Highway Safety Improvement Program

Data Driven Decisions

Kentucky
Highway Safety Improvement Program
2013 Annual Report

Prepared by: KY

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."

Table of Contents

Executive Summary

Kentucky's HSIP funds are administered from the Division of Traffic Operations in KYTC's Central Office. Each Highway District has an HSIP Coordinator that works closely with Central Office and District Personnel to conduct a Road Safety Audit (RSA) on potential improvement locations. The RSA teams are multi-disciplinary and represent the following highway functions; planning, highway design, traffic operations, maintenance, and construction. The Cabinet also requests that members from local Area Development Districts (ADDs) participate in the process. Highway Districts are encouraged to submit candidate projects after completing all established guidelines for funding consideration. Funding levels to date have been sufficient to implement projects submitted that meet the eligibility guidelines for the program**.**

The program methodology used by the Transportation Cabinet during the time period of this report was generally the same as in the previous years. With completion of the document titled "Kentucky Roadway Departure Safety Implementation Plan" in July 2010, there has been significant reliance on the recommended approach to supplement the traditional process directed to high-crash locations with systematic application of low-cost, cost-effective countermeasures. More specifically, the systematic approach could be characterized as the reverse of the traditional approach in that low-cost, effective countermeasures are first identified and then the crash database is queried to identify highway sections that have targeted crashes at or above a crash threshold that would insure cost-effective deployment of these countermeasures.

The HSIP supports Kentucky's Strategic Highway Safety Plan (SHSP). The mission of the SHSP is "to reduce Kentucky's highway fatalities and injuries". In conformance with program guidelines, the HSIP seeks to adhere to the SHSP through a data-driven approach for funding safety improvements.

Implementation of HSIP projects have been evaluated and results have been documented in the form of benetits and costs. Included were projects involving the following countermeasures, with their respective B/C ratios:
Rumble Stripes: 14:1
Cable Median Barrier: 1.3:1
High-Friction Surfaces: 9:1

Introduction

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. As per 23 U.S.C. 148(h) and 23 CFR 924.15, States are required to report annually on the progress being made to advance HSIP implementation and evaluation efforts. The format of this report is consistent with the HSIP MAP-21 Reporting Guidance dated February 13, 2013 and consists of four sections: program structure, progress in implementing HSIP projects, progress in achieving safety performance targets, and assessment of the effectiveness of the improvements.

Program Structure

Program Administration

How are Highway Safety Improvement Program funds allocated in a State?

☒ Central

☐ District

☐ Other

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

A Safety Circuit Rider program continues to function as the primary means of identifying and implementing projects on local roads through the HSIP. The focus of this program is to provide technical assistance to improve safety on local roads and streets.

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

☒ Design

☒Planning

☒Maintenance

☒Operations

☒Governors Highway Safety Office

☐Other:

Briefly describe coordination with internal partners.

Kentucky's HSIP funds are administered from the Division of Traffic Operations in KYTC's Central Office. Each Highway District has a HSIP Coordinator who works closely with the Central Office and other Highway District personnel to conduct Road Safety Audits (RSAs) of potential improvement locations. The RSA teams are multidisciplinary and represent the following highway functions; planning, design, traffic operations, maintenance, and construction. Highway districts are encouraged to submit candidate projects after completing all established guidelines for funding considerations.

HSIP projects are selected and prioritized based on their correlation with Kentucky's Strategic Highway Safety Plan. There are presently 10 emphasis areas within the SHSP and efforts are made to implement projects consistent with the goals and objectives of the SHSP.

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

☒Metropolitan Planning Organizations

☒Governors Highway Safety Office

☐Local Government Association

☐Other:

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

☐ Multi-disciplinary HSIP steering committee

☒ Other: Other-No changes since last year

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

HSIP staff also request that representatives from local Area Development Districts (ADDs) participate in the process of identifying potential projects through a RSA on local roads.

The Governor's Office of Highway Safety is responsible for development of the Strategic Highway Safety Plan and therefore directly associated with the required correlation between HSIP and SHSP. Efforts have been made to use data-driven analysis to identify emphasis areas of high potential to affect safety. Some of these emphasis areas, primarily "Roadway Departure" and "Intersections" are consistent with the HSIP project selection process.

Program Methodology

Select the programs that are administered under the HSIP.

☒ Median Barrier	☒ Intersection	☐ Safe Corridor
☐ Horizontal Curve	☐ Bicycle Safety	☐ Rural State Highways
☒ Skid Hazard	☐ Crash Data	☐ Red Light Running Prevention
☒ Roadway Departure	☐ Low-Cost Spot Improvements	☒ Sign Replacement And Improvement
☐ Local Safety	☐ Pedestrian Safety	☐ Right Angle Crash
☐ Left Turn Crash	☐ Shoulder Improvement	☐ Segments
☐ Other:		

Program: **Median Barrier**

Date of Program Methodology: **7/1/2011**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
☒ All crashes	☐ Traffic	☒ Median width
☐ Fatal crashes only	☒ Volume	☐ Horizontal curvature
☒ Fatal and serious injury crashes only	☐ Population	☒ Functional classification
☐ Other	☐ Lane miles	☒ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☒ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☒ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☒ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☐ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☒ selection committee

☐ Other

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

☐ Relative Weight in Scoring

☒ Rank of Priority Consideration

☐ Ranking based on B/C

☒ Available funding 2

☐ Incremental B/C

☒ Ranking based on net benefit 1

☐ Cost Effectiveness

Program: **Intersection**

Date of Program Methodology: **9/1/2012**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
☒ All crashes	☒ Traffic	☐ Median width
☐ Fatal crashes only	☒ Volume	☐ Horizontal curvature
☒ Fatal and serious injury crashes only	☐ Population	☒ Functional classification
☐ Other	☐ Lane miles	☐ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☒ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☐ Yes

