency	Intersections	Improve Operations

	ent										
Plainfield NH 028-3(41) - Design	Intersection traffic control Intersection traffic control - other	1 Numbers	890000	890000	HSIP (Section 148)	Rural Principal Arterial - Other	7000	30	State Highway Agency	Intersections	Improve Operations
Springfield STP 016-2(23) - Design	Intersection traffic control Intersection traffic control - other	2 Numbers	600000	600000	HSIP (Section 148)	Rural Minor Arterial	9900	40	State Highway Agency	Intersections	Improve Operations
Statewide HES RMBL(2) Complete	Roadway delineation Roadway delineation - other	0 Miles	202000	202000	Penalty Transfer – Section 164	Rural Minor Collector	0	0	State Highway Agency	Lane Departure	Improve Highway Delineation

Progress in Achieving Safety Performance Targets

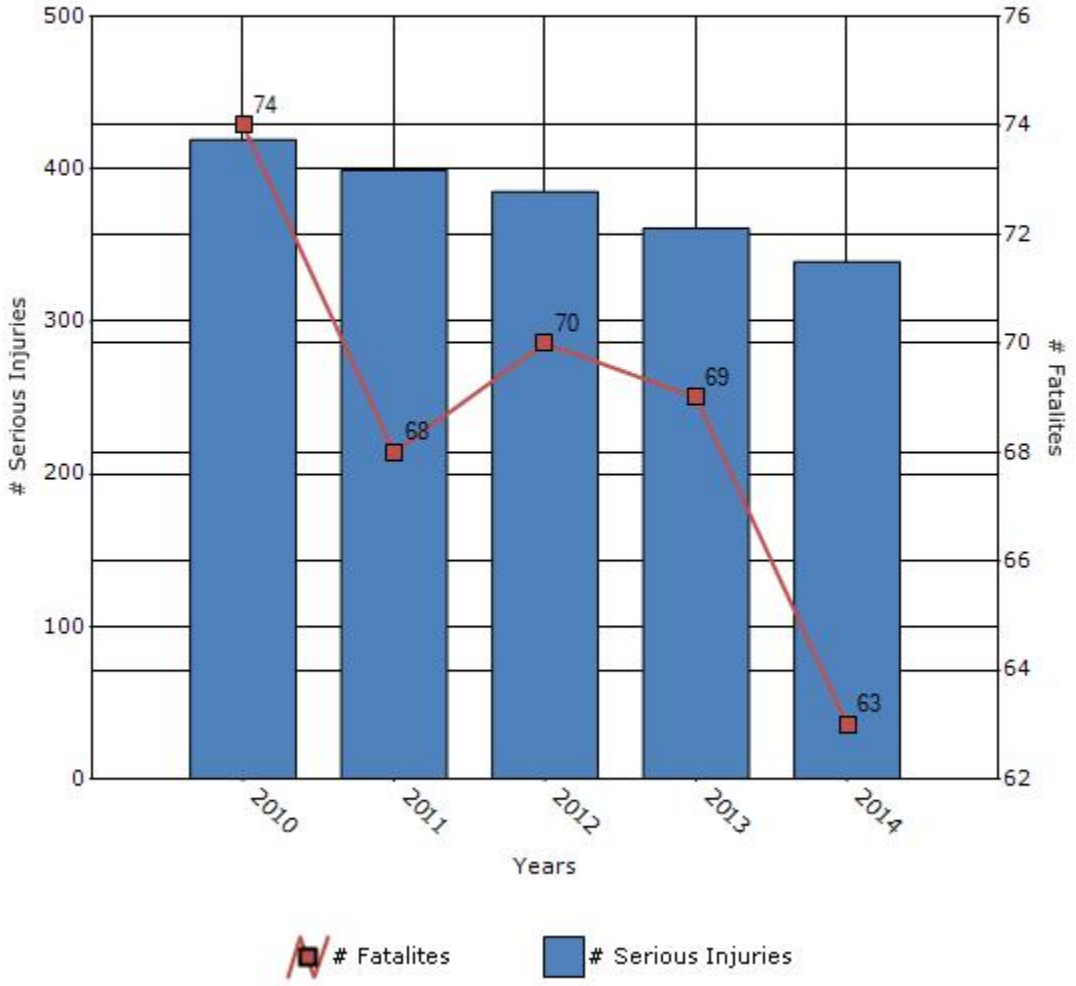
Overview of General Safety Trends

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

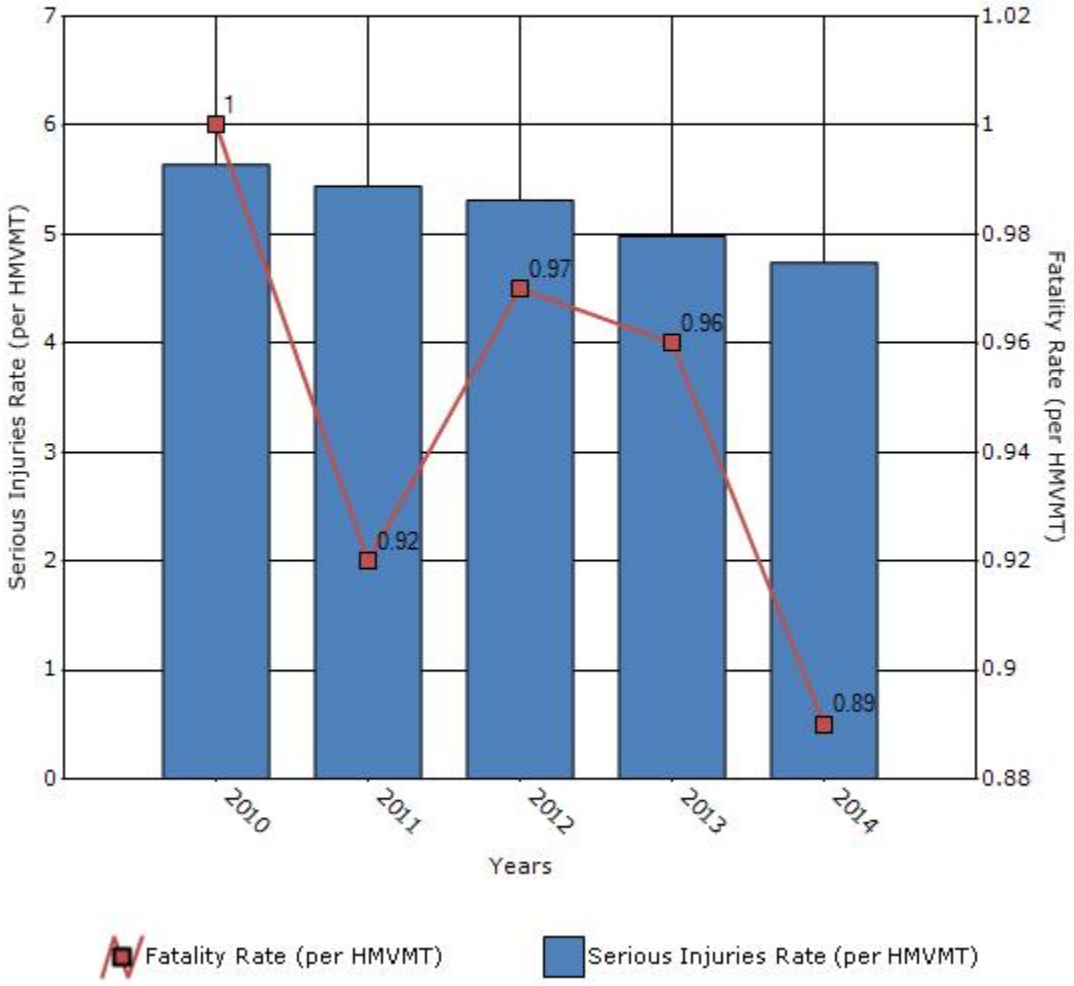
Performance Measures*	2010	2011	2012	2013	2014
Number of fatalities	74	68	70	69	63
Number of serious injuries	419	399	385	361	339
Fatality rate (per HMVMT)	1	0.92	0.97	0.96	0.89
Serious injury rate (per HMVMT)	5.64	5.44	5.31	4.98	4.74

