Highway Safety Improvement Program
Data Driven Decisions

Oklahoma
Highway Safety Improvement Program
2016 Annual Report

Prepared by: OK

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

In FFY 2015 Oklahoma DOT obligated over $59 million in Federal safety funds, primarily HSIP funds (section 148) but also including $10 million in railroad program funding and $5 million in high risk rural roads funds. Major safety project types, excluding railroad, were median cable barrier ($13 million), guardrail ($5 million), intersection improvements ($5 million), and striping ($3 million). Groundwork was laid for several new systemic safety programs to be launched in FFY 2016 and 2017.

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

Describe how local roads are addressed as part of Highway Safety Improvement Program.

Local road projects do not currently use HSIP funds.

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

Design
Other-Safety Branch of Traffic Engineering

Briefly describe coordination with internal partners.

The majority of HSIP funds are not allocated to the Division (Traffic) which is responsible for preparing this report. This report applies primarily to those funds which are allocated to Traffic Division. Traffic Division is not able to report on the administrative practices relevant to the remainder of the HSIP spending.

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

Other-None

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

Other-None

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

N/A

Program Methodology

Select the programs that are administered under the HSIP.

Median Barrier	Intersection	Horizontal Curve
Rural State Highways	Roadway Departure	Low-Cost Spot Improvements
Shoulder Improvement	Other-Shoulder Rumble Strip	Other-Centerline Rumble Strip
Other-Backplate Upgrades		

Program: **Median Barrier**
Date of Program Methodology: **10/28/2014**

What data types were used in the program methodology?
Crashes   *Exposure*   *Roadway*
Other-crossover crashes   Traffic   Median width
                                   Lane miles   Other-access control

What project identification methodology was used for this program?
Expected crash frequency with EB adjustment
Other-crash severity prediction function

Are local roads (non-state owned and operated) included or addressed in this program?
No

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   1

Program: **Intersection**
Date of Program Methodology: **8/3/2010**

What data types were used in the program methodology?
Crashes   *Exposure*   *Roadway*
All crashes
Other-angle crashes

What project identification methodology was used for this program?
Crash frequency

Are local roads (non-state owned and operated) included or addressed in this program?
No

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

crash frequency

Program: **Horizontal Curve**
Date of Program Methodology: 2/23/2016

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
Other-run off road injury/fatal crashes	Traffic Lane miles	Horizontal curvature Roadside features Other-design speed Other-speed limit Other-shoulder width

What project identification methodology was used for this program?
Expected crash frequency with EB adjustment
Probability of specific crash types

Are local roads (non-state owned and operated) included or addressed in this program?
No

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   1

Program: **Rural State Highways**
Date of Program Methodology: **2/17/2016**

What data types were used in the program methodology?
Crashes   *Exposure*   *Roadway*
Fatal and serious injury crashes   Traffic   Other-shoulder width
only   Lane miles

What project identification methodology was used for this program?
Excess expected crash frequency using SPFs

Are local roads (non-state owned and operated) included or addressed in this program?
No

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

        Available funding   1

Program: **Roadway Departure**
Date of Program Methodology: **8/4/2015**

What data types were used in the program methodology?
Crashes   *Exposure*   *Roadway*
Other-run off road injury crashes   Traffic   Roadside features
                                    Lane miles   Other-shoulder width
                                                                     Other-terrain type

What project identification methodology was used for this program?
Expected crash frequency with EB adjustment

Are local roads (non-state owned and operated) included or addressed in this program?
No

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	1
Available funding	2

Program: **Low-Cost Spot Improvements**
Date of Program Methodology: **8/3/2016**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes	Traffic	Median width
Fatal and serious injury crashes only		Horizontal curvature
	Lane miles	Roadside features

What project identification methodology was used for this program?
Crash frequency

Are local roads (non-state owned and operated) included or addressed in this program?
No

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

Cost Effectiveness	1

Program: **Shoulder Improvement**
Date of Program Methodology: **8/3/2012**

What data types were used in the program methodology?
Crashes   *Exposure*   *Roadway*
Other-run off road crashes   Traffic
                                    Lane miles

What project identification methodology was used for this program?
Expected crash frequency with EB adjustment

Are local roads (non-state owned and operated) included or addressed in this program?
No

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

Program: **Other-Shoulder Rumble Strip**
Date of Program Methodology: **8/4/2012**

What data types were used in the program methodology?
Crashes   *Exposure*   *Roadway*
Other-run off road crashes   Traffic   Other-shoulder width
                                    Lane miles

What project identification methodology was used for this program?
Expected crash frequency with EB adjustment

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

How are highway safety improvement projects advanced for implementation?

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).

Program: **Other-Centerline Rumble Strip**
Date of Program Methodology: **8/4/2015**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
Other-cross-centerline crashes	Traffic	Other-shoulder width
	Lane miles	Other-terrain type

What project identification methodology was used for this program?
Expected crash frequency with EB adjustment

Are local roads (non-state owned and operated) included or addressed in this program?
No

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   1

Program: **Other-Backplate Upgrades**
Date of Program Methodology: **8/4/2012**

What data types were used in the program methodology?

Crashes   *Exposure*   *Roadway*
All crashes

What project identification methodology was used for this program?
Crash frequency

Are local roads (non-state owned and operated) included or addressed in this program?
No

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

    Total Crashes   1

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

28%

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

Cable Median Barriers
Rumble Strips
Pavement/Shoulder Widening
Install/Improve Signing
Install/Improve Pavement Marking and/or Delineation
Upgrade Guard Rails
Clear Zone Improvements
Add/Upgrade/Modify/Remove Traffic Signal
Other-curve delineation
Other-backplate upgrades
Other-centerline rumble strip

What process is used to identify potential countermeasures?

Engineering Study

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

Other-Extended use of safety performance functions

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

Most HSIP projects created by Traffic Division are systemic. Predictive methods are used to prioritize locations for treatment where practicable, otherwise (i.e. for intersections) total crashes are used. Predictive methods have been used in one case (median cable barrier) as a way of indirectly prioritizing one program in comparison to others. Predictive methods are also used to help identify hot spot locations and (outside of Traffic Division) to prioritize locations for shoulder widening. The core metric for prioritization is benefit/cost ratio, either explicitly or through some metric that is an approximate surrogate.

Progress in Implementing Projects

Funds Programmed

Reporting period for Highway Safety Improvement Program funding.

Federal Fiscal Year

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

Funding Category	Programmed*		Obligated	
HSIP (Section 148)	$42,269,162.00	90 %	$44,048,385.75	88 %
HRRRP (SAFETEA-LU)	$0.00	0 %	$1,421,406.68	3 %

HRRR Special Rule	$3,730,081.00	8 %	$3,798,818.00	8 %
Penalty Transfer - Section 154	$0.00	0 %	$0.00	0 %
Penalty Transfer – Section 164	$0.00	0 %	$0.00	0 %
Incentive Grants - Section 163	$0.00	0 %	$0.00	0 %
Incentive Grants (Section 406)	$0.00	0 %	$0.00	0 %
Other Federal-aid Funds (i.e. STP, NHPP)	$852,760.00	2 %	$941,929.00	2 %
State and Local Funds	$0.00	0 %	$0.00	0 %
Totals	$46,852,003.00	100%	$50,210,539.43	100%

How much funding is programmed to local (non-state owned and operated) safety projects?
0 %
How much funding is obligated to local safety projects?
0 %

How much funding is programmed to non-infrastructure safety projects?
2 %
How much funding is obligated to non-infrastructure safety projects?
2 %

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 %

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

N/A

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

N/A

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
1496404	Alignment Vertical alignment or elevation change	3 Miles	10000000	10000000	Other Federal-aid Funds (i.e. STP, NHPP)	Urban Major Collector	0	0	State Highway Agency	Roadway Departure	
2555211	Advanced technology and ITS Advanced technology and ITS - other	0 Miles	200000	200000	HSIP (Section 148)	ITS	0	0	State Highway Agency	Data	
2555212	Advanced technology and ITS Advanced technology and ITS - other	0 Miles	600000	600000	HSIP (Section 148)	ITS	0	0	State Highway Agency	Data	
2649504	Miscellaneous	1 Miles	1753198	2712044	Other Federal-aid Funds (i.e. STP, NHPP)	Rural Minor Arterial	0	0	State Highway Agency	Lane Departure	
2700506	Roadside Barrier- metal	1 Miles	260382	260382	HSIP (Section 148)	Multiple Locations	0	0	State Highway Agency	Roadway Departure	

