Highway Safety Improvement Program

Data Driven Decisions

Vermont
Highway Safety Improvement Program
2016 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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2. Executive Summary

During the state fiscal year (July 1, 2015 to June 30 2016), VTrans conducted a dozen of road safety audits at hot spot locations in collaboration with law enforcement officers around the states. The Agency further continued to work with local municipalities and introduced a systemic safety program to address local road safety.

For the state fiscal year (July 1, 2015 to June 30 2016), the total amount of funding that was obligated during the reporting period was $15,934,797. Of these, $9,499,358 was obligated from HSIP Section 148 and $6,416,623 was obligated from Section 164.

During the reporting period, 22 projects using safety funds were in a design stage and 18 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 376 major crashes for the 2008-2012 period to 319 for the 2011-2015 period.

In May 2016, a team of FHWA representatives conducted a review of the Vermont HSIP Process. The team found that VTrans was in general compliance with HSIP program requirements and had implemented many successful practices. The team further identified opportunities that VTrans could explore to enhance its current HSIP practice.

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

3. How are Highway Safety Improvement Program funds administered in the State?

Central

4. 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, we expended on what we called our state high risk rural roads program to include all urban and rural local roads with traffic volumes of less than 5000 vehicles per day. The new program is now called Systemic Local Roads Safety Program (SLRS).

For this new SLRS program, locations were identified by the regional planning commissions using crash risk factors (such as presence of a horizontal curve), crash data, and anecdotal information. For these locations, safety corridor reviews were performed to identify signing and marking improvements. These low cost treatments will be designed and implemented via a statewide project. The methodology used to select the SLRS projects was 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.

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

Design

Maintenance
Operations
Governors Highway Safety Office

6. Briefly describe coordination with internal partners.

Depending on the characteristics of the site to be reviewed, Design, Operations and Maintenance staff as well as the Governor's Highway Safety Office Enforcement Liaison are asked to take part to the visit of the site and to formulate some recommendations. Key individuals 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.

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

Metropolitan Planning Organizations
Other-Municipalities
Other-Regional Planning Commissions
Other-Law Enforcement

8. Identify any program administration practices used to implement the HSIP that have changed since the last reporting period.

Other-No change. A draft HSIP manual was developed but not adopted yet

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

There has been for a continued challenge in the deployment of HSIP countermeasure projects in that they follow the same design process as every other road and bridge projects at VTrans. The solution may be identified quickly, however there is no priority put on an HSIP projects compared to other projects and therefore, implementation can take several years as the safety project works through the same design process (PE, ROW and construction) as all VTrans projects. In addition, there is a new challenge with the programing of projects as VTrans went through a reorganization over the last two years and that the Office of Highway Safety is not directly programming safety projects as this function is now done by the Assets Management & Programming Bureau.

The delivery of low cost projects, such as the installation of signs or the upgrade of signal equipment on town highways has been an issue as well. 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 two to four years. In addition, preparing formal plans for contacting purposes has also been time consuming. VTrans is working on developing an alternative contracting process to accelerate the delivery of these low cost projects.

Program Methodology

10. Select the programs that are administered under HSIP.

Low-Cost Spot Improvements	Local Safety	Other-School Zone Safety

11. 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	Functional classification
	Lane miles	

What project identification methodology was used for this program?

Equivalent property damage only (EPDO Crash frequency)
Relative severity index
Crash rate

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

Yes
If yes, are local road projects identified using the same methodology as state roads?
Yes

How are highway safety improvement projects advanced for implementation?

selection committee

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).

Rank of Priority Consideration

Ranking based on B/C	2
Available funding	1

11. Program: Local Safety

Date of Program Methodology: 3/12/2009

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes		Horizontal curvature
		Functional classification
		Other-"rural" like roads

What project identification methodology was used for this program?

Equivalent property damage only (EPDO Crash frequency)

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

Yes

If yes, are local road projects identified using the same methodology as state roads?

Yes

How are highway safety improvement projects advanced for implementation?

Competitive application process

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).

Rank of Priority Consideration

Available funding	100

11. Program: Other-School Zone Safety

Date of Program Methodology: 1/1/2014

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
		Other-Presence of a School

What project identification methodology was used for this program?

Other-Participation in the safe route to school program

Are local roads (non-state owned and operated) included or addressed in this program?
Yes
If yes, are local road projects identified using the same methodology as state roads?
Yes

How are highway safety improvement projects advanced for implementation?
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).
Rank of Priority Consideration

All sites are advanced	1

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

55%

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

Install/Improve Signing
Install/Improve Pavement Marking and/or Delineation

13. What process is used to identify potential countermeasures?

Engineering Study
Road Safety Assessment

14. Identify any program methodology practices used to implement the HSIP that have changed since the last reporting period.

Road Safety audits
Systemic Approach

The consulting firm VHB has prepared a DRAFT HSIP Manual for VTrans. This draft manual has not been adopted yet. However, we have use the local systemic approach that is described in the draft manual to implement our local road safety program this summer (2016).

We also used to a greater extent Road Safety Assessments to perform hot spot reviews.

15. 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 reviewed our HSIP ranking process and proposed a new process that will better align with the SHSP. While this is still a draft document, part of this process is to use safety performance functions.

VTrans acquired a license for SafetyAnalyst (which uses safety performance functions). We are currently developing a scope of work to create a database to assemble the required data and load it in SafetyAnalyst. We are hoping to include all public roads while implementing this methodology. We are expecting that SafetyAnalyst will solve the issues mentioned above.

VTrans and the Vermont FHWA Division Office hosted the conduct of an HSIP review by a team of FHWA representatives in May 2016. The purpose of the review was to assess the status of HSIP planning, implementation and evaluation efforts, with a focus on streamlining HSIP project delivery, identifying safety efforts beyond the HSIP and advancing HSIP evaluation efforts. The review team prepared a final report documenting the review observations and recommendations. The Vermont FHWA Division Office will work with VTrans to develop an action plan to implement the recommendations.

Progress in Implementing Projects

Funds Programmed

16. Reporting period for Highway Safety Improvement Program funding.

State Fiscal Year

17. Enter the programmed and obligated funding for each applicable funding category.

Funding Category	Programmed*		Obligated	
	Amount	Percentage	Amount	Percentage
HSIP (Section 148)	$9,499,358.00	60 %	$9,499,358.00	60 %
HRRRP (SAFETEA-LU)	$18,815.00	0 %	$18,815.00	0 %
Penalty Transfer – Section 164	$6,416,623.00	40 %	$6,416,623.00	40 %
Totals	$15,934,796.00	100%	$15,934,796.00	100%

18. How much funding is programmed to local (non-state owned and operated) safety projects?
20 %
How much funding is obligated to local safety projects?
20 %

19. How much funding is programmed to non-infrastructure safety projects?
1 %
How much funding is obligated to non-infrastructure safety projects?
1 %

20. How much funding was transferred in to the HSIP from other core program areas during the reporting period?
0 %
How much funding was transferred out of the HSIP to other core program areas during the reporting period?
0 %

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

VTrans is exploring alternative contracting methods for the implementation of low cost safety improvements as part of its systemic local roads safety program.

The 2016 FHWA lead review of the Vermont HSIP process identified the development of a prioritization system that will produce a program of highway safety improvement projects for the next 3 years as a key to allocate funding where it provides the most benefits.

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

During the 2016 FHWA lead HSIP review, it was recognized that HSIP funds were used by other VTrans business units (other than the Office of Highway Safety) to develop and implement safety projects. VTrans will be working in the future to develop a process to track all projects that use HSIP funds during implementation and to gauge their effectiveness on reducing highway fatalities and serious injuries after **Error! Hyperlink reference not valid.** msocom_1

General Listing of Projects

23. List the projects obligated using HSIP funds for 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
MORRISTOWN STP HES 030-2(28) - Development	Intersection geometry Intersection geometrics - modify skew angle	0.01 Miles	108000	108000	HSIP (Section 148)	Rural Minor Arterial	7200	40	State Highway Agency	Intersections	Improve Geometry
HINESBURG HES 021-1(19) - Development	Intersection geometry Auxiliary lanes - add left-turn lane	0.3 Miles	75000	75000	HSIP (Section 148)	Rural Minor Arterial	8600	40	State Highway Agency	Intersections	Improve Geometry
HINESBURG HES 021-1(19) - Development	Intersection geometry Auxiliary lanes - add left-turn lane	0.3 Miles	17000	17000	Penalty Transfer – Section 164	Rural Minor Arterial	8600	40	State Highway Agency	Intersections	Improve Geometry
NEW HAVEN HES 032-1(8) - Development	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	0.3 Miles	30000	30000	Penalty Transfer – Section 164	Rural Minor Arterial	4000	45	State Highway Agency	Intersections	Improve Geometry

SOUTH HERO STP HES 028-1(22) - Development	Intersection geometry Auxiliary lanes - add left-turn lane	0.01 Miles	126000	126000	HSIP (Section 148)	Rural Minor Arterial	8900	50	State Highway Agency	Intersections	Improve Geometry
HARTFORD - ROYALTON IMG SIGN(48) - Construction	Roadway signs and traffic control Roadway signs (including post) - new or updated	21.32 Miles	800000	800000	HSIP (Section 148)	Rural Principal Arterial - Interstate	24000	65	State Highway Agency	Older Drivers	Improve Signs and Markings
WINOOSKI HES 5100(13) - Construction	Intersection geometry Intersection geometry - other	0.03 Miles	410000	410000	Penalty Transfer – Section 164	Urban Principal Arterial - Other	11000	25	City of Municipal Highway Agency	Pedestrians	Improve Infrastructues for all Users
BRATTLEBORO NHG SIGN(53) - Development	Roadway signs and traffic control Roadway signs (including post) - new or updated	0.242 Miles	160000	160000	HSIP (Section 148)	Urban Principal Arterial - Other	15400	35	Town or Township Highway Agency	Older Drivers	Improve Signs and Markings
ROCKINGHAM-HARTFORD IMG SIGN(54) - Development	Roadway signs and traffic control Roadway signs (including post) - new or updated	34 Miles	150000	150000	HSIP (Section 148)	Urban Principal Arterial - Interstate	19200	0	State Highway Agency	Older Drivers	Improve Signs and Markings
MORRISTOWN STPG	Intersection traffic control Intersection	0.6 Miles	232000	232000	HSIP (Sectio	Rural Minor	11000	0	State Highwa	Intersections	Improve Geometry

SGNL(47) - Construction	traffic control - other				n 148)	Arterial			y Agency		
STATEWIDE HES GARD(2) - Construction	Roadside Barrier- metal	1 Numbers	1259000	1259000	Penalty Transfer – Section 164	Rural Minor Arterial	0	0	State Highway Agency	Roadway Departure	Improve Infrastructues for all Users
STATEWIDE HES WKZN(7) - Planned	Non-infrastructure Enforcement	1 Numbers	2000	2000	Penalty Transfer – Section 164	Rural Minor Arterial	0	0	State Highway Agency	Work Zones	Speed Management with ITS and Infrastructure
STATEWIDE HES SHSP(6) - Planned	Non-infrastructure Data/traffic records	1 Numbers	5000	5000	Penalty Transfer – Section 164		0	0	State Highway Agency	Data	Improve Data Quality
STATEWIDE HES SHSP(7) - Planned	Non-infrastructure Transportation safety planning	1 Numbers	73000	73000	HSIP (Section 148)		0	0	Private (Other than Railroad)	Writing the SHSP	
STATEWIDE HES SHSP(13) - Planned	Non-infrastructure Educational efforts	1 Numbers	31500	31500	Penalty Transfer – Section 164		0	0	Private (Other than Railroad)	Distracted Driving	Improve Driver Compliance
STATEWIDE HES SHSP(14) - Planned	Non-infrastructure Outreach	1 Numbers	5000	5000	Penalty Transfer – Section		0	0	State Highway Agency	All Drivers and the General	Improve Driver Compliance

					164					Public	
STATEWIDE HES SHSP(15) - Planned	Non-infrastructure Outreach	1 Numbers	35000	35000	Penalty Transfer – Section 164		0	0	Private (Other than Railroad)	All Drivers	Improve Driver Compliance
BARRE CITY HES 037-1(8) - Development	Intersection geometry Auxiliary lanes - add left-turn lane	0.02 Miles	58000	58000	Penalty Transfer – Section 164	Urban Minor Arterial	6900	25	City of Municipal Highway Agency	Intersections	Improve Geometry
BURLINGTON HES 5000(18) - Development	Intersection traffic control Modify control - two-way stop to roundabout	0.04 Miles	680000	680000	Penalty Transfer – Section 164	Urban Principal Arterial - Other	6300	25	City of Municipal Highway Agency	Intersections	Improve Operations
COLCHESTER HES NH 5600(14) - Development	Interchange design Interchange design - other	1.025 Miles	350000	350000	Penalty Transfer – Section 164	Urban Principal Arterial - Other	22800	35	State Highway Agency	Intersections	Improve Infrastructues for all Users
MILTON HES 028-1(27) - Construction	Roadway signs and traffic control Roadway signs and traffic control - other	0.02 Miles	42620.78	42620.78	Penalty Transfer – Section 164	Rural Minor Arterial	0	50	State Highway Agency	Intersections	Improve Signs and Markings
COLCHESTER HES 028-1(28) - Construction	Intersection geometry Auxiliary lanes - add left-turn lane	0.02 Miles	593386.42	593386.42	Penalty Transfer – Section 164	Urban Minor Arterial	0	50	State Highway Agency	Intersections	Improve Geometry