*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

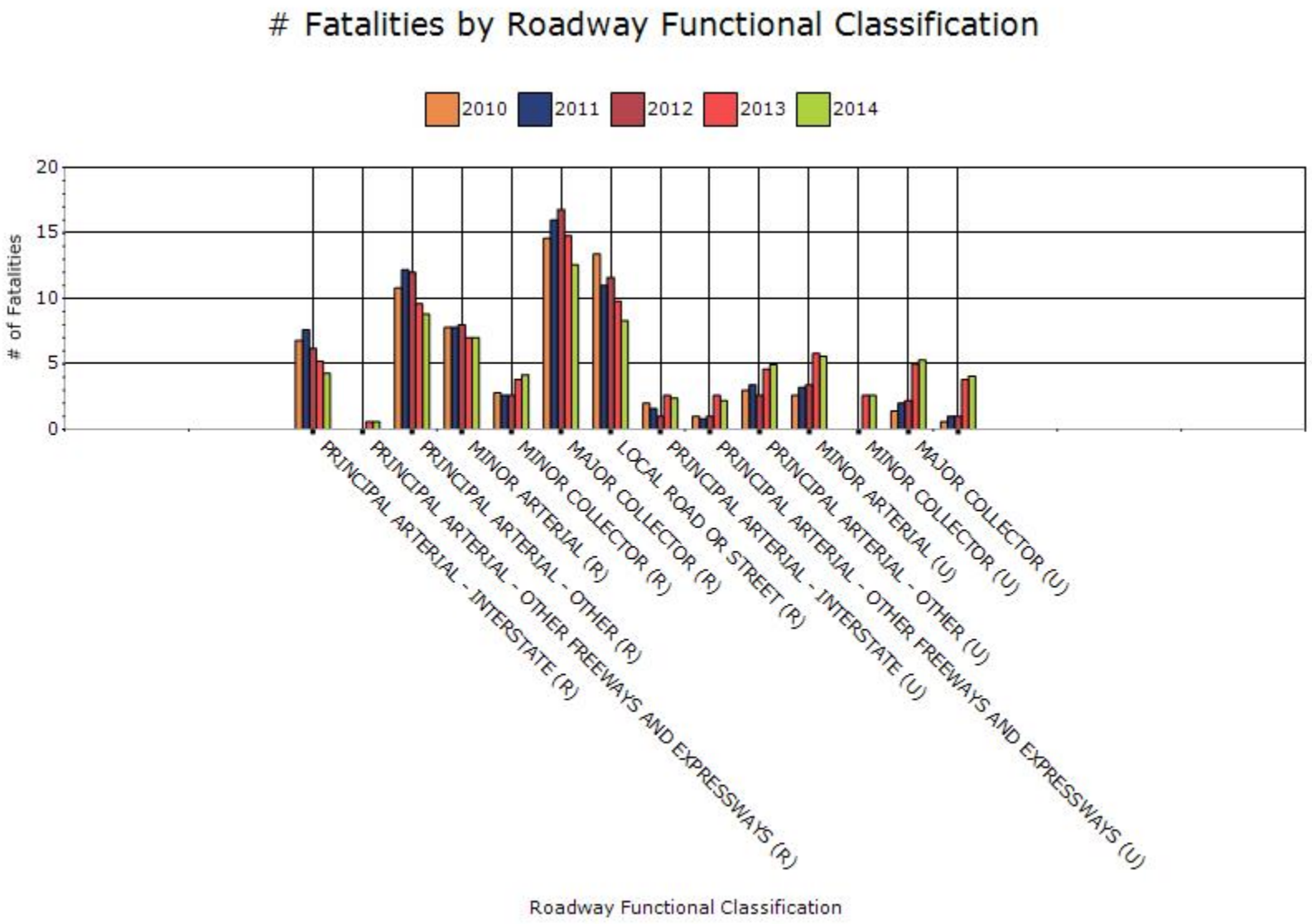


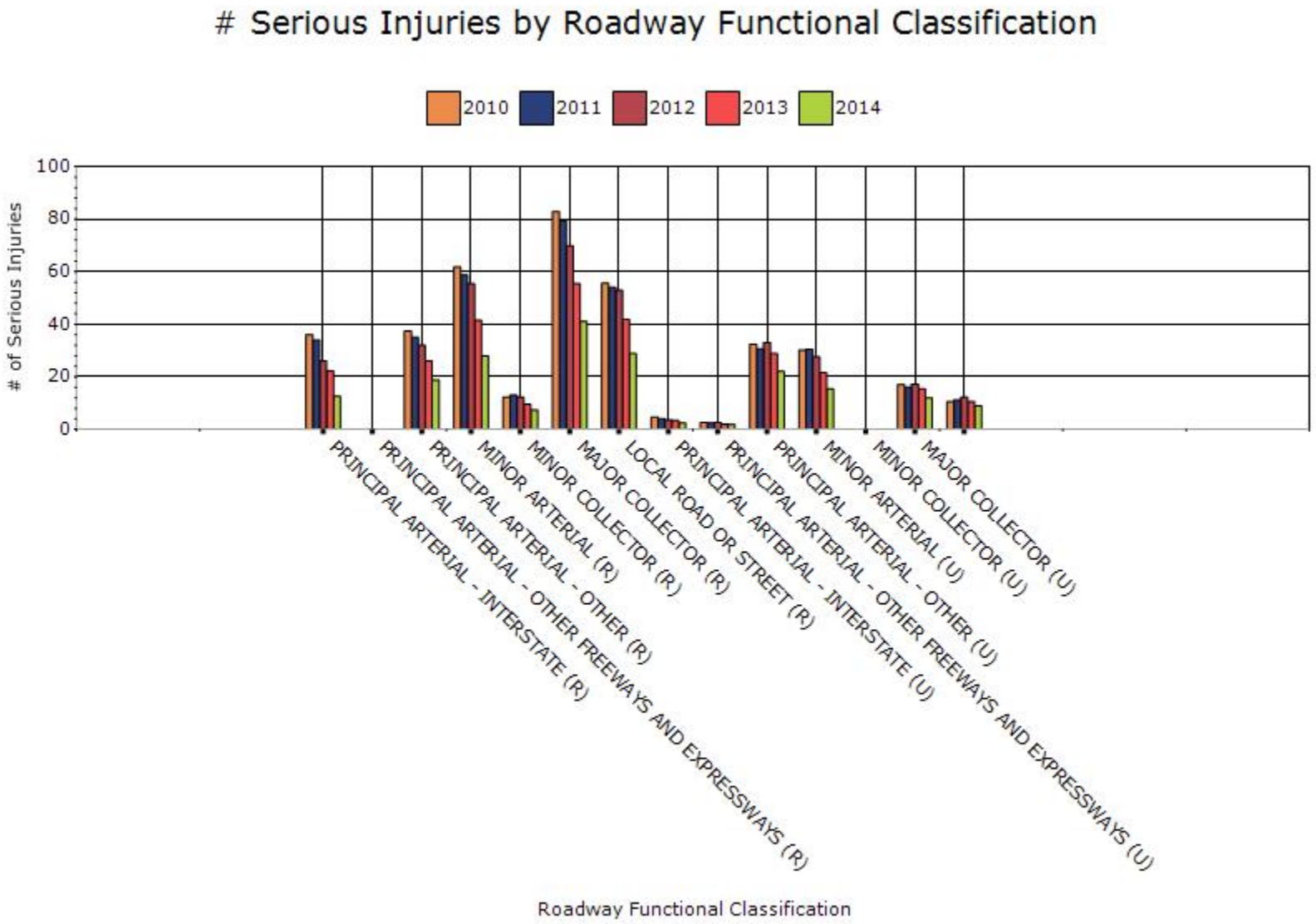
To the maximum extent possible, present performance measure* data by functional classification and ownership.

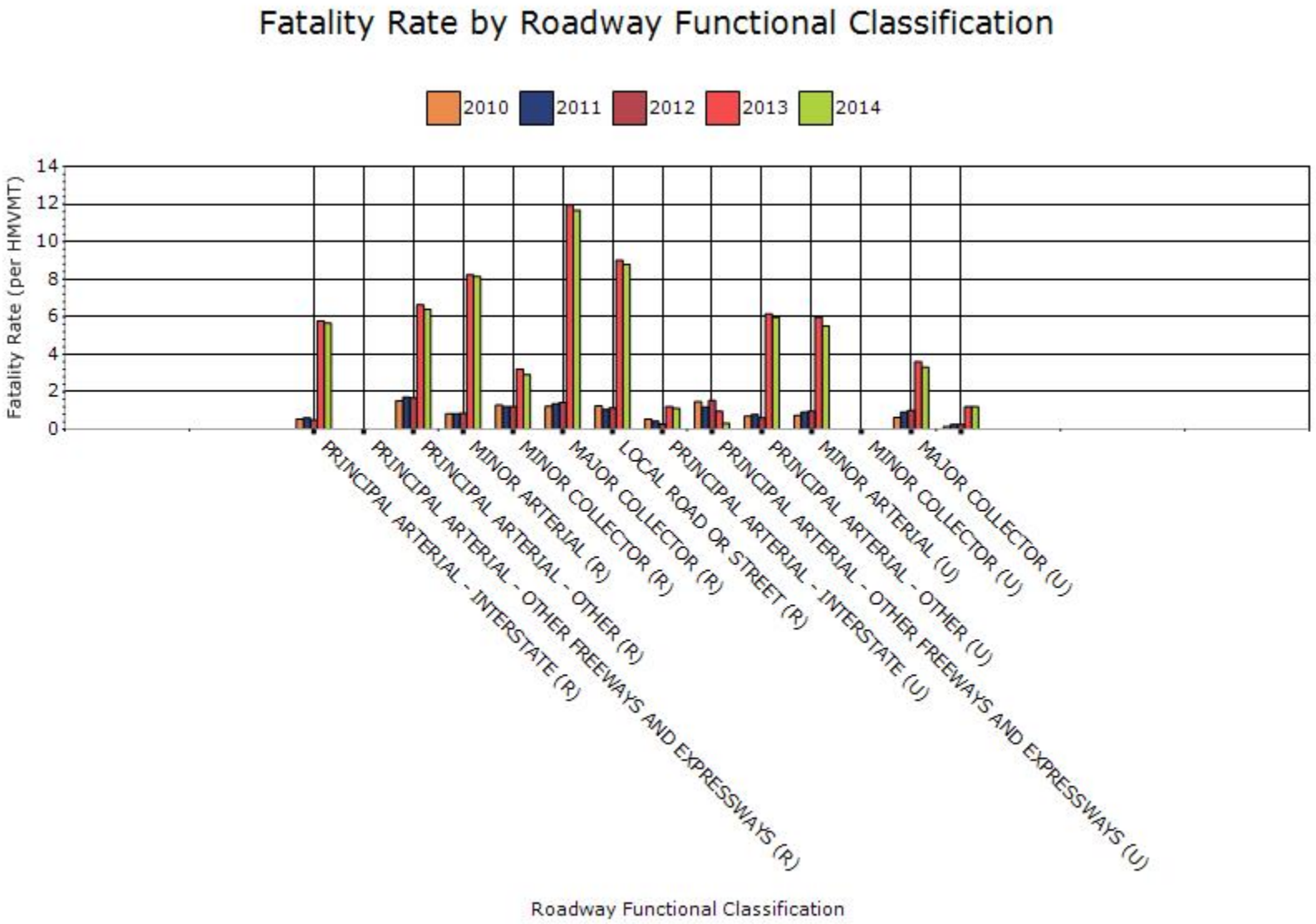
Year - 2014

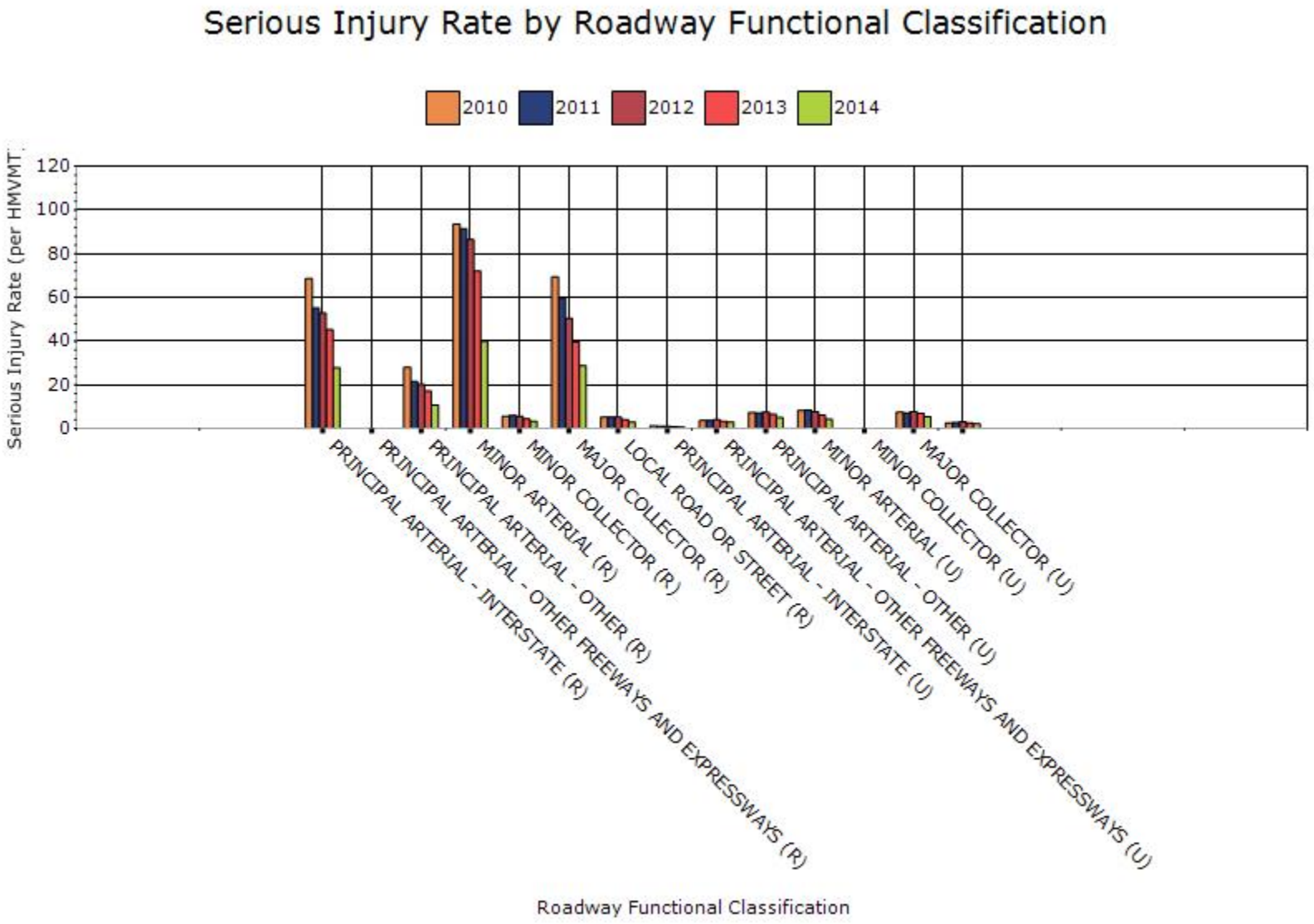
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	4.28	12.6	5.67	27.89
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	0.6	0	0	0
RURAL PRINCIPAL ARTERIAL - OTHER	8.8	18.8	6.4	10.78
RURAL MINOR ARTERIAL	7	28	8.14	40.05
RURAL MINOR COLLECTOR	4.17	7.4	2.92	3.39
RURAL MAJOR COLLECTOR	12.57	41	11.67	28.83
RURAL LOCAL ROAD OR STREET	8.31	28.8	8.79	2.93
URBAN PRINCIPAL	2.39	2.4	1.11	0.59

ARTERIAL - INTERSTATE				
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	2.2	1.8	0.33	2.95
URBAN PRINCIPAL ARTERIAL - OTHER	4.95	22	5.96	5.02
URBAN MINOR ARTERIAL	5.59	15.4	5.51	4.34
URBAN MINOR COLLECTOR	2.6	0	0	0
URBAN MAJOR COLLECTOR	5.31	12	3.32	5.38
URBAN LOCAL ROAD OR STREET	4.06	9	1.2	2.24