☒ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☐ selection committee

☒ Other-Prioritized list

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

☐ Relative Weight in Scoring

☒ Rank of Priority Consideration

☐ Ranking based on B/C

☒ Available funding 2

☐ Incremental B/C

☒ Ranking based on net benefit 1

☐ Cost Effectiveness

Program: **Skid Hazard**

Date of Program Methodology: **3/1/2011**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
☒ All crashes	☐ Traffic	☐ Median width
☐ Fatal crashes only	☒ Volume	☒ Horizontal curvature
☒ Fatal and serious injury crashes only	☐ Population	☒ Functional classification
☐ Other	☐ Lane miles	☐ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☐ Crash frequency

☒ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☒ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☐ Yes

☒ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☐ selection committee

☒ Other-Prioritized list based on EB

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

☐ Relative Weight in Scoring

☒ Rank of Priority Consideration

☐ Ranking based on B/C

☒ Available funding 2

☐ Incremental B/C

☒ Ranking based on net benefit 1

☐ Cost Effectiveness

Program: **Roadway Departure**

Date of Program Methodology: **7/1/2011**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
☒ All crashes	☐ Traffic	☐ Median width
☐ Fatal crashes only	☒ Volume	☐ Horizontal curvature
☒ Fatal and serious injury crashes only	☐ Population	☒ Functional classification
☐ Other	☐ Lane miles	☐ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☒ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☒ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☒ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☐ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☐ selection committee

☒ Other-Prioritized list

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

☐ Relative Weight in Scoring

☒ Rank of Priority Consideration

☐ Ranking based on B/C

☒ Available funding 2

☐ Incremental B/C

☒ Ranking based on net benefit 1

☐ Cost Effectiveness

Program: **Sign Replacement And Improvement**

Date of Program Methodology: **7/1/2011**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
☒ All crashes	☐ Traffic	☐ Median width
☐ Fatal crashes only	☒ Volume	☒ Horizontal curvature
☐ Fatal and serious injury crashes only	☐ Population	☒ Functional classification
☐ Other	☐ Lane miles	☐ Roadside features
	☐ Other	☐ Other

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☒ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☐ selection committee

☒ Other-Prioritized list

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

☐ Relative Weight in Scoring

☒ Rank of Priority Consideration

- ☐ Ranking based on B/C
- ☒ Available funding 2
- ☐ Incremental B/C
- ☒ Ranking based on net benefit 1
- ☐ Cost Effectiveness

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

50

Highway safety improvment program funds are used to address which of the following systemic improvments?

- ☒ Cable Median Barriers
- ☐ Traffic Control Device Rehabilitation
- ☐ Install/Improve Signing
- ☒ Upgrade Guard Rails
- ☒ Safety Edge
- ☐ Add/Upgrade/Modify/Remove Traffic Signal
- ☒ Rumble Strips
- ☐ Pavement/Shoulder Widening
- ☒ Install/Improve Pavement Marking and/or Delineation
- ☒ Clear Zone Improvements
- ☐ Install/Improve Lighting
- ☐ Other

What process is used to identify potential countermeasures?

☒ Engineering Study

☒ Road Safety Assessment

☐ Other:

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

☒ Highway Safety Manual

☐ Road Safety audits

☐ Systemic Approach

☐ Other:

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

No additional comments.

Progress in Implementing Projects

Funds Programmed

Reporting period for Highway Safety Improvement Program funding.

☐ Calendar Year

☒ State Fiscal Year

☐ Federal Fiscal Year

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

Funding Category	Programmed*		Obligated	
HSIP (Section 148)	25205000	24 %	25205000	24 %
HRRRP (SAFETEA-LU)	4375000	4 %	4375000	4 %
HRRR Special Rule				
Penalty Transfer - Section 154				
Penalty Transfer – Section 164				
Incentive Grants - Section 163				
Incentive Grants (Section 406)				
Other Federal-aid Funds (i.e. STP, NHPP)	22896000	22 %	22896000	22 %
State and Local Funds	53009000	50 %	53009000	50 %
Totals	105485000	100%	105485000	100%

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

$2,047,000.00

How much funding is obligated to local safety projects?

$2,047,000.00

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

$858,515.00

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

$858,515.00

How much funding was transferred in to the HSIP from other core program areas during the reporting period?

$0.00

How much funding was transferred out of the HSIP to other core program areas during the reporting period?

$0.00

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

MAP-21 was enacted in 2012. With MAP-21 came new guidance, requirements and additional funding. The Kentucky Transportation Cabinet utilized Kentucky's Strategic Highway Safety Plan to draft a Highway Safety Improvement Program Investment Plan to guide Transportation Safety obligations and spending. Once the Investment Plan was completed and shared with the FHWA Kentucky Division Kentucky moved forward with the implementation of the plan which includes emphasis areas for the obligation of HSIP funding for upcoming fiscal years and also to program and invest unobligated funds from previous fiscal years. For the past several years Kentucky has strived to put a program in place to fully implement programmed HSIP improvements through the federal procurement process instead of relying upon force account work to complete improvements. This came with several challenges including the amount of time it takes to put together a project for safety improvements that includes all of the federal requirements for advertised bid letting as well as the planning and coordination required to get projects included in KYTC's Highway Plan for both internal communication and communication with the FHWA Kentucky Division.

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

No additional comments.