270450 4	Miscellaneous	1 Miles	258970 7	369958 2	Other Federal -aid Funds (i.e. STP, NHPP)	Rural Major Collector	0	0	State Highway Agency	Lane Departure	
271420 4	Miscellaneous	0 Miles	353107 4	419139 6	Other Federal -aid Funds (i.e. STP, NHPP)	Rural Minor Arterial	0	0	State Highway Agency	Lane Departure	
271670 4	Intersection geometry Intersection geometrics - miscellaneous/other/unspe cified	1 Miles	228971 5	327102 2	Other Federal -aid Funds (i.e. STP, NHPP)	Urban Principal Arterial - Other	0	0	State Highway Agency	Intersectio ns	
279970 4	Miscellaneous	0 Miles	522022 5	522022 6	Other Federal -aid Funds (i.e. STP, NHPP)	Rural Major Collector	0	0	State Highway Agency	Lane Departure	
285610 4	Railroad grade crossings Upgrade railroad crossing signal	0 Miles	261320	261320	Other Federal -aid Funds (i.e. STP,	Urban Major Collector	0	0	Railroad	Railroad	

				NHPP)						
291890 4	Roadside Barrier - cable	7 Miles	449680 4	449680 4	HSIP (Sectio n 148)	Rural Principal Arterial - Interstate	0	0	State Highway Agency	Roadway Departure	
298580 4	Intersection traffic control Intersection flashers - modify existing	0 Miles	194544 7	276322 5	HSIP (Sectio n 148)	Urban Minor Arterial	0	0	State Highway Agency	Intersectio ns	
302240 4	Railroad grade crossings Railroad grade crossings - other	0 Miles	624961	668991	Other Federal -aid Funds (i.e. STP, NHPP)	Rural Major Collector	0	0	Railroad	Railroad	
302690 4	Intersection traffic control Intersection flashers - add overhead (actuated)	1 Numbe rs	138948	159701	Other Federal -aid Funds (i.e. STP, NHPP)	Urban Principal Arterial - Other	0	0	State Highway Agency	Intersectio ns	
307300 6	Intersection traffic control Modify traffic signal - add backplates with retroreflective borders	9 Numbe rs	49010	49010	HSIP (Sectio n 148)	Multiple Locations	0	0	State Highway Agency	Intersectio ns	
307870 4	Roadside Barrier - cable	14 Miles	413838 2	413838 2	HSIP (Sectio n 148)	Rural Principal Arterial - Other	0	0	State Highway Agency	Roadway Departure	
307880 4	Roadside Barrier - cable	0 Miles	715556	715556	HSIP (Sectio n 148)	Rural Principal Arterial -	0	0	State Highway Agency	Roadway Departure	

					Other						
308270 4	Roadside Barrier - cable	0 Miles	910345	910345	HSIP (Sectio n 148)	Rural Principal Arterial - Other	0	0	State Highway Agency	Roadway Departure	
308280 4	Roadway signs and traffic control Roadway signs (including post) - new or updated	1 Numbe rs	600000	600000	Other Federal -aid Funds (i.e. STP, NHPP)	Urban Minor Arterial	0	0	State Highway Agency	Intersectio ns	
308500 4	Railroad grade crossings Upgrade railroad crossing signal	1 Numbe rs	71919	71919	HSIP (Sectio n 148)	Urban Principal Arterial - Other	0	0	Railroad	Railroad	
308510 4	Roadside Barrier- metal	6 Miles	165350 8	165350 8	HSIP (Sectio n 148)	Multiple Locations	0	0	State Highway Agency	Roadway Departure	
309370 4	Roadway delineation Improve retroreflectivity	37 Miles	400000	400000	HSIP (Sectio n 148)	Multiple Locations	0	0	State Highway Agency	Lane Departure	
309700 4	Railroad grade crossings Upgrade railroad crossing signal	1 Numbe rs	225400	225400	Other Federal -aid Funds (i.e. STP, NHPP)	Urban Minor Arterial	0	0	Railroad	Railroad	
309710 4	Railroad grade crossings Upgrade railroad crossing signal	1 Numbe rs	143215 6	143215 6	Other Federal -aid Funds	Urban Local Road or Street	0	0	Railroad	Railroad	

					(i.e. STP, NHPP)						
3097204	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	210607	210607	Other Federal-aid Funds (i.e. STP, NHPP)	Rural Major Collector	0	0	Railroad	Railroad	
3110404	Roadway delineation Improve retroreflectivity	15 Miles	155000	155000	HSIP (Section 148)	Multiple Locations	0	0	State Highway Agency	Lane Departure	
3132504	Roadside Barrier - cable	2 Miles	269985	269985	HSIP (Section 148)	Rural Principal Arterial - Interstate	0	0	State Highway Agency	Roadway Departure	
3138604	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	305410	305410	Other Federal-aid Funds (i.e. STP, NHPP)	Urban Local Road or Street	0	0	Railroad	Railroad	
3138704	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	303714	303714	Other Federal-aid Funds (i.e. STP, NHPP)	Urban Local Road or Street	0	0	Railroad	Railroad	
3138904	Railroad grade crossings Upgrade railroad crossing	1 Numbe	438727	438727	Other Federal	Urban Major	0	0	Railroad	Railroad	

	signal	rs			-aid Funds (i.e. STP, NHPP)	Collector					
3139004	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	305526	305526	Other Federal-aid Funds (i.e. STP, NHPP)	Urban Local Road or Street	0	0	Railroad	Railroad	
3139304	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	302499	302499	Other Federal-aid Funds (i.e. STP, NHPP)	Urban Local Road or Street	0	0	Railroad	Railroad	
3139504	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	245263	245263	Other Federal-aid Funds (i.e. STP, NHPP)	Rural Major Collector	0	0	Railroad	Railroad	
3139604	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	239936	239936	Other Federal-aid Funds (i.e. STP, NHPP)	Rural Local Road or Street	0	0	Railroad	Railroad	

3139804	Intersection traffic control Intersection flashers - add overhead (actuated)	1 Numbers	197017	197017	HSIP (Section 148)	Urban Principal Arterial - Other	0	0	State Highway Agency	Intersections	
3140004	Roadway delineation Improve retroreflectivity	12 Miles	132500	132500	HSIP (Section 148)	Multiple Locations	0	0	State Highway Agency	Lane Departure	
3140304	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	328494	328494	Other Federal -aid Funds (i.e. STP, NHPP)	Urban Local Road or Street	0	0	Railroad	Railroad	
3142004	Miscellaneous	1 Numbers	24394	24394	HSIP (Section 148)	Urban Minor Arterial	0	0	State Highway Agency	Pedestrians	
3147204	Roadside Barrier- metal	3 Miles	865620	865620	HSIP (Section 148)	Urban Principal Arterial - Other	0	0	State Highway Agency	Roadway Departure	
3147304	Roadside Barrier- metal	0 Miles	182273	182273	HSIP (Section 148)	Rural Principal Arterial - Other	0	0	State Highway Agency	Roadway Departure	
3148904	Roadside Barrier- metal	20 Miles	650344	650344	HSIP (Section 148)	Rural Principal Arterial - Other	0	0	State Highway Agency	Roadway Departure	
3155704	Roadside Barrier- metal	4 Miles	1087989	1087989	HSIP (Section 148)	Rural Principal Arterial - Other	0	0	State Highway Agency	Roadway Departure	

3155804	Roadside Barrier - cable	8 Miles	3084628	3084628	HSIP (Section 148)	Rural Principal Arterial - Interstate	0	0	State Highway Agency	Roadway Departure	
3158404	Intersection traffic control Intersection flashers - add overhead (actuated)	1 Numbers	190726	190726	HSIP (Section 148)	Urban Principal Arterial - Other	0	0	State Highway Agency	Intersections	
3160305	Advanced technology and ITS Congestion detection / traffic monitoring system	1 Numbers	10000	10000	HSIP (Section 148)	Rural Principal Arterial - Interstate	0	0	State Highway Agency	Data	
3164004	Roadway delineation Improve retroreflectivity	35 Miles	382850	382850	HSIP (Section 148)	Multiple Locations	0	0	State Highway Agency	Lane Departure	
3164204	Roadway delineation Improve retroreflectivity	30 Miles	325424	325424	HSIP (Section 148)	Multiple Locations	0	0	State Highway Agency	Lane Departure	
3164404	Roadway delineation Improve retroreflectivity	16 Miles	172830	172830	HSIP (Section 148)	Multiple Locations	0	0	State Highway Agency	Lane Departure	
3164504	Roadway delineation Improve retroreflectivity	10 Miles	108600	108600	HSIP (Section 148)	Multiple Locations	0	0	State Highway Agency	Lane Departure	
3164704	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	423140	423140	Other Federal -aid Funds (i.e. STP, NHPP)	Urban Local Road or Street	0	0	Railroad	Railroad	
3164804	Railroad grade crossings Upgrade railroad crossing	1 Numbe r	206877	229863	Other Federal	Rural Major	0	0	Railroad	Railroad	

	signal	rs			-aid Funds (i.e. STP, NHPP)	Collector				
316490 4	Railroad grade crossings Upgrade railroad crossing signal	1 Numbe rs	364728	364728	Other Federal -aid Funds (i.e. STP, NHPP)	Urban Minor Arterial	0	0	Railroad	Railroad	
316750 4	Railroad grade crossings Upgrade railroad crossing signal	1 Numbe rs	330394	330394	Other Federal -aid Funds (i.e. STP, NHPP)	Rural Minor Arterial	0	0	Railroad	Railroad	
316760 4	Railroad grade crossings Upgrade railroad crossing signal	1 Numbe rs	454823	454823	Other Federal -aid Funds (i.e. STP, NHPP)	Urban Local Road or Street	0	0	Railroad	Railroad	
316770 4	Railroad grade crossings Upgrade railroad crossing signal	1 Numbe rs	243250	243250	Other Federal -aid Funds (i.e. STP, NHPP)	Urban Local Road or Street	0	0	Railroad	Railroad	

