Highway Safety Improvement Program

Data Driven Decisions

South Dakota
Highway Safety Improvement Program
2016 Annual Report

Prepared by: SD

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

The South Dakota Highway Safety Improvement Program (HSIP) is administered through the Office of Project Development in the South Dakota Department of Transportation (SDDOT) Central Office. The SDDOT uses Road Safety Audits Review(RSAR), Roadway Safety Review (RSR) inspections, and a Safety Module software program to identify locations that would benefit from a safety improvement project. RSR inspections are developed by utilizing the South Dakota Department of Public Safety's (SDDPS) crash reporting database, SDDOT's roadway and traffic data, and ArcGIS software to determine high crash locations. Both the RSAR process and RSR inspections are available for use on all public roadways in South Dakota. HSIP projects are selected for implementation by determining which project will result in the greatest safety improvement for the investment. The overall coordination and collaboration efforts for HSIP projects involve Regional SDDOT personnel, city representatives, county representatives, township representatives, consultant firms, law enforcement representatives, among other agencies. The SDDOT HSIP process will be expanded in further detail in the Program Methodology section of this report.

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.

The SDDOT administers a County wide signing program which conducts approximately four County wide signing projects each year. Counties are prioritized by crash rate based on serious injury and fatal crashes per million vehicle miles traveled.

Routes are also identified for improvements by conducting both RSR and RSAR inspections and by an over representation of crash clusters and higher than average crash rates.

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

Design
Planning
Maintenance
Operations

6. Briefly describe coordination with internal partners.

The SHSP is used along with crash record analysis and mapping to hold meetings with operation and maintenance personal to identify locations to apply safety improvements.

During the planning and design process of a project, the HSM and IHSDM software is used to compare options to increase safety.

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

Metropolitan Planning Organizations
Local Government Association
Other-Tribal Agencies

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

Other-Meetings with operation and maintenance personal to identify winter road condition crash locations to implement safety strategies

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

The SDDOT completed their SHSP in August of 2014. Emphasis has been placed on implementing safety strategies within the SHSP.

Program Methodology

10. Select the programs that are administered under HSIP.

Intersection
Horizontal Curve
Roadway Departure
Local Safety

11. Program: Intersection

Date of Program Methodology: 3/1/2013

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes	Traffic Volume	Other-Intersection Type

What project identification methodology was used for this program?

Crash frequency
Crash rate
Excess expected crash frequency using SPFs

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?
No
If no, describe the methodology used to identify local road projects as part of this program.
When ADT is available and intersects with State road.

How are highway safety improvement projects advanced for implementation?
Other-B/C ratio

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
Incremental B/C	4
Ranking based on net benefit	2
Cost Effectiveness	2

11. Program: Horizontal Curve

Date of Program Methodology: 3/1/2013

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes	Traffic Volume	Horizontal curvature

What project identification methodology was used for this program?
Crash frequency
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?
Other-B/C ratio

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	4
Ranking based on net benefit	2
Cost Effectiveness	2

11. Program: Roadway Departure

Date of Program Methodology: 2/2/2014

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes	Traffic	Horizontal curvature
	Volume	Functional classification
		Roadside features

What project identification methodology was used for this program?
Crash frequency
Equivalent property damage only (EPDO Crash frequency)
Crash rate
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?
Other-B/C ratio

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	4
Ranking based on net benefit	2
Cost Effectiveness	2

11. Program: Local Safety

Date of Program Methodology: 3/1/2015

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes	Traffic Volume	

What project identification methodology was used for this program?

Crash frequency
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?
No
If no, describe the methodology used to identify local road projects as part of this program.
Crash rates and crash clusters

How are highway safety improvement projects advanced for implementation?

Other-SDDOT Project Developement Personel

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	4
Ranking based on net benefit	2
Cost Effectiveness	2

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

33%

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

Rumble Strips
Pavement/Shoulder Widening
Install/Improve Signing
Install/Improve Pavement Marking and/or Delineation
Upgrade Guard Rails

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.

Other-None

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

The SDDOT continues to implement the Strategic Highway Safety Plan with the Highway Safety Improvement Program.

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)	$22,512,000.00	67 %	$7,726,022.00	51 %
HRRRP (SAFETEA-LU)	$3,573,172.00	11 %	$3,660,368.00	24 %
HRRR Special Rule	$1,609,340.00	5 %	$712,190.00	5 %
Penalty Transfer –	$5,907,487.00	18 %	$3,072,963.00	20 %

Section 164				
Totals	$33,601,999.00	100%	$15,171,543.00	100%

18. How much funding is programmed to local (non-state owned and operated) safety projects?
$9,995,999.00
How much funding is obligated to local safety projects?
$6,167,601.00

19. How much funding is programmed to non-infrastructure safety projects?
$245,000.00
How much funding is obligated to non-infrastructure safety projects?
$135,833.00

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.

Typical project obstacles such as estimating project costs to be programmed, projects time line slipping due to environmental impacts, right-of-way impacts, can all be expected on any type of project.

Ways to overcome these obstacles is to do a better job of estimating projects and when scheduling projects allow for the proper time to accomplish environmental and ROW activities.

Although a project is only programmed within one study period it could be obligated over multiple study periods. A multi-million dollar project could be let within this study period but only a couple hundred thousand dollars is obligated during the same study period.

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

The proper emphasis to project management needs to be placed to ensure an HSIP project is kept on schedule and with in budget from the beginning to the end of the life of the project.

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
Shoulder Widening, Super Elevation, and Guardrail	Shoulder treatments Widen shoulder - paved or other	0.1 Miles	1422000	1422000	HRRR Special Rule	Rural Minor Collector	400	45	County Highway Agency	Roadway Departure	Continue reviewing shoulder width and improvements
Improve pavement friction	Roadway Pavement surface - high friction surface	244.8 Miles	70000	70000	HSIP (Section 148)	Rural Minor Arterial	200	45	County Highway Agency	Roadway Departure	Provide skid-resistant pavement surfaces
Signing and Delineation	Roadway signs and traffic control Roadway signs (including post) - new or updated	33115 Numbers	1220000	1220000	HRRRP (SAFETEA-LU)	Rural Minor Arterial	200	65	County Highway Agency	Roadway Departure	Continue reviewing signing policy
Intersection Improvements	Intersection geometry Auxiliary lanes - add	0.3 Miles	350000	350000	HSIP (Section 148)	Rural Principal Arterial - Other	2205	65	State Highway Agency	Intersections	Continue reviewing intersection geometry

	left-turn lane										improveme
Signing and Delineation	Roadway signs and traffic control Roadway signs (including post) - new or updated	23673 Numbers	1220000	1220000	HRRRP (SAFETEA-LU)	Rural Minor Arterial	200	65	County Highway Agency	Roadway Departure	Continue reviewing signing policy
Signing and Delineation	Roadway signs and traffic control Roadway signs (including post) - new or updated	38837 Numbers	1379000	1379000	HRRRP (SAFETEA-LU)	Rural Minor Arterial	200	65	County Highway Agency	Roadway Departure	Continue reviewing signing policy
Durable Pavement Markings	Roadway delineation Longitudinal pavement markings - remarking	2.2 Miles	500000	500000	HSIP (Section 148)	Rural Principal Arterial - Other	15000	55	State Highway Agency	Roadway Departure	Continue reviewing pavement marking policy
Durable Pavement Markings	Roadway delineation Longitudinal pavement markings - remarking	126.8 Miles	220000	220000	HSIP (Section 148)	Rural Minor Arterial	500	65	State Highway Agency	Roadway Departure	Continue reviewing pavement marking policy
Guardrail Improvemen	Roadside Barrier-	0.5 Miles	230000	230000	HRRR Special	Rural Major Collector	500	45	County Highway	Roadway Departure	Continue reviewing

ts	metal				Rule				Agency		guardrail policy
Shoulder drop-off Improvements	Shoulder treatments Shoulder treatments - other	93 Miles	558000	6748000	HSIP (Section 148)	Rural Principal Arterial - Other	1500	65	State Highway Agency	Roadway Departure	Continue reviewing shoulder drop-off improvements
Intersection Improvements	Intersection geometry Auxiliary lanes - add left-turn lane	0.2 Miles	384000	384000	Penalty Transfer – Section 164	Rural Minor Arterial	1127	35	State Highway Agency	Intersections	Continue reviewing intersection geometry improveme
Intersection Improvements	Intersection geometry Auxiliary lanes - add left-turn lane	1.8 Miles	1950000	1950000	Penalty Transfer – Section 164	Rural Minor Arterial	2000	65	State Highway Agency	Intersections	Continue reviewing intersection geometry improveme
Signing and Delineation	Roadway signs and traffic control Roadway signs (including post) - new or updated	15.5	1000000	1000000	HSIP (Section 148)	Rural Minor Arterial	1000	65	State Highway Agency	Roadway Departure	Continue reviewing signing policy
Guardrail Improvements	Roadside Barrier-metal	149.7 Miles	1000000	1000000	HSIP (Section 148)	Rural Minor Arterial	1500	65	State Highway Agency	Roadway Departure	Continue reviewing guardrail policy

Signing and Delineation	Roadway signs and traffic control Roadway signs (including post) - new or updated	21949 Numbers	1209000	1209000	Penalty Transfer – Section 164	Rural Minor Arterial	200	55	County Highway Agency	Roadway Departure	Continue reviewing signing policy
Shoulder Widening	Shoulder treatments Widen shoulder - paved or other	17 Miles	17514000	26054000	HSIP (Section 148)	Rural Principal Arterial - Other	1827	65	State Highway Agency	Roadway Departure	Continue reviewing shoulder width and improvements
Signing and Delineation	Roadway signs and traffic control Roadway signs (including post) - new or updated	31910 Numbers	1170000	1170000	HSIP (Section 148)	Rural Minor Arterial	200	55	County Highway Agency	Roadway Departure	Continue reviewing signing policy
Signing and Delineation	Roadway signs and traffic control Roadway signs (including post) - new or updated	31550 Numbers	1461000	1461000	Penalty Transfer – Section 164	Rural Minor Arterial	200	55	County Highway Agency	Roadway Departure	Continue reviewing signing policy

Grade Modifications	Alignment Horizontal and vertical alignment	0.2 Miles	500000	500000	Penalty Transfer – Section 164	Rural Minor Collector	285	45	County Highway Agency	Roadway Departure	Continue reviewing roadway geometry improvements

Progress in Achieving Safety Performance Targets

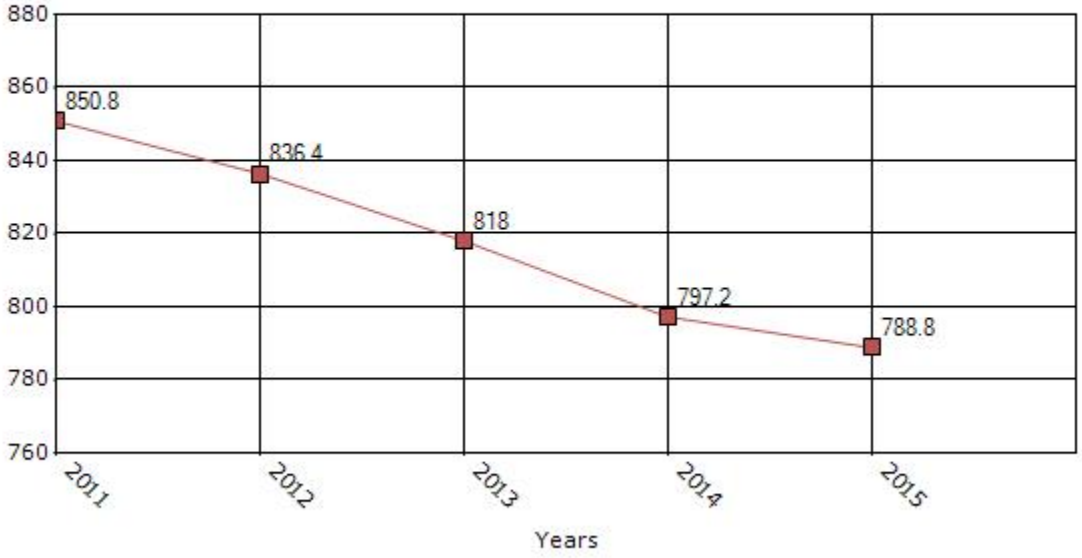
Overview of General Safety Trends

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

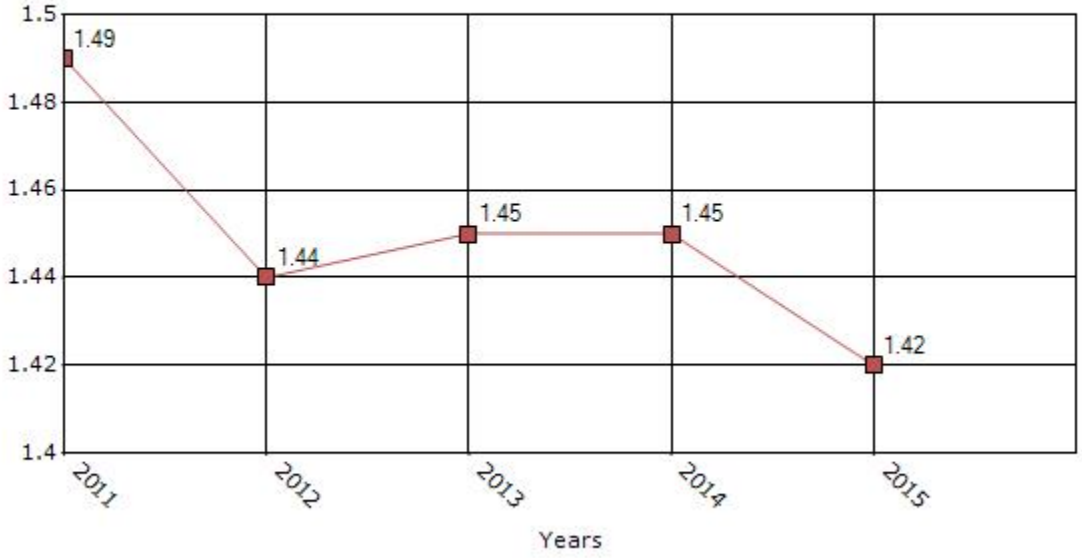
Performance Measures*	2011 (5-yr avg)	2012 (5-yr avg)	2013 (5-yr avg)	2014 (5-yr avg)	2015 (5-yr avg)
Number of fatalities	129.8	127.2	130	131	129.8
Number of serious injuries	850.8	836.4	818	797.2	788.8
Fatality rate (per HMVMT)	1.49	1.44	1.45	1.45	1.42
Serious injury rate (per HMVMT)	9.79	9.49	9.14	8.82	8.64