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


Serious Injuries by Roadway Functional Classification
2010
2011
2012
2013
2014
# of Serious Injuries
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

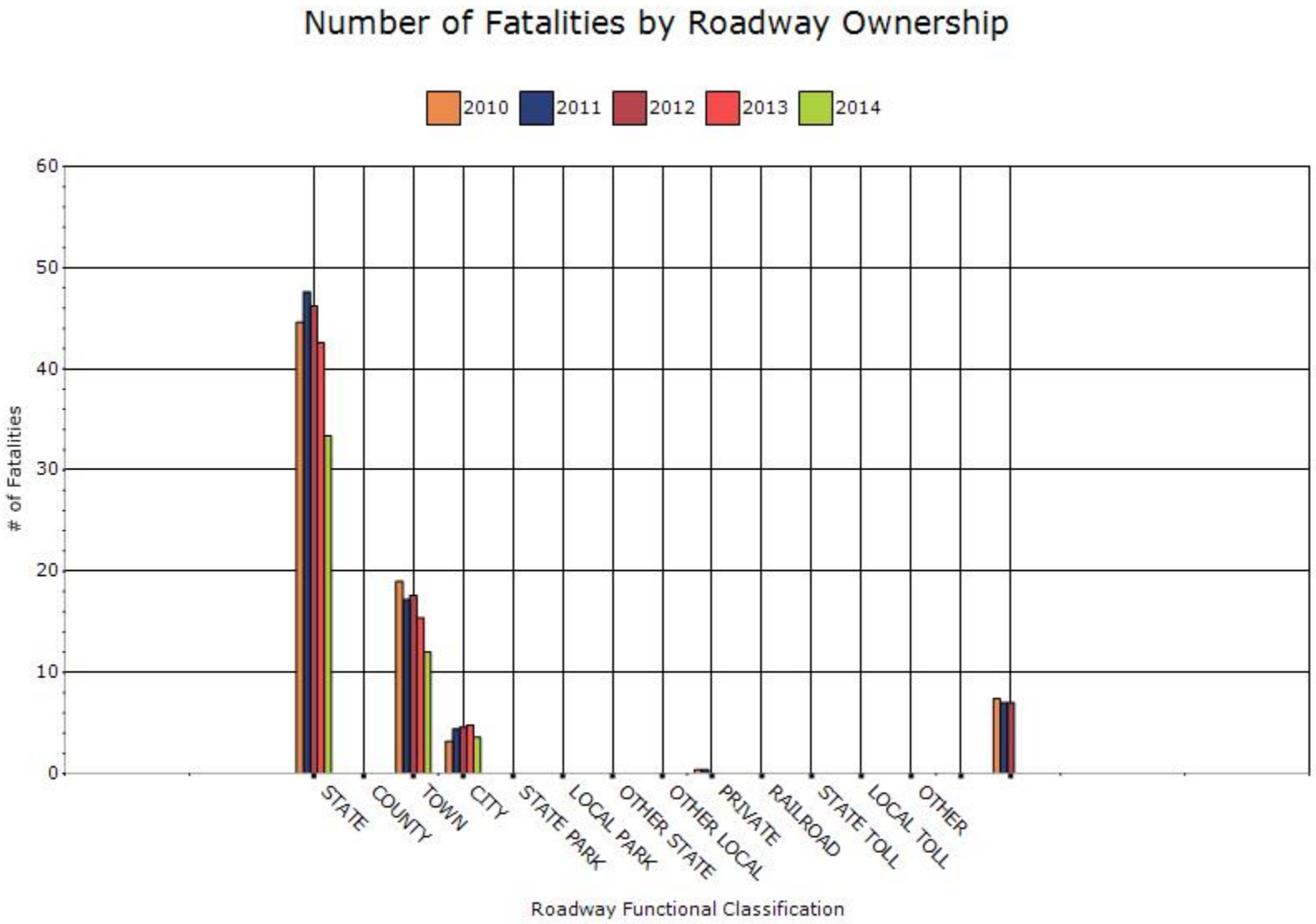

Fatality Rate by Roadway Functional Classification
2010
2011
2012
2013
2014
Fatality Rate (per HMVMT)
0
2
4
6
8
10
12
14
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
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

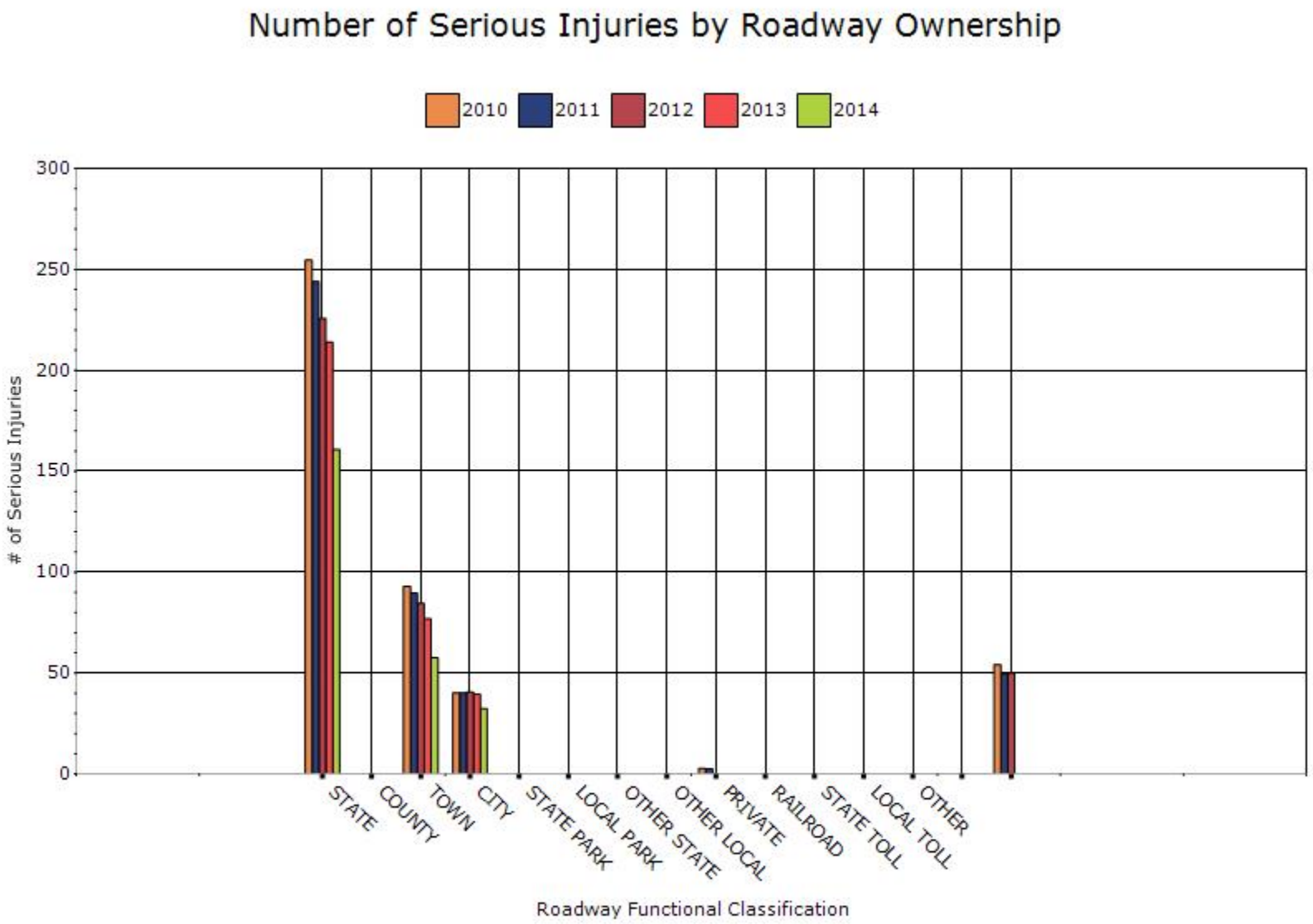

Serious Injury Rate by Roadway Functional Classification
2010
2011
2012
2013
2014
Serious Injury Rate (per HMVMT)
120
100
80
60
40
20
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL ROAD OR STREET (R)
PRINCIPAL ARTERIAL - INTERSTATE (U)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (U)
PRINCIPAL ARTERIAL - OTHER (U)
MINOR ARTERIAL (U)
MINOR COLLECTOR (U)
MAJOR COLLECTOR (U)
Roadway Functional Classification