3168104	Roadway delineation Improve retroreflectivity	16 Miles	176038	176038	HSIP (Section 148)	Multiple Locations	0	0	State Highway Agency	Lane Departure	
3169104	Advanced technology and ITS Advanced technology and ITS - other	1 Numbers	300000	300000	HSIP (Section 148)	Multiple Locations	0	0	State Highway Agency	Data	
3221404	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	392031	424657	Other Federal -aid Funds (i.e. STP, NHPP)	Rural Major Collector	0	0	Railroad	Railroad	
3221504	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	276150	296856	Other Federal -aid Funds (i.e. STP, NHPP)	Urban Minor Arterial	0	0	Railroad	Railroad	
3221604	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	257037	276128	Other Federal -aid Funds (i.e. STP, NHPP)	Urban Major Collector	0	0	Railroad	Railroad	

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*	2011	2012	2013	2014	2015
Number of fatalities	724.6	712.2	697.4	683.8	679.2
Number of serious injuries	3751.8	3667.2	3549.2	3410.4	3241.6
Fatality rate (per HMVMT)	1.54	1.5	1.47	1.43	1.42
Serious injury rate (per HMVMT)	7.96	7.74	7.46	7.15	6.79

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

Number of Fatalities for the Last Five Years
5-yr Average Measure Data
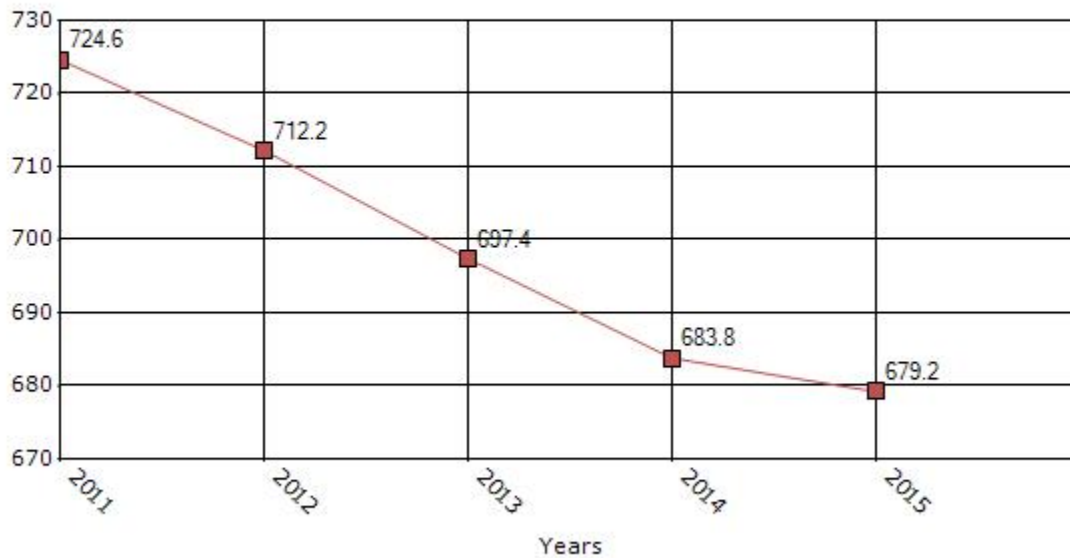
Number of Serious Injuries for the Last Five Years
5-yr Average Measure Data
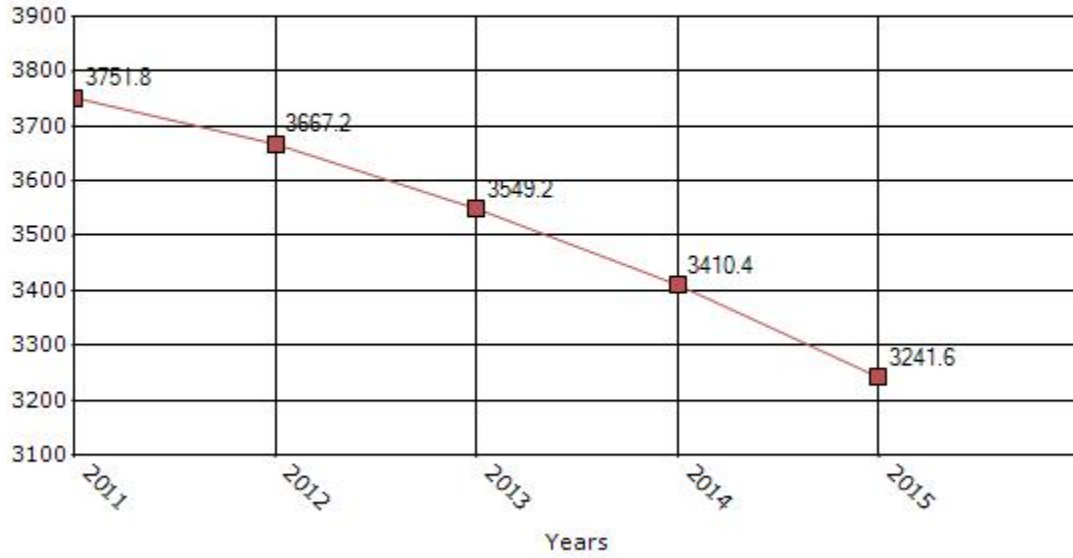
Rate of Fatalities for the Last Five Years
5-yr Average Measure Data
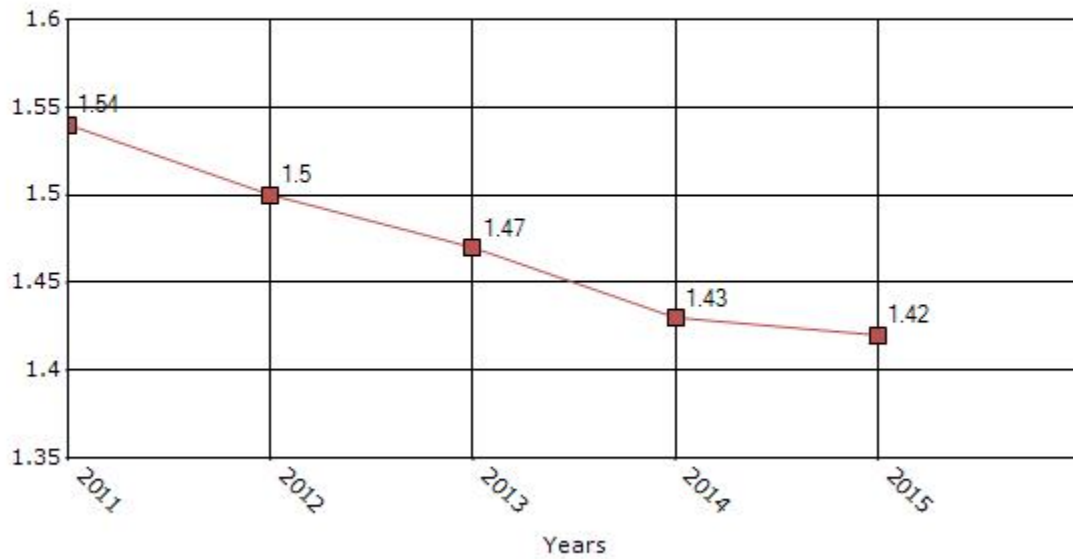
Rate of Serious Injuries for the Last Five Years
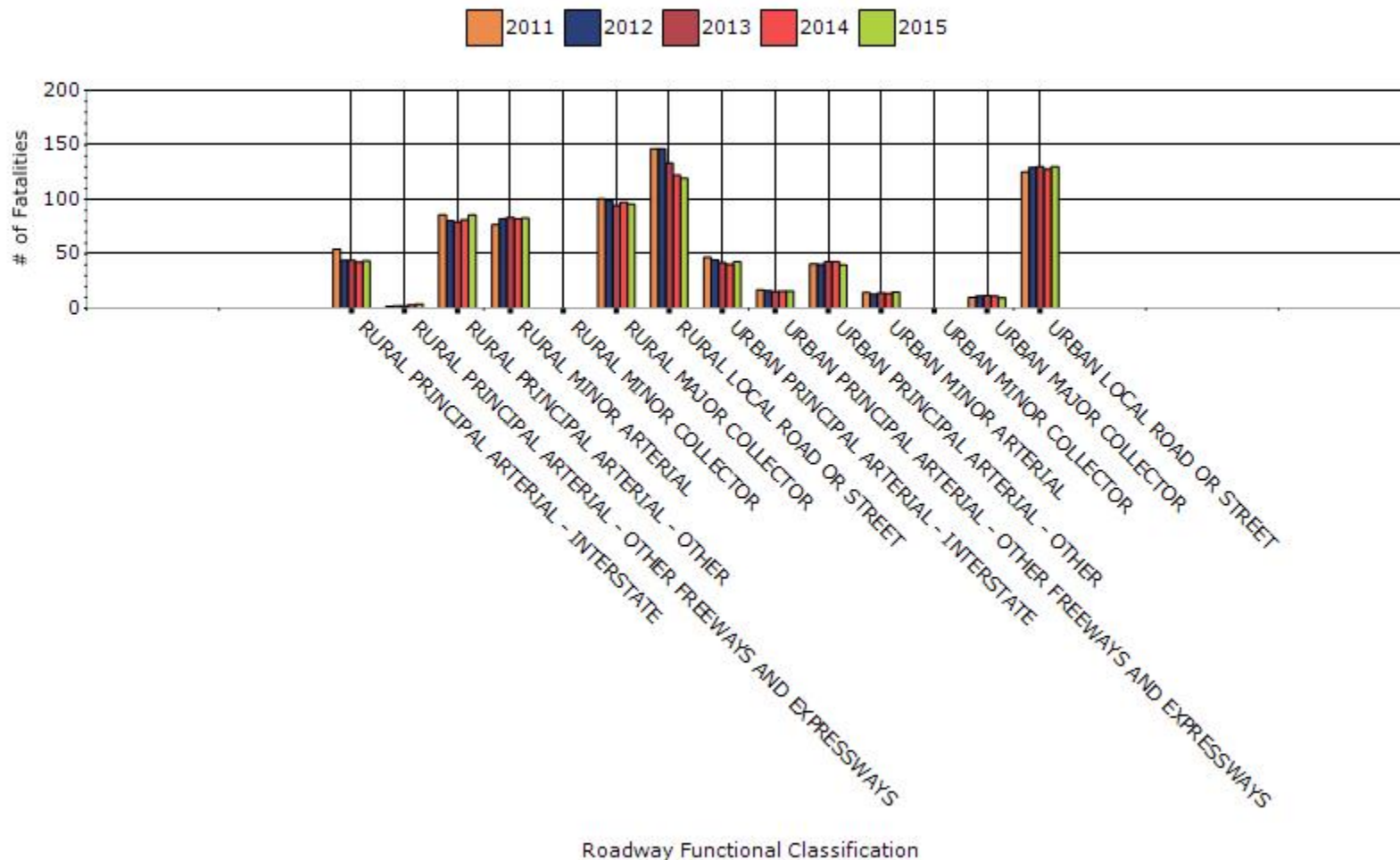### 5-yr Average Measure Data
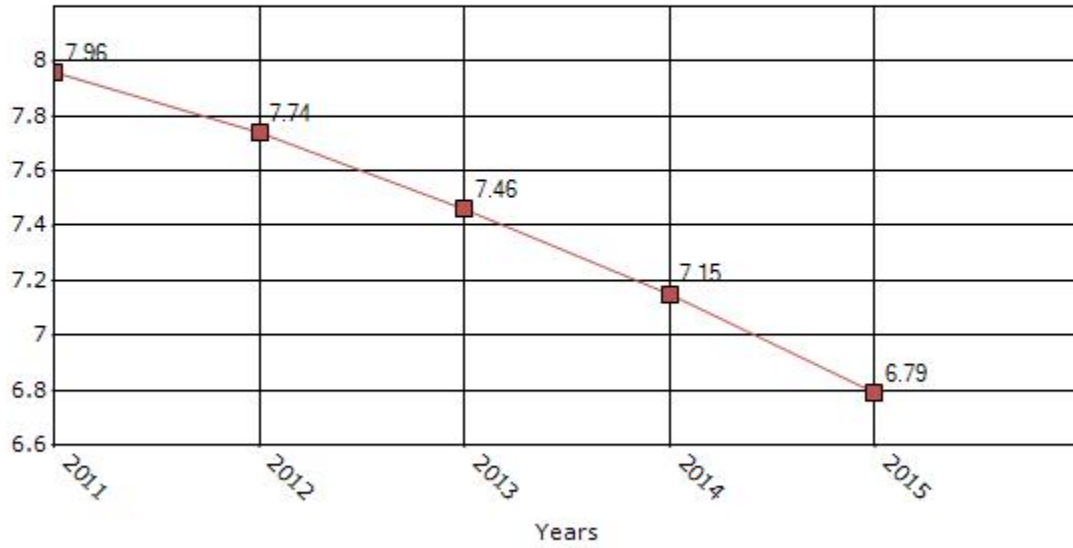
To the maximum extent possible, present performance measure* data by functional classification and ownership.
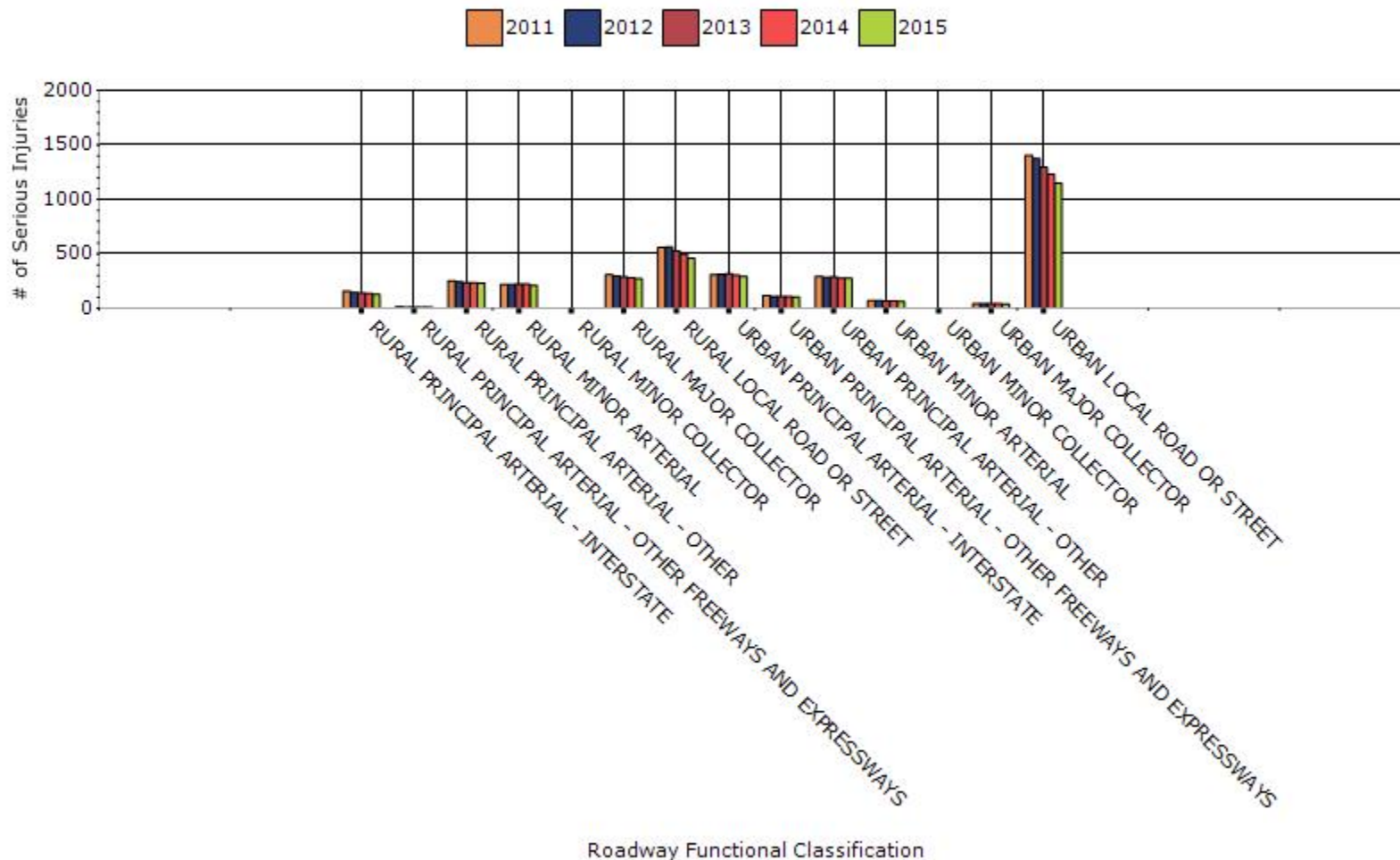
Year - 2015

Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	43.6	127.6		
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	4	11.4		
RURAL PRINCIPAL ARTERIAL - OTHER	85.8	233.4		
RURAL MINOR ARTERIAL	82.8	211		
RURAL MAJOR COLLECTOR	95.6	272.6		
RURAL LOCAL ROAD OR STREET	119.4	461		
URBAN PRINCIPAL ARTERIAL - INTERSTATE	42.8	291		
URBAN PRINCIPAL ARTERIAL - OTHER	15.8	102.6		

FREEWAYS AND EXPRESSWAYS				
URBAN PRINCIPAL ARTERIAL - OTHER	39.8	277.8		
URBAN MINOR ARTERIAL	15	65		
URBAN MAJOR COLLECTOR	9.8	39.4		
URBAN LOCAL ROAD OR STREET	130.2	1148.8		

Fatalities by Roadway Functional Classification
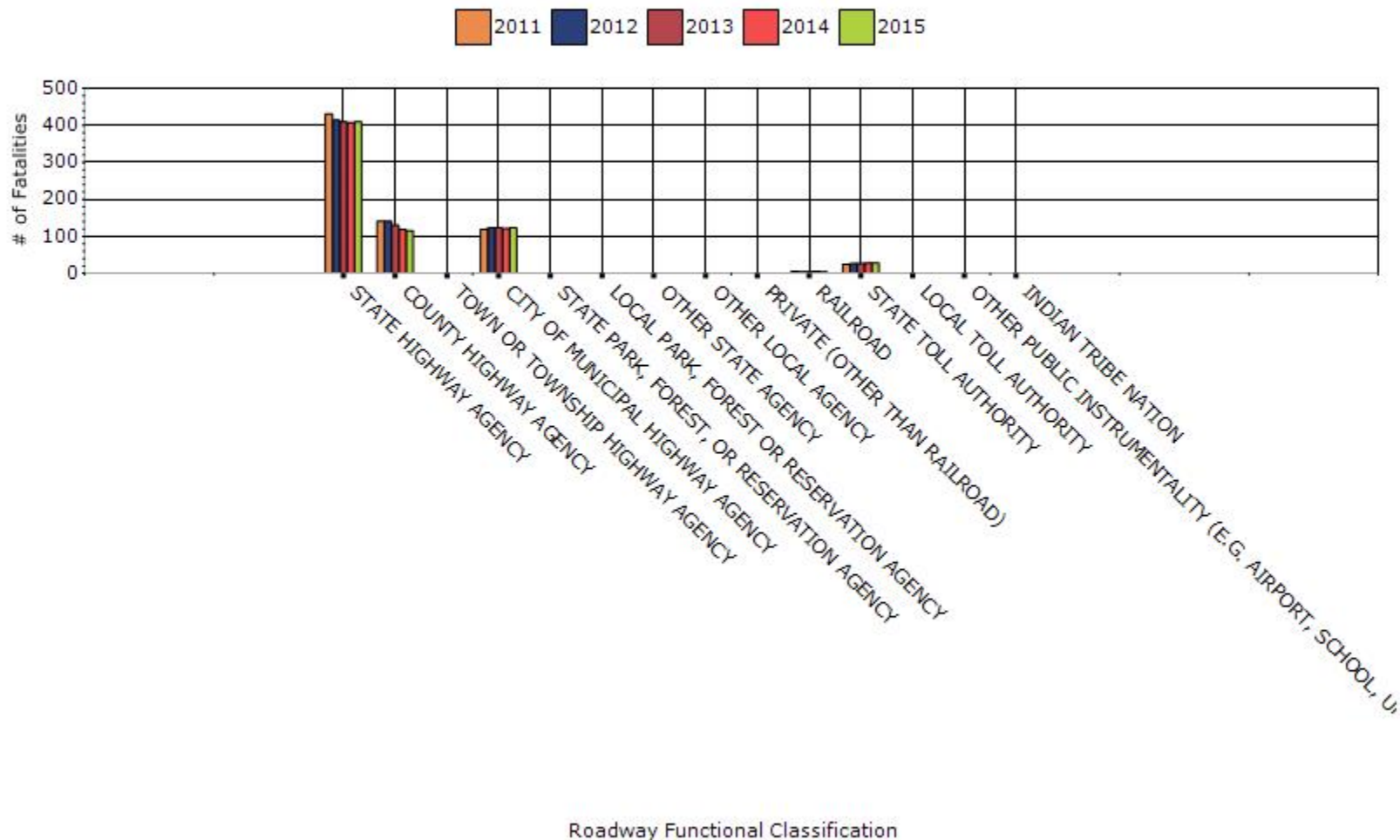## 5-yr Average Measure Data

Serious Injuries by Roadway Functional Classification
## 5-yr Average Measure Data

Year - 2015

Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	410	1575.2		
COUNTY HIGHWAY AGENCY	115	449.2		
CITY OF MUNICIPAL HIGHWAY AGENCY	123.2	1133.6		
RAILROAD	4.6	3.2		
STATE TOLL AUTHORITY	28.2	79.6		

Number of Fatalities by Roadway Ownership
5-yr Average Measure Data

Number of Serious Injuries by Roadway Ownership
5-yr Average Measure Data
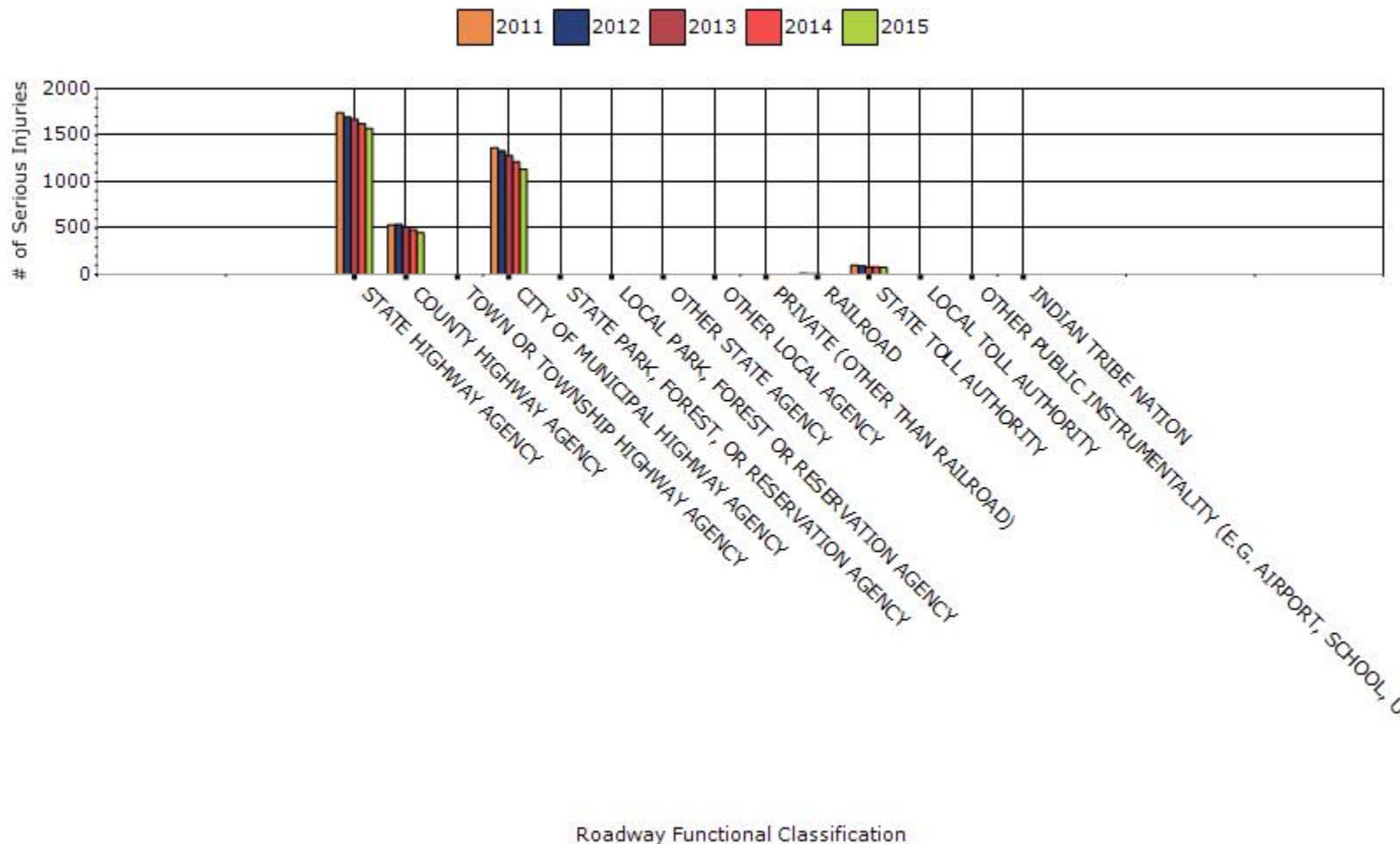
Describe any other aspects of the general highway safety trends on which you would like to elaborate.