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
021 KY 36 MP 8.2-8.5	Intersection geometry Auxiliary lanes - add two-way left-turn lane	0.30 Miles	48000	48000	HSIP (Section 148)	Rural Minor Arterial	16793	55	State Highway Agency	Improving the design and operation of highway intersections	Intersection access improvements
002 US 31E MP 0-19.152	Roadside Barrier end treatments (crash cushions, terminals)	19.152 Miles	1000000	1000000	HSIP (Section 148)	Rural Minor Collector	4612	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas
005 US 68 MP 3.971-3.971	Intersection geometry Intersection geometrics - miscellaneous/other/un	0 Miles	110000	110000	HSIP (Section 148)	Rural Major Collector	3406	55	State Highway Agency	Improving the design and operation of	Intersection access improvements

	specified									highway intersections	
007 US 25E MP 0-18.651	Roadside Barrier end treatments (crash cushions, terminals)	18.651 Miles	250000	250000	HSIP (Section 148)	Rural Principal Arterial - Other	18583	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas
010 US 23 MP 10.895-20.938	Roadside Barrier end treatments (crash cushions, terminals)	10.043 Miles	317000	317000	HSIP (Section 148)	Urban Principal Arterial - Other	19790	45	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas
019 Various	Roadway signs and traffic control Curve-related warning signs and flashers	0 Miles	30000	30000	HSIP (Section 148)	State Highway Agency	0	0	State Highway Agency	Keeping vehicles in the roadway	Reduce roadway departure crashes
022 KY 1947 MP 0-3.398	Roadside Drainage improvements	3.398 Miles	289000	289000	HSIP (Section 148)	Rural Minor Collector	2056	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas

024 I-24 MP 70.55-86.05	Roadside Barrier - cable	15.5 Miles	1950000	1950000	HSIP (Section 148)	Rural Principal Arterial - Interstate	28323	70	State Highway Agency	Reducing head-on and across-median crashes	Reduce roadway departure crashes
027 US 127 MP 11-20.967	Roadside Barrier end treatments (crash cushions, terminals)	9.967 Miles	522000	522000	HSIP (Section 148)	Rural Principal Arterial - Other	1871	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas
029 KY 61 MP 0-12.869	Roadway Rumble strips - edge or shoulder	12.869 Miles	203000	203000	HSIP (Section 148)	Rural Minor Arterial	1998	55	State Highway Agency	Keeping vehicles in the roadway	Reduce roadway departure crashes
034 US 60 MP 6.975-6.975	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	1 Numbers	120000	120000	HSIP (Section 148)	Urban Principal Arterial - Other	23979	40	State Highway Agency	Improving the design and operation of highway intersections	Intersection access improvements
036 KY 979 MP 0-	Roadway Roadway - other	15.43 Miles	250000	250000	HSIP (Sectio	Rural Major	1883	55	State Highway	Keeping vehicles in the	Roadway other

15.43					n 148)	Collector			Agency	roadway	
037 US 127 MP 11-11.9	Roadway delineation Improve retroreflectivity	0.9 Miles	100000	100000	HSIP (Section 148)	Urban Minor Arterial	9128	55	State Highway Agency	Keeping vehicles in the roadway	Reduce roadway departure crashes
037 KY 420 MP 0-2.145	Roadway Roadway - other	2.145 Miles	800000	800000	HSIP (Section 148)	Rural Minor Collector	4774	45	State Highway Agency	Minimizing the consequences of leaving the road	Reduce roadway departure crashes
037 KY 151 MP 1.8-2.2	Intersection geometry Auxiliary lanes - add left-turn lane	0.4 Miles	69600	69600	HSIP (Section 148)	Rural Minor Arterial	5088	55	State Highway Agency	Improving the design and operation of highway intersections	Roadway other
045 US 23 MP 0-28.76	Roadside Barrier end treatments (crash cushions, terminals)	28.76 Miles	565000	565000	HSIP (Section 148)	Rural Principal Arterial - Other	12577	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas

051 KY 351 MP 4.7-5.432	Alignment Horizontal and vertical alignment	0.732 Miles	295000	295000	HSIP (Section 148)	Rural Major Collector	3259	55	State Highway Agency	Minimizing the consequences of leaving the road	Reduce roadway departure crashes
056 KY 2860 MP 0-0.981	Roadway Roadway narrowing (road diet, roadway reconfiguration)	0.981 Miles	287903	287903	HSIP (Section 148)	Urban Minor Arterial	14431	35	State Highway Agency	Other	Roadway other
059 KY 1501 MP 0-2.52	Roadway delineation Improve retroreflectivity	2.52 Miles	100000	100000	HSIP (Section 148)	Rural Major Collector	6374	35	State Highway Agency	Keeping vehicles in the roadway	Reduce roadway departure crashes
059 KY 1486 MP 2.59-2.59	Intersection geometry Intersection geometrics - miscellaneous/other/unspecified	1 Numbers	25000	25000	HSIP (Section 148)	Rural Major Collector	2039	45	State Highway Agency	Improving the design and operation of highway intersections	Intersection access improvements
061 US 25E MP 2-26	Roadside Barrier end treatments (crash cushions, terminals)	24 Miles	550000	550000	HSIP (Section 148)	Rural Principal Arterial - Other	15805	55	State Highway Agency	Minimizing the consequences of leaving	Reduce roadway departure crashes

										the road	
067 KY 931 MP 5.7-6.6	Roadside Removal of roadside objects (trees, poles, etc.)	0.899999999999999 Miles	85000	85000	HSIP (Section 148)	Rural Major Collector	1797	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas
069 KY 78 MP 8.2-8.65	Alignment Alignment - other	0.450000000000001 Miles	1184000	1184000	HSIP (Section 148)	Rural Major Collector	1876	55	State Highway Agency	Minimizing the consequences of leaving the road	Roadway other
069 KY 1194 MP 3.3-6.6	Roadside Removal of roadside objects (trees, poles, etc.)	3.3 Miles	52500	52500	HSIP (Section 148)	Rural Minor Collector	731	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas
069 KY 1273 MP 0-2.5	Roadside Removal of roadside objects (trees, poles, etc.)	2.5 Miles	35500	35500	HSIP (Section 148)	Rural Minor Collector	1555	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas