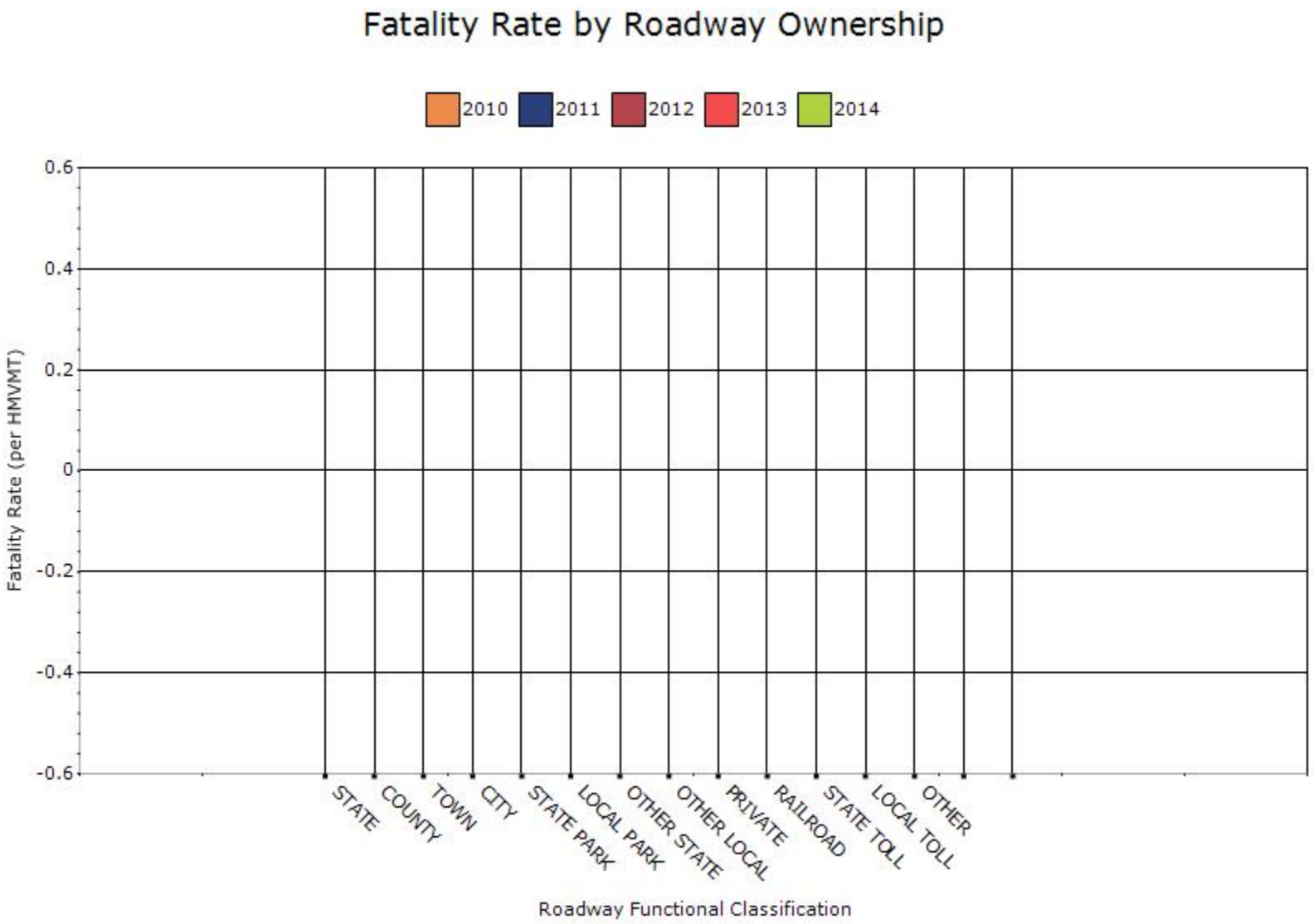
Year - 2014

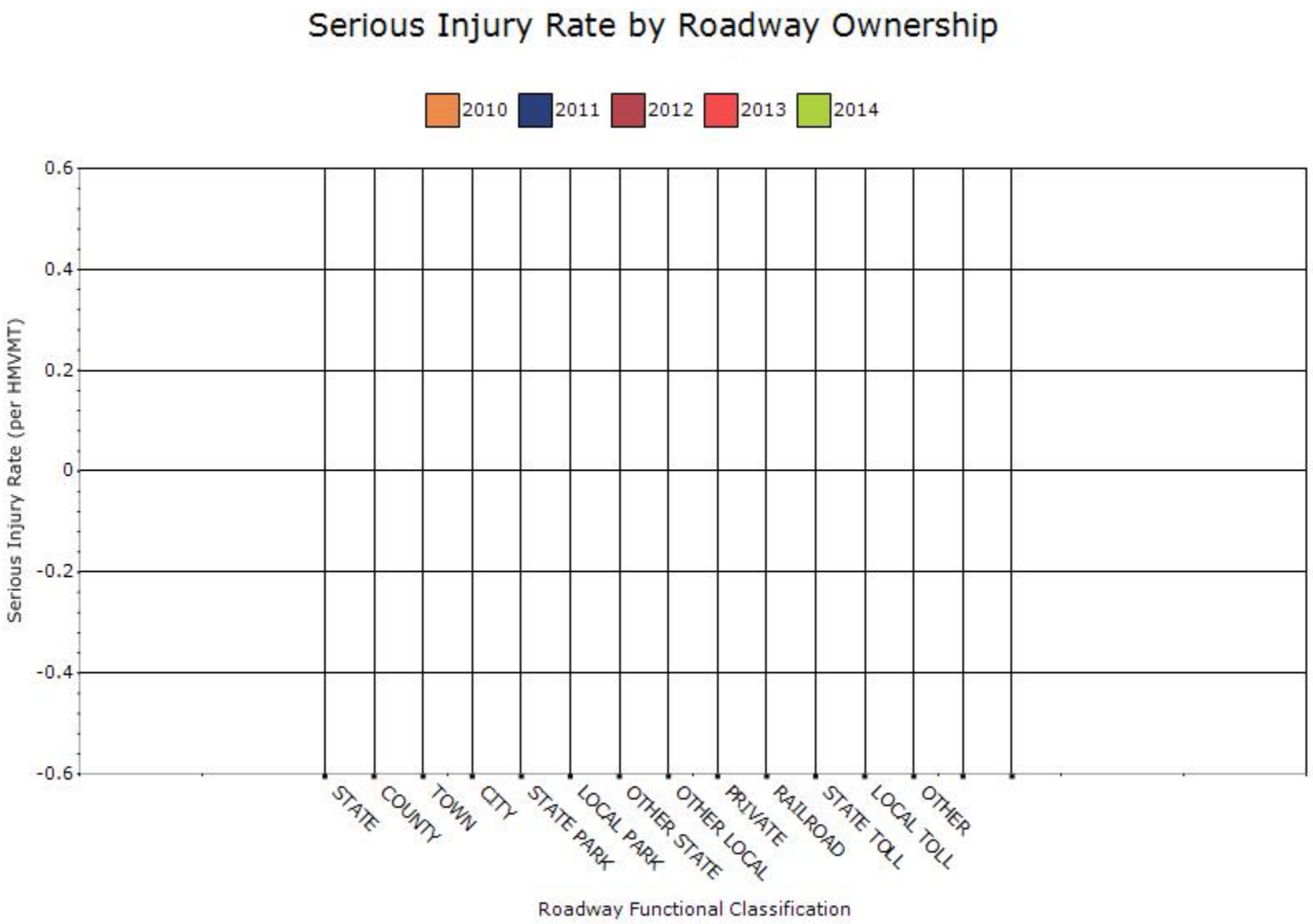
Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	33.4	160.8	0	0
COUNTY HIGHWAY AGENCY	0	0	0	0
TOWN OR TOWNSHIP HIGHWAY AGENCY	12	57.6	0	0
CITY OF MUNICIPAL HIGHWAY AGENCY	3.6	32.4	0	0
STATE PARK, FOREST, OR 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


Number of Fatalities by Roadway Ownership
2010
2011
2012
2013
2014
60
50
40
30
20
10
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
300
250
200
150
100
50
0
# of Serious Injuries
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification


Fatality Rate by Roadway Ownership
2010
2011
2012
2013
2014
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Fatality Rate (per HMVMT)
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification


Serious Injury Rate by Roadway Ownership
2010
2011
2012
2013
2014
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Serious Injury Rate (per HMVMT)
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification

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

The crash data analysis reviewed included reported crashes from the five-year periods between the years 2007-2011 and 2010-2014. Major crashes are defined as crashes that either resulted in a fatal injury or in an incapacitating injury.

The number of major crashes five-year average has declined from 386 major crashes for the 2007-2011 period to 337 for the 2010-2014 period. This represents a 12.7% reduction in the five-year average.

Over the same two periods, there has been a 7.4% decline in the five-year average of the total number of fatalities (from 68 to 63).

In a similar manner, there has been a 15.0% reduction in the five-year average of the total number of serious injuries (from 399 to 339).

These reductions are also reflected in the fatality rate per HMVMT and for the serious injury rate per HMVMT. While the five-year average fatality rate was 0.99 for the 2007-2011 period, it is now 0.95 for the 2010-2014 period. Similarly, the serious injury rate was 5.65 for the 2007-2011 period and it is now 5.22 for the 2010-2014 period.

Over the years, leaving the road and crashes taking place at intersections have been the two crash types that have typically accounted for a large proportion of major crashes.

Very small reductions in the number of fatalities and serious injuries for these two crash types have taken place. The respective five-year averages for fatalities and serious injuries at intersections were 9.8 fatalities and 83.6 injuries for 2007-2011 and 9.2 and 76.0 for 2010-2014. For Lane departure crashes, the five-year averages for fatalities and serious injuries at were 35.0 fatalities and 178.4 injuries for 2007-2011 and 35.2 and 157.8 for 2010-2014.

The five-year average for the number of fatalities involving a pedestrian increased between the 2007-2011 period and the 2010-2014 period from 3.6 to 5.6. Similarly, the average for the number of injuries involving a pedestrian also increased from 22.8 to 25.4. On the other hand, the five-year average for the number of bicycle fatalities remained the same at around 0.2 while the number of serious injuries involving a bicyclist decreased from 10.8 to 9.0 over the same two periods.

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)	0.09	0.096	0.088	0.084	0.092

Serious injury rate (per capita)	0.268	0.27	0.252	0.222	0.218
Fatality and serious injury rate (per capita)	0.356	0.366	0.34	0.304	0.308

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

The Injury A, Incapacitating Injury, category was use to represent Serious Injuries.

The number of people 65 years of age and older (per 1,000 total population) for each year was obtained from Attachment 2 of Section 142: Older Drivers and Pedestrians Special Rule Interim Guidance dated February 13, 2013.

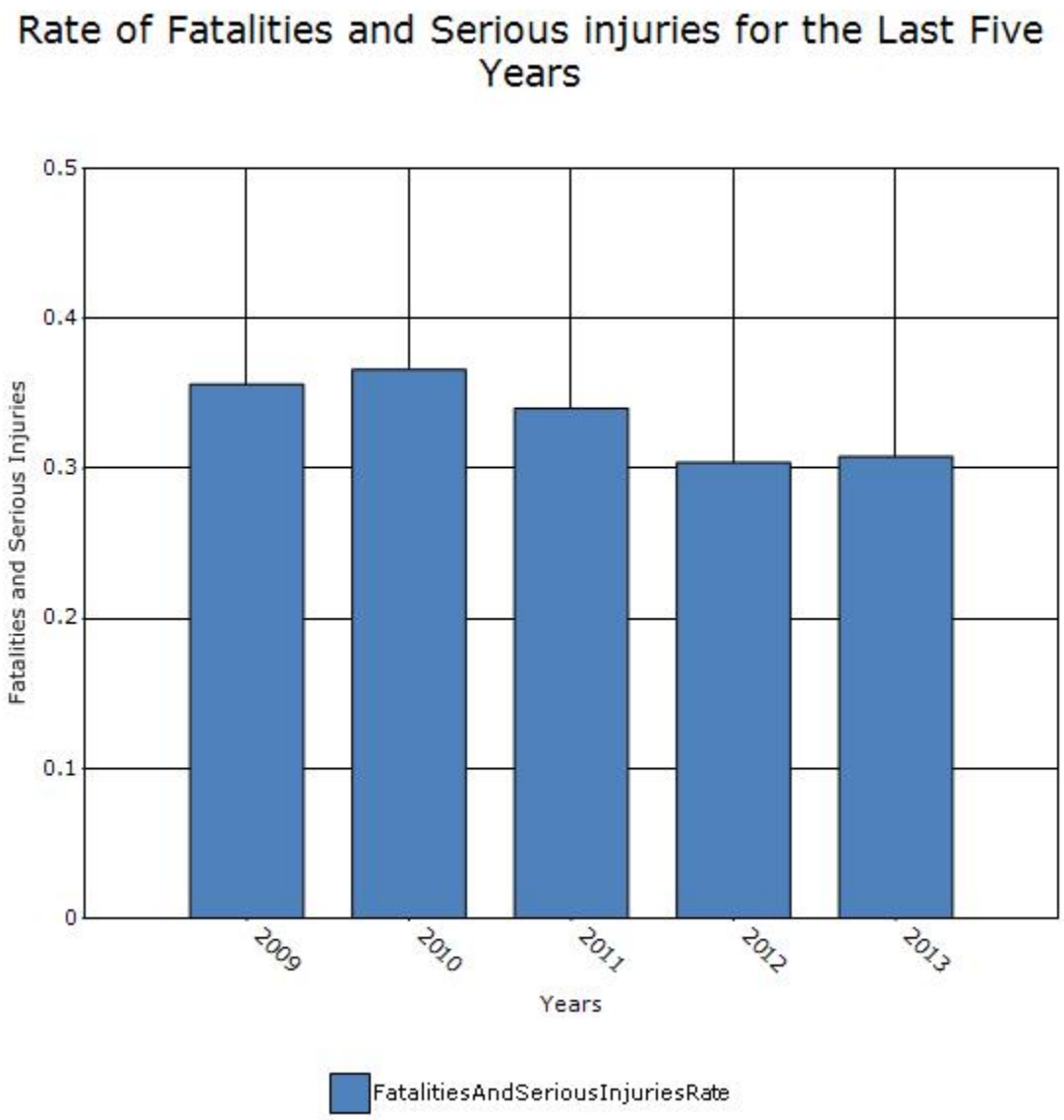
The five year average Fatal (F) and Serious Injuries (SI) per capita for Drivers and Pedestrians 65 years of age and older for year ending in 2013 and 2011 was calculated for the following periods respectively, 2013 (2013, 2012, 2011, 2010, 2009) and 2012 (2011, 2010, 2009, 2008, 2007).

For each period, the rate was calculated by summing up the fatal and serious injuries for a given year and dividing the total for that year by the population figure for the year. The rates for the period were then summed up and divided by 5 to obtain the five year average for the two ending year (2011 and 2013).

All rates were calculated to the hundredths after the decimal point and then rounded to the nearest tenths.

The 2011 rate was 0.3 and the 2013 rate was 0.3. There is no increase and therefore the rule does not apply.

The calculations are shown on the attached document to this question.



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-A reduction in the number of crashes

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.

The Office of Highway Safety was created within VTrans during the reporting period. The creation of this Office brought the Governor's Highway Safety Program to VTrans from the Department of Public Safety and consolidated existing sections within VTrans that dealt with crash data and safety analyses. The formation of this Office brings under one roof, the 4E's (Education, Engineering, Enforcement and Emergency Services) and creates efficiencies in implementing various programs.