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

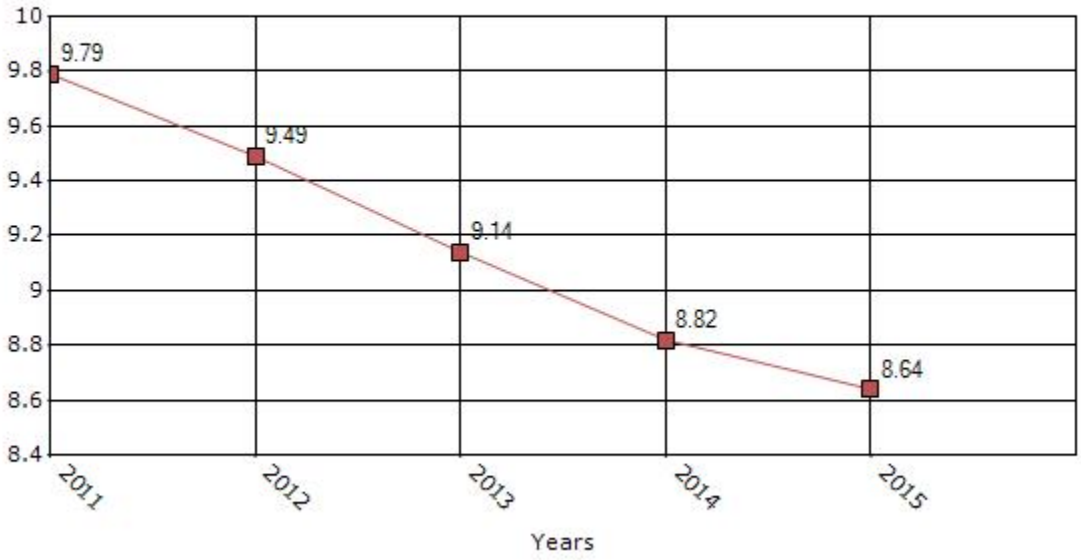
Number of Serious Injuries for the Last Five Years
5-yr Average Measure Data



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



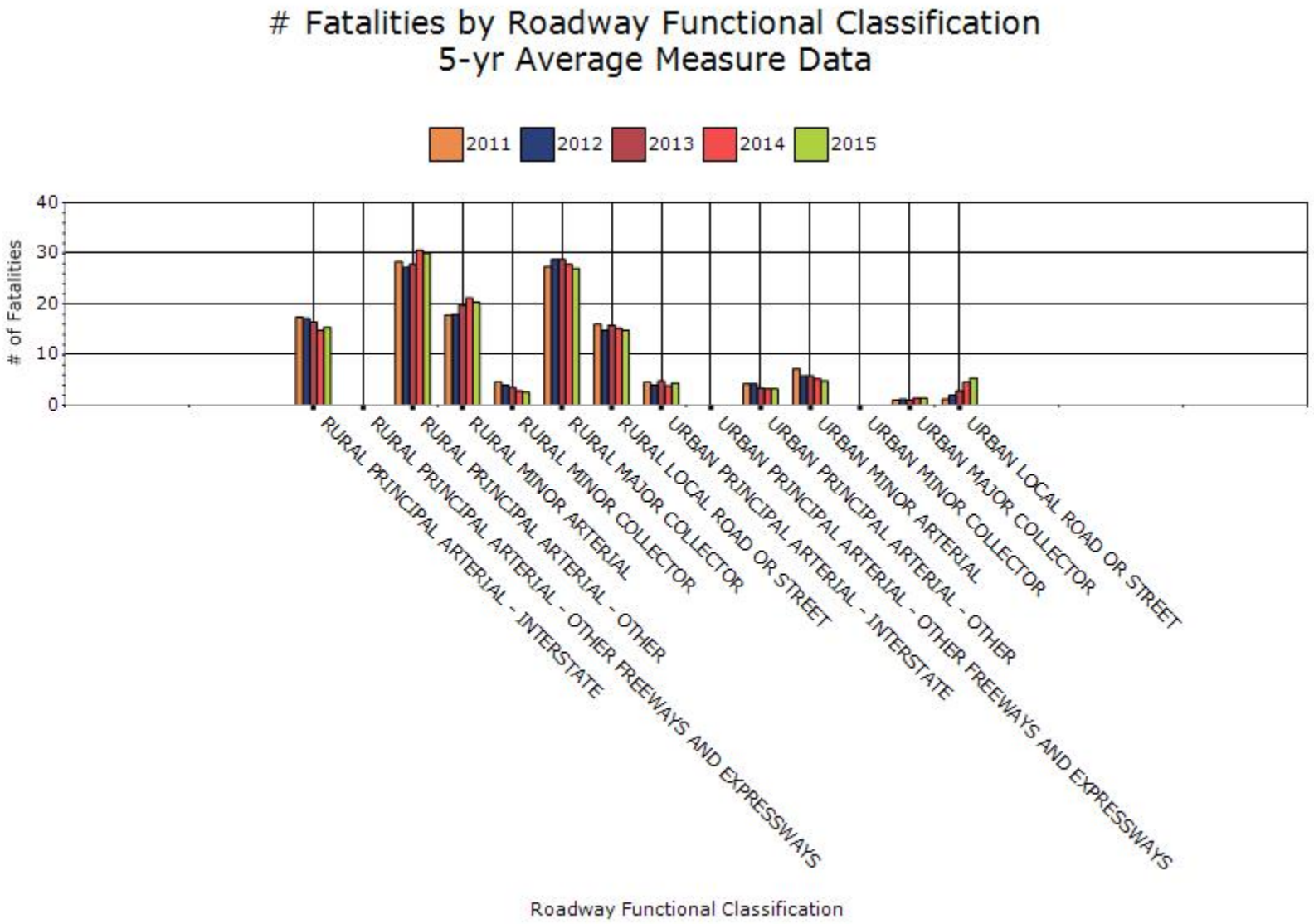
Rate of Serious Injuries for the Last Five Years
5-yr Average Measure Data