071 KY 100 MP 0-9.077	Roadside Removal of roadside objects (trees, poles, etc.)	9.077 Miles	150000	150000	HSIP (Section 148)	Rural Minor Arterial	2201	55	State Highway Agency	Minimizing the consequences of leaving the road	Reduce roadway departure crashes
071 US 68X MP 1.2-1.8	Roadside Drainage improvements	0.6 Miles	389322	389322	HSIP (Section 148)	Urban Minor Arterial	8569	35	State Highway Agency	Minimizing the consequences of leaving the road	Roadway other
074 US 27 MP 0-9.093	Roadside Barrier end treatments (crash cushions, terminals)	9.093 Miles	600000	600000	HSIP (Section 148)	Rural Principal Arterial - Other	8760	55	State Highway Agency	Minimizing the consequences of leaving the road	Reduce roadway departure crashes
081 KY 3170 MP 0-1.297	Roadside Barrier end treatments (crash cushions, terminals)	1.297 Miles	209387	209387	HSIP (Section 148)	Rural Local Road or Street	332	45	State Highway Agency	Minimizing the consequences of leaving the road	Reduce roadway departure crashes
082 KY 710 MP 0-	Roadway Roadway - other	7.066 Miles	250000	250000	HSIP (Sectio	Rural Minor	1005	55	State Highway	Keeping vehicles in the	Roadway other

7.066					n 148)	Collector			Agency	roadway	
082 US 31W MP 2.524-3.389	Roadside Barrier end treatments (crash cushions, terminals)	0.865 Miles	250000	250000	HSIP (Section 148)	Rural Principal Arterial - Other	18566	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas
088 KY 7 MP 3.65-3.84	Roadway Pavement surface - miscellaneous	0.19 Miles	50000	50000	HSIP (Section 148)	Rural Minor Arterial	1566	55	State Highway Agency	Keeping vehicles in the roadway	Reduce roadway departure crashes
088 KY 519 MP 1.28-1.57	Roadway Pavement surface - miscellaneous	0.29 Miles	105000	105000	HSIP (Section 148)	Rural Minor Arterial	3707	55	State Highway Agency	Keeping vehicles in the roadway	Reduce roadway departure crashes
089 US 431 MP 23-23.3	Roadside Drainage improvements	0.300000000000001 Miles	1384752	1384752	HSIP (Section 148)	Rural Minor Arterial	4476	55	State Highway Agency	Minimizing the consequences of leaving the road	Roadway other
090 US 31E MP 25.8-	Roadway delineation Improve retroreflectivity	1.3 Miles	100000	100000	HSIP (Section 148)	Rural Minor Arterial	6086	55	State Highway	Keeping vehicles in the	Reduce roadway departure

27.1									Agency	roadway	crashes
095 KY 30 MP 15.496-19.599	Shoulder treatments Widen shoulder - paved or other	4.103 Miles	1050000	1050000	HSIP (Section 148)	Rural Major Collector	785	55	State Highway Agency	Minimizing the consequences of leaving the road	Reduce roadway departure crashes
098 KY 319 MP 3.2-4.25	Roadside Removal of roadside objects (trees, poles, etc.)	1.05 Miles	45000	45000	HSIP (Section 148)	Rural Major Collector	4706	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas
100 KY 461 MP 0-8.441	Roadside Barrier end treatments (crash cushions, terminals)	8.441 Miles	302000	302000	HSIP (Section 148)	Rural Principal Arterial - Other	7158	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas
104 US 127 MP 0-19	Roadside Barrier end treatments (crash cushions, terminals)	19 Miles	365000	365000	HSIP (Section 148)	Rural Principal Arterial - Other	4614	55	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas

114 KY 234 MP 12-13.5	Roadway delineation Improve retroreflectivity	1.5 Miles	100000	100000	HSIP (Section 148)	Urban Minor Arterial	17313	35	State Highway Agency	Keeping vehicles in the roadway	Reduce roadway departure crashes
Technical Assistance	Non-infrastructure Transportation safety planning	0 Miles	400000	400000	HSIP (Section 148)	State Highway Agency	0	0	State Highway Agency	Improving information and decision support systems	Improve traffic records
Technical Assistance	Non-infrastructure Transportation safety planning	0 Miles	75000	75000	HSIP (Section 148)	State Highway Agency	0	0	State Highway Agency	Improving information and decision support systems	Improve traffic records
Sign Training Program	Non-infrastructure Educational efforts	0 Miles	29515	29515	HSIP (Section 148)	State Highway Agency	0	0	State Highway Agency	Keeping vehicles in the roadway	Reduce roadway departure crashes
FE06 Matching Funds	Miscellaneous	0 Miles	414794	414794	HSIP (Section 148)	State Highway Agency	0	0	State Highway Agency	Keeping vehicles in the roadway	Roadway other

Statewide	Roadway Pavement surface - high friction surface	0 Miles	2145000	2145000	HSIP (Section 148)	State Highway Agency	0	0	State Highway Agency	Keeping vehicles in the roadway	Reduce roadway departure crashes
Statewide	Roadway signs and traffic control Sign sheeting - upgrade or replacement	0 Miles	500000	500000	HSIP (Section 148)	State Highway Agency	0	0	State Highway Agency	Increasing driver safety awareness	Reduce roadway departure crashes
District 7 Various	Roadside Barrier end treatments (crash cushions, terminals)	0 Miles	907850	907850	HSIP (Section 148)	State Highway Agency	0	0	State Highway Agency	Minimizing the consequences of leaving the road	Improve recovery areas
Safety Circuit Rider	Non-infrastructure Road safety audits	0 Miles	354000	354000	HSIP (Section 148)	State Highway Agency	0	0	State Highway Agency	Improving information and decision support systems	Roadway other