The overall statewide rate of fatalities and serious injuries per mile driven has had a downward trend since 2005, until an apparent upsurge in 2015. The strongest declines have been in non-intersection crashes on rural highways, and in particular run-off-road right crashes targeted by shoulder rumble strips. Several new systemic programs, including curve delineation, centerline rumble strips, clear zone mitigation, and signal backplate retrofits are too new to have yet impacted the annual data calculations.

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	2010	2011	2012	2013	2014
Fatality rate (per capita)	0.17	0.17	0.17	0.16	0.16
Serious injury rate (per capita)	0.45	0.46	0.46	0.45	0.44
Fatality and serious injury rate (per capita)	0.61	0.63	0.63	0.61	0.59

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

Year	K	A	K+A	K rate	A rate	K+A rate	Rolling Averages		
2005	85	196	281	0.181249	0.417939	0.599188			
2006	79	176	255	0.166827	0.371665	0.538492			
2007	79	229	308	0.164535	0.476944	0.64148			
2008	89	228	317	0.181397	0.464702	0.646099			
2009	92	216	308	0.185498	0.435517	0.621015	0.175901	0.433353	0.609255
2010	72	245	317	0.141526	0.481581	0.623107	0.167957	0.446082	0.614038

2011	91	23 3	324	0.17640 5	0.45167 4	0.62807 9	0.16987 2	0.46208 4	0.63195 6
2012	77	24 7	324	0.14409 2	0.46221 7	0.60630 9	0.16578 4	0.45913 8	0.62492 2
2013	81	23 5	316	0.14748 8	0.42789 7	0.57538 6	0.15900 2	0.45177 7	0.61077 9
2014	97	20 2	299	0.17243 5	0.35909 1	0.53152 6	0.15638 9	0.43649 2	0.59288 1
2015 *	10 5	23 0	335	0.18221 3	0.39913 2	0.58134 5	0.16452 6	0.42000 2	0.58452 9

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

FatalitiesAndSeriousInjuriesRate
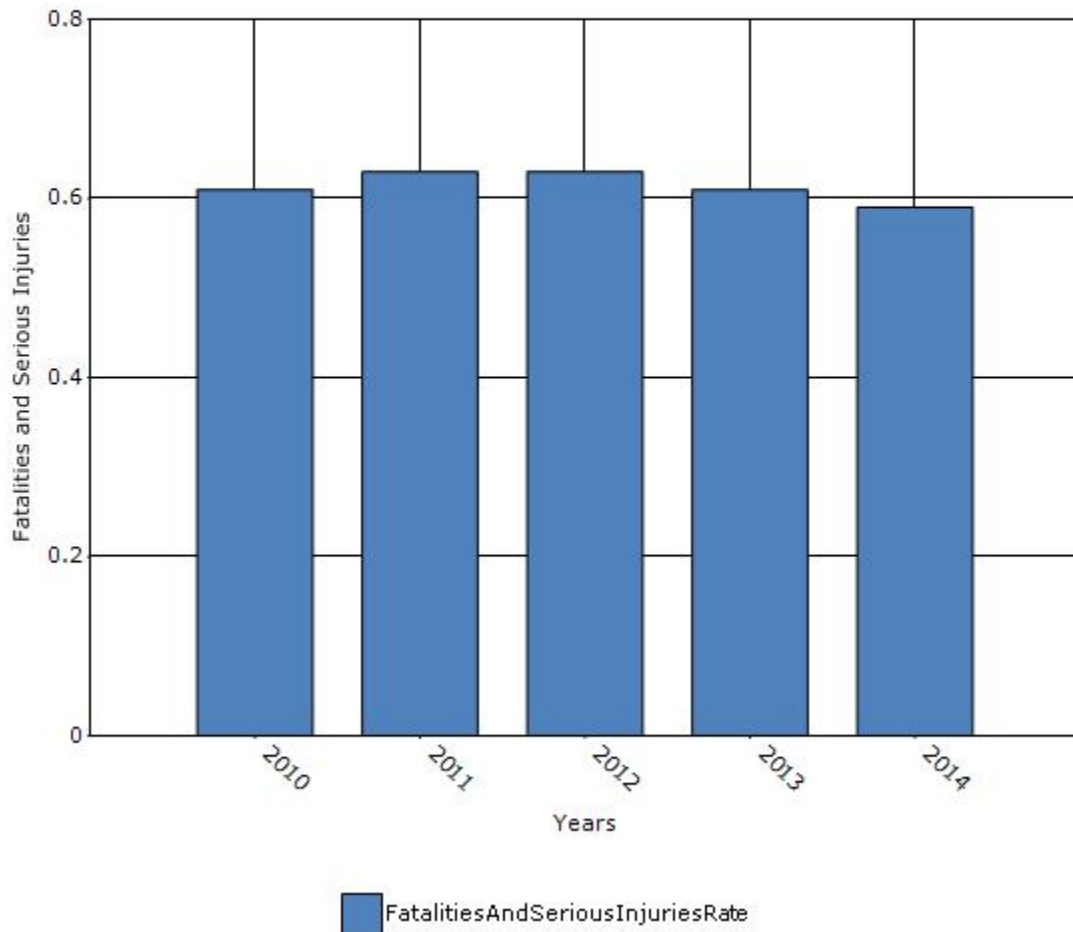
Does the older driver special rule apply to your state?

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?

Policy change

if 'policy change', list the policy changes made.

Introduction of centerline rumble strip program.
Edge striping widened to 6".
Standard use of Safety Edge.
Standard use of retroreflective backplates.

Other-Deployment of 700+ miles of median cable barrier w/ concommitant reduction in median crossovers.

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

Other-Use of custom safety performance functions to guide systemic safety programs
Other-Increased emphasis on low cost systemic treatments