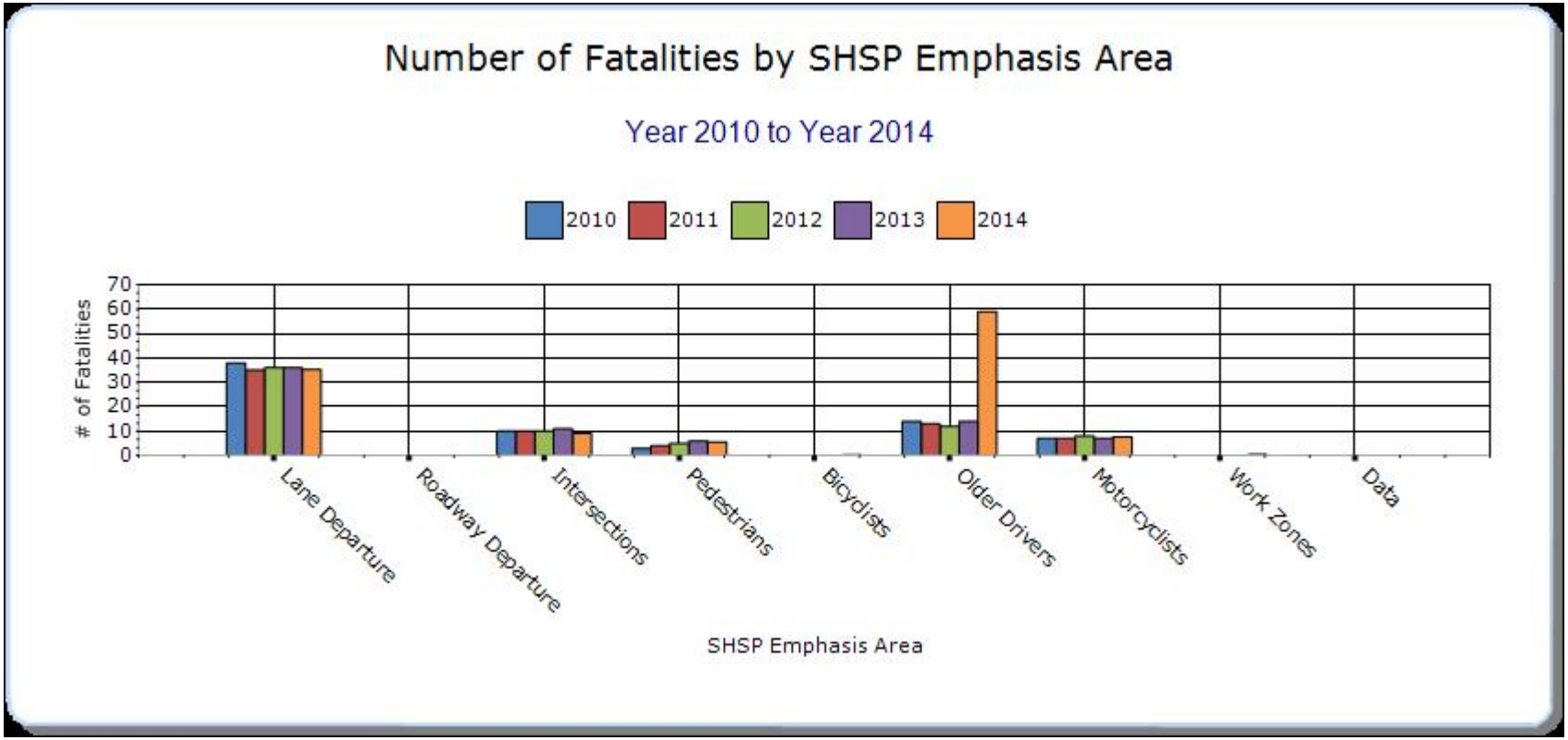
Specifically, the Office of Highway Safety is composed of the Highway Safety Improvement Program (HSIP), Vermont Highway Safety Alliance (VHSA), Governor's Highway Safety Program (GHSP) and Highway Data.

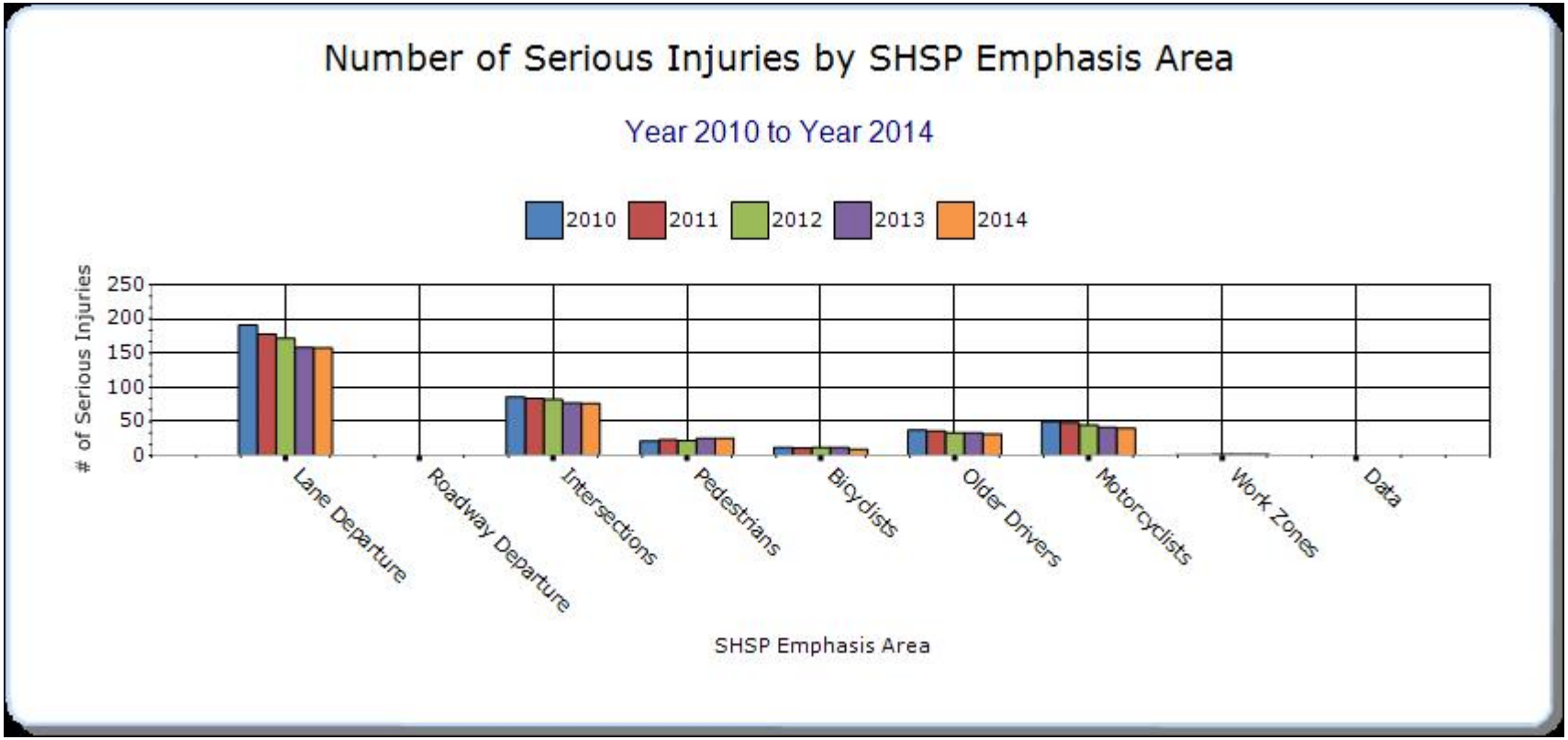
SHSP Emphasis Areas

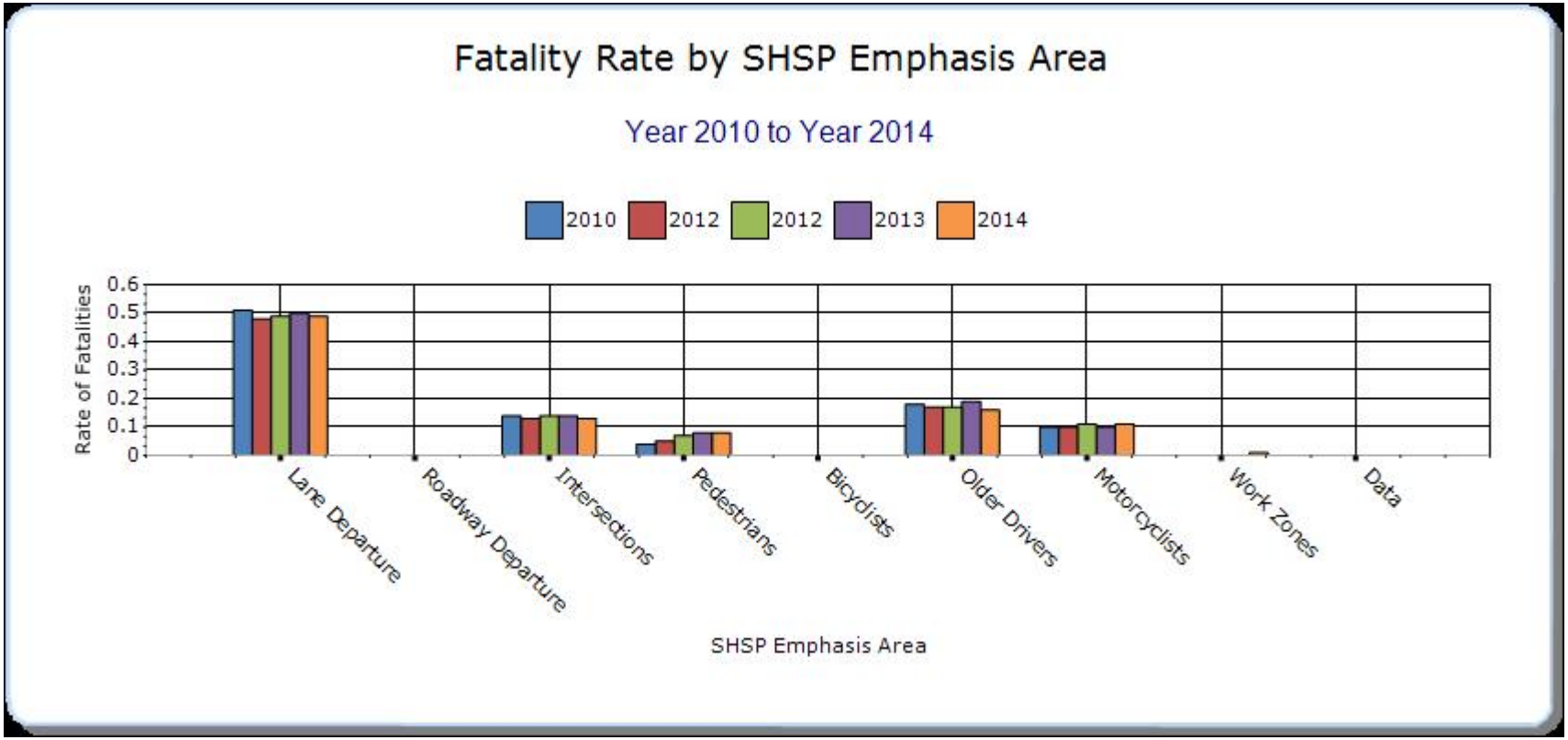
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