Progress in Achieving Safety Performance Targets

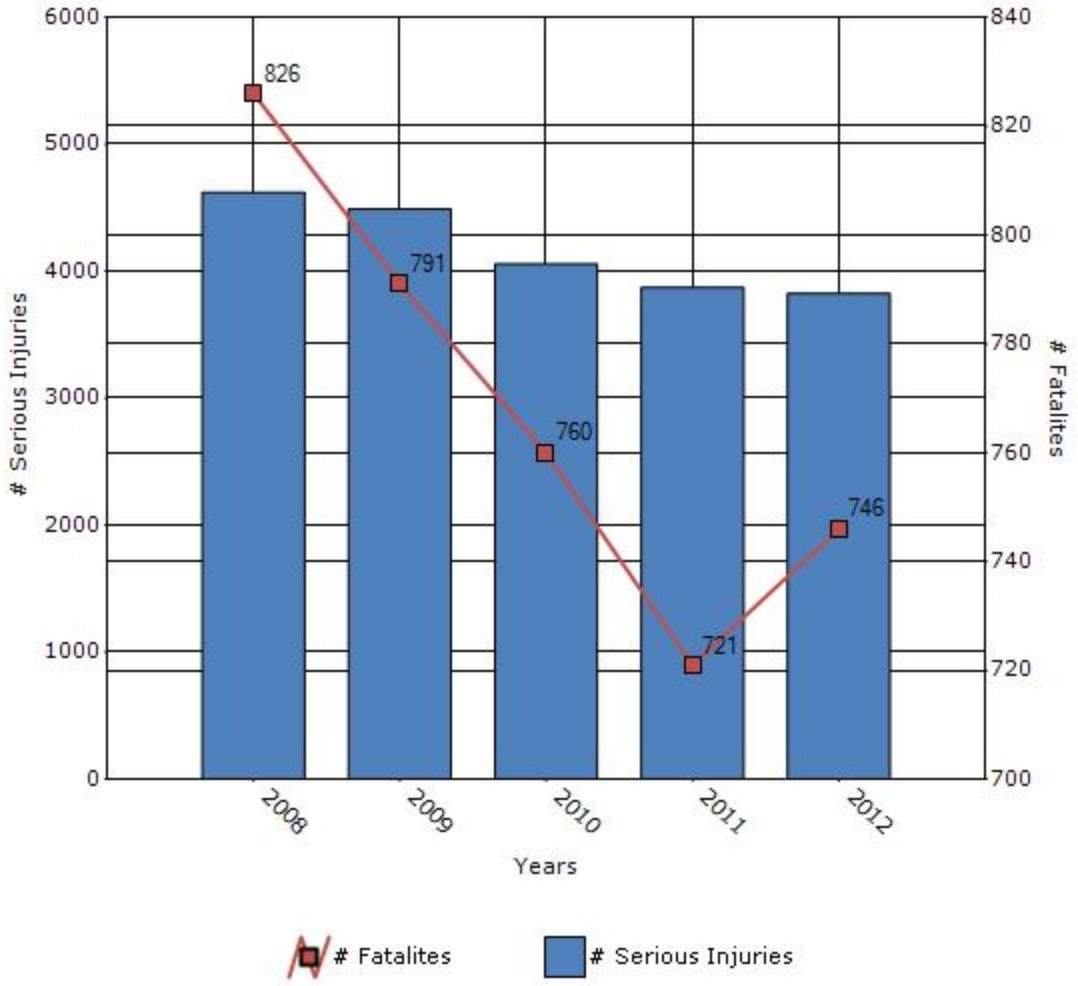
Overview of General Safety Trends

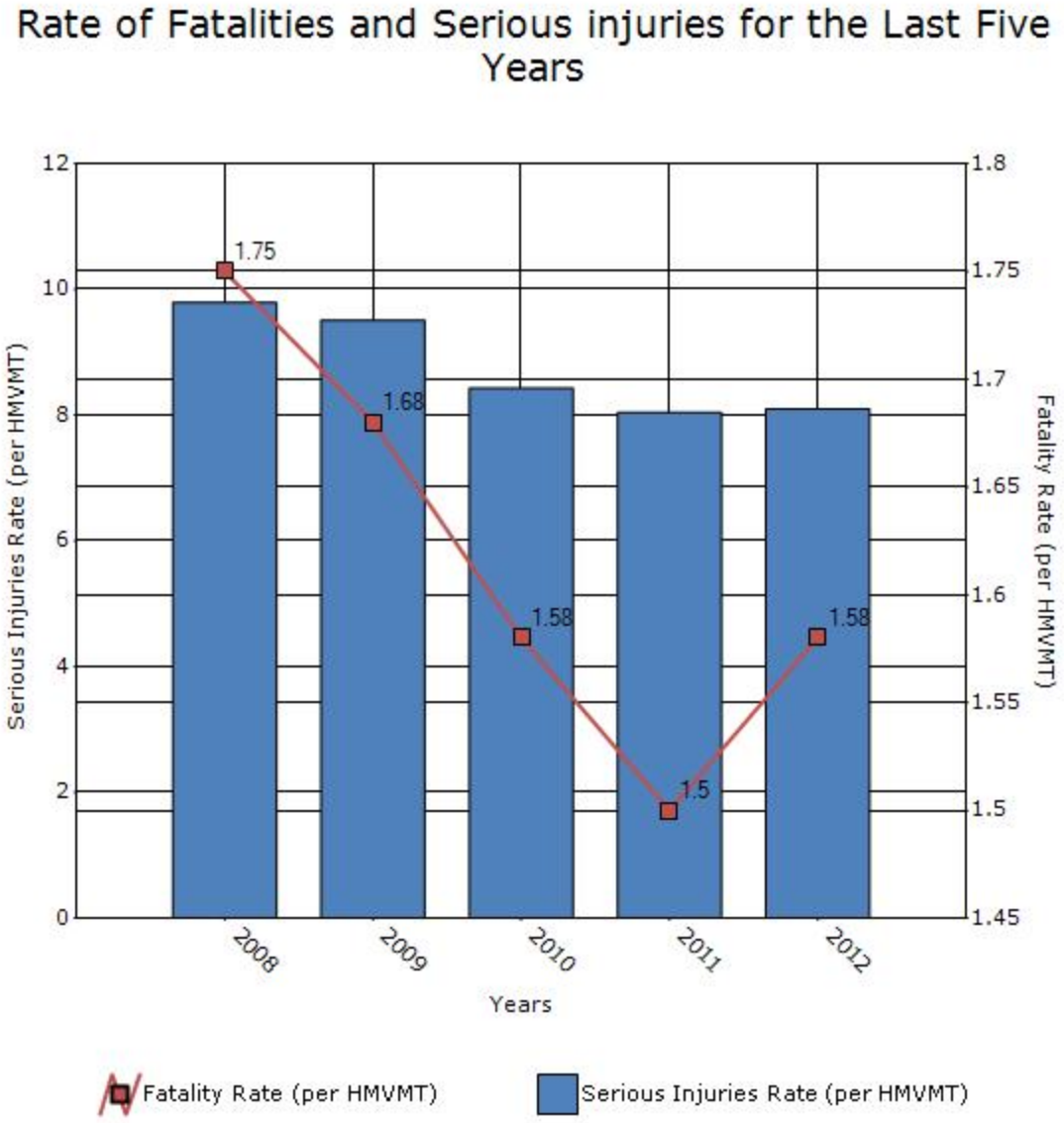
Present data showing the general highway safety trends in the state for the past five years.