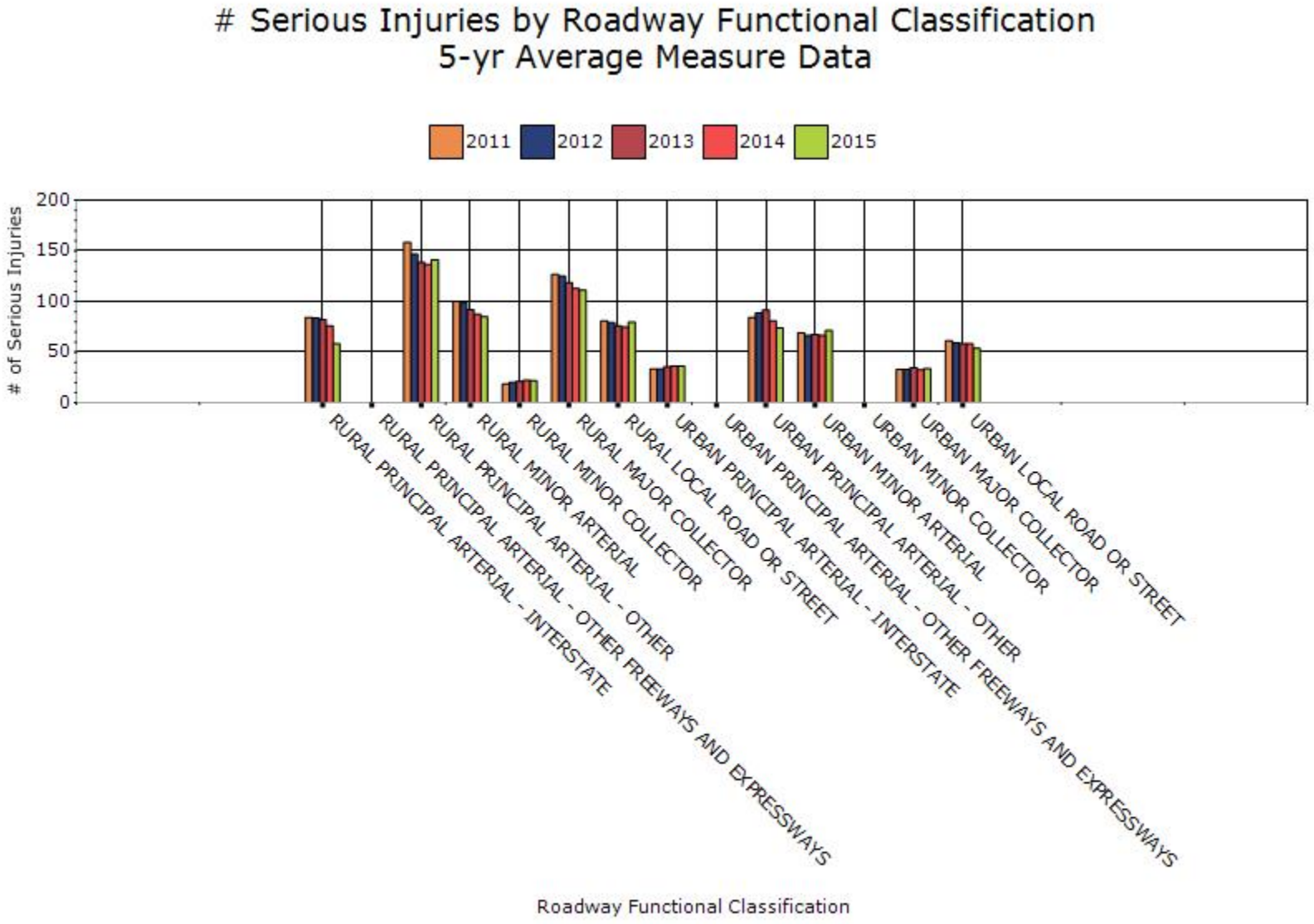


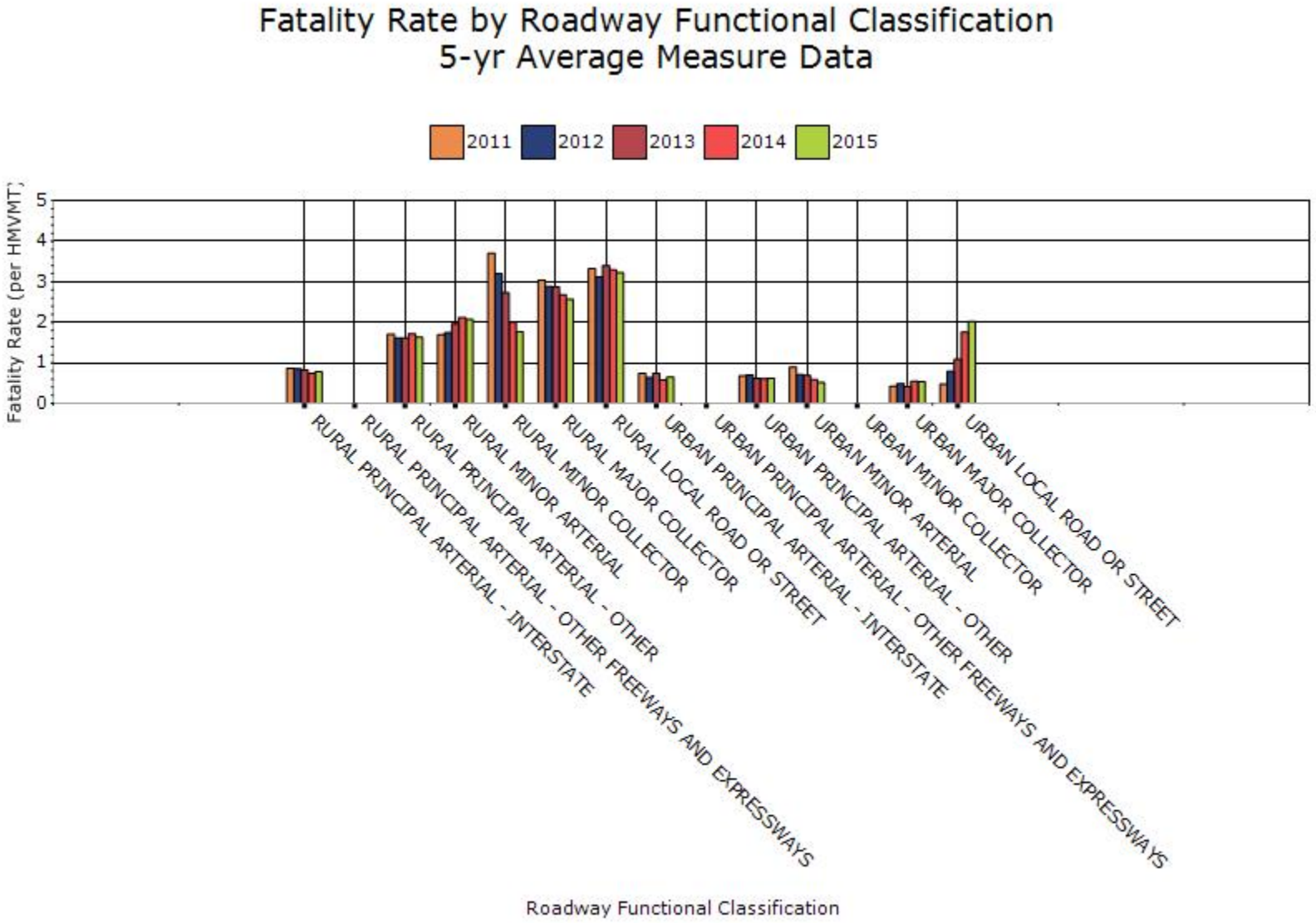
25. To the maximum extent possible, present performance measure data by functional classification and ownership.

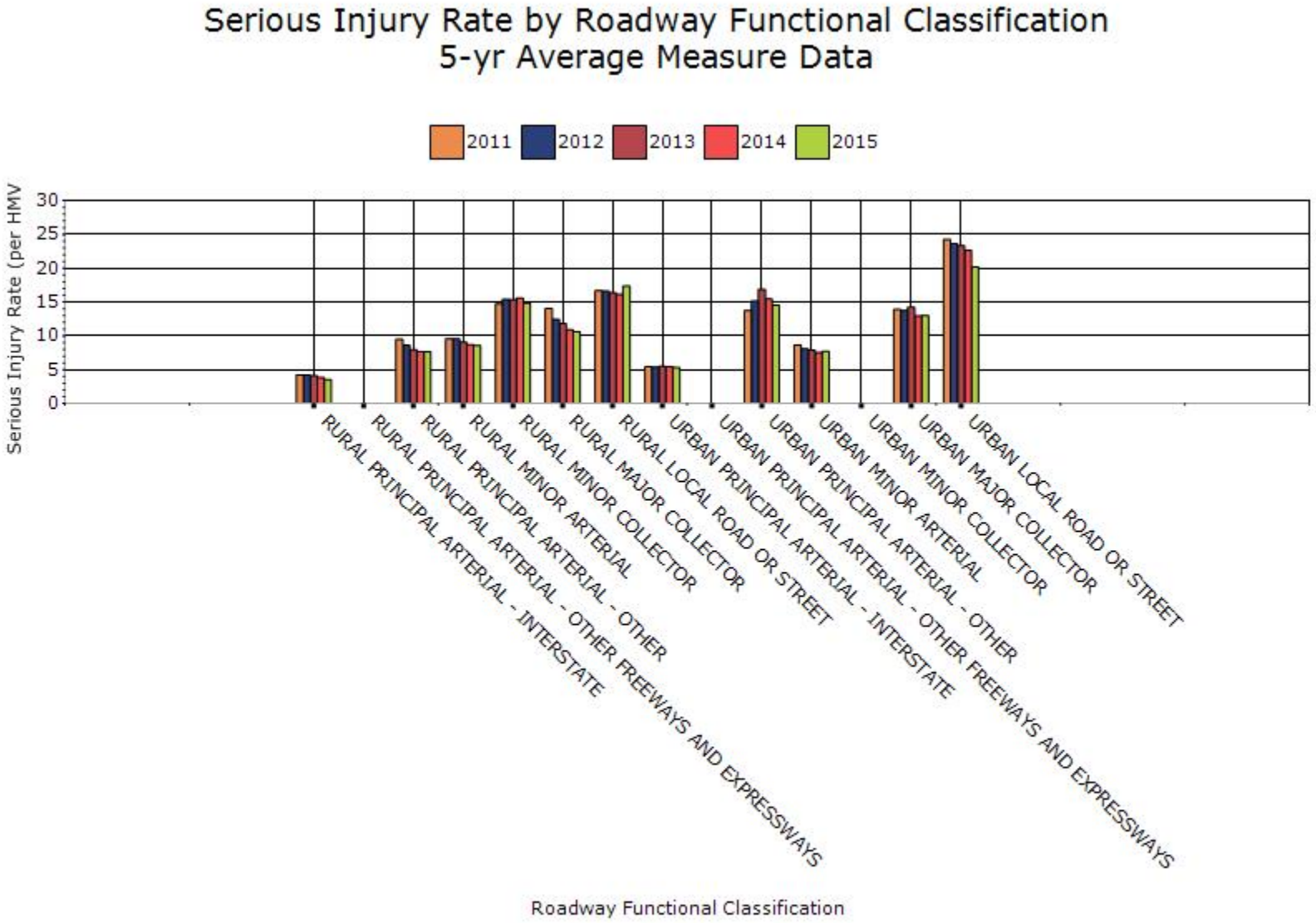
Year - 2015

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	15.4	58.2	0.78	3.51
RURAL PRINCIPAL ARTERIAL - OTHER	30	141.2	1.63	7.65
RURAL MINOR ARTERIAL	20.4	85	2.07	8.57
RURAL MINOR COLLECTOR	2.6	21.8	1.77	14.86
RURAL MAJOR COLLECTOR	27	111.4	2.57	10.59
RURAL LOCAL ROAD OR STREET	14.8	79.8	3.22	17.35
URBAN PRINCIPAL ARTERIAL - INTERSTATE	4.4	36.4	0.65	5.3
URBAN PRINCIPAL ARTERIAL - OTHER	3.2	74	0.62	14.51
URBAN MINOR ARTERIAL	4.8	71.6	0.52	7.71
URBAN MAJOR COLLECTOR	1.4	33.8	0.54	13.01
URBAN LOCAL ROAD OR STREET	5.4	53.8	2.02	20.22


Fatalities by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Fatalities
40
30
20
10
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

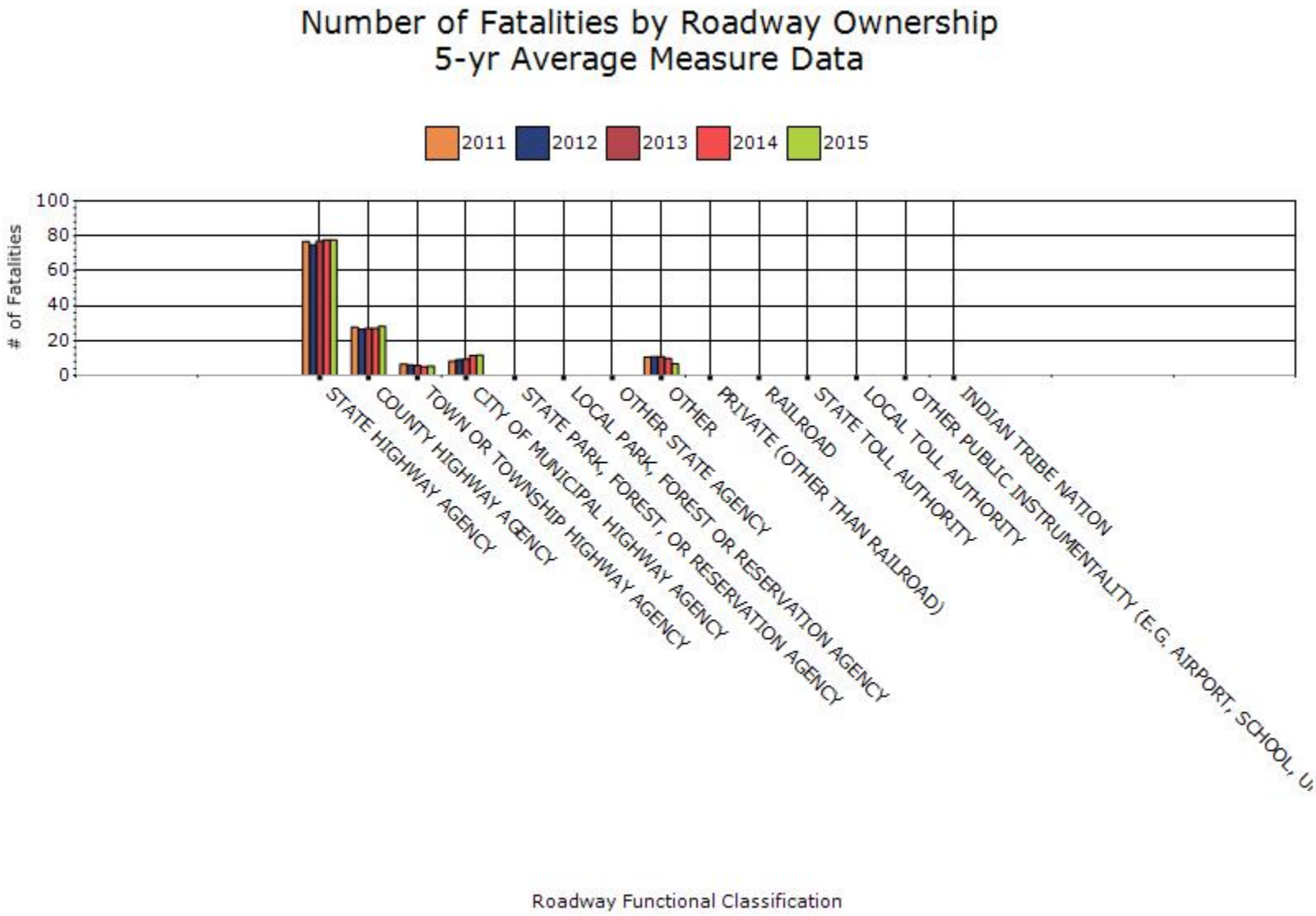

Serious Injuries by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Serious Injuries
200
150
100
50
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR 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

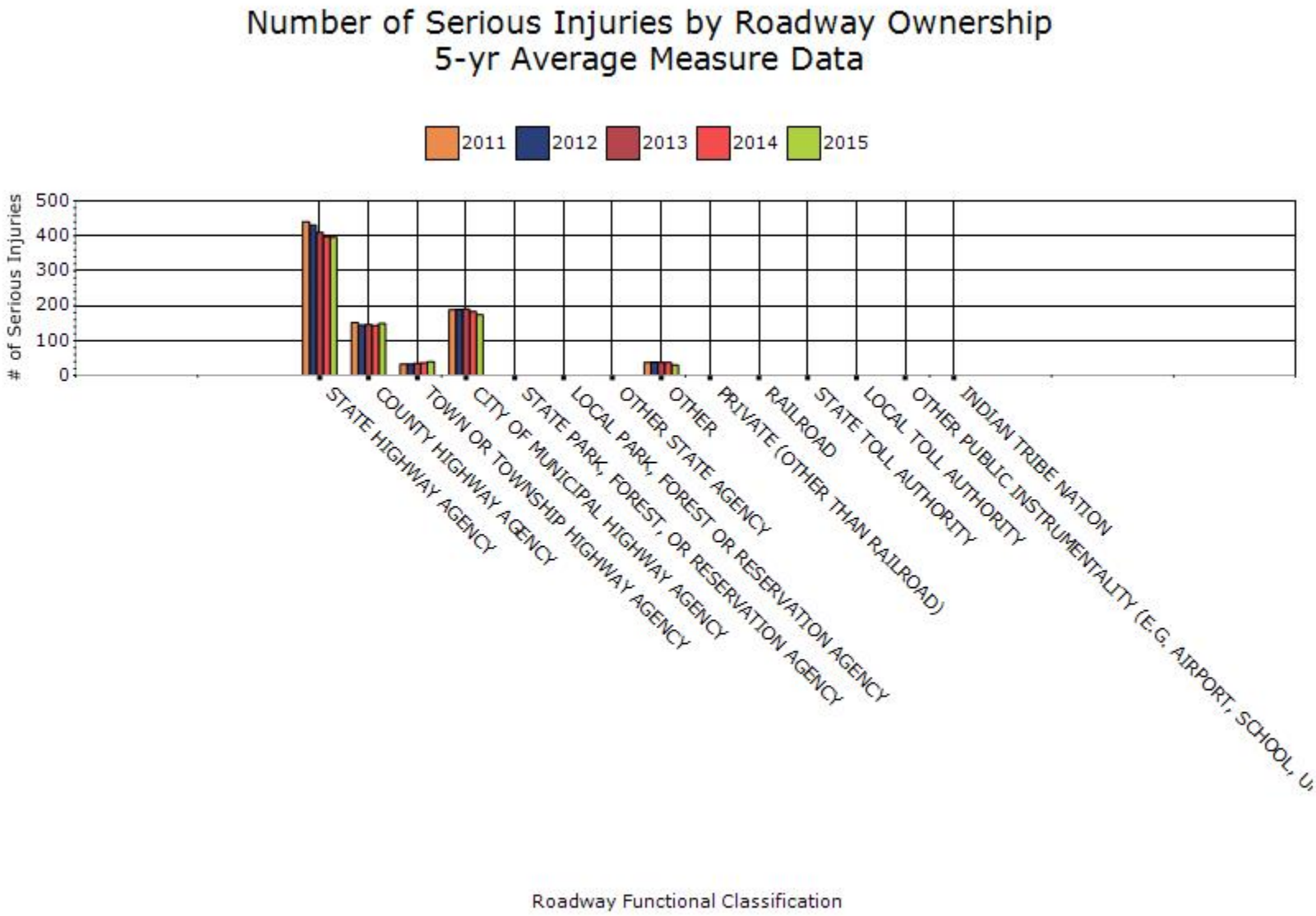

Fatality Rate by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
Fatality Rate (per HMVMT)
0
1
2
3
4
5
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR 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