Briefly describe significant program changes that have occurred since the last reporting period.
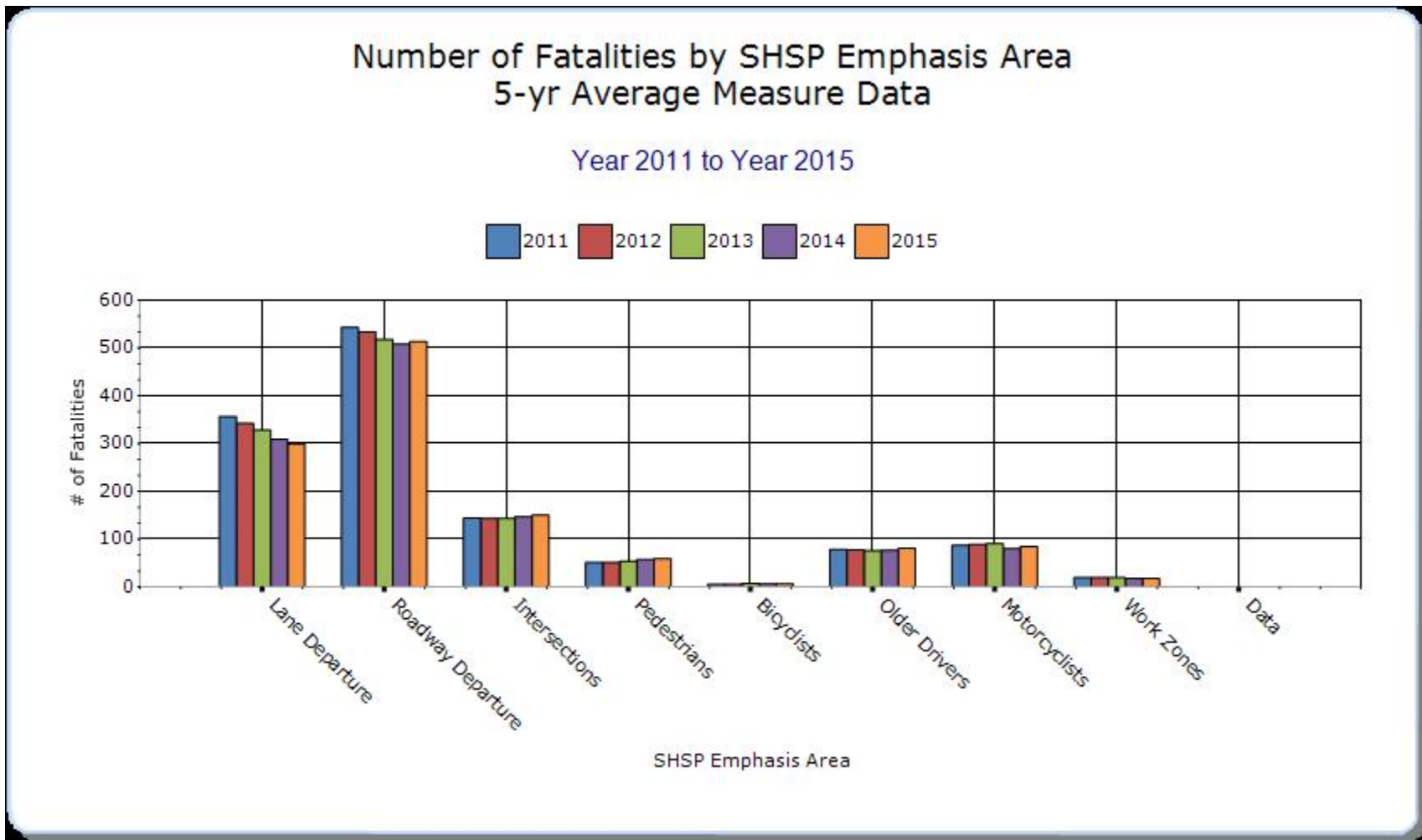
Custom safety performance functions have been used to help prioritize locations for systemic countermeasures, including centerline rumble strip, improved curve delineation, and roadside hazard mitigation. Benefit/Cost analysis based on a custom safety performance function has resulted in a shift of funding away from additional median cable barriers toward other countermeasures.
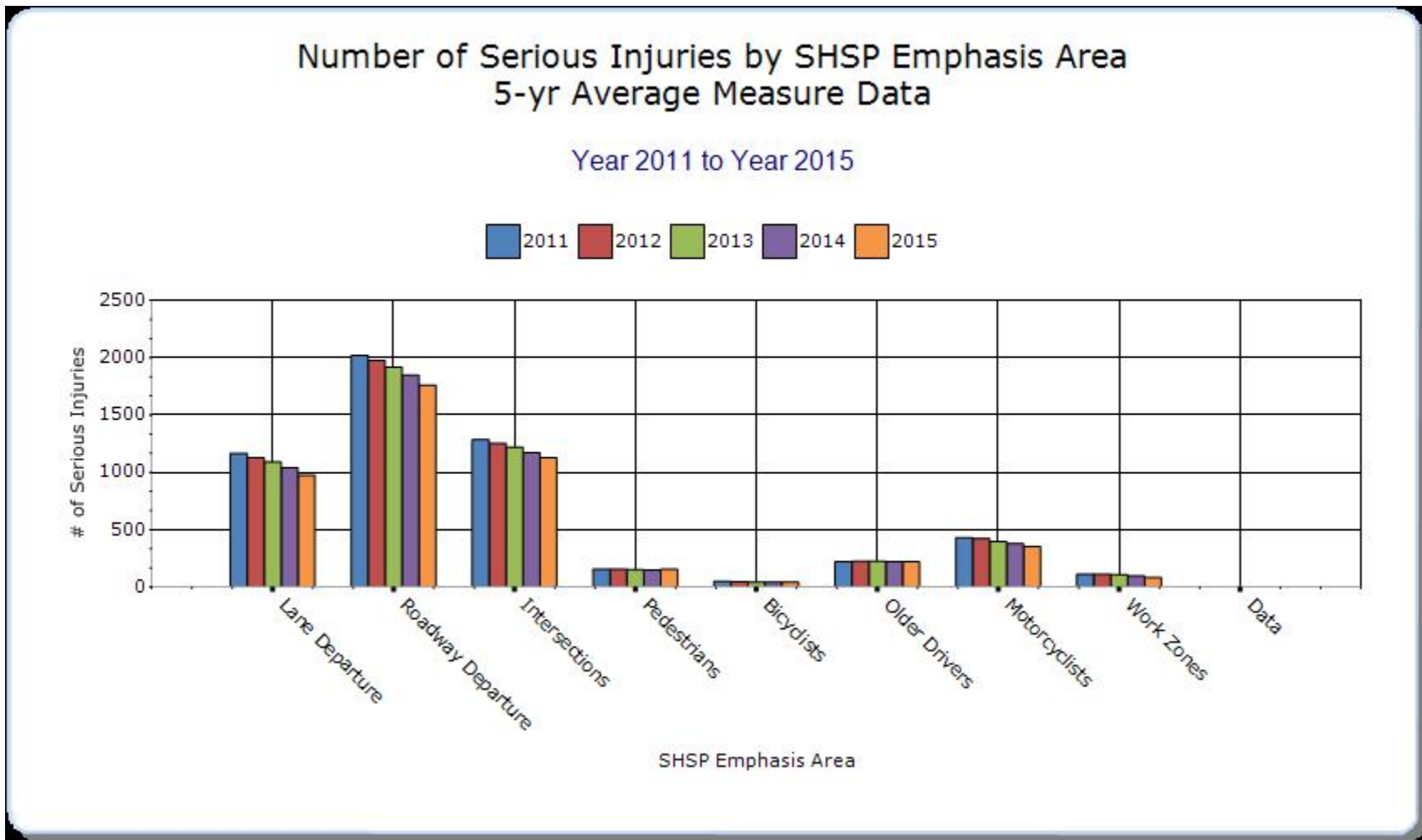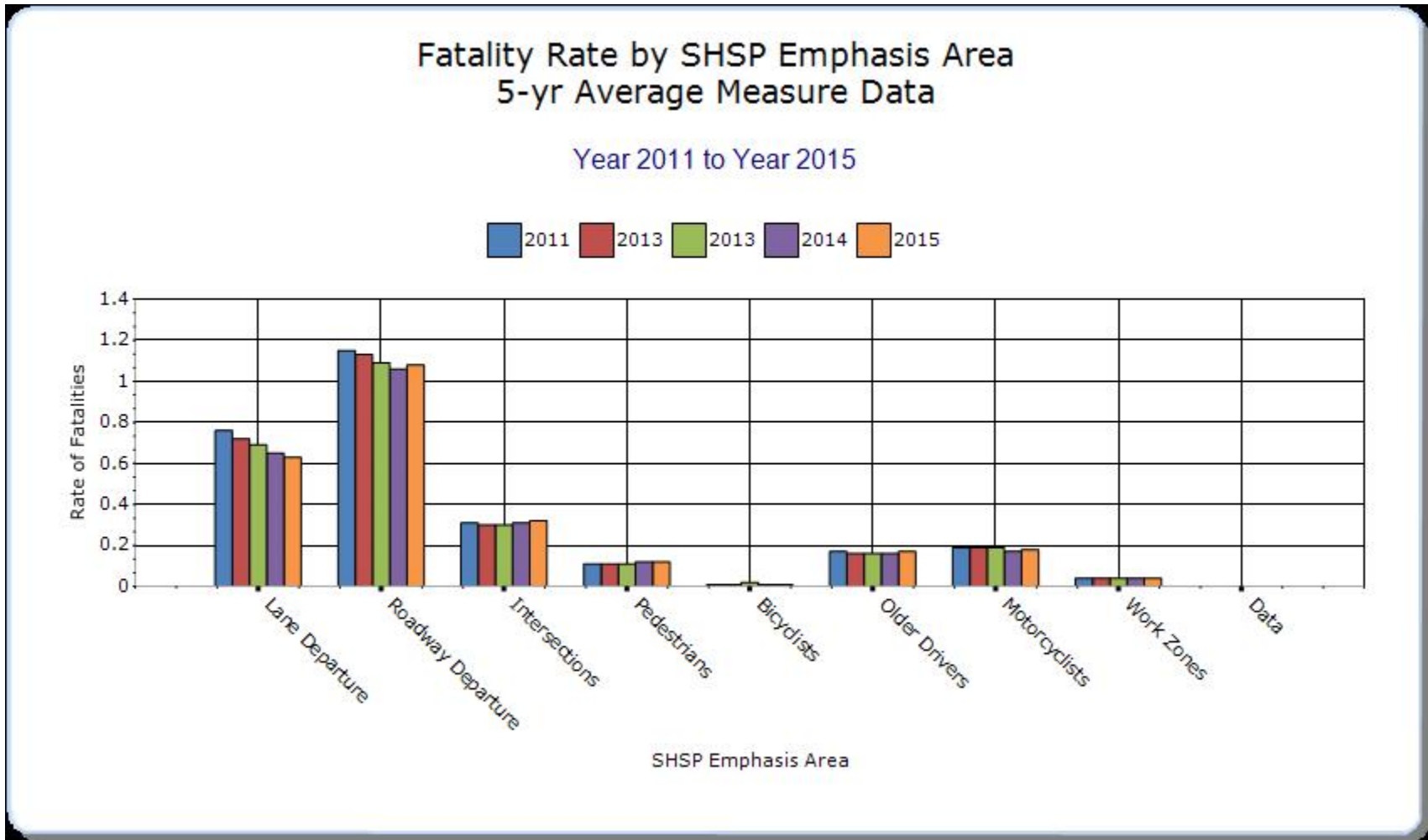
SHSP Emphasis Areas