Performance Measures*	2008	2009	2010	2011	2012
Number of fatalities	826	791	760	721	746
Number of serious injuries	4620	4491	4057	3873	3825
Fatality rate (per HMVMT)	1.75	1.68	1.58	1.5	1.58
Serious injury rate (per HMVMT)	9.79	9.51	8.43	8.04	8.1

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

Number of Fatalities and Serious injuries for the Last Five Years



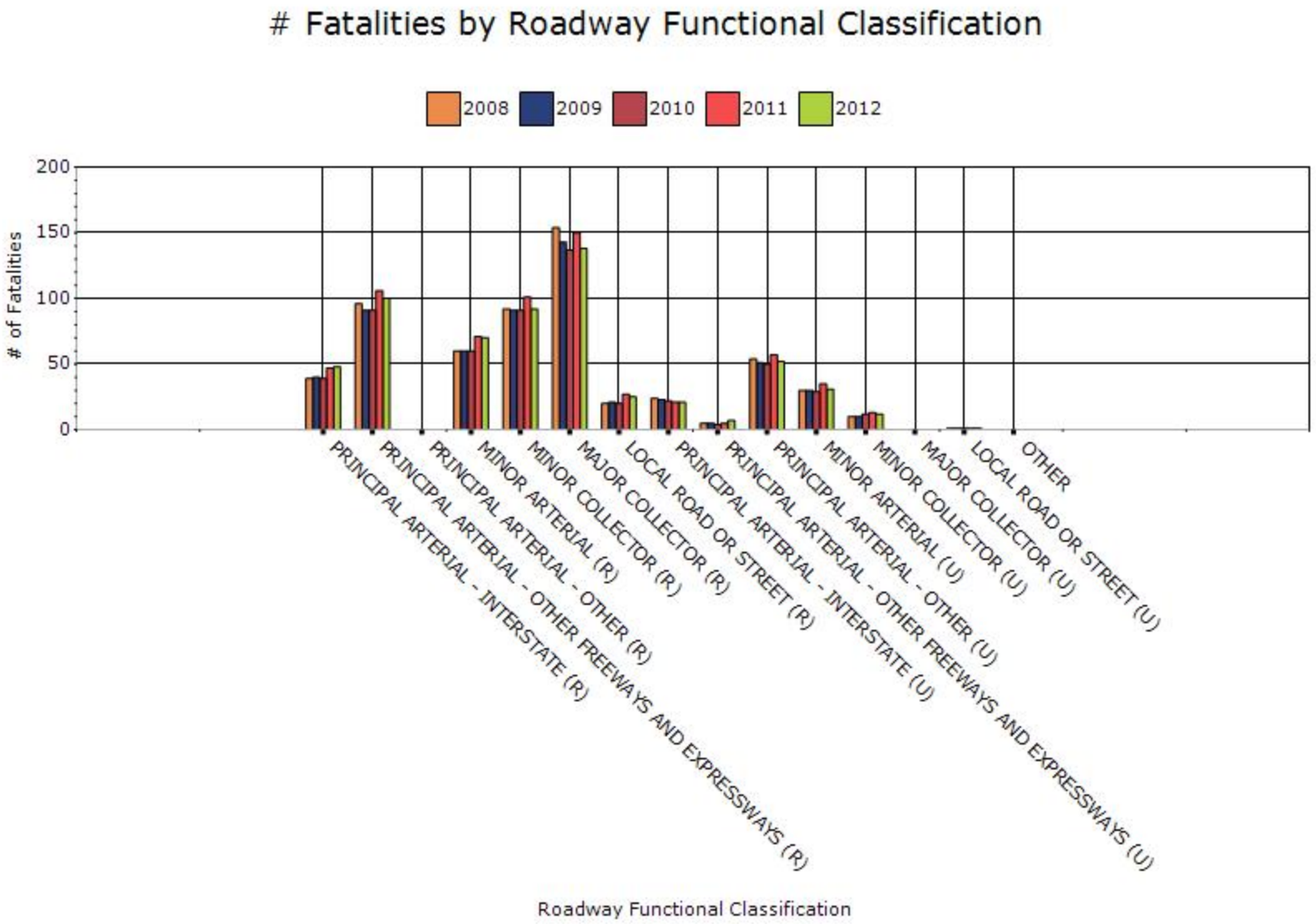

Rate of Fatalities and Serious injuries for the Last Five Years
Serious Injuries Rate (per HMVMT)
Fatality Rate (per HMVMT)
Years
2008
2009
2010
2011
2012
1.75
1.68
1.58
1.5
1.58
Fatality Rate (per HMVMT)
Serious Injuries Rate (per HMVMT)