HYDE PARK HES 030-2(34) - Construction	Intersection geometry Intersection geometry - other	0.1 Miles	649363.72	649363.72	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Intersections	Improve Driver Compliance
ESSEX STP 5400(10) - Development	Intersection traffic control Modify control - two-way stop to roundabout	0.2 Miles	10000	10000	HSIP (Section 148)	Urban Principal Arterial - Other	0	45	State Highway Agency	Intersections	Improve Operations
STATEWIDE - NORTHWEST REGION STPG SIGN(58) - Devel	Roadway signs and traffic control Sign sheeting - upgrade or replacement	41.066 Miles	86400	86400	HSIP (Section 148)		0	50	State Highway Agency	Older Drivers	Improve Signs and Markings
BARRE TOWN HES STPG 6100(6) - Development	Intersection traffic control Systemic improvements - signal-controlled	0.196 Miles	45000	45000	Penalty Transfer – Section 164	Urban Minor Arterial	11900	35	State Highway Agency	Intersections	Improve Operations
STATEWIDE HES RRCS(1) - Planned	Non-infrastructure Educational efforts	1 Numbers	465.22	465.22	Penalty Transfer – Section 164		0	0	State Highway Agency	Lane Departure	Improve Highway Delineation
BRISTOL HES 021-1(28) - Construction	Intersection traffic control Modify traffic signal - modernization/replacement	0.02 Miles	673214	673214	Penalty Transfer – Section 164	Rural Minor Arterial	6200	25	Town or Township Highway Agency	Intersections	Improve Operations

BERLIN STPG SGNL(40) - Construction	Intersection traffic control Modify traffic signal - modernization/replacement	1 Numbers	9422.81	9422.81	HSIP (Section 148)	Urban Minor Arterial	12200	40	State Highway Agency	Intersections	Improve Operations
GUILFORD-ROCKINGHAM IMG SIGN(44) - Closing	Roadway signs and traffic control Roadway signs (including post) - new or updated	36 Miles	234028.97	234028.97	HSIP (Section 148)	Urban Principal Arterial - Interstate	0	65	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
ALBURGH-COLCHESTER STPG SIGN(45) - Construction	Roadway signs and traffic control Roadway signs (including post) - new or updated	39.011 Miles	62400.03	62400.03	HSIP (Section 148)	Urban Minor Arterial	0	50	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
BARTON-DERBY STPG SIGN(46) - Construction	Roadway signs and traffic control Roadway signs (including post) - new or updated	25.3 Miles	57372.88	57372.88	HSIP (Section 148)	Rural Major Collector	0	50	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
STATEWIDE - SOUTHWEST REGION STPG SIGN(47) - Const	Roadway signs and traffic control Roadway signs (including post) - new or updated	1 Numbers	50874.64	50874.64	HSIP (Section 148)	Rural Major Collector	0	50	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
STATEWIDE - SOUTH REGION STPG MARK(305)	Roadway delineation Longitudinal pavement markings - remarking	1 Numbers	1353777.41	1353777.41	HSIP (Section 148)		0	0	State Highway Agency	Roadway Departure	Improve Highway Delineation

- Construc											
STOWE HES 0235(22) - Development	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	0.048 Miles	18000	18000	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Intersections	Improve Geometry
STATEWIDE - SOUTH REGION STPG SIGN(57) - Developme	Roadway signs and traffic control Roadway signs (including post) - new or updated	55.514 Miles	99800	99800	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
BERLIN-GUILDHALL NHG SIGN(59) - Development	Roadway signs and traffic control Roadway signs (including post) - new or updated	61.714 Miles	119700	119700	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
STATEWIDE HES MARK(404) - Construction	Roadway delineation Longitudinal pavement markings - remarking	1 Numbers	730141.58	730141.58	Penalty Transfer – Section 164	Rural Minor Collector	0	0	Town or Township Highway Agency	Roadway Departure	Improve Highway Delineation
STATEWIDE - NORTH REGION STPG MARK(302) - Closing	Roadway delineation Longitudinal pavement markings - remarking	1 Numbers	1352368.1	1352368.1	Penalty Transfer – Section 164		0	0	State Highway Agency	Roadway Departure	Improve Highway Delineation
STATEWIDE - SOUTH REGION	Roadway delineation Longitudinal pavement markings - remarking	1 Numbers	652751.88	652751.88	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway	Roadway Departure	Improve Highway Delineatio

STPG MARK(303) - Construc									Agency		n
WINOOSKI-CAMBRIDGE STPG SIGN(55) - Development	Roadway signs and traffic control Roadway signs (including post) - new or updated	23.94 Miles	100000	100000	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
STATEWIDE - NORTHEAST STPG SIGN(56) - Construction	Roadway signs and traffic control Roadway signs (including post) - new or updated	56.307 Miles	345604.68	345604.68	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
STATEWIDE - NORTH REGION STPG MARK(304) - Construc	Roadway delineation Longitudinal pavement markings - remarking	1 Numbers	1748979.88	1748979.88	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Roadway Departure	Improve Highway Delineation
STATEWIDE - NORTHEAST REGION STP HRRR(16) - Closin	Roadway signs and traffic control Roadway signs (including post) - new or updated	1 Numbers	283.12	283.12	HRRRP (SAFETEA-LU)	Rural Local Road or Street	0	0	Town or Township Highway Agency	Older Drivers	Improve Infrastructues for all Users
STATEWIDE - SOUTHEAST REGION STP	Roadway signs and traffic control Roadway signs (including post) - new or updated	1 Numbers	1779.55	1779.55	HRRRP (SAFETEA-LU)	Rural Local Road or Street	0	0	Town or Township Highway	Older Drivers	Improve Infrastructues for all Users

HRRR(18) - Comple									Agency		
WATERBURY AREA STP WKZN(9) - Construction	Work Zone	1 Numbers	65579.67	65579.67	HSIP (Section 148)	Rural Principal Arterial - Other	0	0	State Highway Agency	Work Zones	Improve Driver Compliance
STATEWIDE - NORTH REGION STP HRRR(22) - Developmen	Roadway signs and traffic control Roadway signs (including post) - new or updated	1 Numbers	140000	140000	HSIP (Section 148)	Rural Local Road or Street	0	0	Town or Township Highway Agency	Older Drivers	Improve Infrastructues for all Users
STATEWIDE - SOUTH REGION STP HRRR(23) - Developmen	Roadway signs and traffic control Roadway signs (including post) - new or updated	1 Numbers	150000	150000	HSIP (Section 148)	Rural Local Road or Street	0	0	Town or Township Highway Agency	Older Drivers	Improve Infrastructues for all Users
STATEWIDE IMG MARK(115) - Construction	Roadway delineation Longitudinal pavement markings - remarking	1 Numbers	1323227.53	1323227.53	HSIP (Section 148)	Rural Principal Arterial - Interstate	0	0	State Highway Agency	Roadway Departure	Improve Highway Delineation
STATEWIDE STPG TMNG(6) - Development	Intersection traffic control Modify traffic signal timing - general retiming	1 Numbers	30000	30000	HSIP (Section 148)	Rural Minor Arterial	0	0	State Highway Agency	Intersections	Improve Operations

STATEWIDE IMG MARK(114) - Complete	Roadway signs and traffic control Roadway signs (including post) - new or updated	1 Numbers	6733.76	6733.76	HSIP (Section 148)	Rural Principal Arterial - Interstate	0	65	State Highway Agency	Older Drivers	Improve Infrastructues for all Users
FERRISBURGH NHG SGNL(42) - Construction	Intersection traffic control Intersection traffic control - other	0.02 Miles	413932.47	413932.47	HSIP (Section 148)	Rural Principal Arterial - Other	0	50	State Highway Agency	Intersections	Improve Operations
WATERBURY NHG SGNL(43) - Construction	Intersection traffic control Intersection traffic control - other	0.01 Miles	39908.23	39908.23	HSIP (Section 148)	Rural Minor Arterial	0	40	State Highway Agency	Intersections	Improve Operations
LUDLOW HES SGNL(44) - Development	Intersection traffic control Intersection traffic control - other	0.02 Miles	20000	20000	Penalty Transfer – Section 164	Rural Principal Arterial - Other	0	50	State Highway Agency	Intersections	Improve Operations
COLCHESTER-ESSEX STPG SGNL(45) - Construction	Intersection traffic control Modify traffic signal - modernization/replacement	4.656 Miles	7500	7500	HSIP (Section 148)	Urban Minor Arterial	0	35	Town or Township Highway Agency	Intersections	Improve Operations
HYDE PARK HES 030-2(23) - Construction	Interchange design Interchange design - other	0.02 Miles	3000	3000	Penalty Transfer – Section 164	Rural Minor Arterial	8700	40	State Highway Agency	Intersections	Improve Geometry
STATEWIDE - SOUTHEAS	Roadway signs and traffic control Roadway signs and traffic control -	1 Numbers	16752.78	16752.78	HRRRP (SAFETEA-LU)	Urban Local Road or	0	0	Other Local Agency	Intersections	Improve Signs and Markings

T REGION STP HRRR(14) - Closin	other					Street					
STATEWIDE - SOUTHWEST REGION HES HSIP(6) - Closing	Roadway signs and traffic control Roadway signs and traffic control - other	1 Numbers	8927	8927	Penalty Transfer – Section 164	Urban Local Road or Street	0	0	Other Local Agency	Intersections	Improve Signs and Markings
STATEWIDE HES HSIP(7) - Development	Roadway signs and traffic control Roadway signs and traffic control - other	1 Numbers	20000	20000	Penalty Transfer – Section 164	Statewide	0	0	State Highway Agency	Intersections	Improve Signs and Markings
STATEWIDE HES HSIP(8) - Planned	Non-infrastructure Data/traffic records	1 Numbers	45000	45000	Penalty Transfer – Section 164		0	0	State Highway Agency	Data	Improve Data Quality

Progress in Achieving Safety Performance Targets

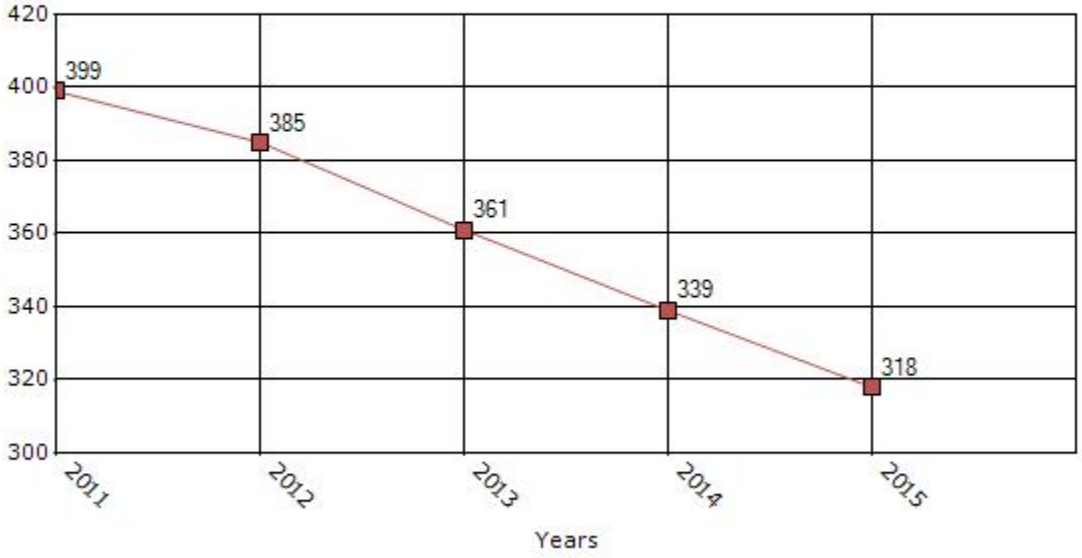
Overview of General Safety Trends

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

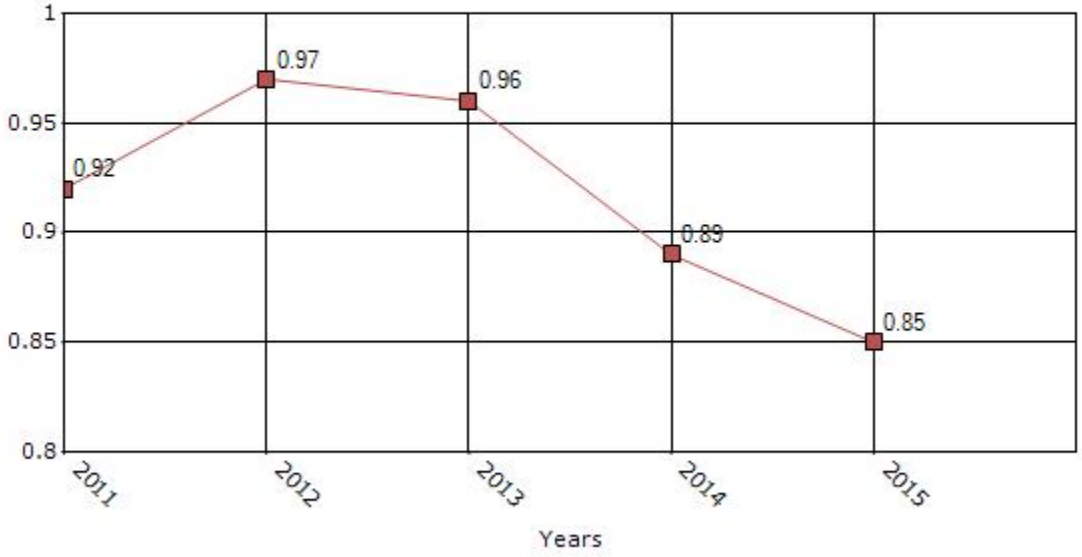
Performance Measures*	2011 (5-yr avg)	2012 (5-yr avg)	2013 (5-yr avg)	2014 (5-yr avg)	2015 (5-yr avg)
Number of fatalities	68	70	69	63	61
Number of serious injuries	399	385	361	339	318
Fatality rate (per HMVMT)	0.92	0.97	0.96	0.89	0.85
Serious injury rate (per HMVMT)	5.44	5.31	4.98	4.74	4.43