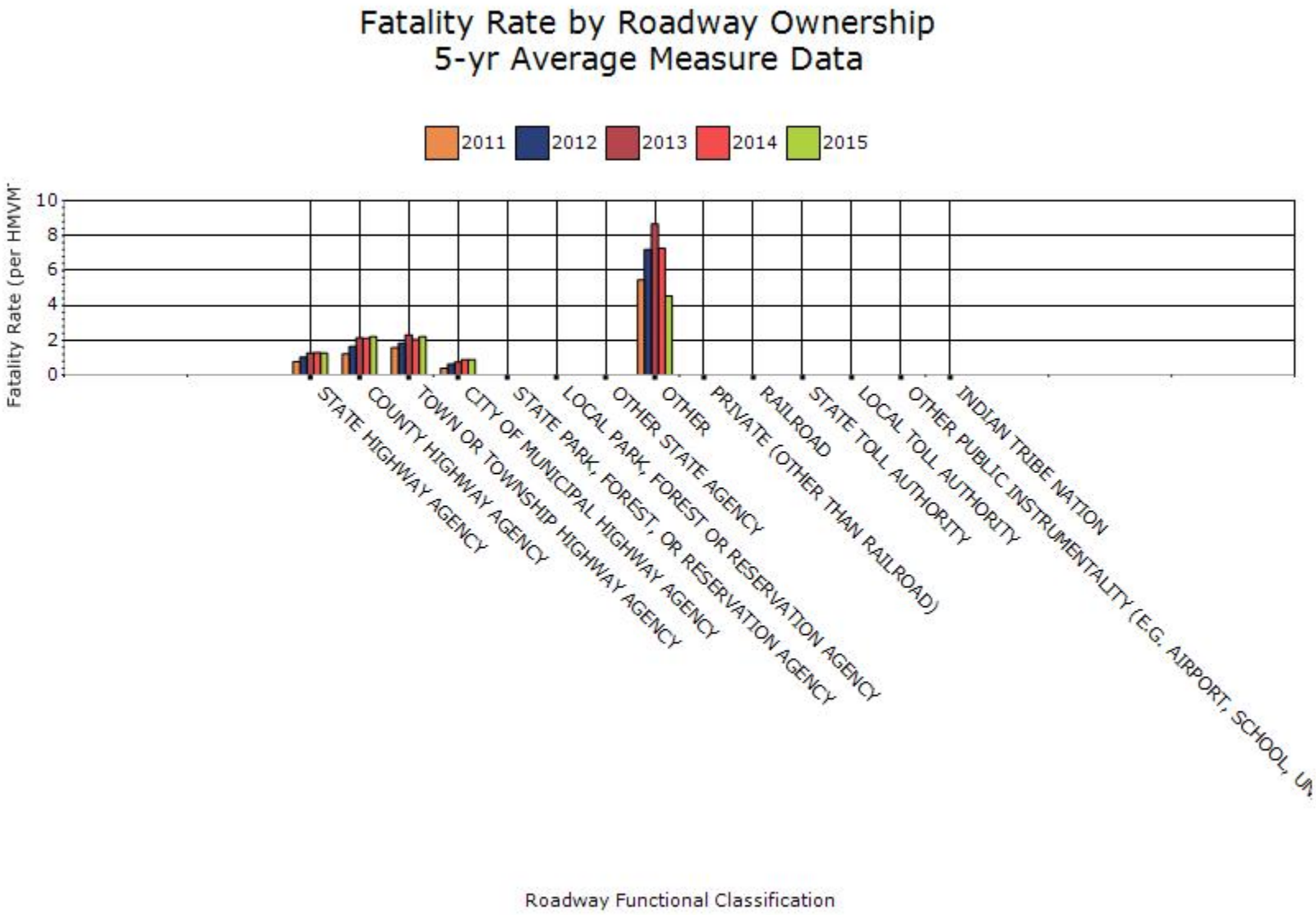

Serious Injury Rate by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
Serious Injury Rate (per HMV
30
25
20
15
10
5
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
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

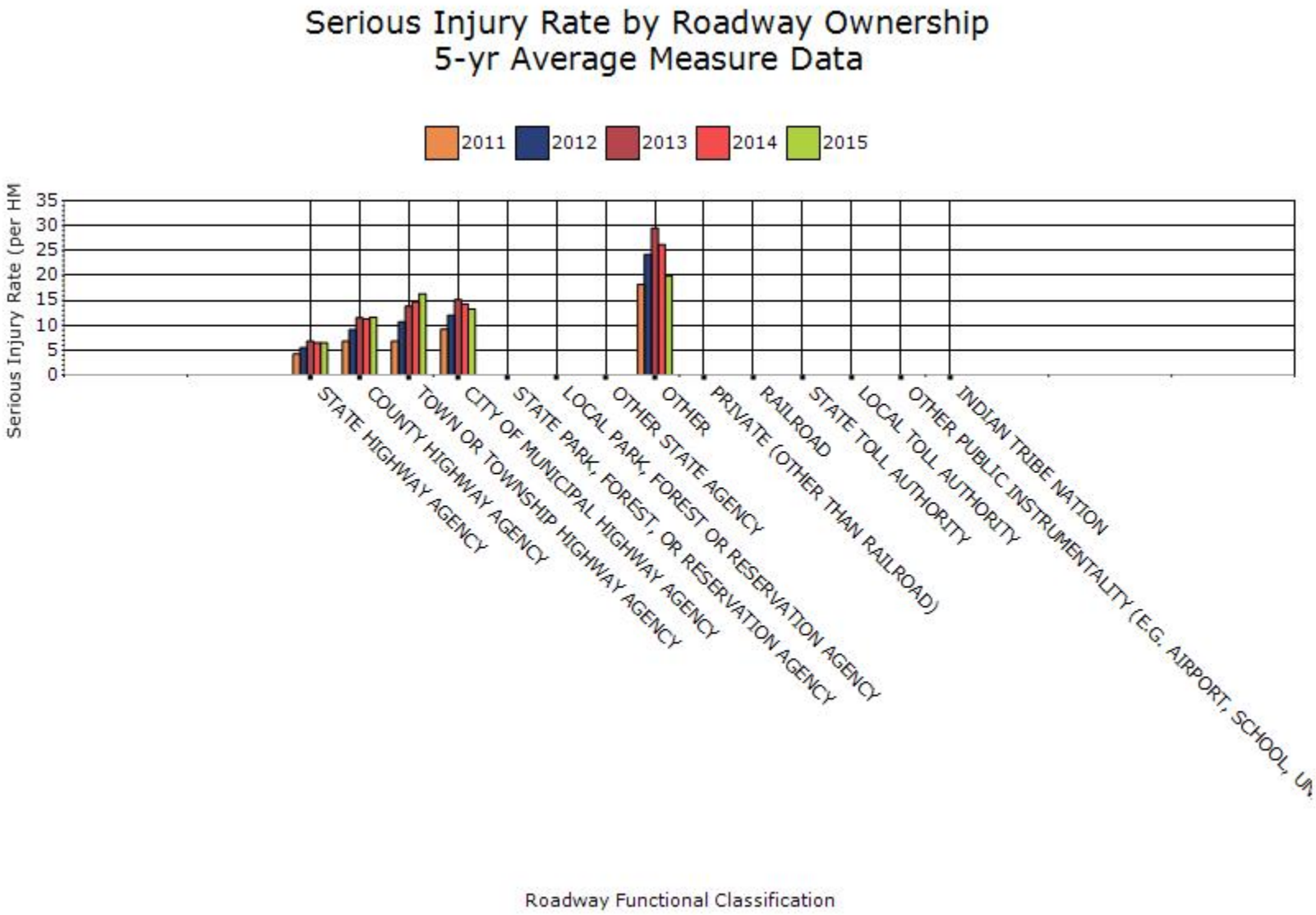
Year - 2015

Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	77.8	396.2	1.26	6.44
COUNTY HIGHWAY AGENCY	28.2	148.6	2.21	11.63
TOWN OR TOWNSHIP HIGHWAY AGENCY	5.4	40	2.2	16.33
CITY OF MUNICIPAL HIGHWAY AGENCY	11.6	174.2	0.88	13.27
OTHER	6.8	29.8	4.54	19.9


Number of Fatalities by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Fatalities
100
80
60
40
20
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
PRIVATE (OTHER THAN RAILROAD)
RAILROAD
STATE TOLL AUTHORITY
LOCAL TOLL AUTHORITY
OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, U
INDIAN TRIBE NATION
Roadway Functional Classification


Number of Serious Injuries by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Serious Injuries
500
400
300
200
100
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
PRIVATE (OTHER THAN RAILROAD)
RAILROAD
STATE TOLL AUTHORITY
LOCAL TOLL AUTHORITY
OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, U
INDIAN TRIBE NATION
Roadway Functional Classification


Fatality Rate by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
Fatality Rate (per HMVM
10
8
6
4
2
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
PRIVATE (OTHER THAN RAILROAD)
RAILROAD
STATE TOLL AUTHORITY
LOCAL TOLL AUTHORITY
OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, UN
INDIAN TRIBE NATION
Roadway Functional Classification


Serious Injury Rate by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
Serious Injury Rate (per HM
35
30
25
20
15
10
5
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
PRIVATE (OTHER THAN RAILROAD)
RAILROAD
STATE TOLL AUTHORITY
LOCAL TOLL AUTHORITY
OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, UN
INDIAN TRIBE NATION
Roadway Functional Classification

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

The crash rates are shown very high for the "other - local system" category. This is caused by a difference between how crashes are coded and the availability of VMT data. If crashes are not coded as either state, county, or township they are lumped into the "other - local system" while this category represents a very small portion of the vehicle miles traveled.

The overall crash trend seems to be going down, but the amount of distracted driving seems to be rising with more use of hand held devices by drivers. At this time the number of crashes that have an element of distracted driving involved cannot be quantified.