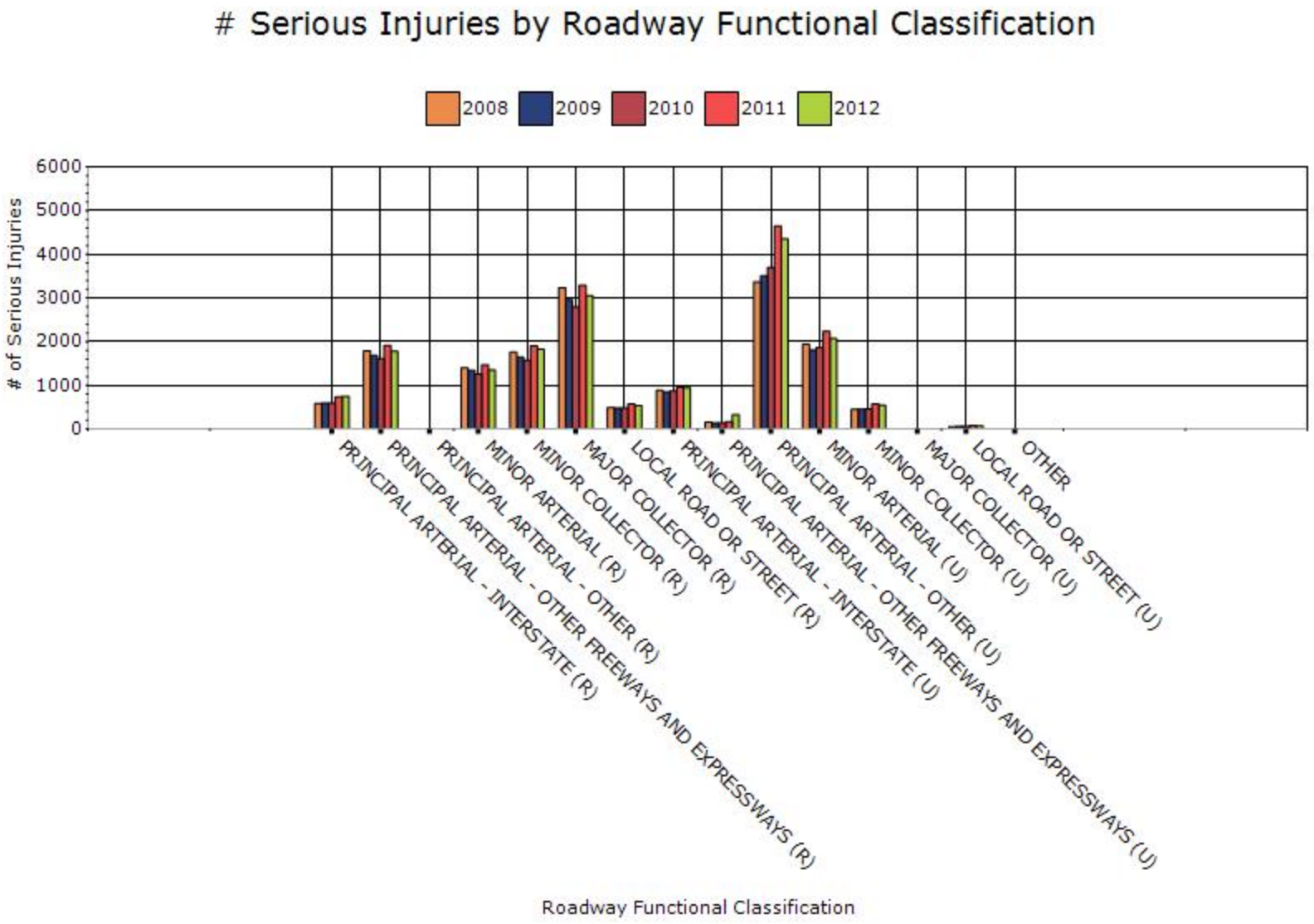
To the maximum extent possible, present performance measure* data by functional classification and ownership.