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

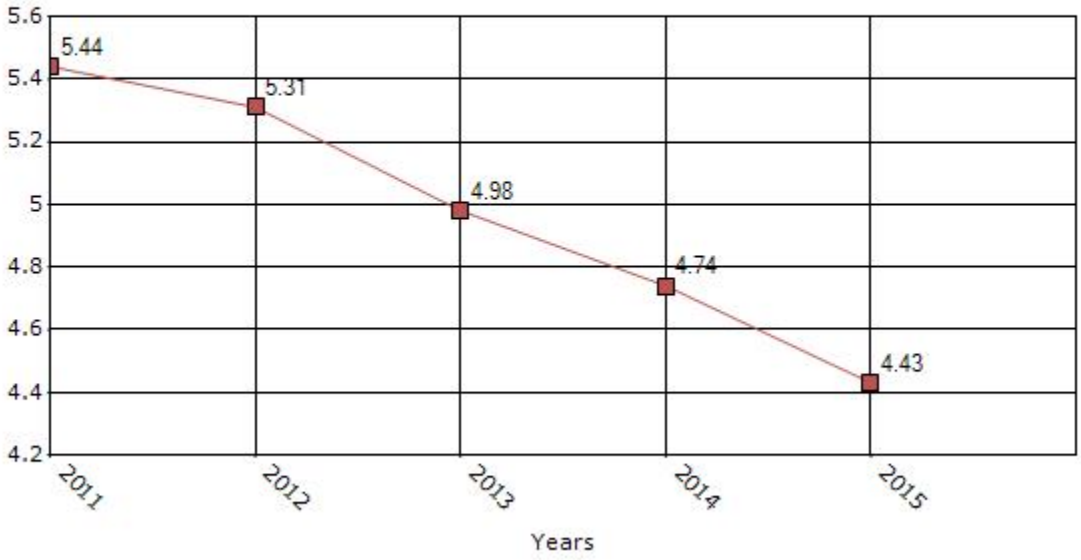
Number of Serious Injuries for the Last Five Years
5-yr Average Measure Data



Rate of Fatalities for the Last Five Years
5-yr Average Measure Data



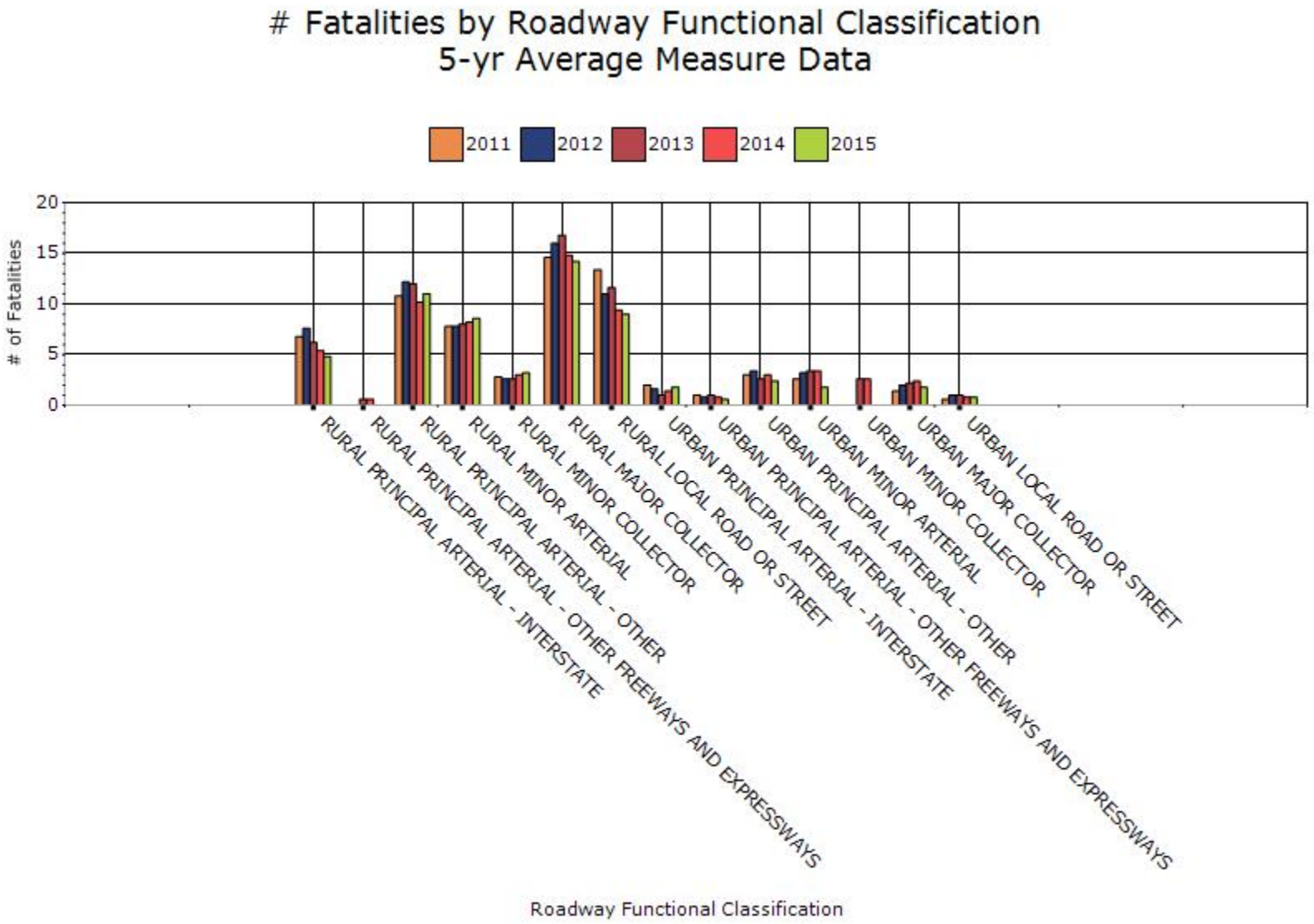
Rate of Serious Injuries for the Last Five Years
5-yr Average Measure Data

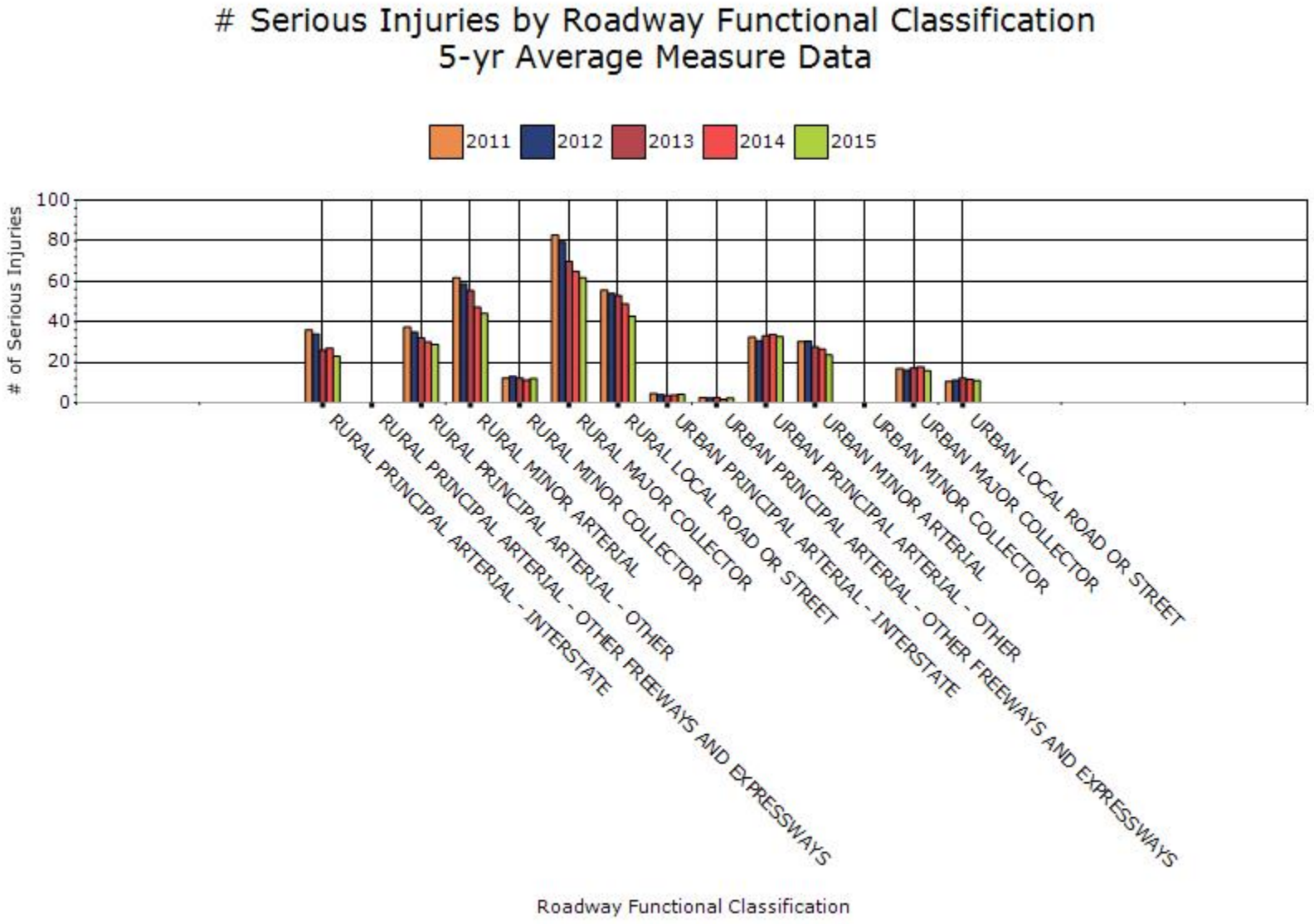


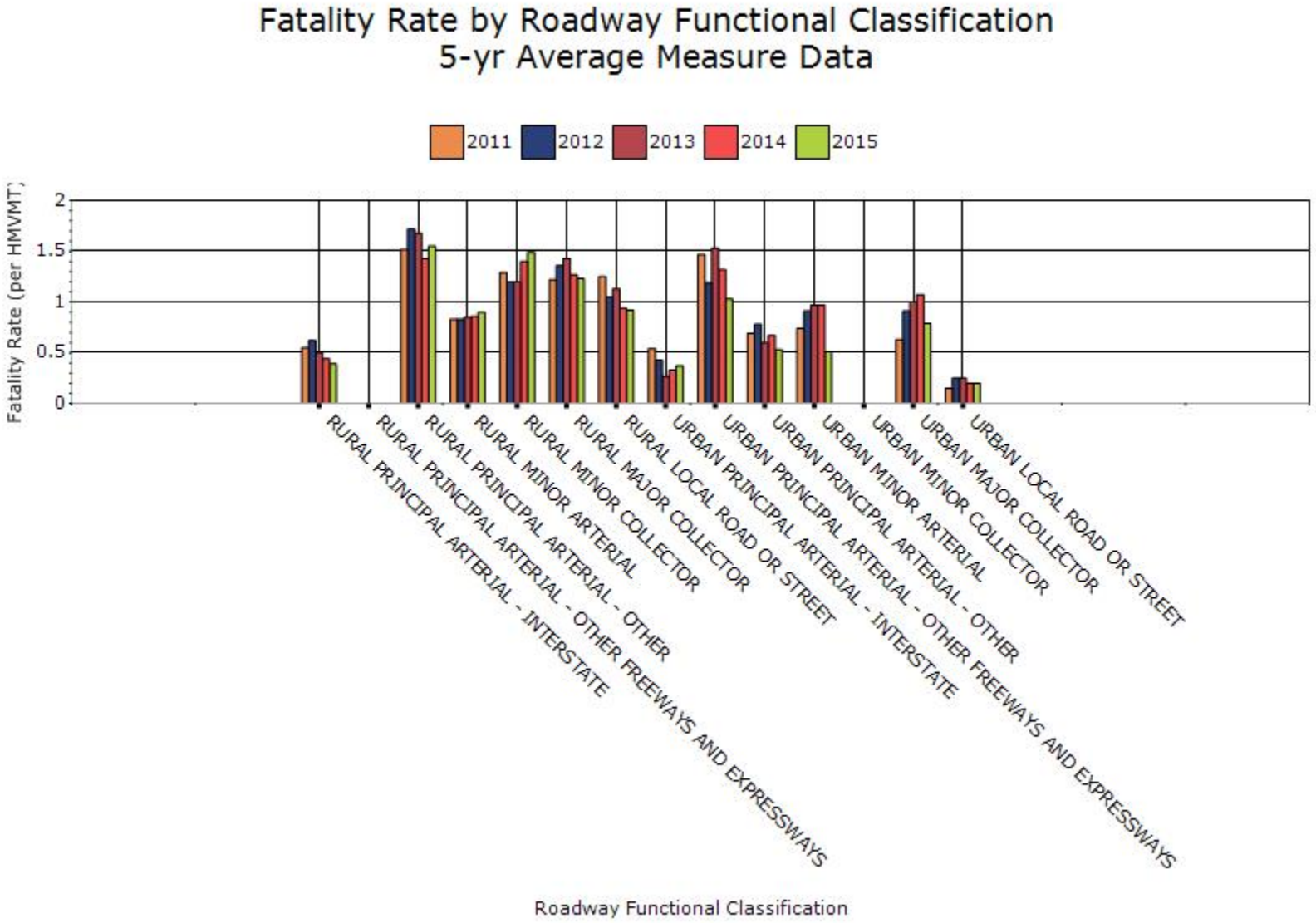
25. To the maximum extent possible, present performance measure data by functional classification and ownership.