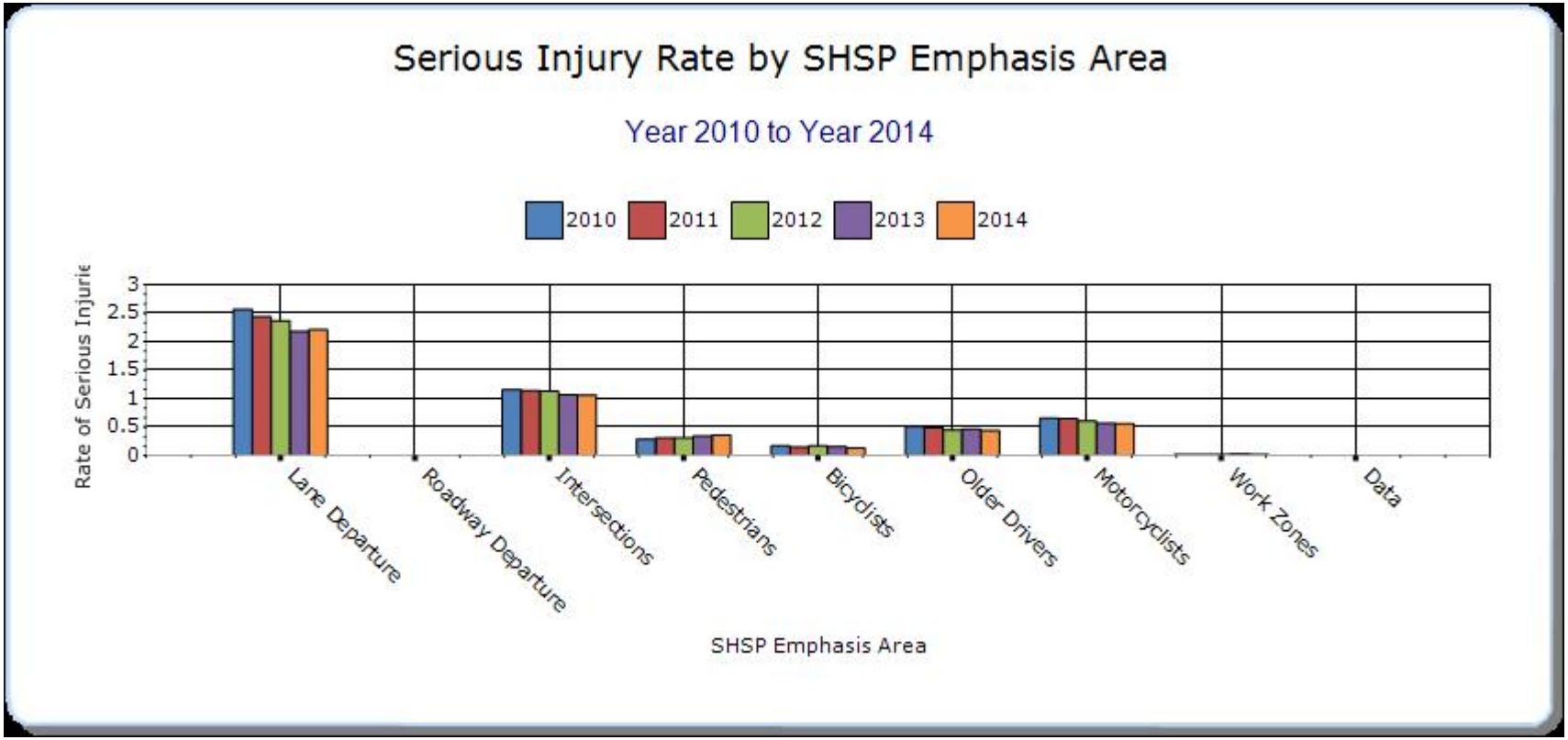
Year - 2014

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
Lane Departure	All	35.2	157.8	0.49	2.21	0	0	0
Intersections	All	9.2	76	0.13	1.06	0	0	0
Pedestrians	All	5.6	25.4	0.08	0.36	0	0	0
Bicyclists	All	0.2	9	0	0.13	0	0	0
Older Drivers	All	59	31.4	0.16	0.44	0	0	0
Motorcyclists	All	7.6	40	0.11	0.56	0	0	0
Work Zones	All	0.4	1.6	0.01	0.02	0	0	0


Number of Fatalities by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# of Fatalities
70
60
50
40
30
20
10
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Number of Serious Injuries by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# of Serious Injuries
250
200
150
100
50
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Fatality Rate by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2012
2012
2013
2014
Rate of Fatalities
0.6
0.5
0.4
0.3
0.2
0.1
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area

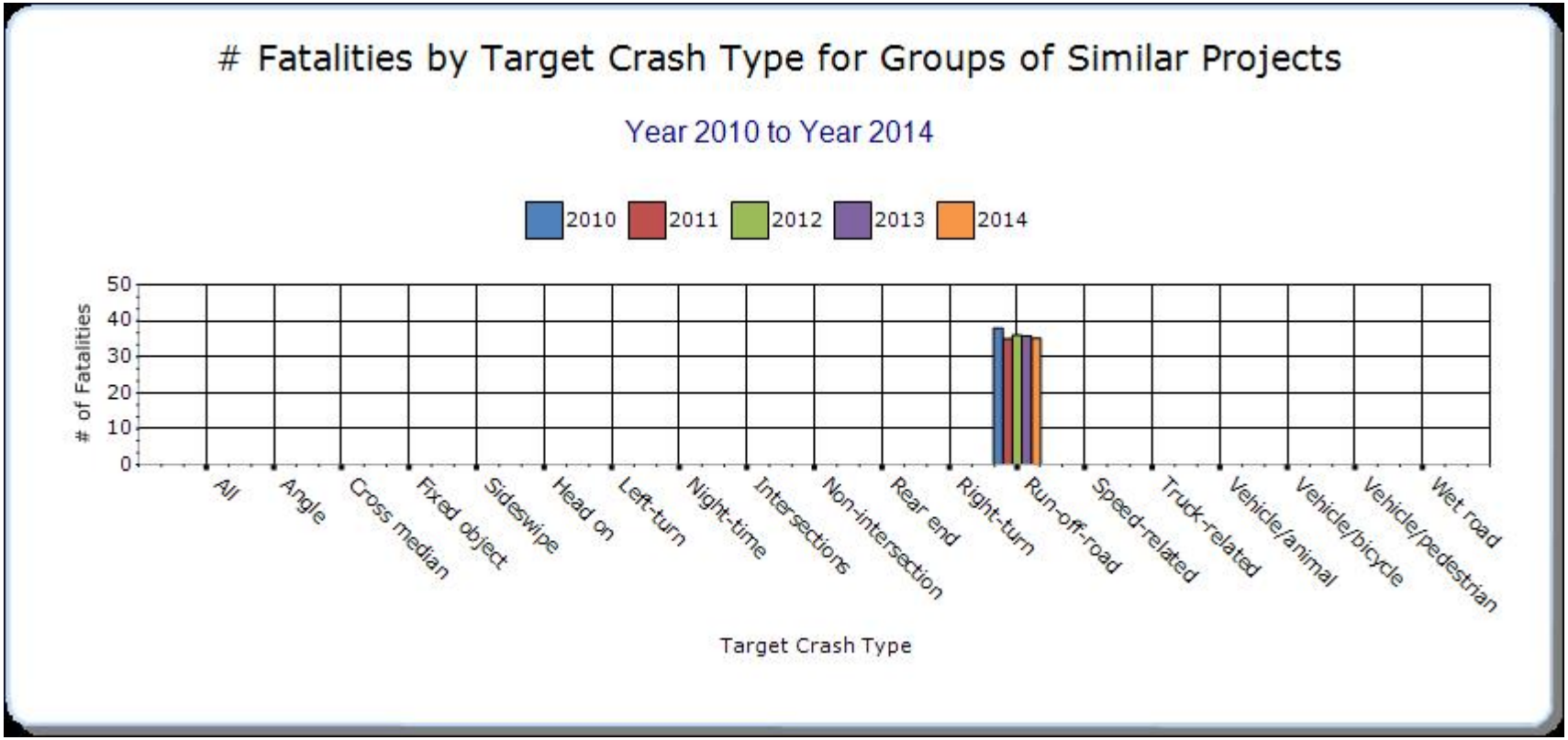

Serious Injury Rate by SHSP Emphasis Area
Year 2010 to Year 2014
2010
2011
2012
2013
2014
Rate of Serious Injurie
3
2.5
2
1.5
1
0.5
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area