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 Performance Measures	2010 (5-yr avg)	2011 (5-yr avg)	2012 (5-yr avg)	2013 (5-yr avg)	2014 (5-yr avg)
Fatality rate (per capita)	0.126	0.124	0.126	0.13	0.146
Serious injury rate (per capita)	0.528	0.528	0.552	0.53	0.512
Fatality and serious injury rate (per capita)	0.654	0.652	0.676	0.658	0.656

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

2008 Fatality rate (per capita) = 15/116 = 0.13

2009 Fatality rate (per capita) = 10/117 = 0.09

2010 Fatality rate (per capita) = 20/118 = 0.17

2011 Fatality rate (per capita) = 16/120 = 0.13

2012 Fatality rate (per capita) = 13/121 = 0.11

2013 Fatality rate (per capita) = 19/125 = 0.15

2014 Fatality rate (per capita) = 22/129 = 0.17

2008 Serious Injury rate (per capita) = 61/116 = 0.53

2009 Serious Injury rate (per capita) = 66/117 = 0.56

2010 Serious Injury rate (per capita) = 74/118 = 0.63

2011 Serious Injury rate (per capita) = 60/120 = 0.50

2012 Serious Injury rate (per capita) = 65/121 = 0.54

2013 Serious Injury rate (per capita) = 52/125 = 0.42

2014 Serious Injury rate (per capita) = 61/129 = 0.47

2008 Fatal + Serious Injury rate (per capita) = (15+61)/116 = 0.66

2009 Fatal + Serious Injury rate (per capita) = (10+66)/117 = 0.65

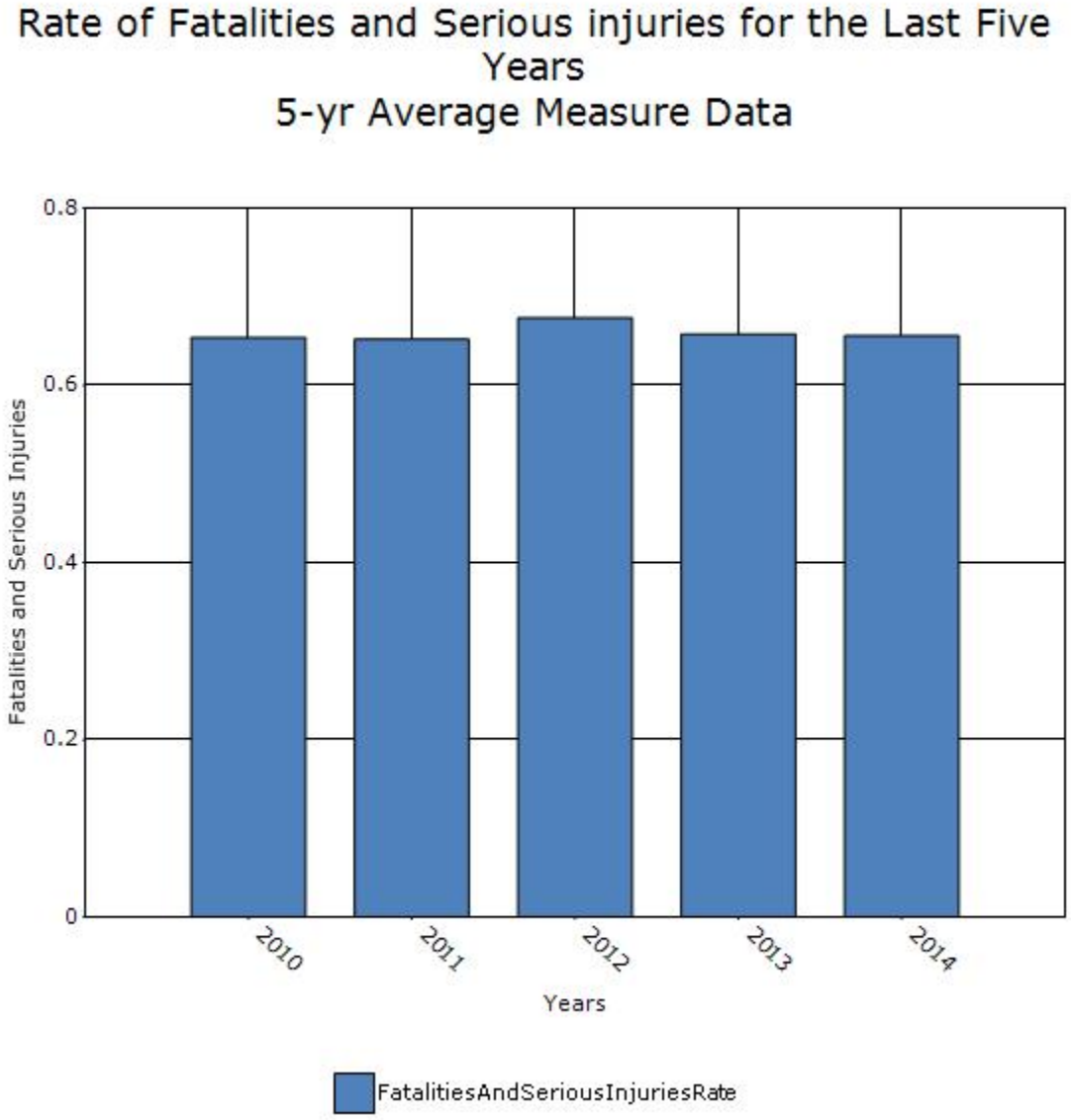
2010 Fatal + Serious Injury rate (per capita) = (20+74)/118 = 0.80

2011 Fatal + Serious Injury rate (per capita) = (16+60)/120 = 0.63

2012 Fatal + Serious Injury rate (per capita) = (13+65)/121 = 0.64

2013 Fatal + Serious Injury rate (per capita) = (19+52)/125 = 0.57

2014 Fatal + Serious Injury rate (per capita) = (22+61)/129 = 0.64



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-Reduction in number of fatal and serious injury crashes

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

Other-Implementation of centerline rumble stripes to reduce cross centerline crashes

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

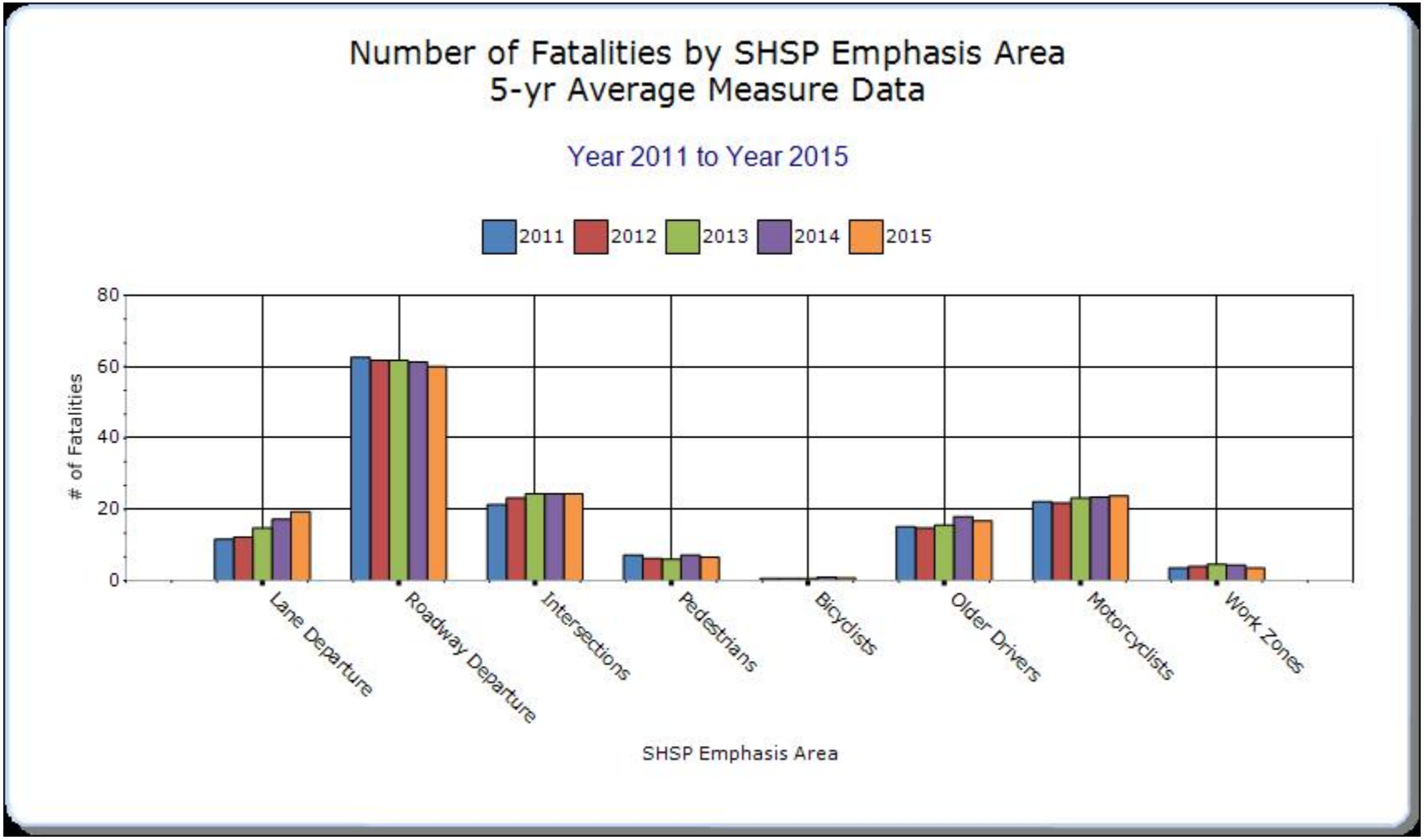
The SDDOT has recently implemented a policy for installing centerline rumble stripes on rural two lane highways.