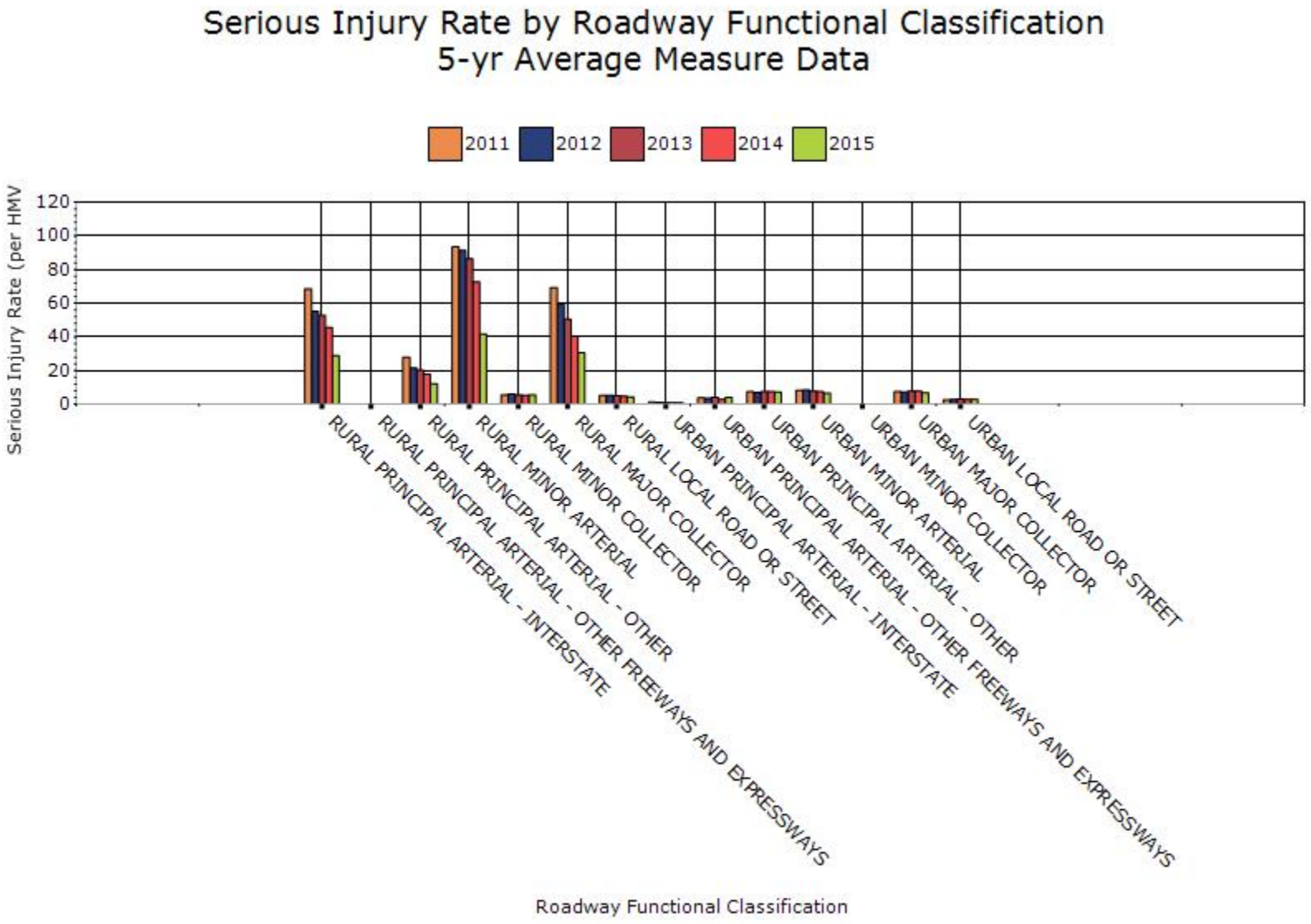
Year - 2015

Function Classification	Number of fatalities (5-yr avg)	Number of serious injuries (5-yr avg)	Fatality rate (per HMVMT) (5-yr avg)	Serious injury rate (per HMVMT) (5-yr avg)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	4.8	23	0.39	28.78
RURAL PRINCIPAL ARTERIAL - OTHER	11	28.8	1.55	12.22
RURAL MINOR ARTERIAL	8.6	44.2	0.9	41.73
RURAL MINOR COLLECTOR	3.2	12	1.49	5.57
RURAL MAJOR COLLECTOR	14.2	61.8	1.23	30.67
RURAL LOCAL ROAD OR STREET	9	42.8	0.92	4.39
URBAN PRINCIPAL ARTERIAL - INTERSTATE	1.8	4.2	0.37	0.93
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	0.6	2.4	1.03	3.97
URBAN PRINCIPAL ARTERIAL - OTHER	2.4	32.6	0.53	7.2
URBAN MINOR ARTERIAL	1.8	23.6	0.51	6.6
URBAN MAJOR COLLECTOR	1.8	15.8	0.79	6.75
URBAN LOCAL ROAD OR STREET	0.8	11	0.2	2.83


Fatalities by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Fatalities
20
15
10
5
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
Roadway Functional Classification

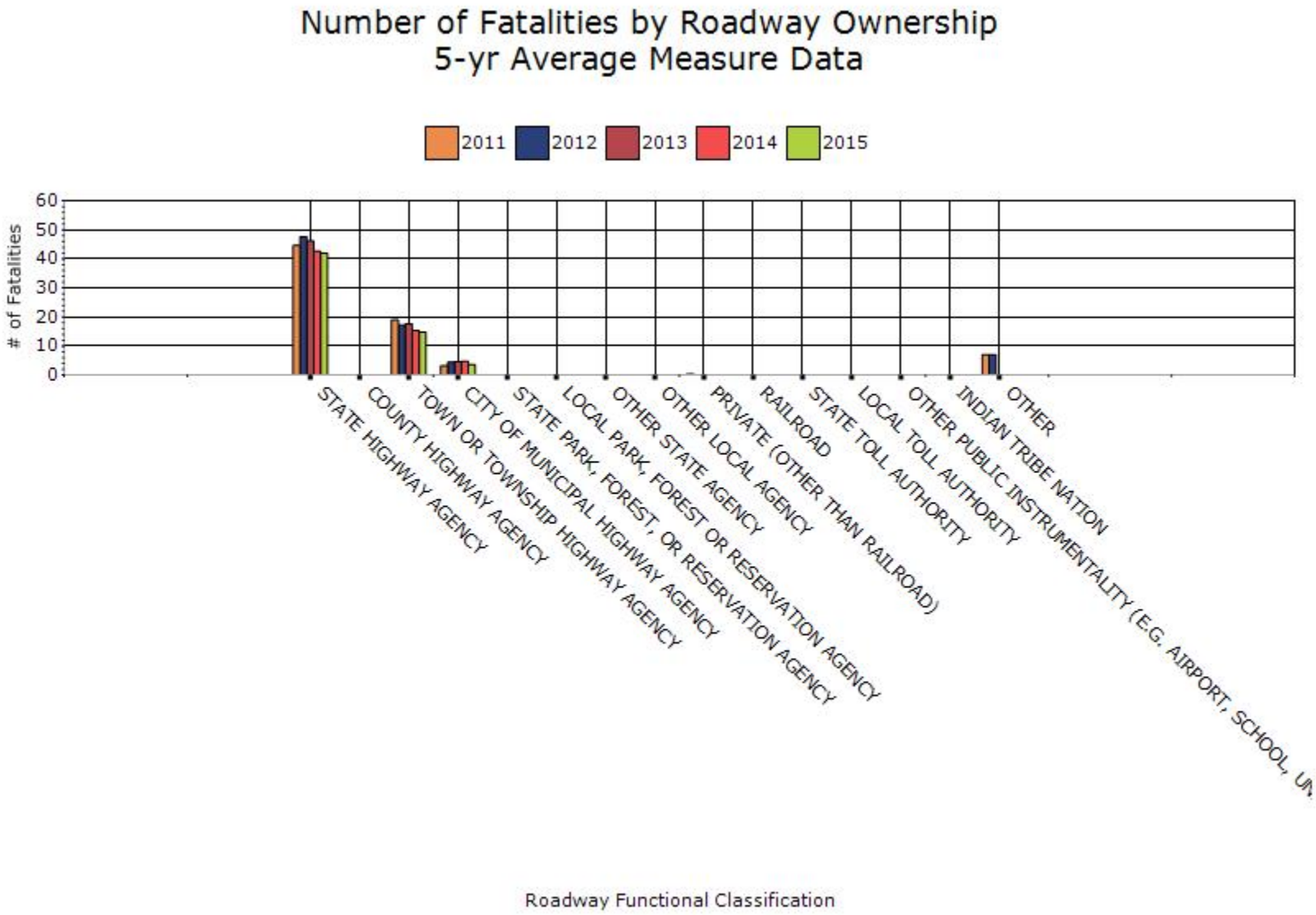

Serious Injuries by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Serious Injuries
100
80
60
40
20
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
Roadway Functional Classification

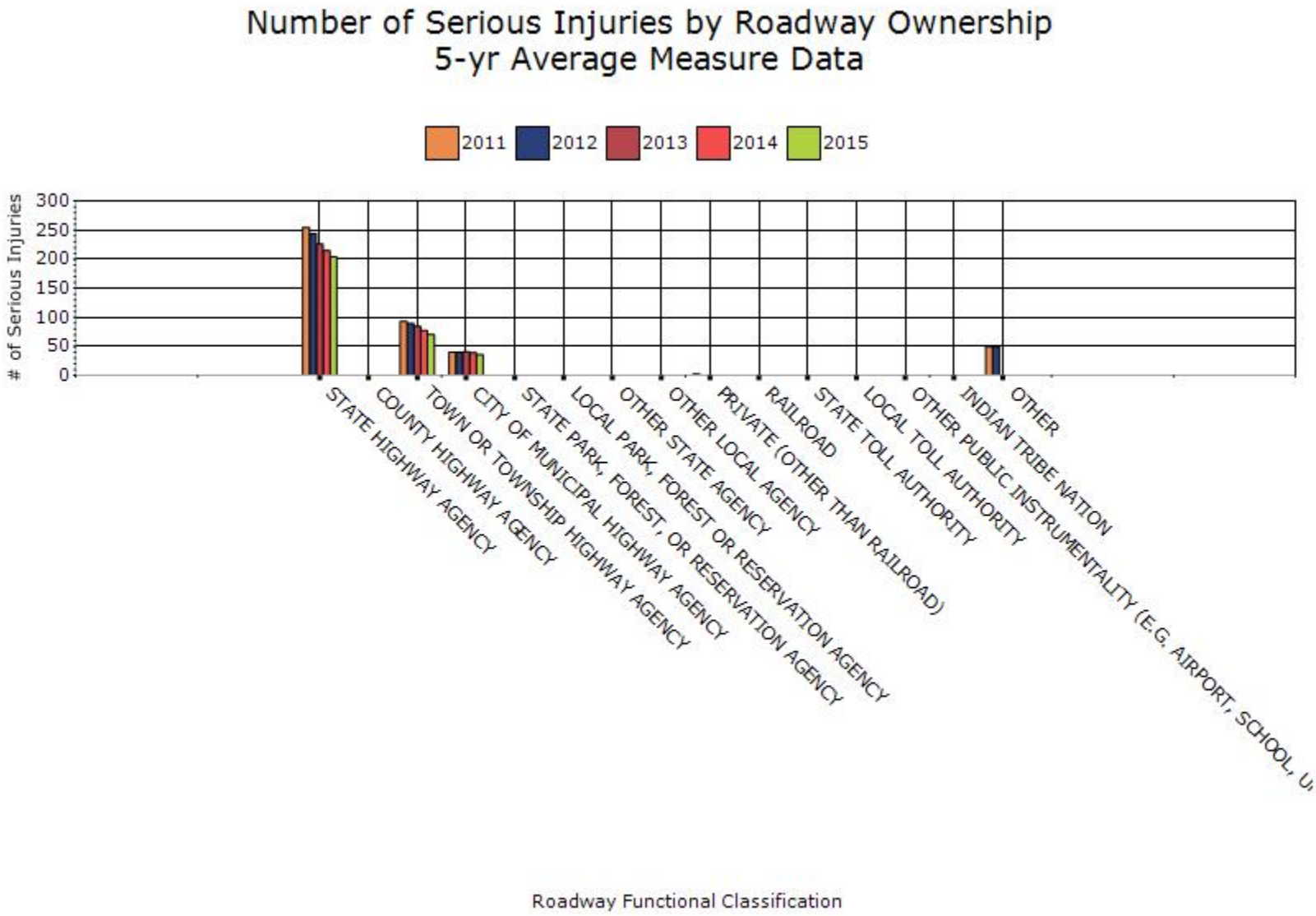

Fatality Rate by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
Fatality Rate (per HMVMT)
2
1.5
1
0.5
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
Roadway Functional Classification


Serious Injury Rate by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
Serious Injury Rate (per HMV
120
100
80
60
40
20
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
Roadway Functional Classification

Year - 2015

Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	42	203.8		
TOWN OR TOWNSHIP HIGHWAY AGENCY	14.8	70.2		
CITY OF MUNICIPAL HIGHWAY AGENCY	3.6	36		


Number of Fatalities by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Fatalities
60
50
40
30
20
10
0
STATE HIGHWAY AGENCY
COUNTY HIGHWAY AGENCY
TOWN OR TOWNSHIP HIGHWAY AGENCY
CITY OF MUNICIPAL HIGHWAY AGENCY
STATE PARK, FOREST, OR RESERVATION AGENCY
LOCAL PARK, FOREST OR RESERVATION AGENCY
OTHER STATE AGENCY
OTHER LOCAL AGENCY
PRIVATE (OTHER THAN RAILROAD)
RAILROAD
STATE TOLL AUTHORITY
LOCAL TOLL AUTHORITY
OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, UN
INDIAN TRIBE NATION
OTHER
Roadway Functional Classification


Number of Serious Injuries by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Serious Injuries
300
250
200
150
100
50
0
STATE HIGHWAY AGENCY
COUNTY HIGHWAY AGENCY
TOWN OR TOWNSHIP HIGHWAY AGENCY
CITY OF MUNICIPAL HIGHWAY AGENCY
STATE PARK, FOREST, OR RESERVATION AGENCY
LOCAL PARK, FOREST OR RESERVATION AGENCY
OTHER STATE AGENCY
OTHER LOCAL AGENCY
PRIVATE (OTHER THAN RAILROAD)
RAILROAD
STATE TOLL AUTHORITY
LOCAL TOLL AUTHORITY
OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, U
INDIAN TRIBE NATION
OTHER
Roadway Functional Classification

Note that the data for State Highway Agency also include some crashes that took place on Vermont Class I Roads that would be owned by towns and cities.