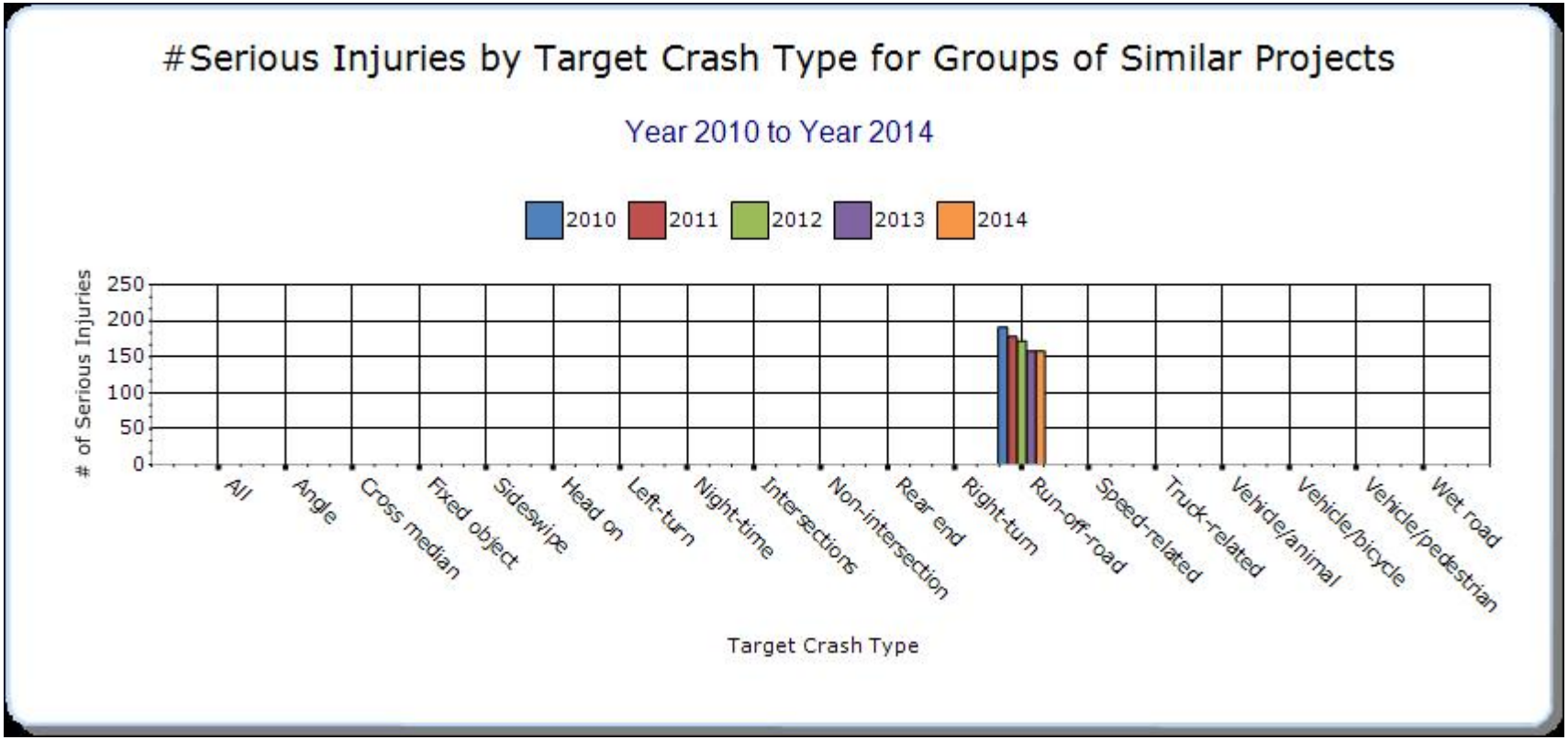
Groups of similar project types

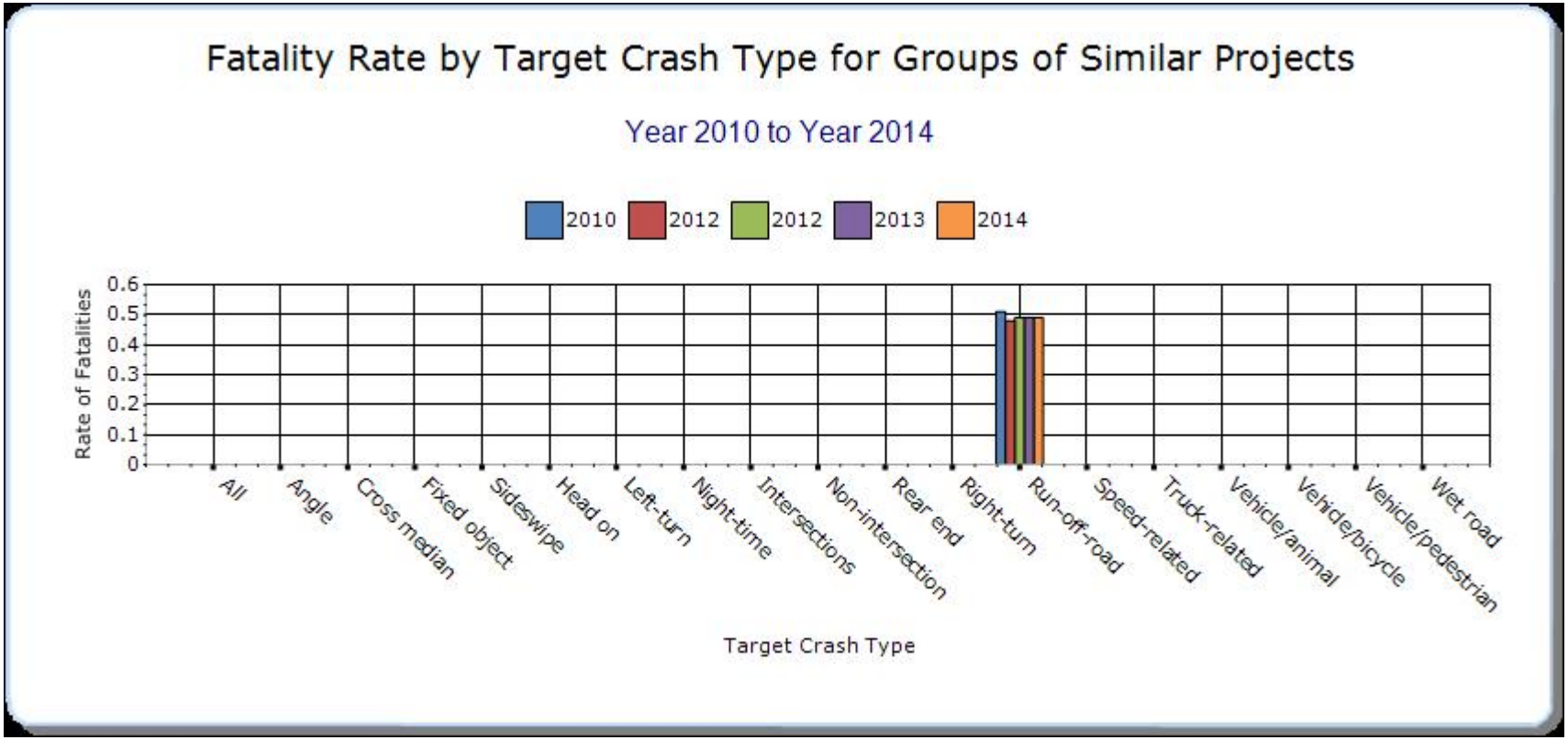
Present the overall effectiveness of groups of similar types of projects.

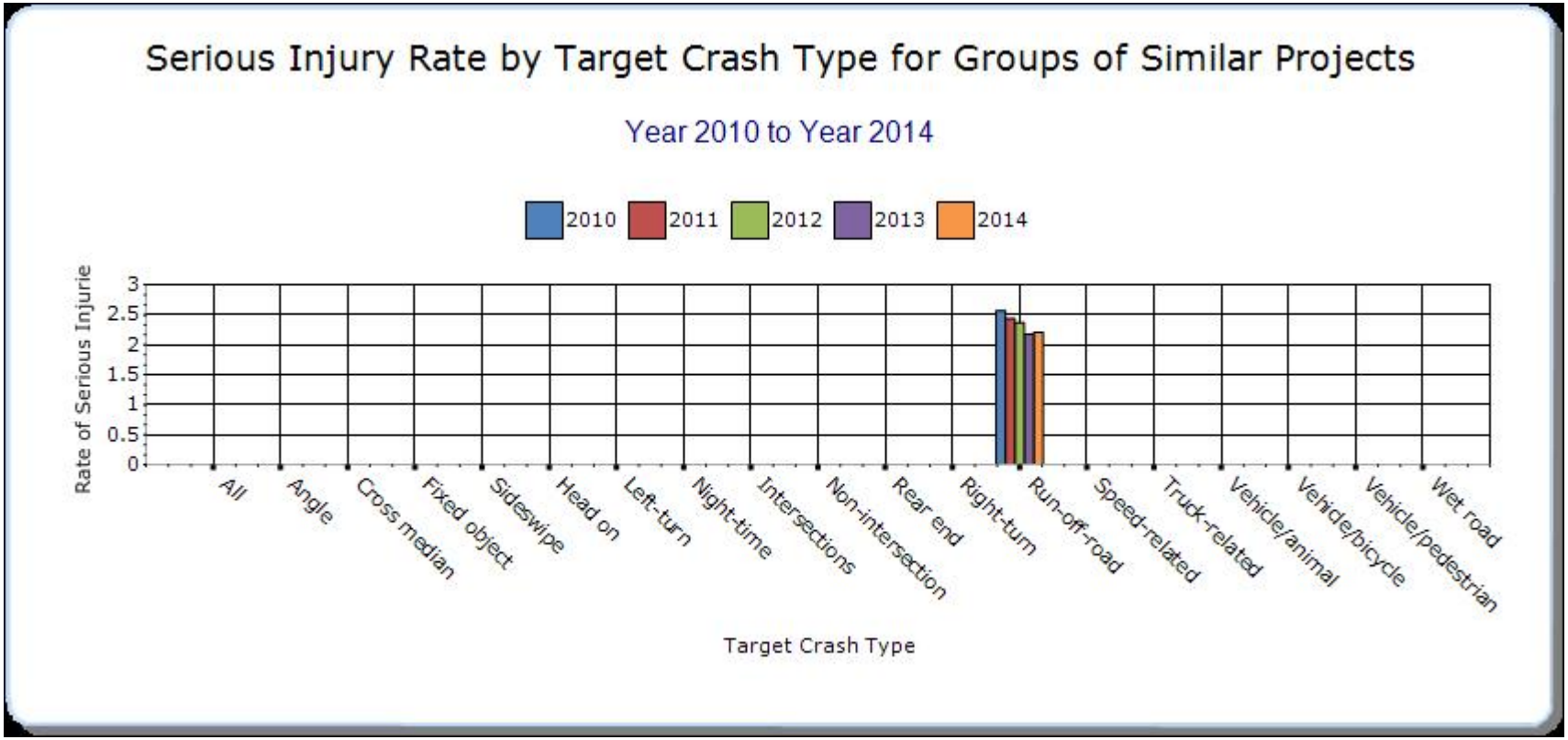
Year - 2014

HSIP Sub-program Types	Target Crash Type	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)	Other-1	Other-2	Other-3
Low-Cost Spot Improvements	Run-off-road	35.2	157.8	0.49	2.21	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
50
40
30
20
10
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


#Serious Injuries by Target Crash Type for Groups of Similar Projects
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# of Serious Injuries
250
200
150
100
50
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


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
0.5
0.4
0.3
0.2
0.1
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

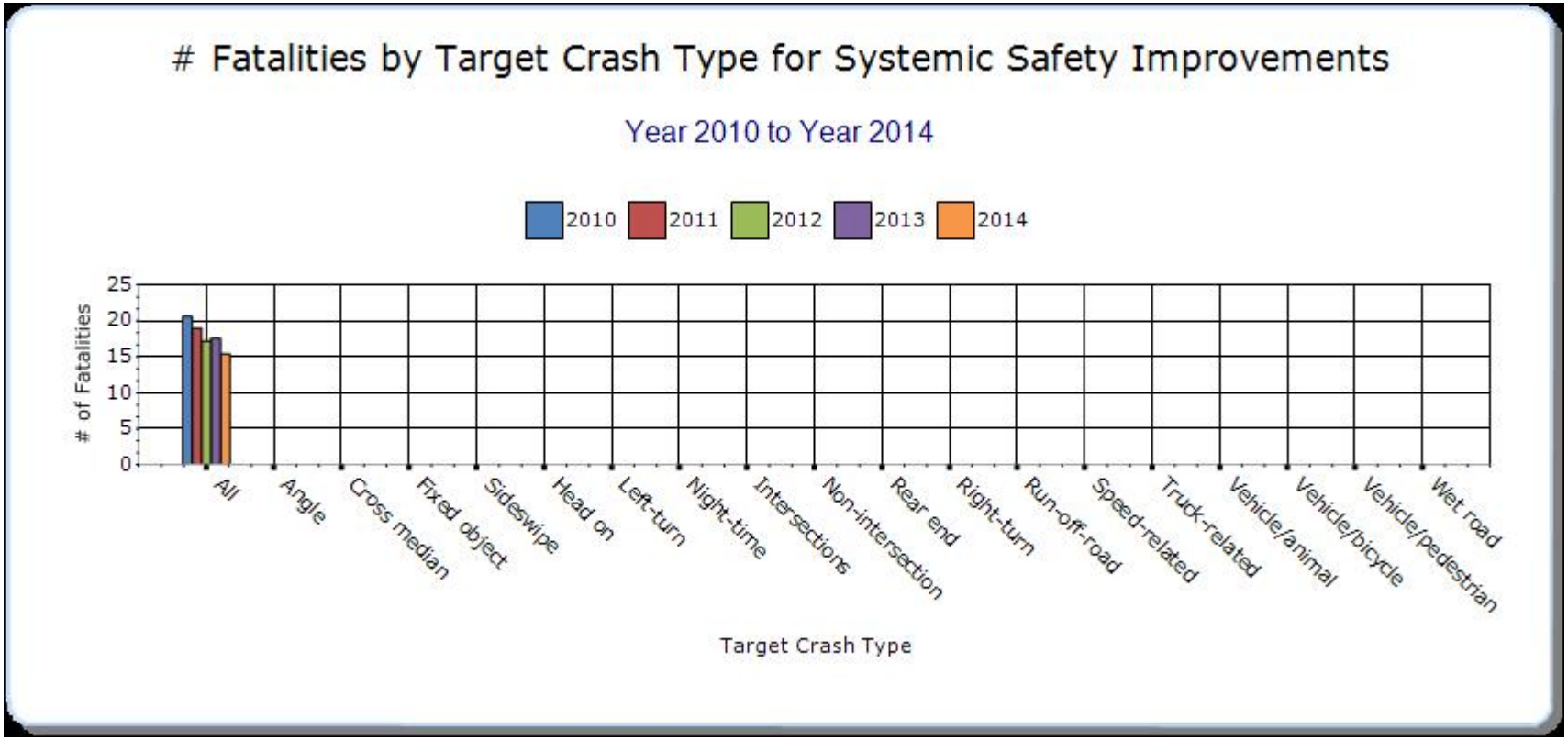

Serious Injury Rate by Target Crash Type for Groups of Similar Projects
Year 2010 to Year 2014
2010
2011
2012
2013
2014
Rate of Serious Injurie
3
2.5
2
1.5
1
0.5
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