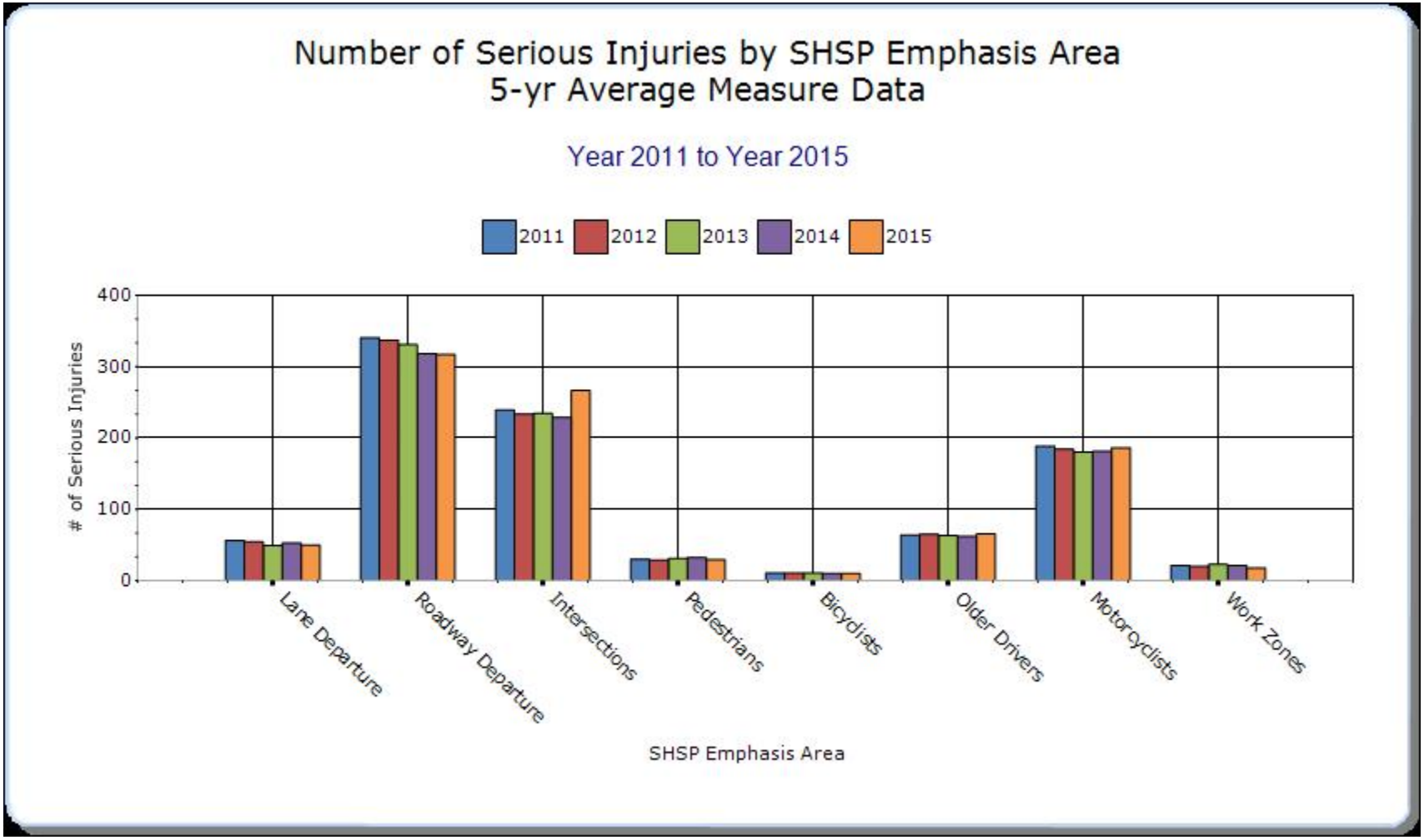
SHSP Emphasis Areas

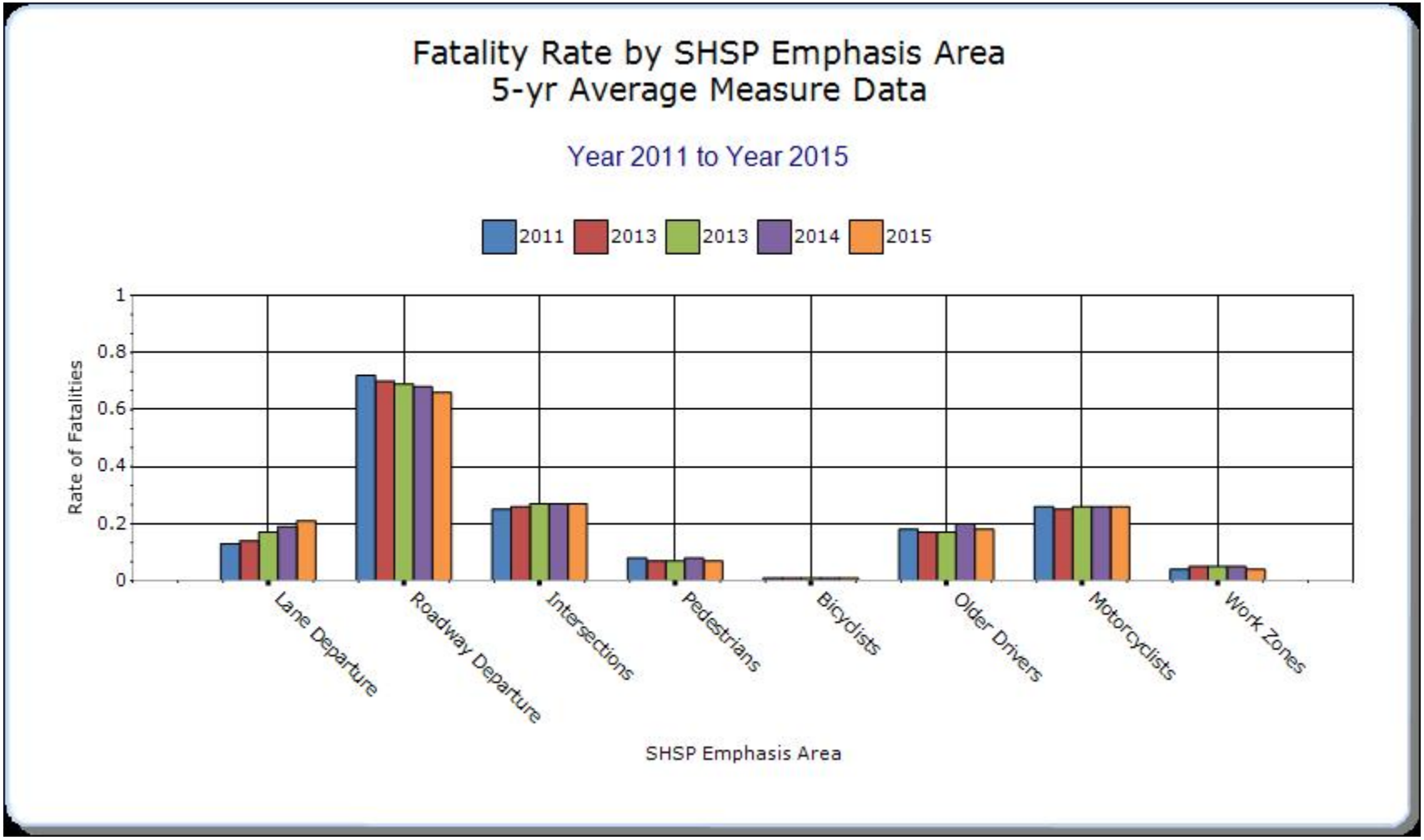
32. Present and describe trends in SHSP emphasis area performance measures.

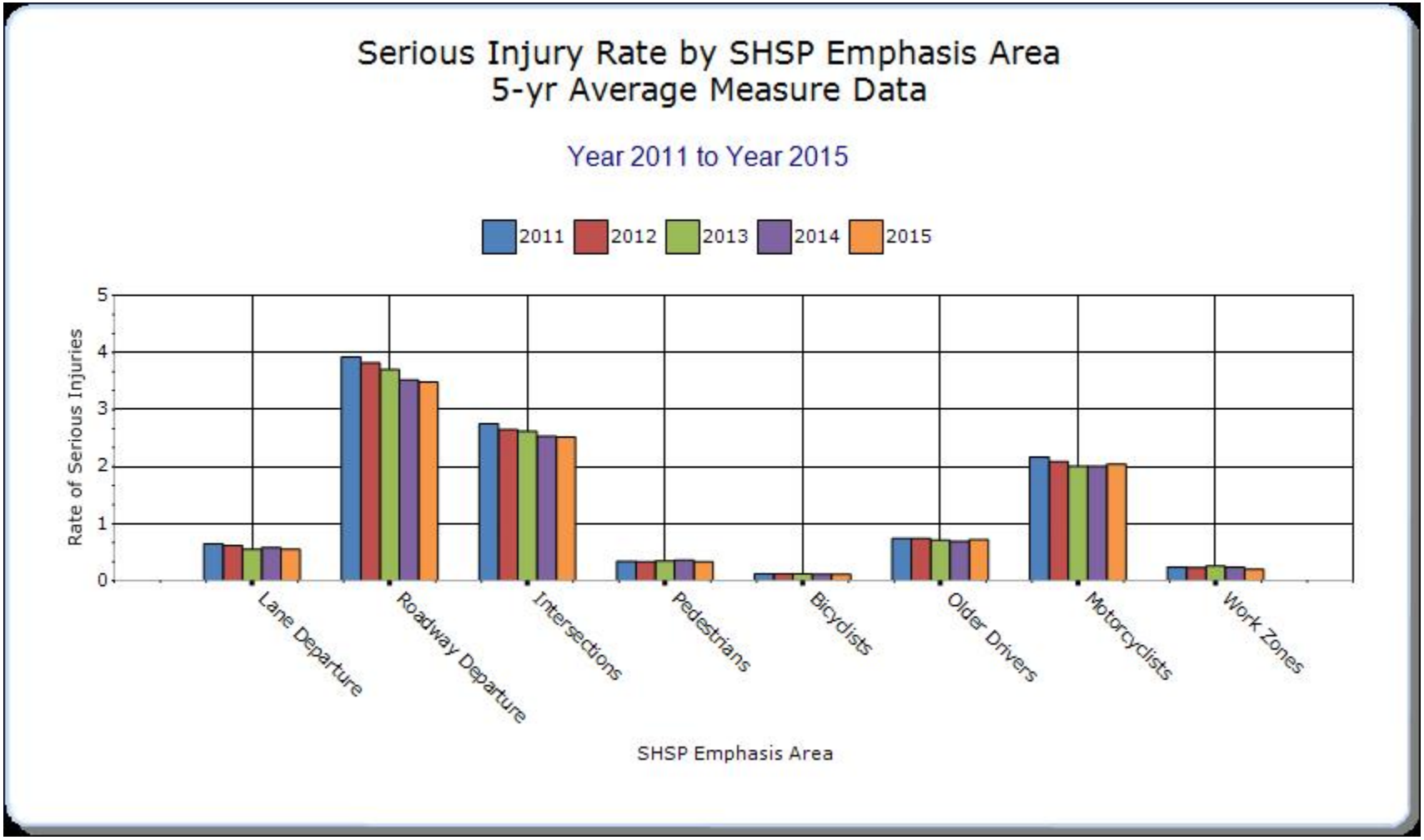
Year - 2015

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		19.4	50.2	0.21	0.55	330.4		
Roadway Departure		60	317.4	0.66	3.48	2381.2		
Intersections		24.4	266.8	0.27	2.52	3789.2		
Pedestrians		6.6	29.6	0.07	0.33	90.2		
Bicyclists		0.8	10	0.01	0.11	71.8		
Older Drivers		16.8	65.6	0.18	0.72	2044.2		
Motorcyclists		23.8	186.4	0.26	2.04	389.8		
Work Zones		3.6	18	0.04	0.2	218.2		


Number of Fatalities by SHSP Emphasis Area
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
80
60
40
20
0
# of Fatalities
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
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
400
300
200
100
0
# of Serious Injuries
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
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
1
0.8
0.6
0.4
0.2
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
SHSP Emphasis Area