Note also that HMVTMs by Roadway Ownership are not available.

In addition, urban boundaries were changed from 2013 to 2014 which could result in changes in mileage when compared to previous years.

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

A unique element of safety implementation in Vermont is the presence of the Vermont Highway Safety Alliance (VHSA), a group of public and private organizations that works towards highway safety. At the basis on the VHSA is the Strategic Highway Safety Plan (SHSP).

Major crashes are defined as crashes that either resulted in a fatal injury or in an incapacitating injury.

The most recent 5-years of data shows that Vermont continues to make progress in the goal of reducing major crashes on the State's highways. While the 2011 through 2015 data shows steady progress, it is the longer term historical trends that tell the true story of progress made. Looking back to the development of the 2012-2016 SHSP, major crashes Statewide from 2004 through 2011 were trending downward at a rate of 10.9%.

As a result of the dedication and hard work of the VHSA and its partners, there has been a 15% reduction over the last 4 years, and a major crash reduction of 25.7% since 2004.

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 and those that are more readily addressed by the HSIP.

The previous 5-year rolling average calculated for the period 2004-2011 showed a 7% reduction in major crashes for leaving the road. The 2012-2016 SHSP set a goal of reducing lane departure major crashes by 10%. The data shows that the major crashes associated with leaving the road continued to reduce at an average rate of 7 to 8%.

The previous 5-year rolling average calculated for the period 2004-2011 showed an 8% reduction in major crashes at intersections. The 2012-2016 SHSP set a goal of reducing lane departure major crashes by 10%. The data shows that this goal was met with an overall major crash reduction at intersections by 19% from 2004 through 2015.

The most current evaluation of data shows a doubling of major crashes for younger drivers under 25 when compared to younger drivers under 21. This indicates the potential need to expand the younger driver age group and consider specific strategies to target drivers between the ages of 21 and 25.

Application of Special Rules

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

Older Driver	2010	2011	2012	2013	2014

Performance Measures	(5-yr avg)	(5-yr avg)	(5-yr avg)	(5-yr avg)	(5-yr avg)
Fatality rate (per capita)	0.13	0.13	0.134	0.146	0.124
Serious injury rate (per capita)	0.362	0.366	0.358	0.352	0.322
Fatality and serious injury rate (per capita)	0.492	0.494	0.49	0.496	0.444

*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 Section 148: Older Drivers and Pedestrians Special Rule Final Guidance, dated May 19, 2016..

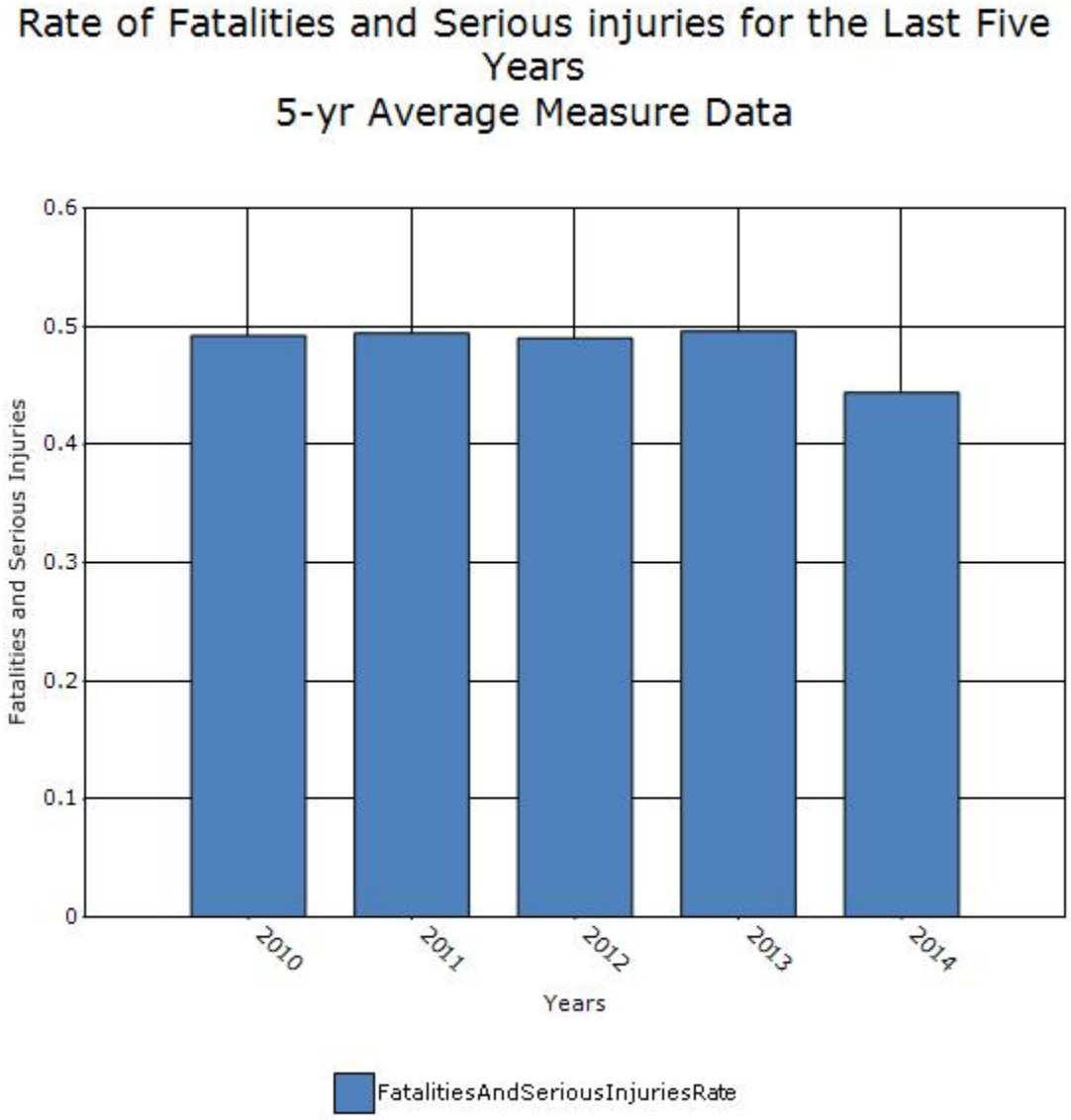
The five year average Fatal (F) and Serious Injuries (SI) per capita for Drivers and Pedestrians 65 years of age and older for year ending in 2012 and 2014 was calculated for the following periods respectively, 2014 (2014, 2013, 2012, 2011, 2010) and 2012 (2012, 2011, 2010, 2009, 2008).

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 (2012 and 2014).

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

The 2014 rate was 0.4 and the 2012 rate was 0.5. There is no increase in 2014 compared to 2012 and therefore the rule does not apply.

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



28. Does the older driver special rule apply to your state?

No

Assessment of the Effectiveness of the Improvements (Program Evaluation)

29. What indicators of success can you use to demonstrate effectiveness and success in the Highway Safety Improvement Program?

Other-crash reduction

30. What significant programmatic changes have occurred since the last reporting period?

Include Local Roads in Highway Safety Improvement Program

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

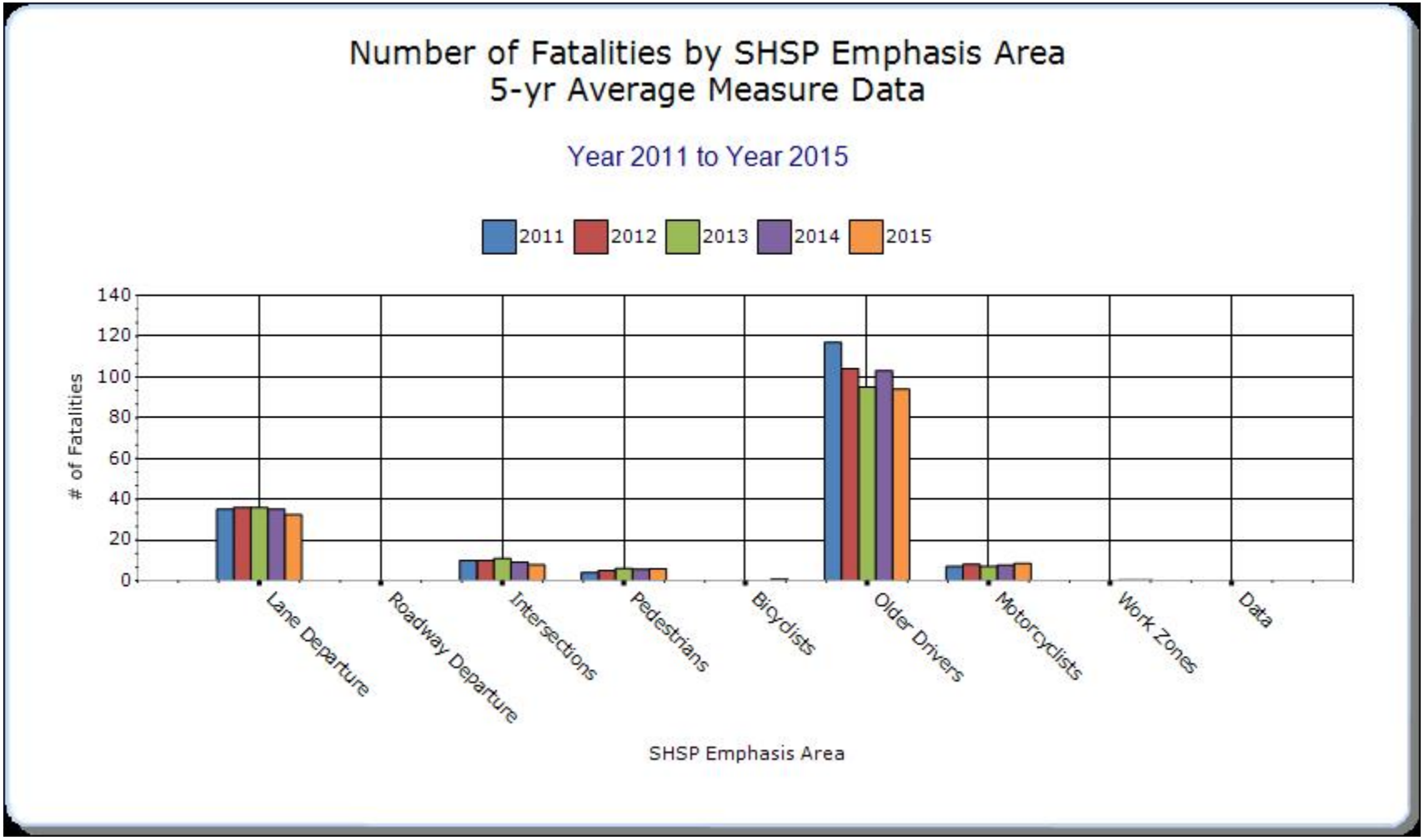
We implemented a systemic program for local roads under 5000 vehicles per day. We performed a data tree and concluded that on rural roads, horizontal curves that were combined with a vertical alignment were important crash risk locations. We worked with the regional planning commissions to identify corridors for improvement and performed safety review with road foremen in selected towns. Signage improvements will be implemented by the State.