For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.
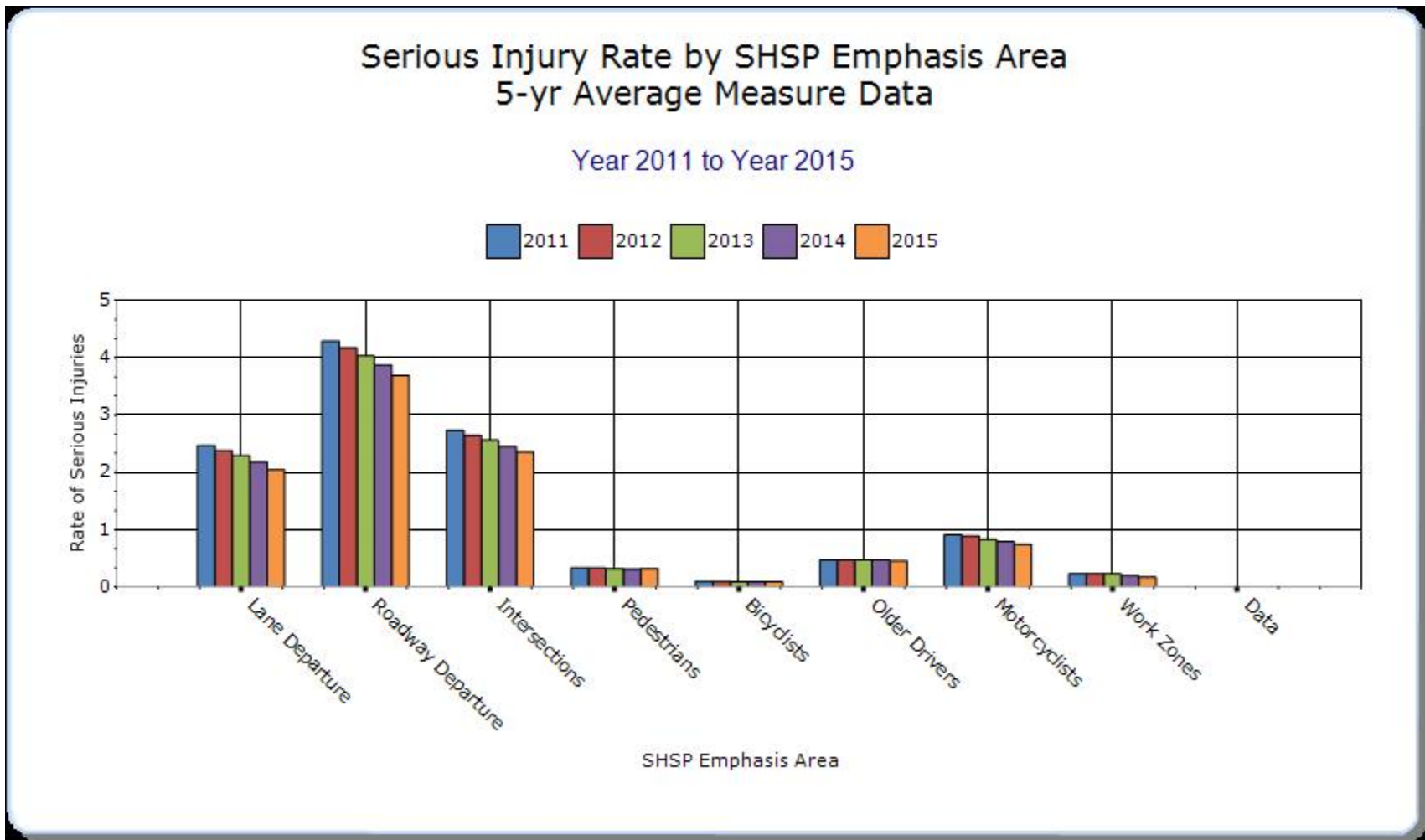
Year - 2015

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		299.4	974	0.63	2.04			
Roadway Departure		514	1759.8	1.08	3.69			
Intersections		150.6	1126.2	0.32	2.36			
Pedestrians		59.4	153.6	0.12	0.32			
Bicyclists		6.2	42	0.01	0.09			
Older Drivers		81.2	219.6	0.17	0.46			
Motorcyclists		84.6	354.4	0.18	0.74			
Work Zones		17.6	82.2	0.04	0.17			

Number of Serious Injuries by SHSP Emphasis Area
5-yr Average Measure Data

Year 2011 to Year 2015

Serious Injury Rate by SHSP Emphasis Area
5-yr Average Measure Data

Year 2011 to Year 2015

Groups of similar project types

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

Year - 2015

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
Median Barrier		7.2	19.2	0.02	0.04			
Rural State Highways		212.6	552	0.45	1.16			
Intersection		58.4	306.8	0.12	0.64			
Shoulder Improvement		307.4	960.8	0.64	2.01			
Other-Shoulder Rumble Strip		36	122.6	0.08	0.26			

Systemic Treatments

Present the overall effectiveness of systemic treatments.

Year - 2015

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
Rumble Strips		36	122.6	0.08	0.26			
Cable Median Barriers		7.2	19.2	0.02	0.04			
Install/Improve Pavement Marking and/or Delineation		212.6	552	0.45	1.16			
Add/Upgrade/Modify/Remove Traffic Signal		58.4	306.8	0.12	0.64			
Pavement/Shoulder Widening		307.4	960.8	0.64	2.01			
Install/Improve Signing		58.4	306.8	0.12	0.64			

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

Preliminary figures for 2015 show a continuing decline in both rates and totals of fatalities and serious injuries statewide. The rate of serious (fatality/serious injury) collisions on the State highway system, where all HSIP funding is invested as of 2016, has declined in 7 of the last 8 years. The following table shows the statistical significance of the reduction for each year, or alternatively the likelihood that the change in crash rate reflected a real reduction in the risk of serious collisions (as opposed to random variation).

Year	# K,A Crashes	HMVMT	KA crash rate	variance of estimate of KA crash rate	annual reduction significance
2015	1459	290	5.031	0.0173	93.86%
2014	1509	283	5.324	0.0188	84.28%
2013	1530	277	5.522	0.0199	99.99%
2012	1728	275	6.288	0.0229	68.08%
2011	1741	273	6.389	0.0234	17.60%
2010	1666	269	6.188	0.0230	62.24%
2009	1684	269	6.255	0.0232	51.69%
2008	1660	265	6.265	0.0236	99.99%
2007	1905	268	7.103	0.0265	

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)
None	None	Miscellaneous												0

Optional Attachments

Sections   **Files Attached**

Glossary

5 year rolling average means the average of five individual, consecutive annual points of data (e.g. annual fatality rate).

Emphasis area means a highway safety priority in a State's SHSP, identified through a data-driven, collaborative process.

Highway safety improvement project means strategies, activities and projects on a public road that are consistent with a State strategic highway safety plan and corrects or improves a hazardous road location or feature or addresses a highway safety problem.

HMVMT means hundred million vehicle miles traveled.

Non-infrastructure projects are projects that do not result in construction. Examples of non-infrastructure projects include road safety audits, transportation safety planning activities, improvements in the collection and analysis of data, education and outreach, and enforcement activities.

Older driver special rule applies if traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65 in a State increases during the most recent 2-year period for which data are available, as defined in the Older Driver and Pedestrian Special Rule Interim Guidance dated February 13, 2013.

Performance measure means indicators that enable decision-makers and other stakeholders to monitor changes in system condition and performance against established visions, goals, and objectives.

Programmed funds mean those funds that have been programmed in the Statewide Transportation Improvement Program (STIP) to be expended on highway safety improvement projects.

Roadway Functional Classification means the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide.

Strategic Highway Safety Plan (SHSP) means a comprehensive, multi-disciplinary plan, based on safety data developed by a State Department of Transportation in accordance with 23 U.S.C. 148.

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.