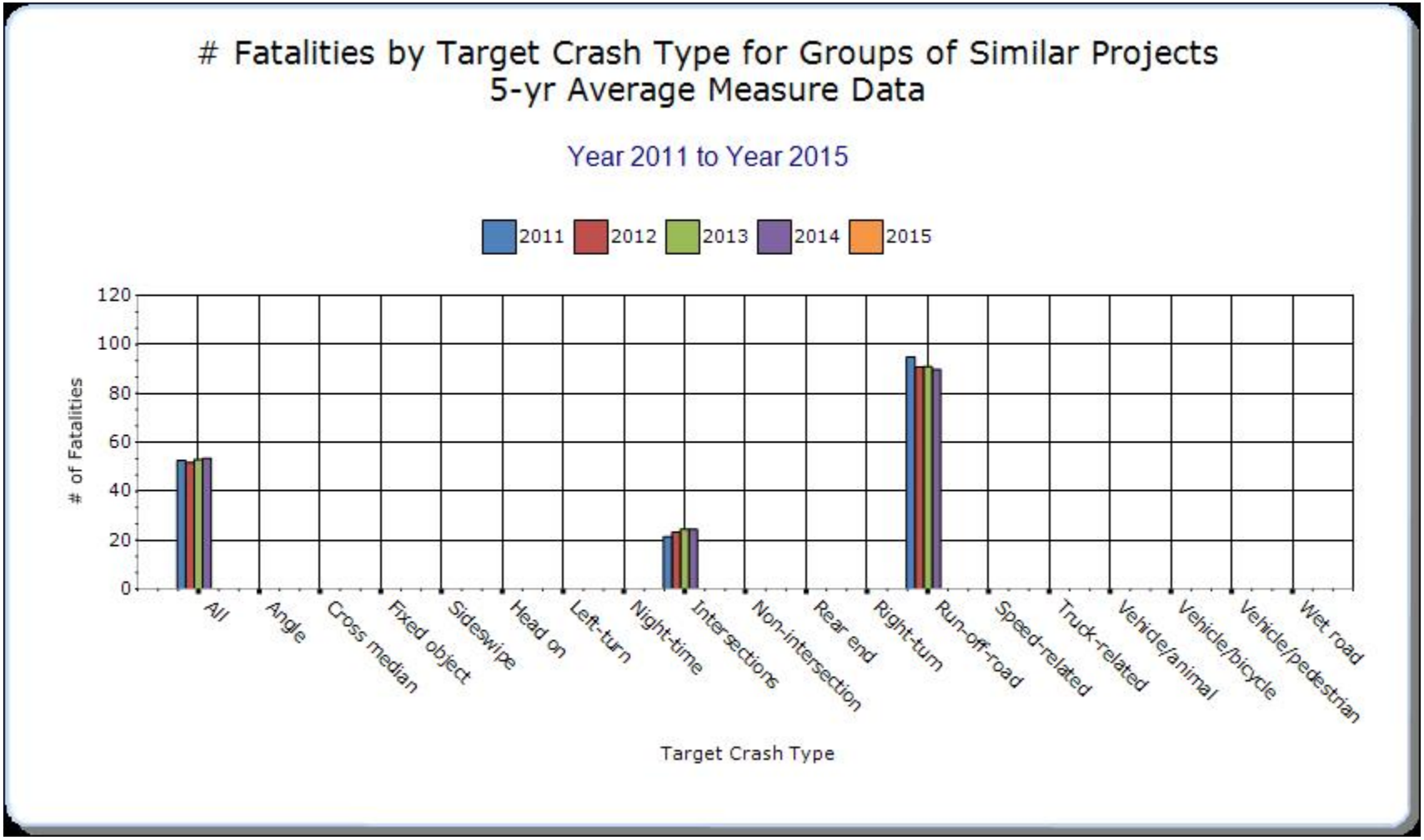


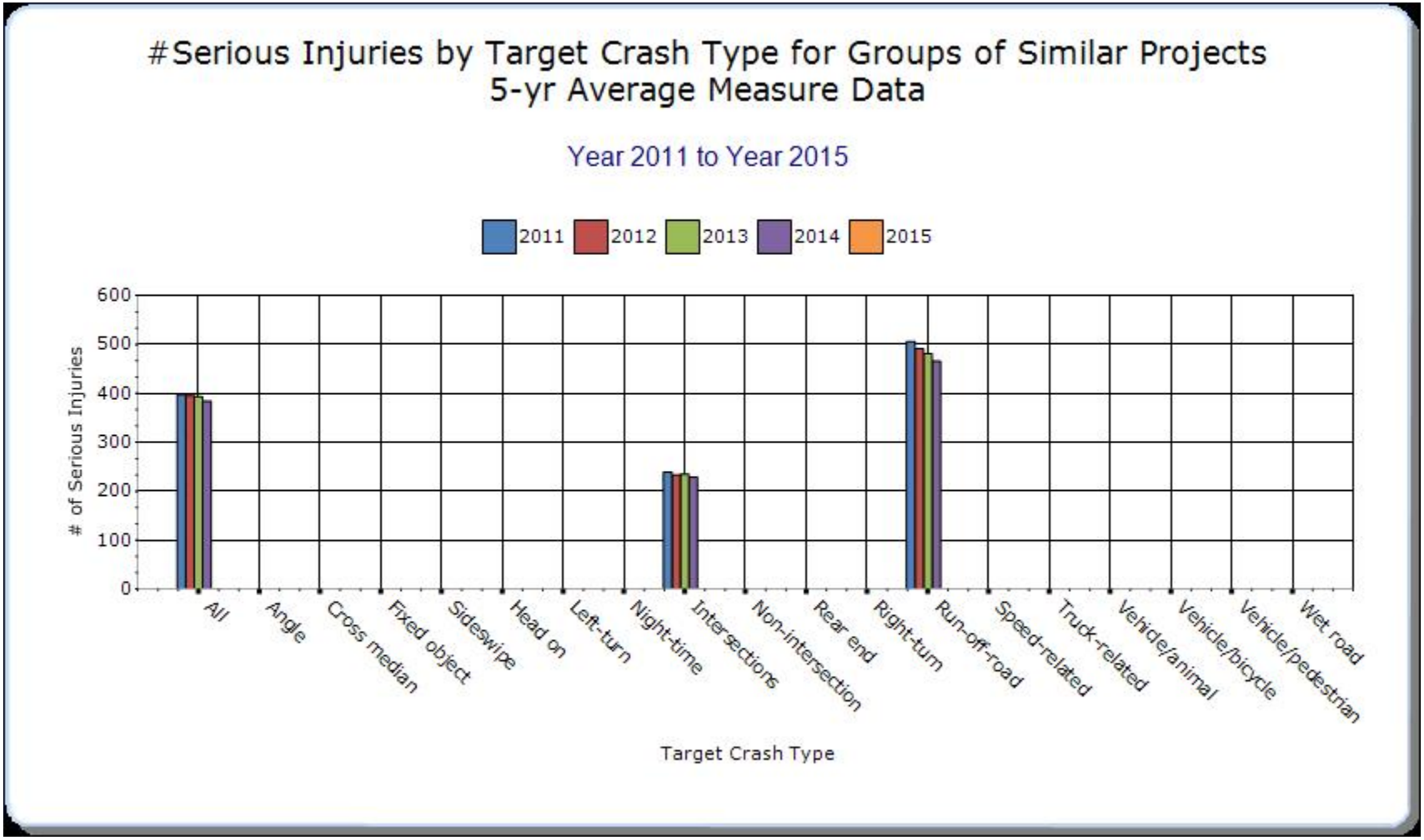
Groups of similar project types

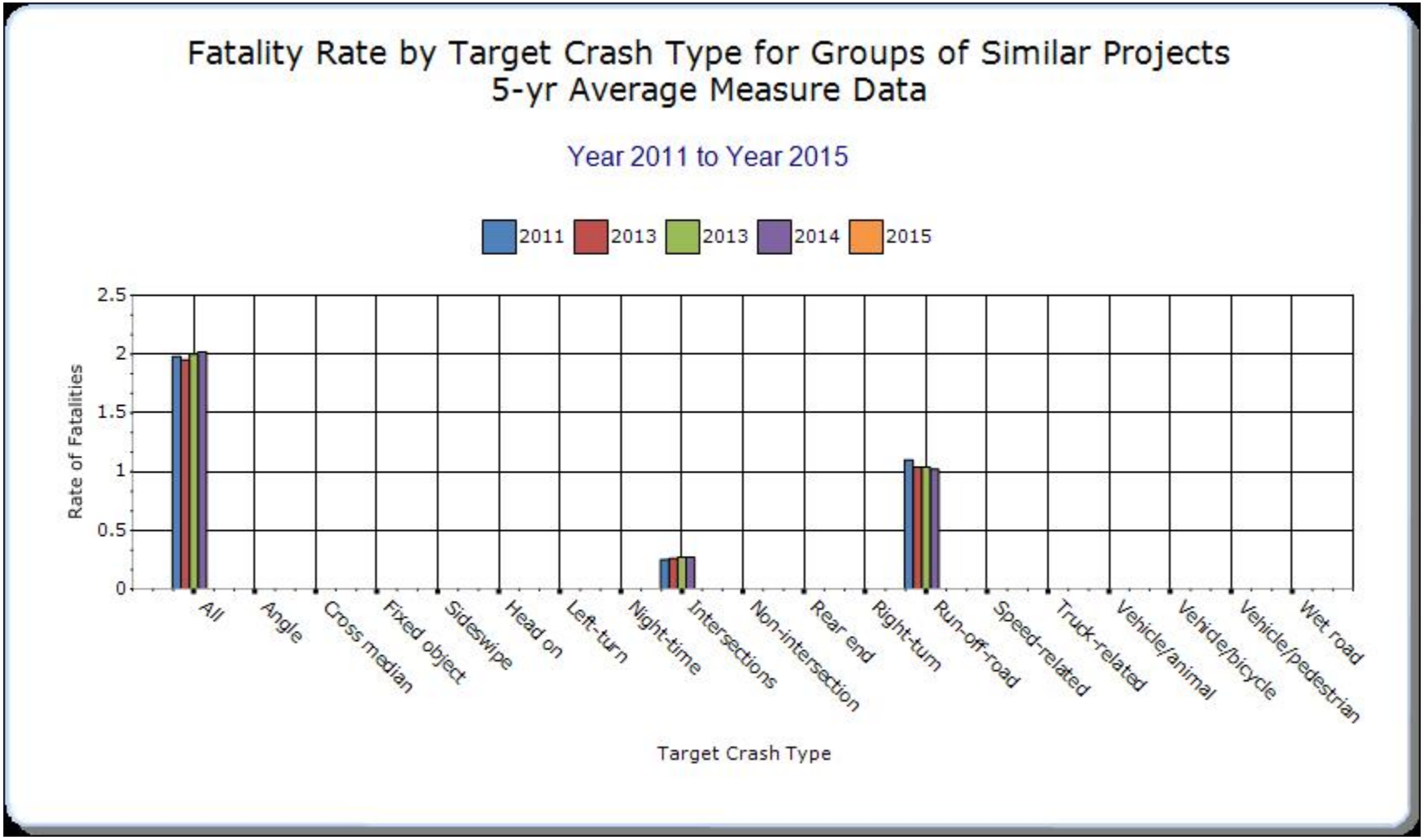
33. Present the overall effectiveness of HSIP subprograms.

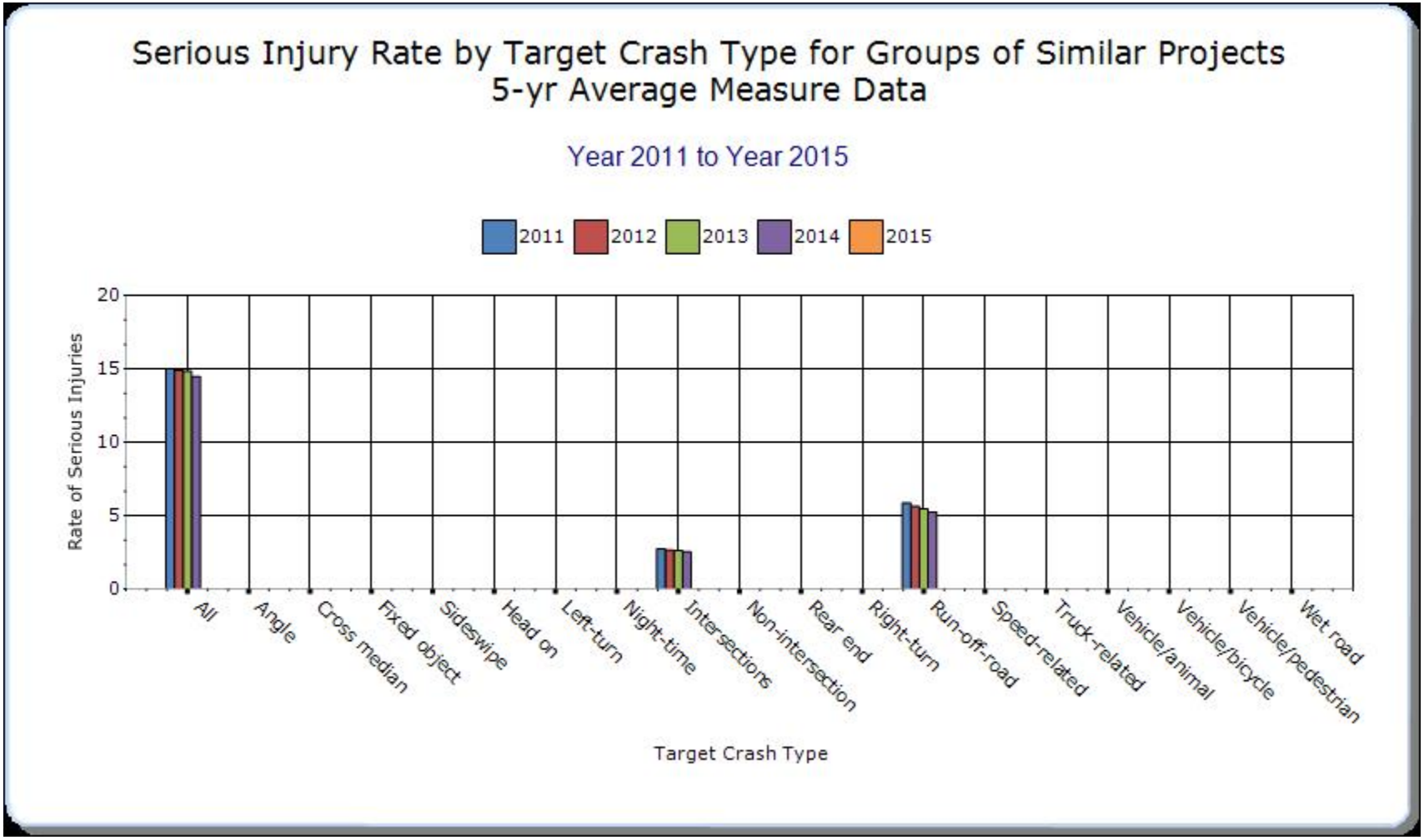
Year - 2014

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)
Local Safety	All	53.4	383.8	2.02	14.48			
Intersection	Intersections	24.4	229.2	0.27	2.53			
Roadway Departure	Run-off-road	61.4	318.6	0.68	3.52			
Horizontal Curve	Run-off-road	28.4	147	0.34	1.73			


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
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


#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
600
500
400
300
200
100
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
2.5
2
1.5
1
0.5
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