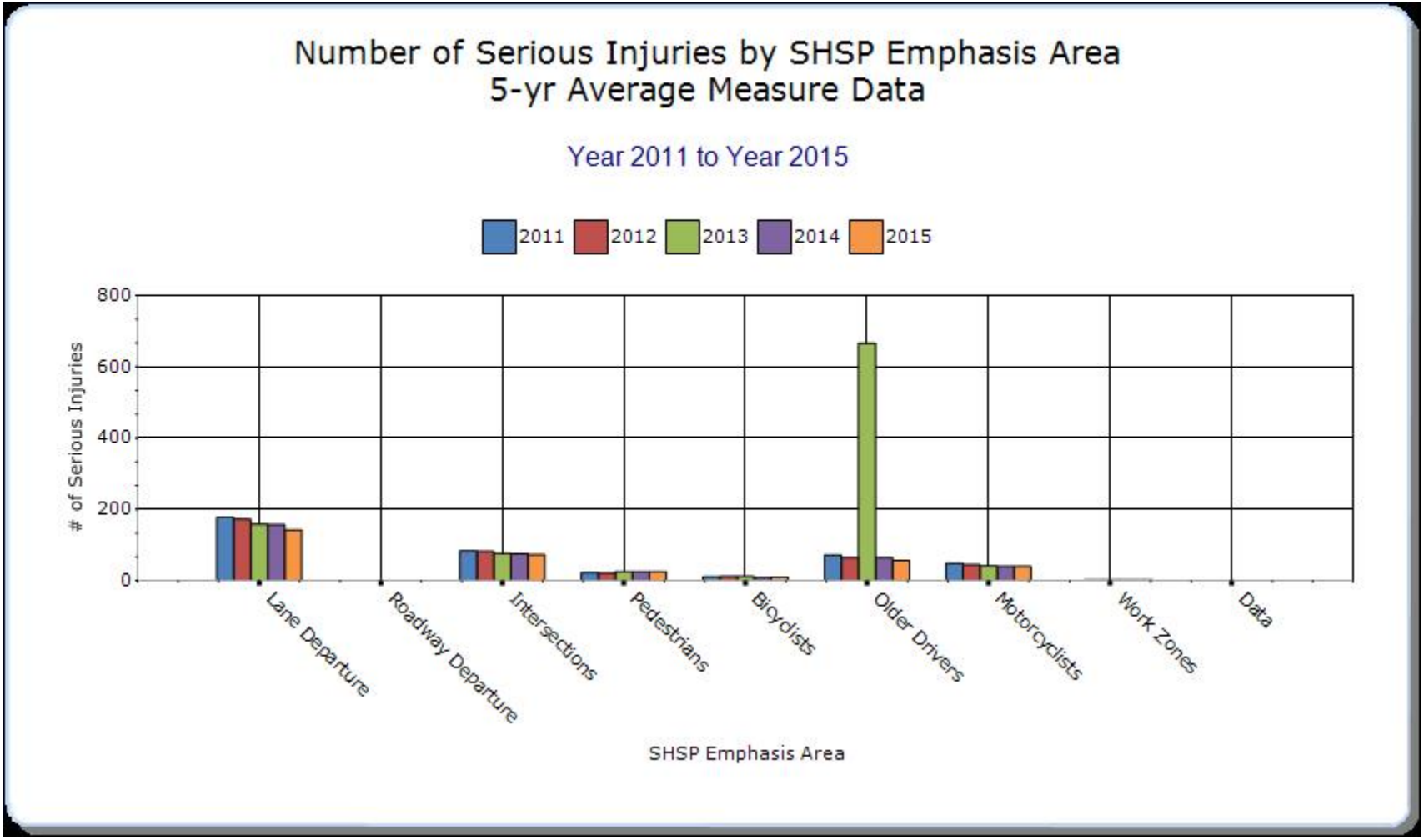
SHSP Emphasis Areas

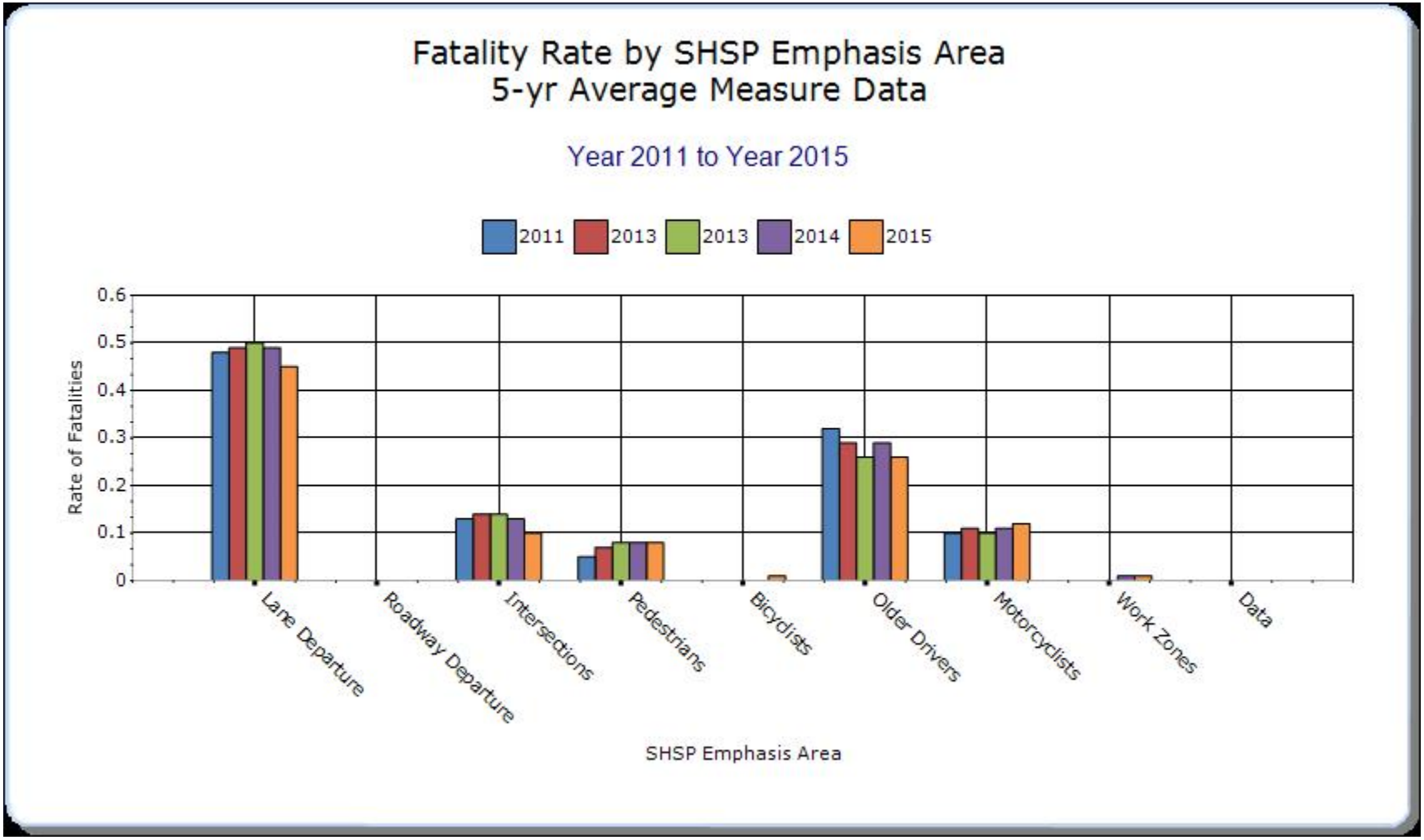
32. Present and describe trends in SHSP emphasis area performance measures.

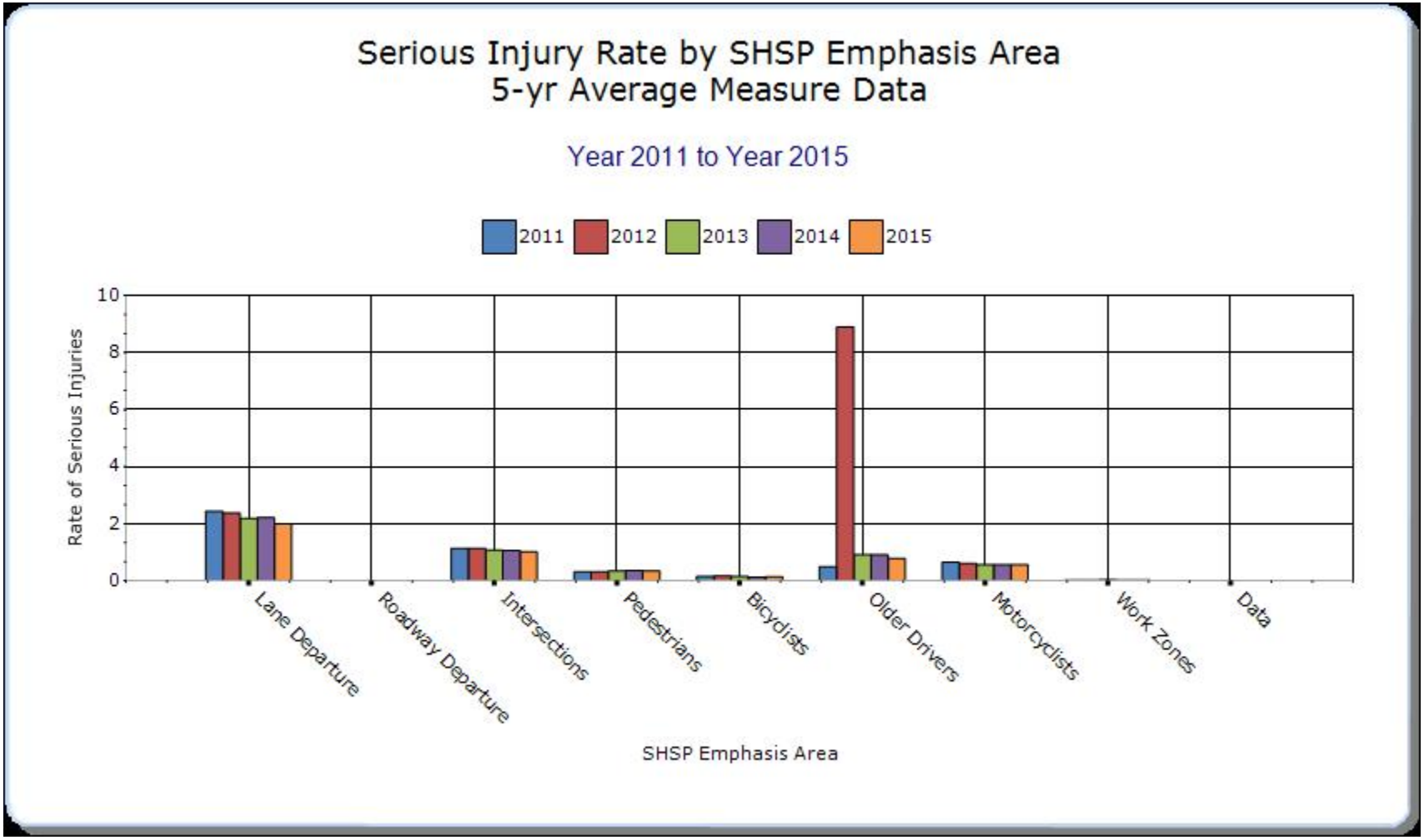
Year - 2015

HSIP-related SHSP Emphasis Areas	Target Crash Type	Number of fatalities (5-yr avg)	Number of serious injuries (5-yr avg)	Fatality rate (per HMVMT) (5-yr avg)	Serious injury rate (per HMVMT) (5-yr avg)	Other-1 (5-yr avg)	Other-2 (5-yr avg)	Other-3 (5-yr avg)
Lane Departure	All	32.4	142.4	0.45	1.99			
Intersections	All	7.8	72.6	0.1	1.01			
Pedestrians	All	5.8	24.8	0.08	0.35			
Bicyclists	All	0.8	10.2	0.01	0.14			
Older Drivers	All	94	56.2	0.26	0.78			
Motorcyclists	All	8.4	40	0.12	0.56			
Work Zones	All	0.4	1.4	0.01	0.02			


Number of Fatalities by SHSP Emphasis Area
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Fatalities
140
120
100
80
60
40
20
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
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
800
600
400
200
0
# of Serious Injuries
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Fatality Rate by SHSP Emphasis Area
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2013
2013
2014
2015
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