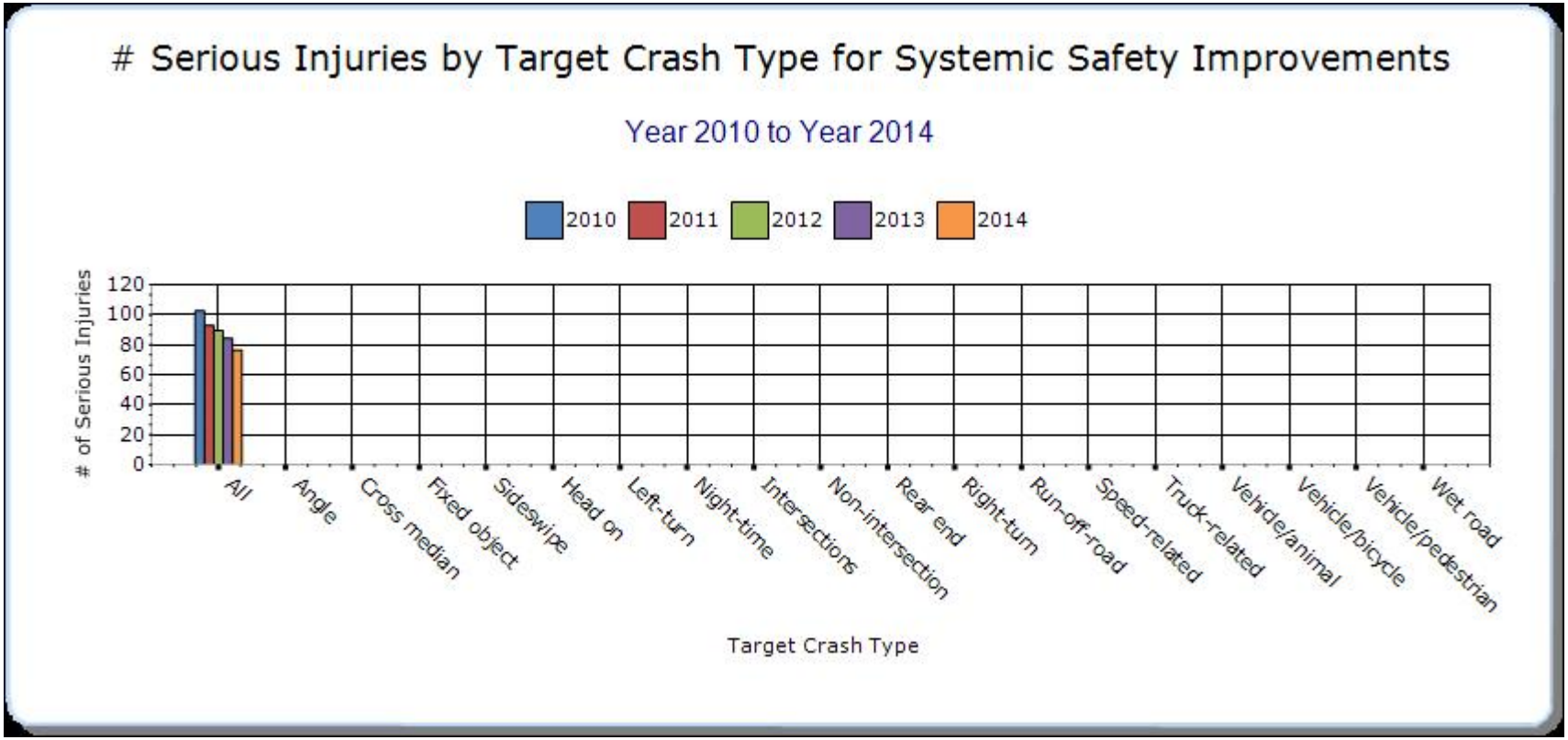
Systemic Treatments

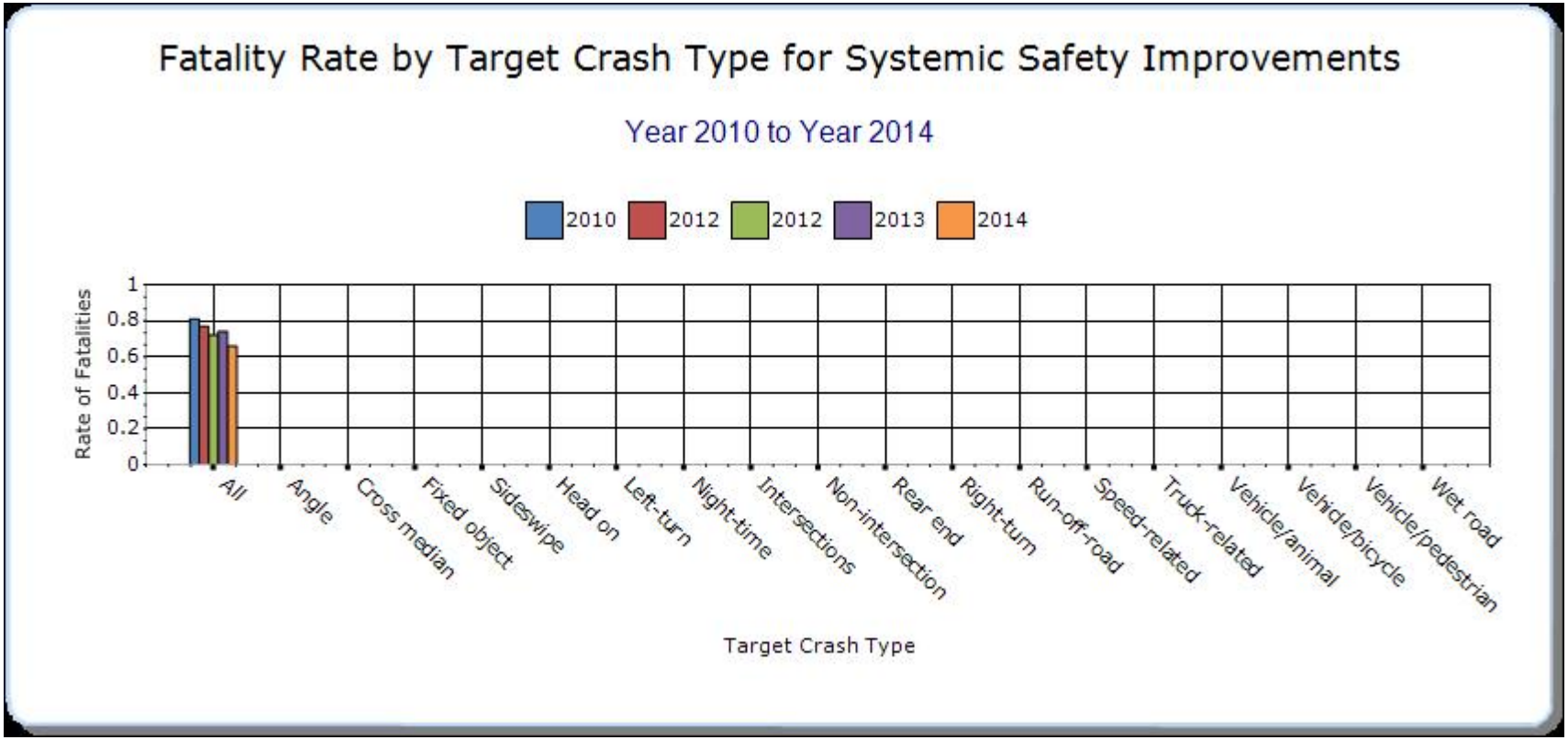
Present the overall effectiveness of systemic treatments.

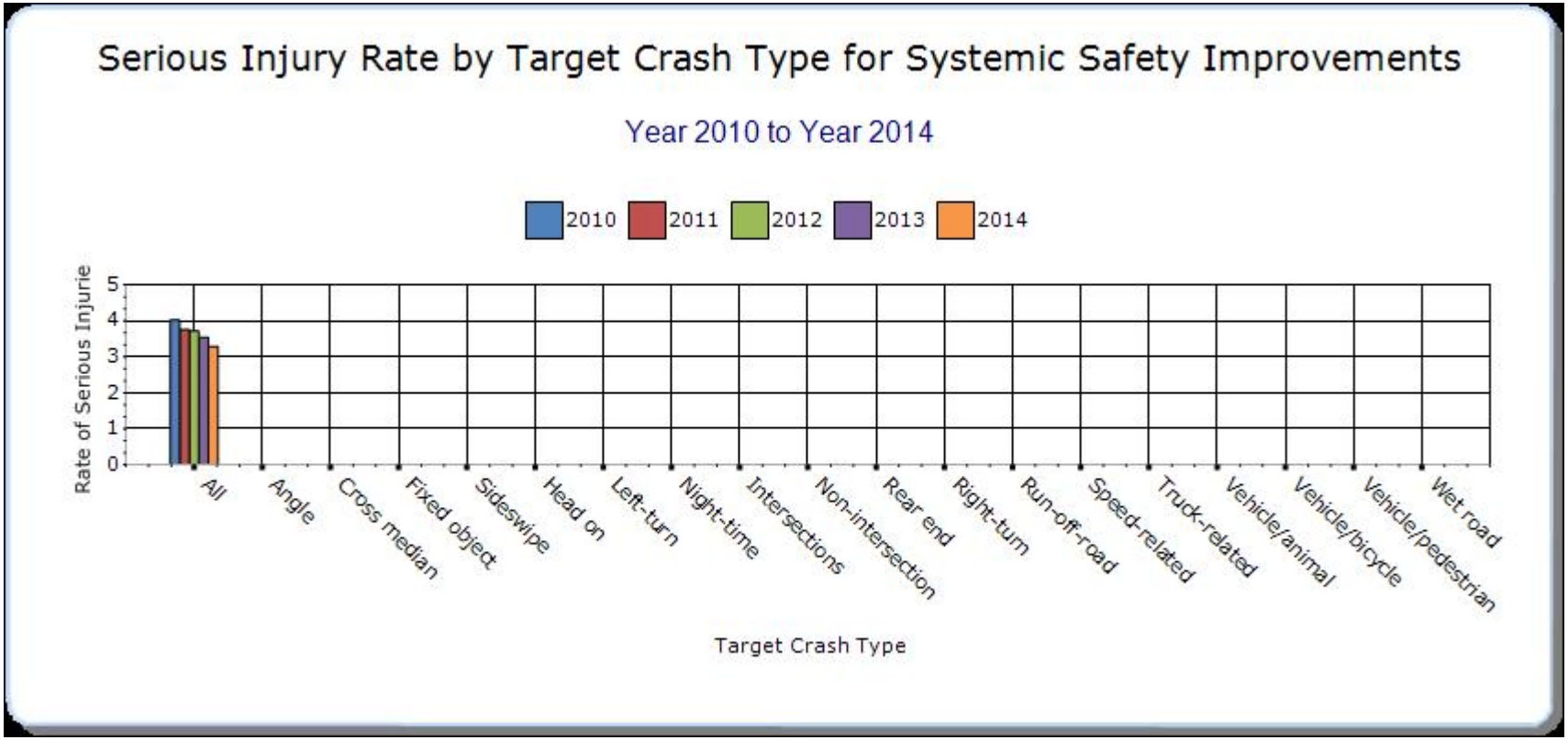
Year - 2014

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 Signing	All	15.4	76.4	0.66	3.29	0	0	0


Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# of Fatalities
25
20
15
10
5
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


Serious Injuries by Target Crash Type for Systemic Safety Improvements
Year 2010 to Year 2014
2010
2011
2012
2013
2014
# of Serious Injuries
120
100
80
60
40
20
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


Fatality Rate by Target Crash Type for Systemic Safety Improvements
Year 2010 to Year 2014
2010
2012
2012
2013
2014
Rate of Fatalities
1
0.8
0.6
0.4
0.2
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


Serious Injury Rate by Target Crash Type for Systemic Safety Improvements
Year 2010 to Year 2014
2010
2011
2012
2013
2014
Rate of Serious Injurie
5
4
3
2
1
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

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

Of the seven emphasis areas identified in the SHSP, lane departure crashes and intersection crashes are the two areas that specifically relate to engineering and the HSIP.

The current SHSP has target reductions for intersection and lane departure major crashes that have been set at 10% of 2012 thresholds. In terms of numbers, this represents a five-year target of 72 major crashes for intersection crashes and a five-year average target of 186 major crashes for lane departure crashes.

The latest five-year average (2010-2014) for lane departure crashes is 173 major crashes, which is below the SHSP target of 186 major crashes.

For the emphasis area concerning intersections, the latest five-year average is 73 major crashes. This five-year average is just above the SHSP target of 72 major crashes at intersections.

Overall, the SHSP has the goal of reducing major crashes by 10% by 2016. The baseline five-year average from the 2008-2012 period for fatal and serious injury crashes is 376 major crashes. The current five-year average (2010-2014) is 337 major crashes and is just below the 2016 five-year target of 338 major crashes.

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)

Optional Attachments

Sections	Files Attached
Program Structure: Program Methodology	2014 HRRR TPI Task Prioritization Methodology.pdf
Progress in Achieving Safety Performance Targets: Application of Special Rules	Question 27 Calculations.xls

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.