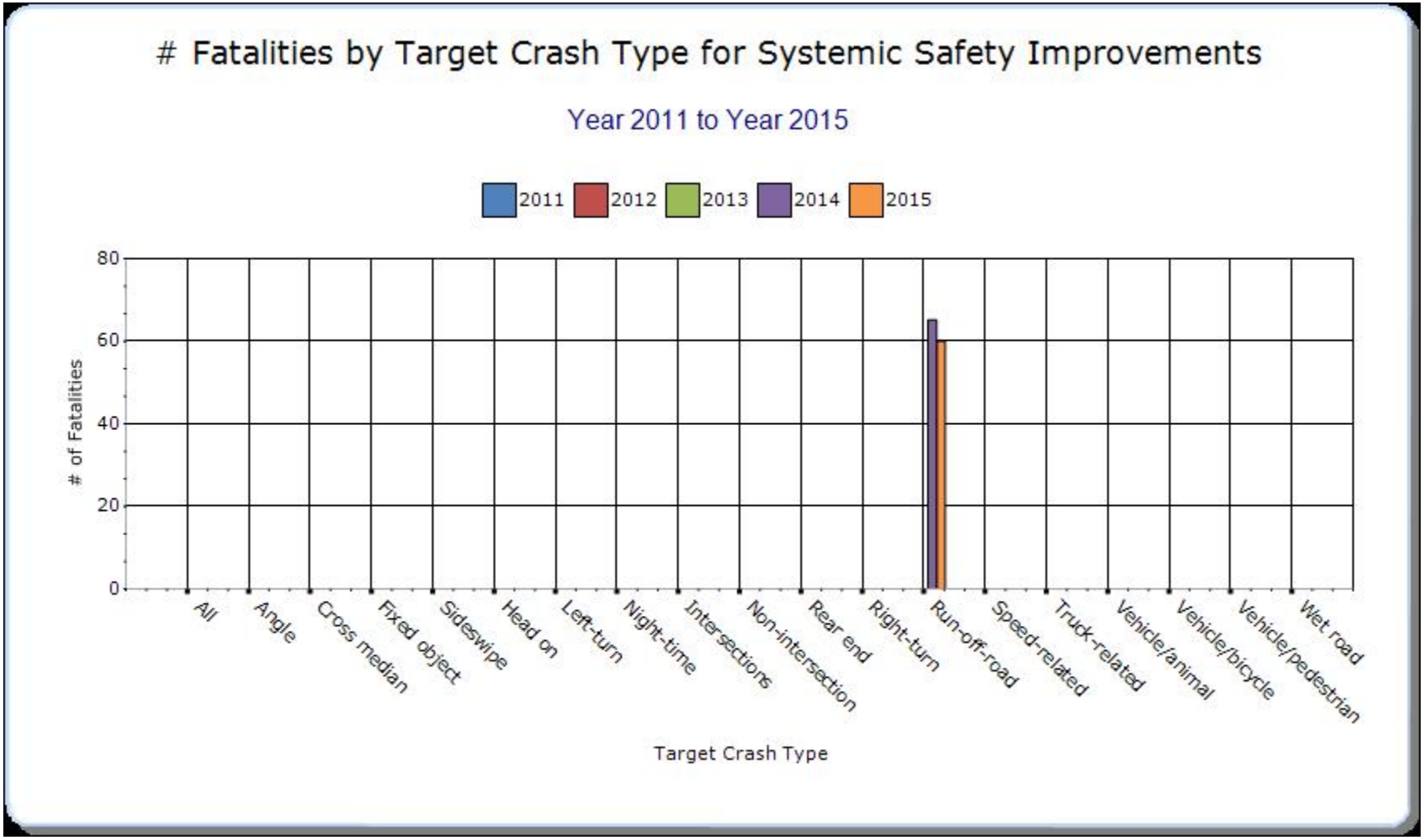


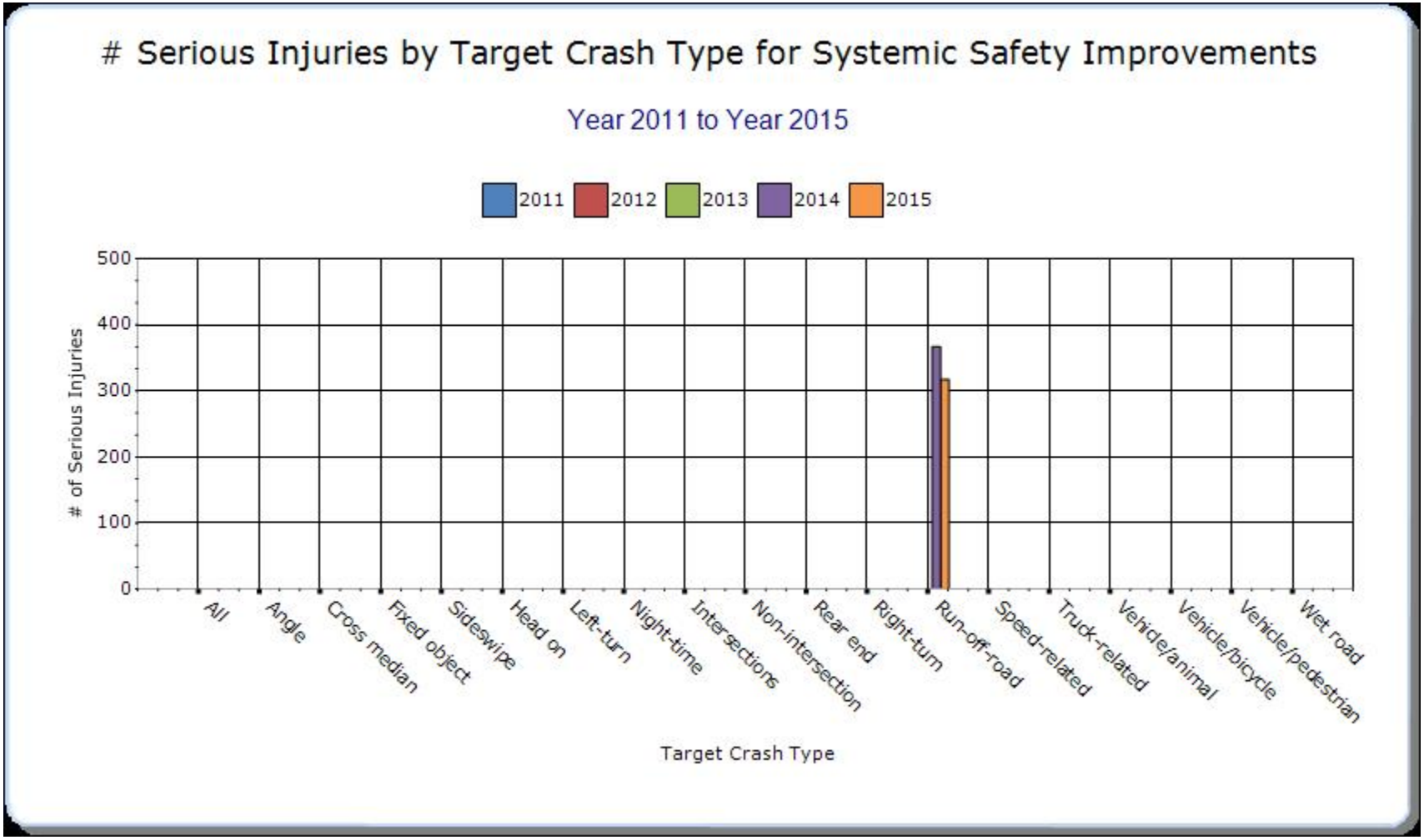
Systemic Treatments

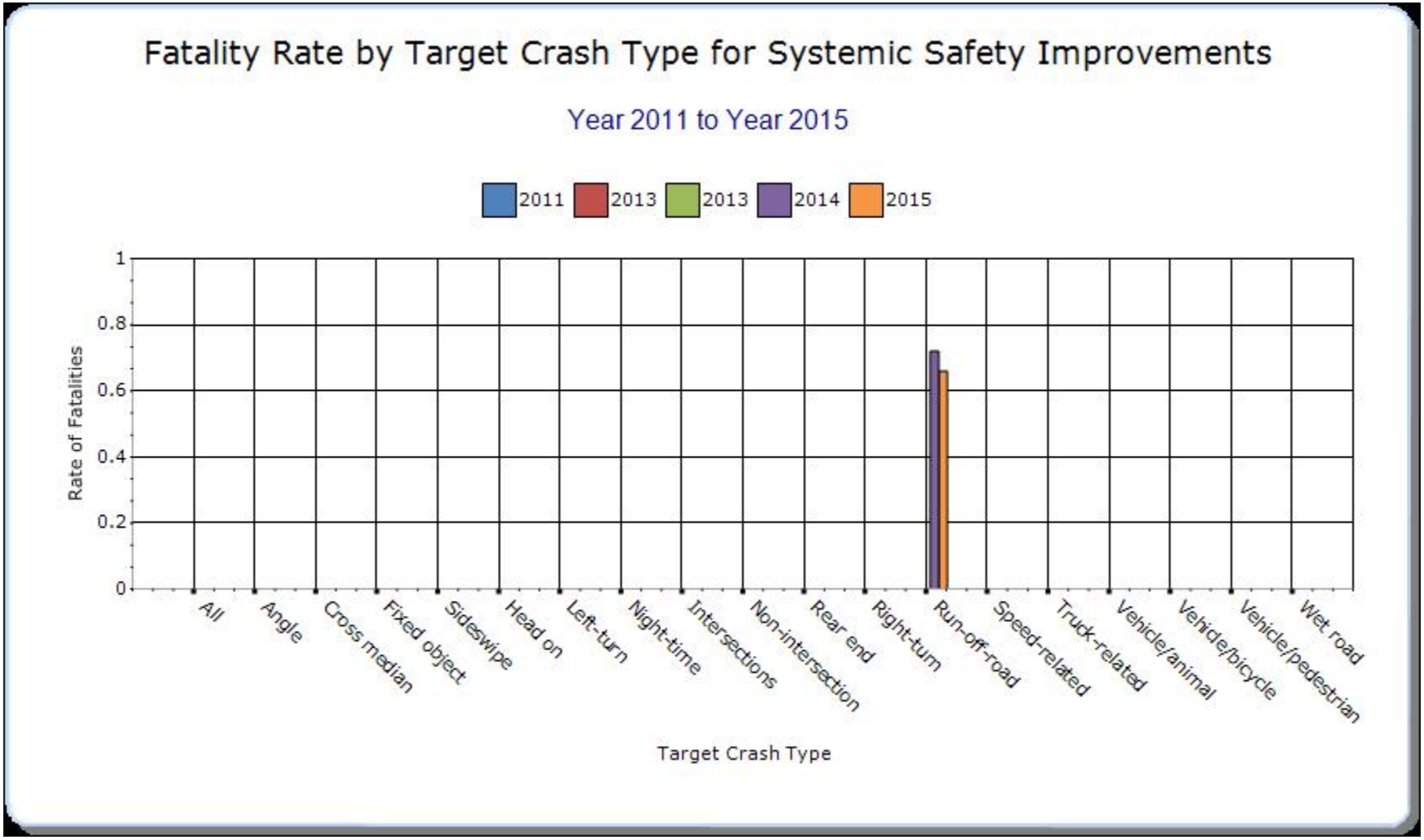
34. Present the overall effectiveness of systemic treatments.

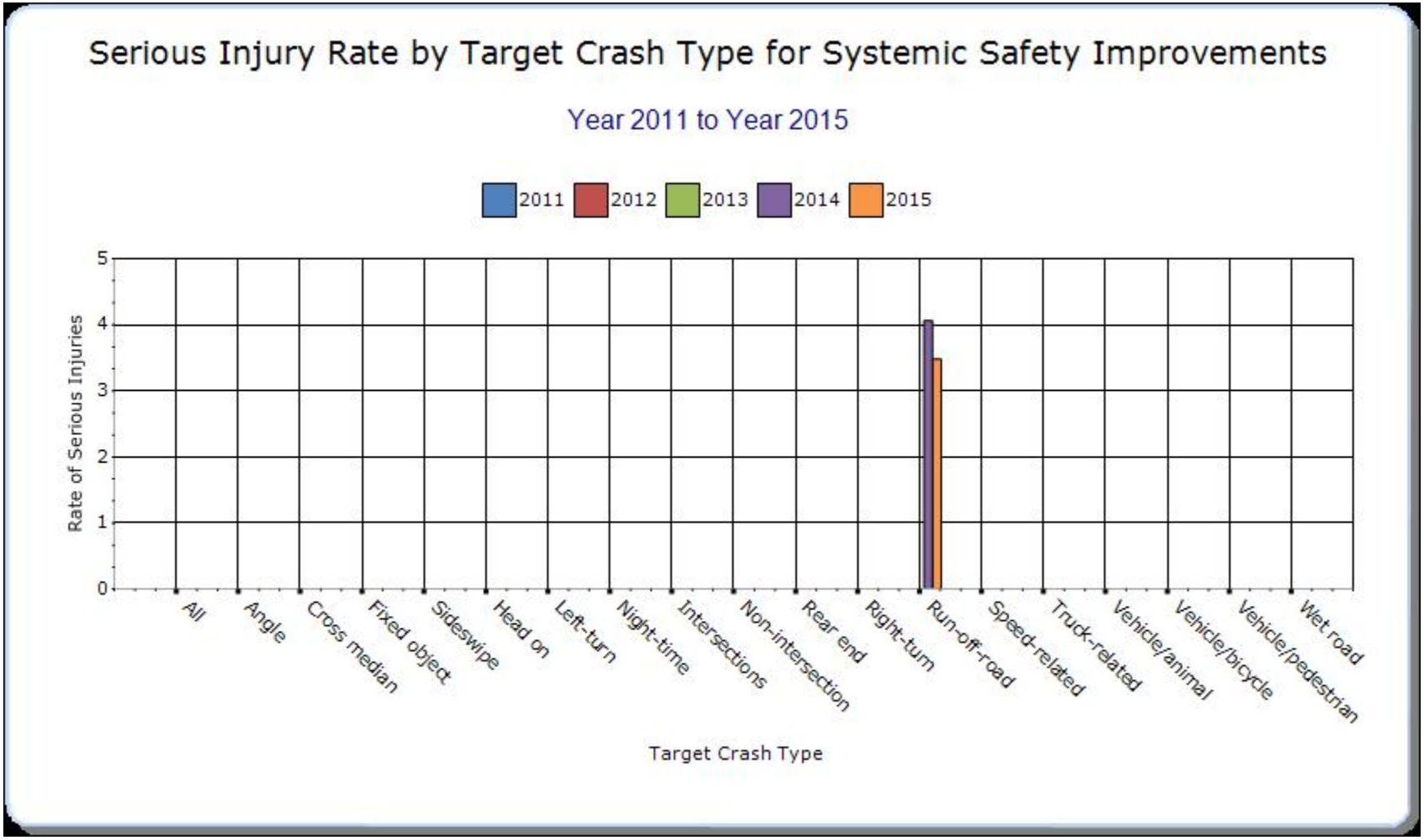
Year - 2015

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)
Rumble Strips	Run-off-road	60	317.4	0.66	3.48			


Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Fatalities
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


Serious Injuries by Target Crash Type for Systemic Safety Improvements
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Serious Injuries
500
400
300
200
100
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.

The SDDOT has found a reduction of 21% of targeted crashes with the deployment of stand alone shoulder rumble stripe projects. Shoulder rumble strips showed a reduction of 24% of fatal crashes, 20% of injury crashes and 8% of all crash types.

Project Evaluation

36. 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)
SD73 from US212 to south junction with SD20	Rural Principal Arterial - Other	Shoulder treatments	Widen shoulder - paved or other		1	4	21	26		1	1	13	15	1.57
Various Locations on the State System in the Mitchell Region	Rural Principal Arterial - Other	Roadway	Rumble strips - edge or shoulder	9		106	495	610	8		82	433	523	713

Various Locations on the State System in the Rapid City Region	Rural Principal Arterial - Other Freeways and Expressways	Roadway	Rumble strips - edge or shoulder	4		127	432	563	6		89	485	580	1015
Various Locations on the State System in the Mitchell Region	Rural Principal Arterial - Other	Roadway	Rumble strips - edge or shoulder	1		47	284	332	2		44	226	272	240
Various Locations on the State System in the Aberdeen Region	Rural Minor Arterial	Roadway	Rumble strips - edge or shoulder	2		37	260	299	3		25	227	255	300

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.