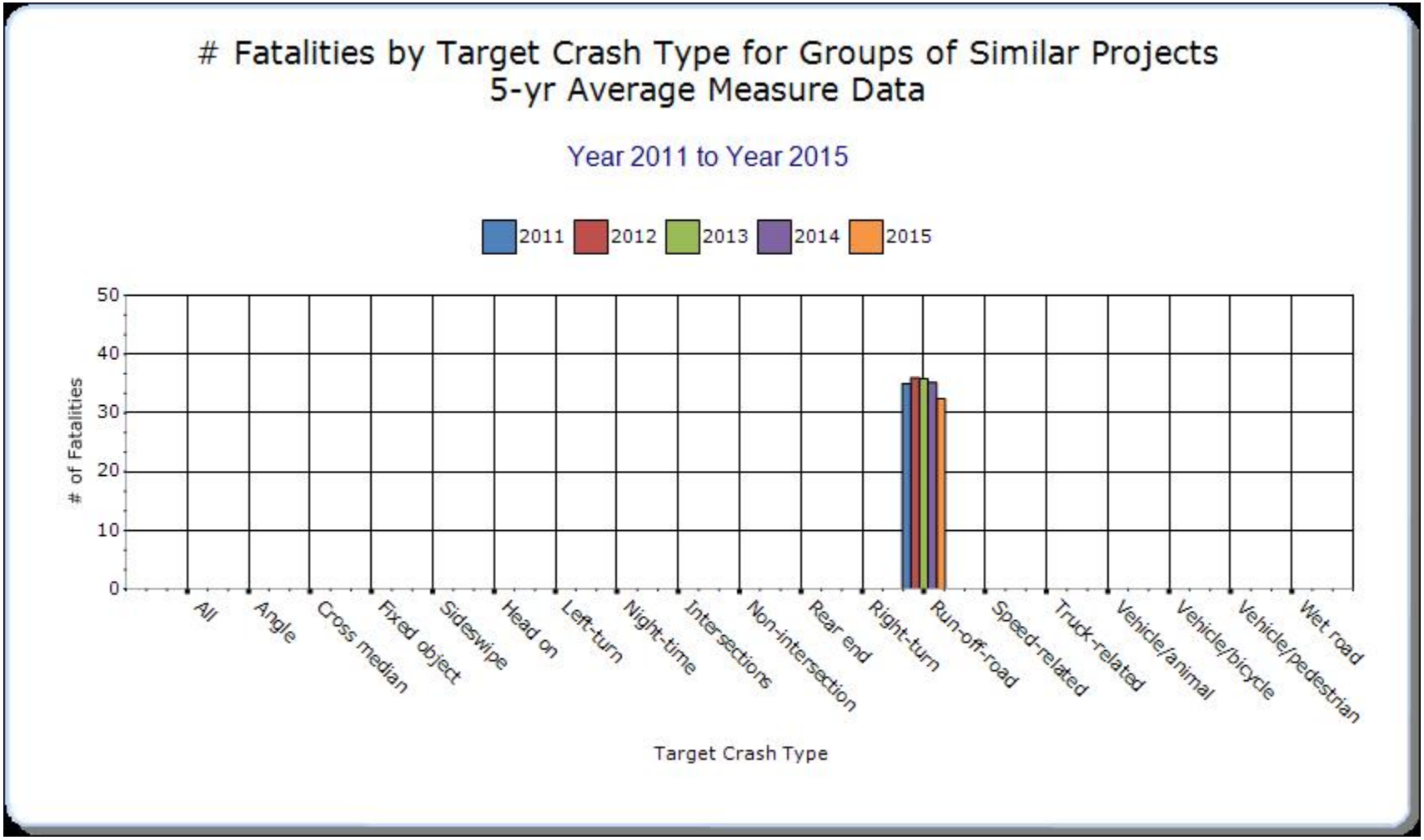


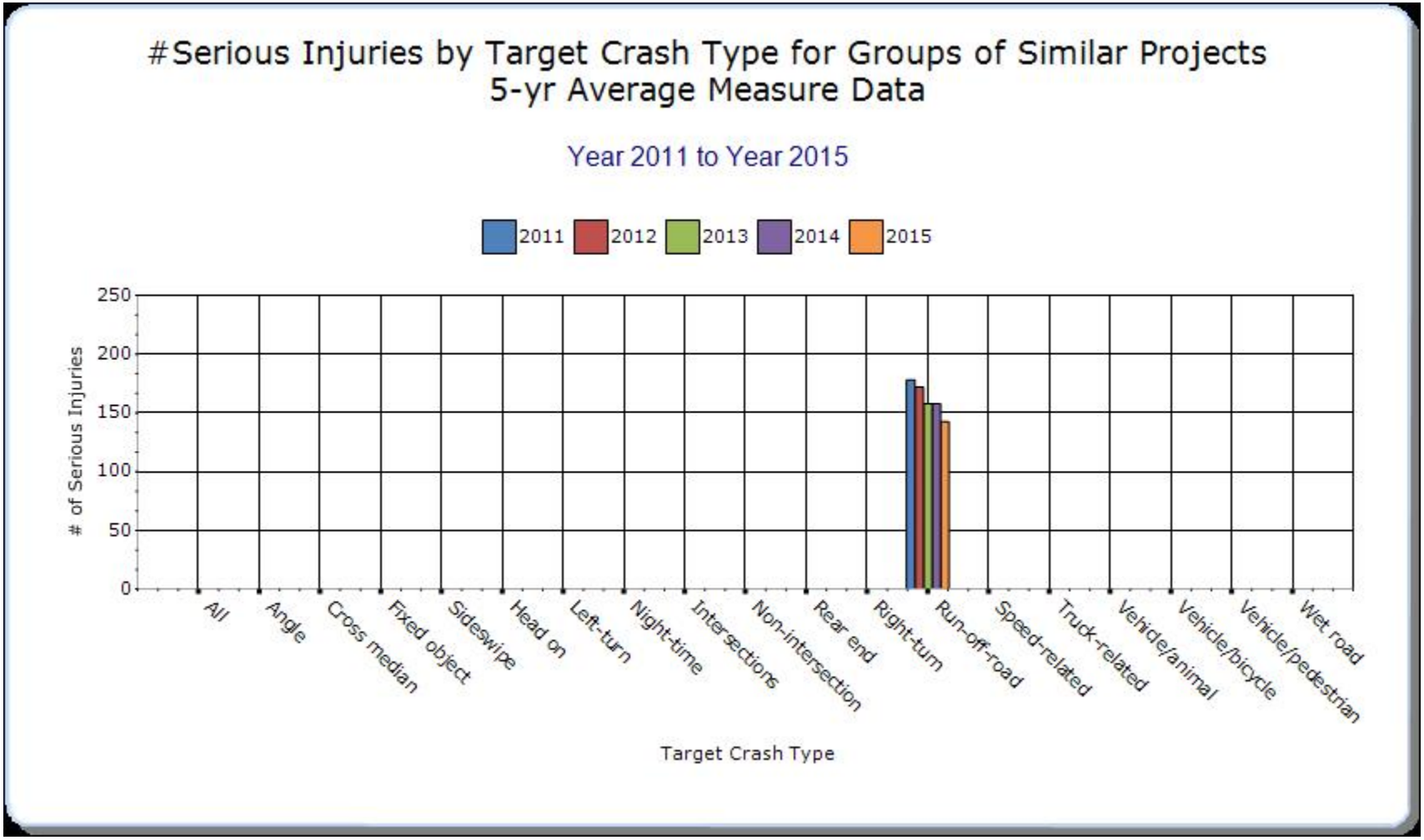
Groups of similar project types

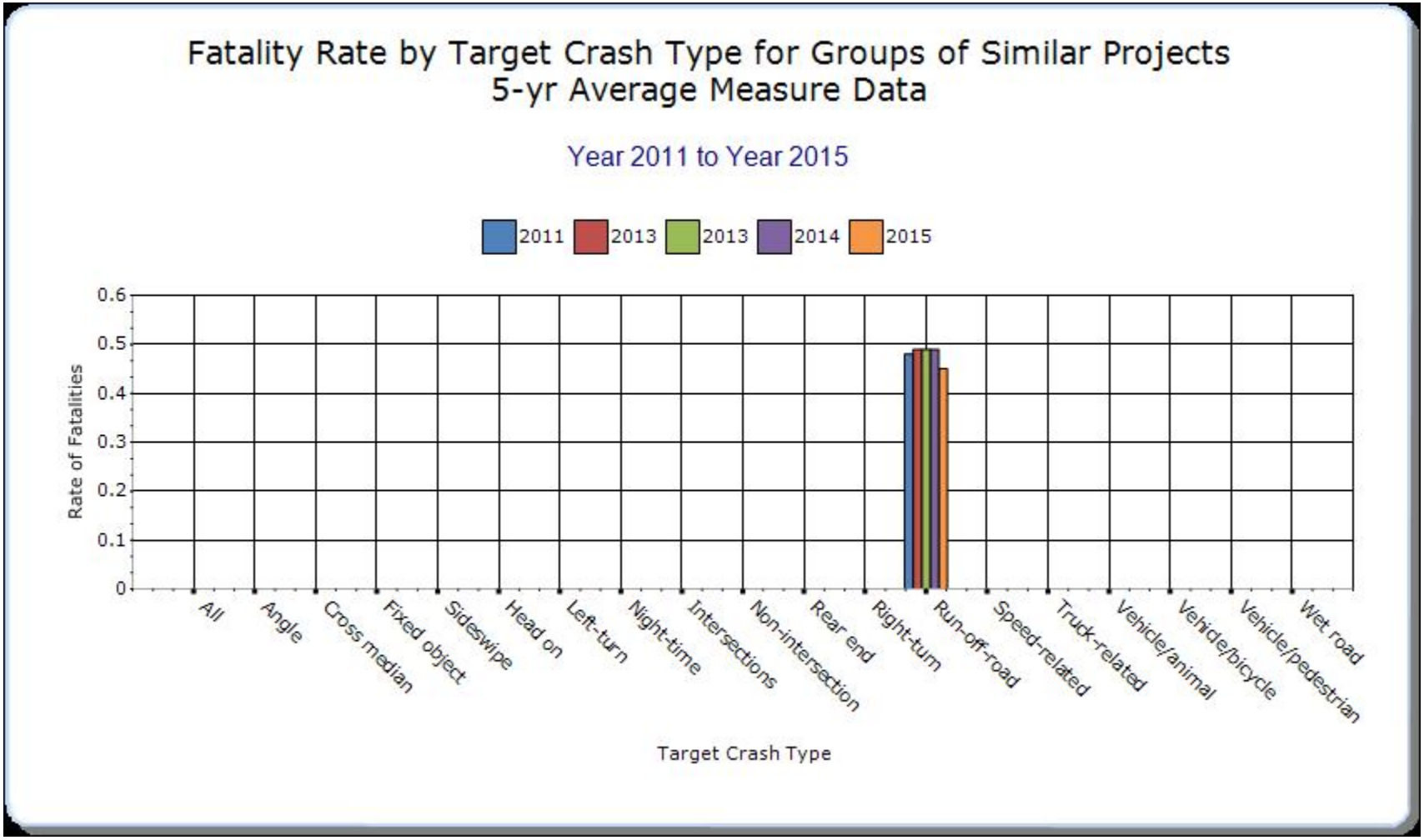
33. Present the overall effectiveness of HSIP subprograms.

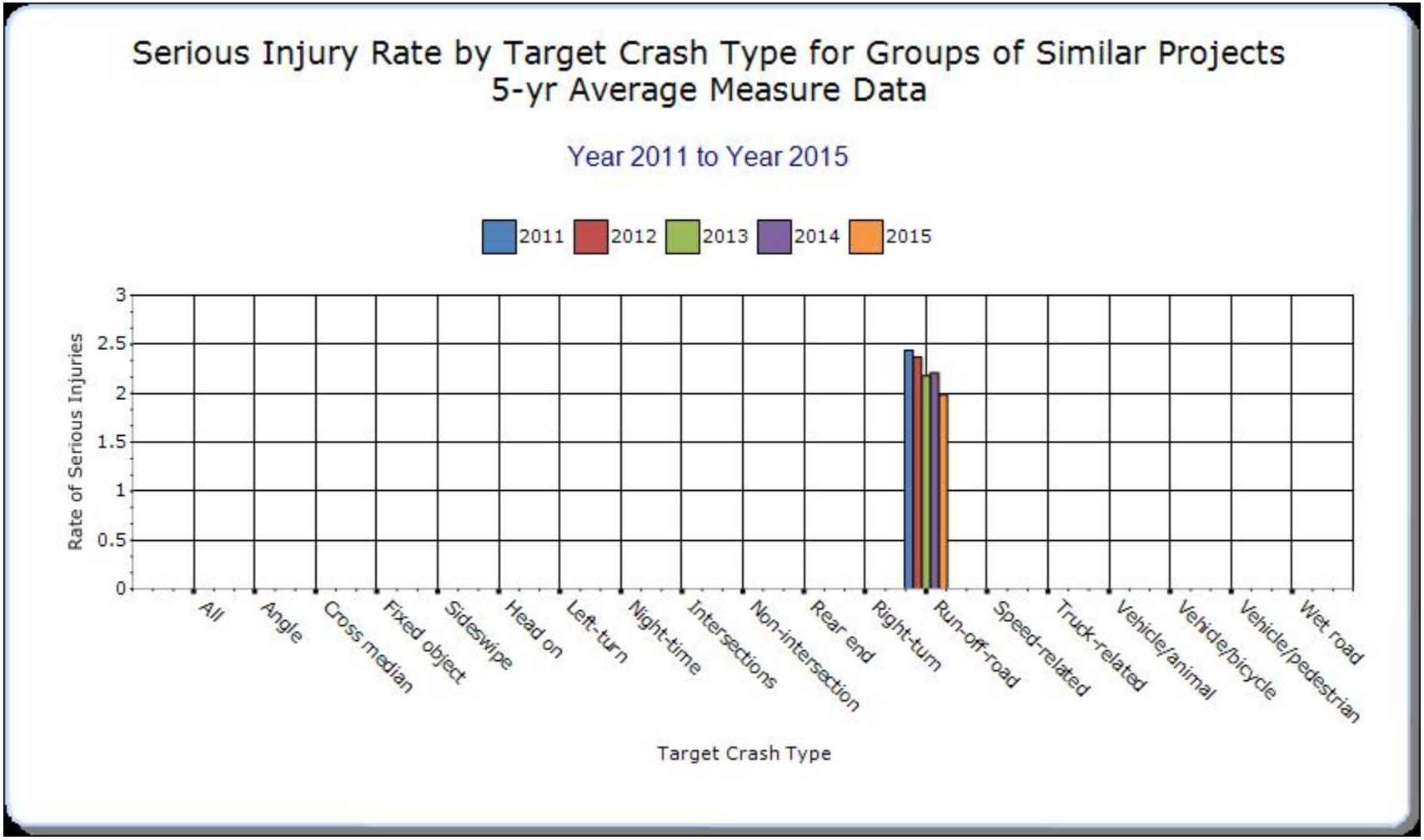
Year - 2015

HSIP Sub-program Types	Target Crash Type	Number of fatalities (5-yr avg)	Number of serious injuries (5-yr avg)	Fatality rate (per HMVMT) (5-yr avg)	Serious injury rate (per HMVMT) (5-yr avg)	Other-1 (5-yr avg)	Other-2 (5-yr avg)	Other-3 (5-yr avg)
Low-Cost Spot Improvements	Run-off-road	32.4	142.4	0.45	1.99			


Fatalities by Target Crash Type for Groups of Similar Projects
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# 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
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# 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
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2013
2013
2014
2015
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

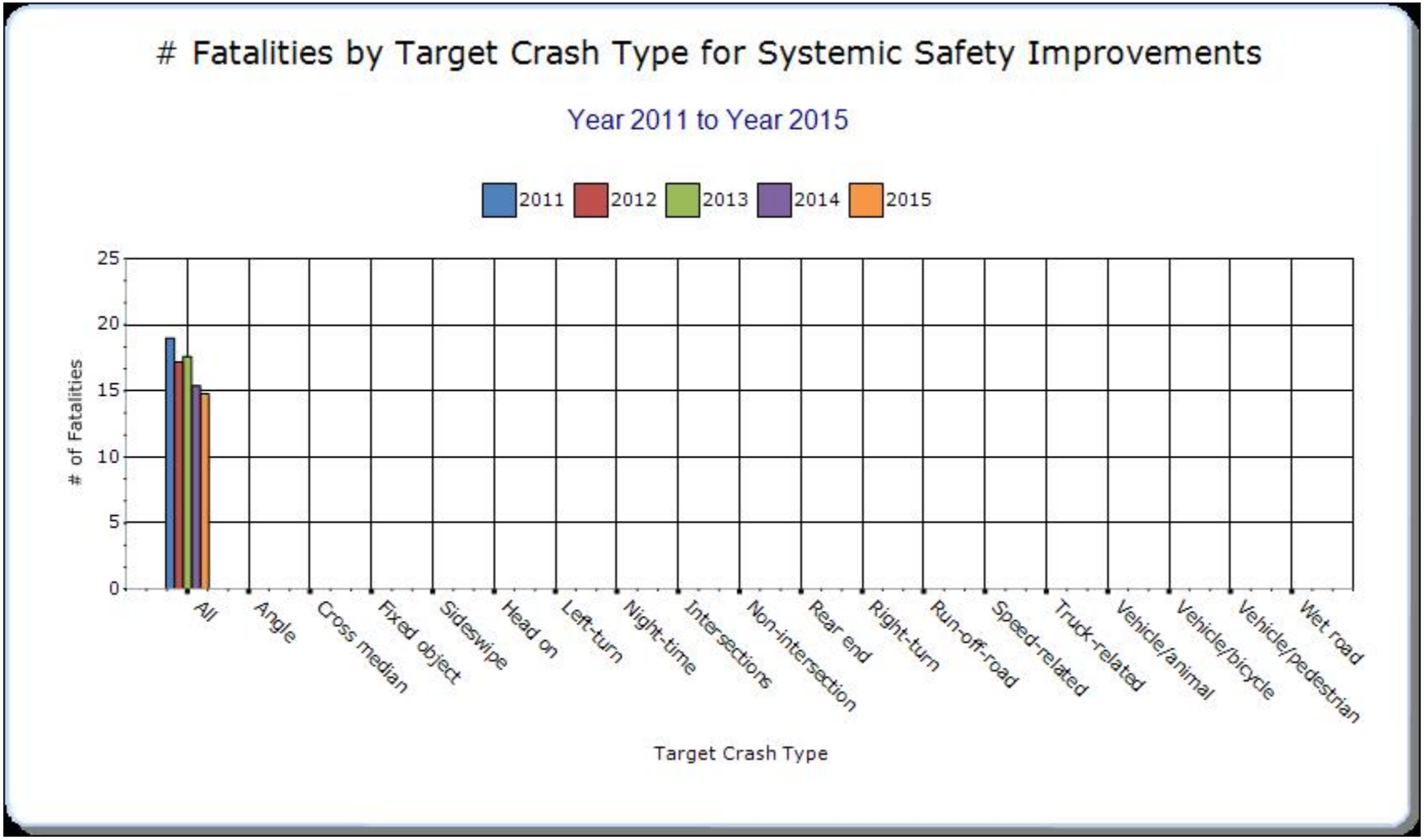


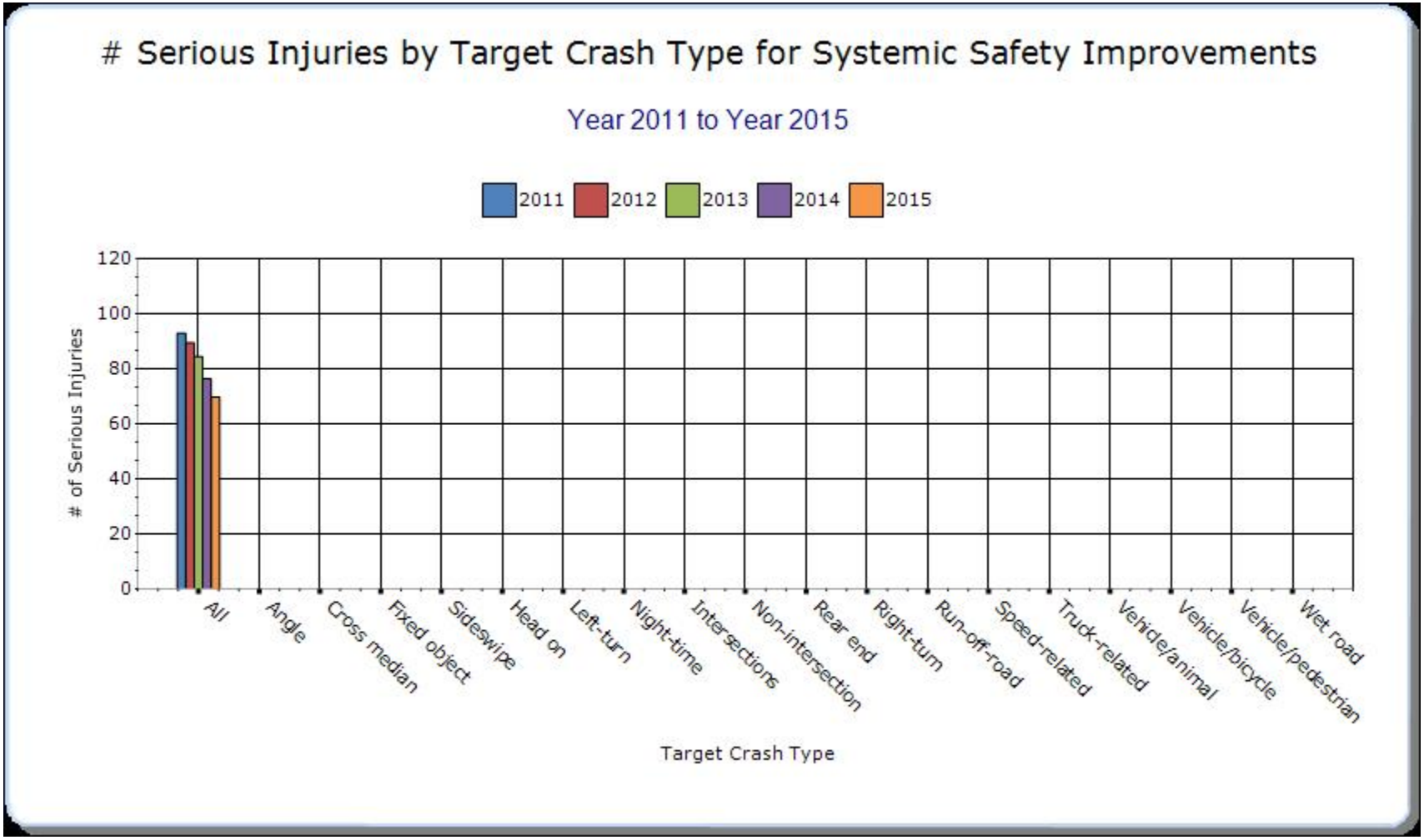
Systemic Treatments

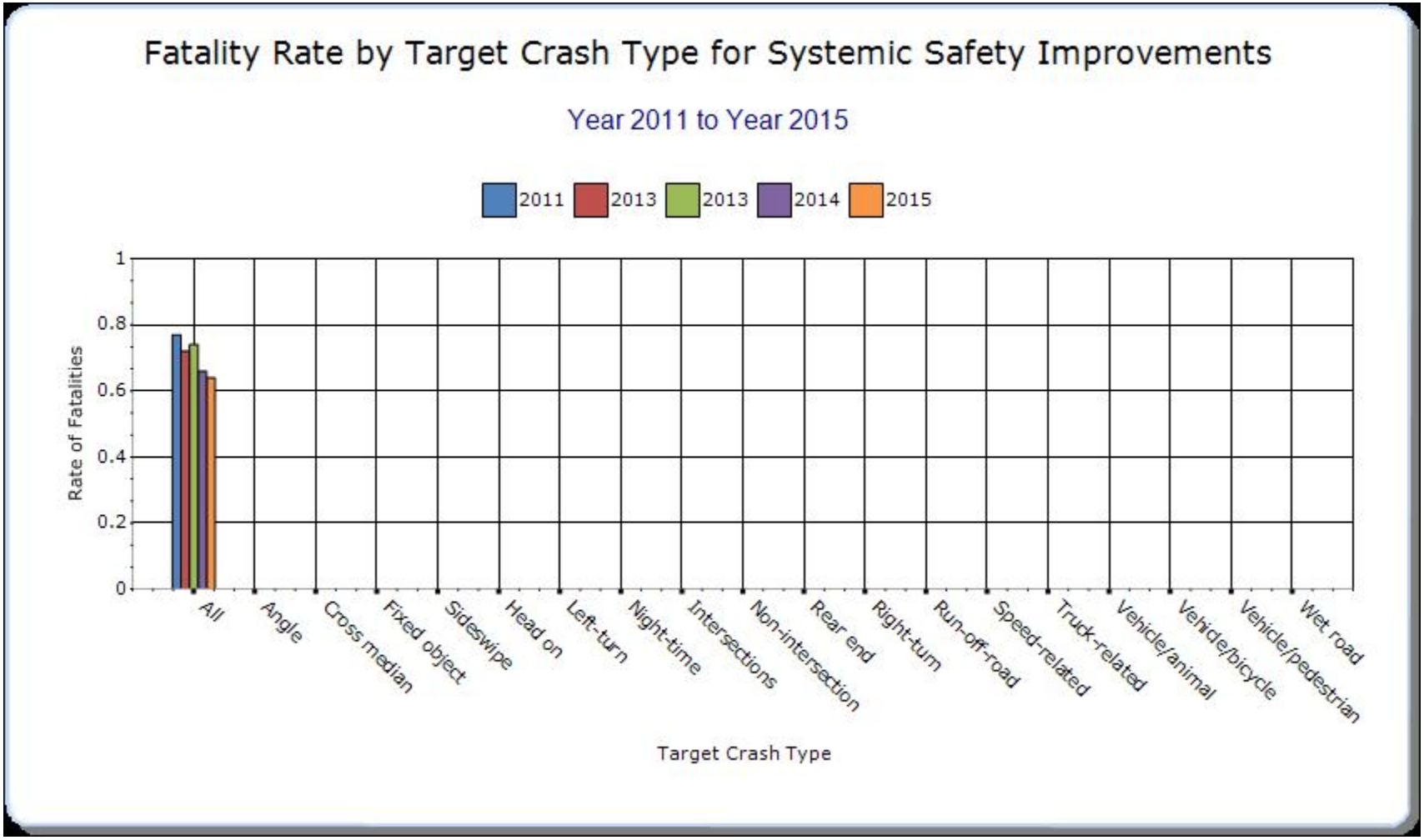
34. Present the overall effectiveness of systemic treatments.

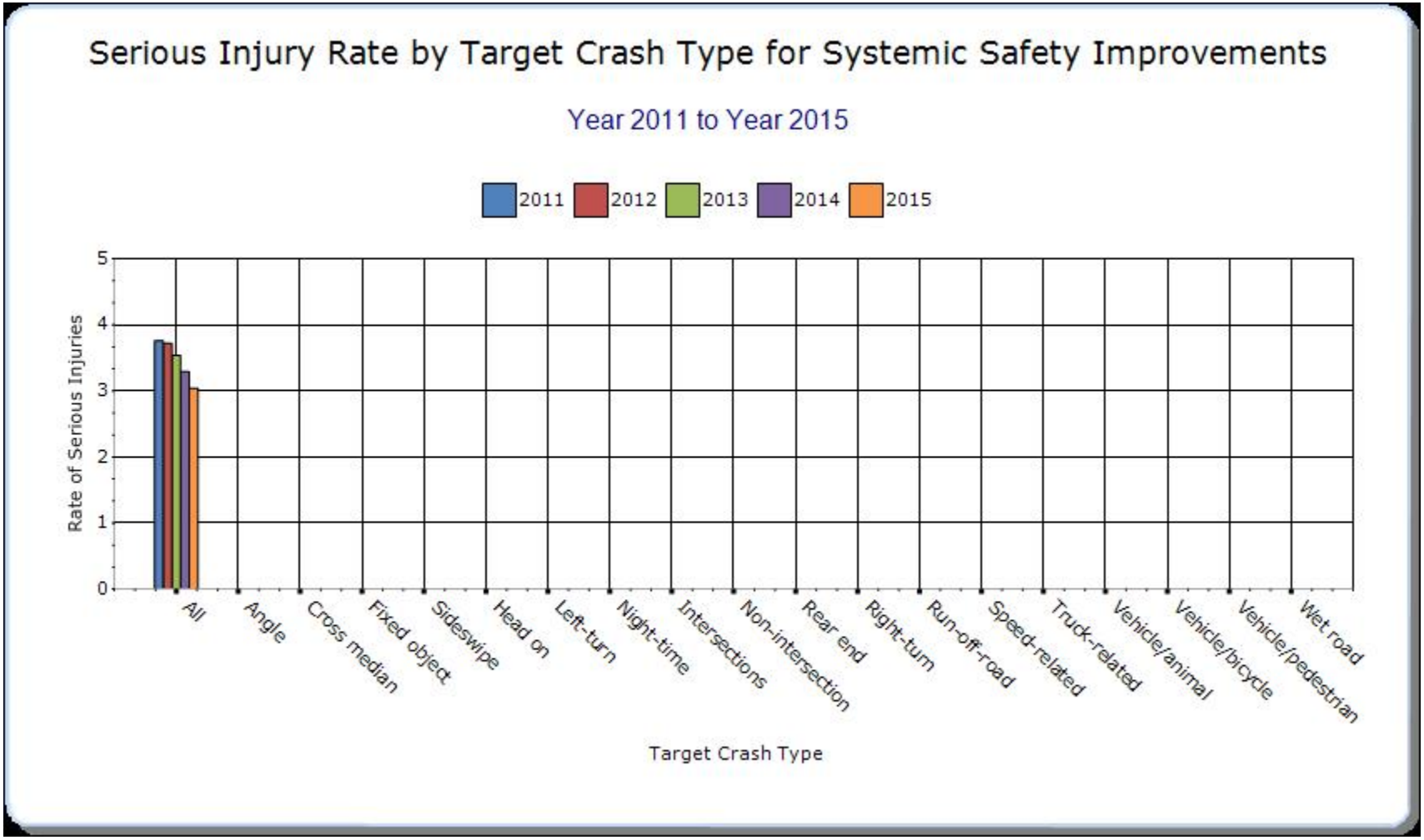
Year - 2015

Systemic improvement	Target Crash Type	Number of fatalities (5-yr avg)	Number of serious injuries (5-yr avg)	Fatality rate (per HMVMT) (5-yr avg)	Serious injury rate (per HMVMT) (5-yr avg)	Other-1 (5-yr avg)	Other-2 (5-yr avg)	Other-3 (5-yr avg)
Install/Improve Signing	All	14.8	69.8	0.64	3.04			


Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# 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 2011 to Year 2015
2011
2012
2013
2014
2015
# 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 2011 to Year 2015
2011
2013
2013
2014
2015
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 2011 to Year 2015
2011
2012
2013
2014
2015
Rate of Serious Injuries
0
1
2
3
4
5
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

35. 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 (2011-2015) for lane departure crashes is 163 major crashes, which is below the SHSP target of 186 major crashes.

For the emphasis area concerning intersections, the latest five-year average is 71 major crashes. This five-year average is just below the SHSP target of 72 major crashes at intersections.

Optional Attachments

Sections	Files Attached
Program Structure: Program Methodology	Updated May 29 2015 Systemic Local Roads Safety Program TPI Guidance.pdf
Program Structure: Program Methodology	VTrans 2015-2016 HSIP Methodology to Select Hot Spot Locations.pdf
Progress in Achieving Safety Performance Targets: Application of Special Rules	Question 28 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.
Systematic refers to an approach where an agency deploys countermeasures at all locations across a system.
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.