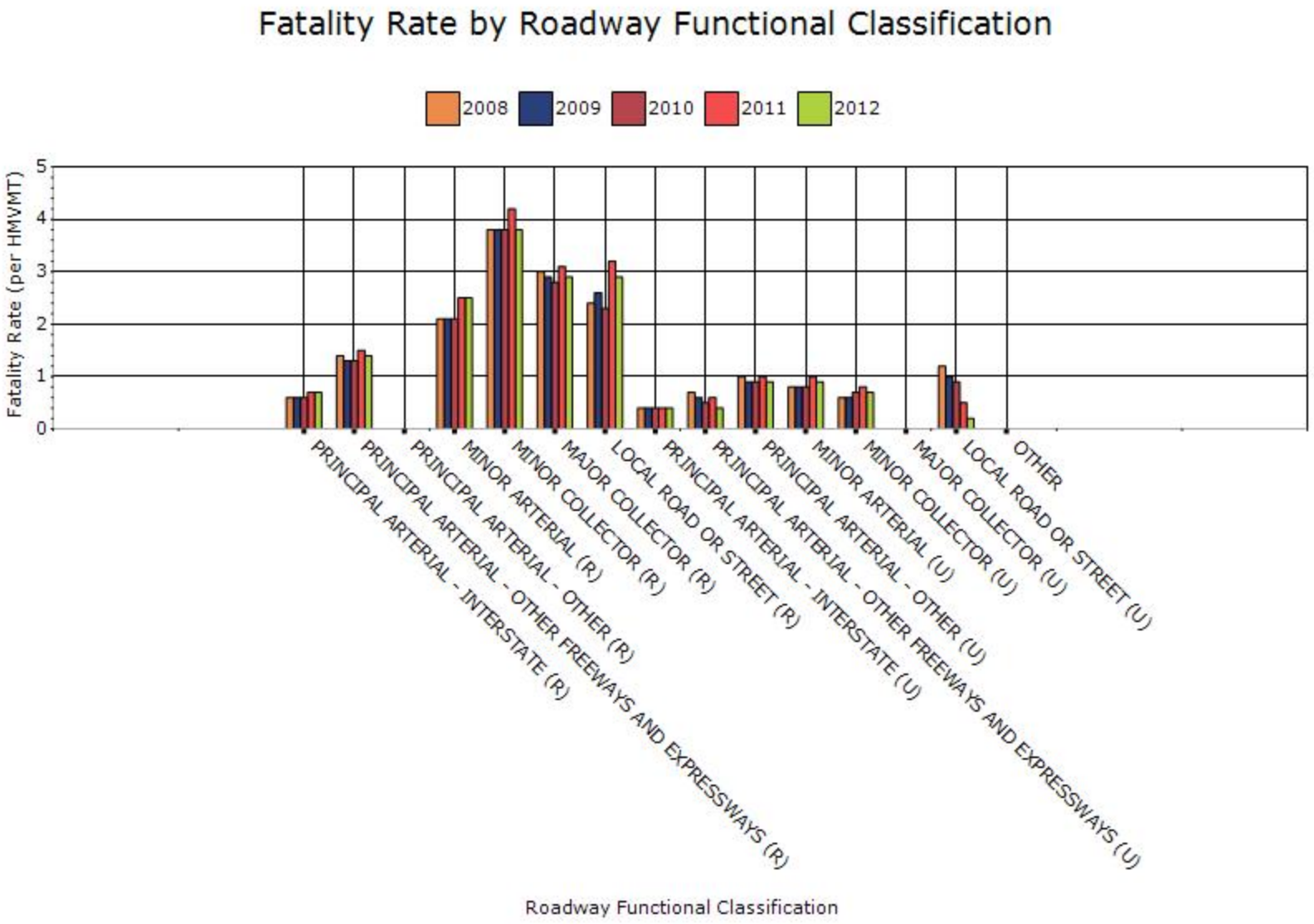
Year - 2012

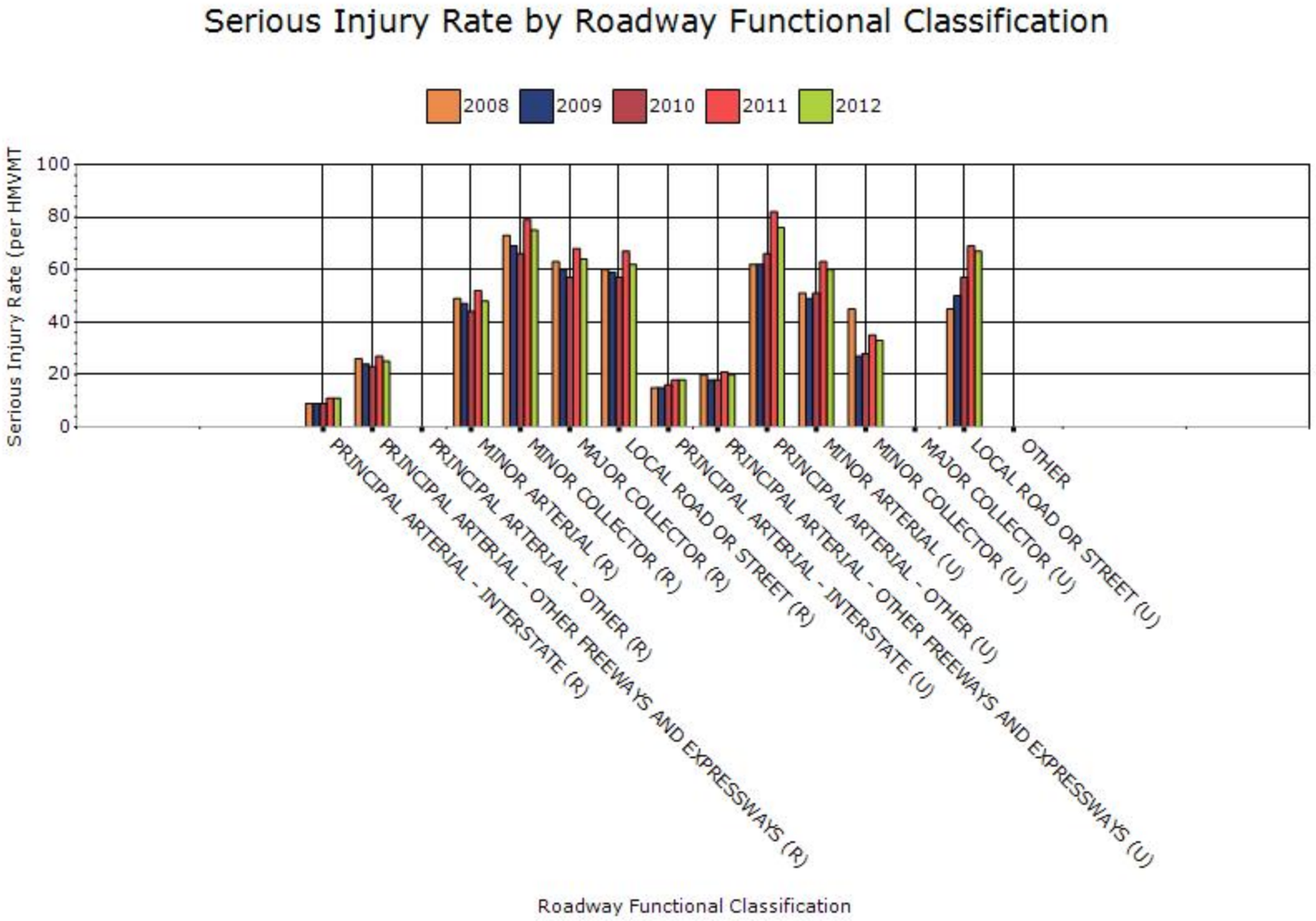
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	48	748	0.7	11
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	100	1781	1.4	25
RURAL PRINCIPAL ARTERIAL - OTHER	0	0	0	0
RURAL MINOR ARTERIAL	70	1353	2.5	48
RURAL MINOR COLLECTOR	92	1824	3.8	75
RURAL MAJOR COLLECTOR	138	3055	2.9	64
RURAL LOCAL ROAD OR STREET	25	540	2.9	62
URBAN PRINCIPAL	21	947	0.4	18

ARTERIAL - INTERSTATE				
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	7	328	0.4	20
URBAN PRINCIPAL ARTERIAL - OTHER	52	4351	0.9	76
URBAN MINOR ARTERIAL	31	2072	0.9	60
URBAN MINOR COLLECTOR	12	546	0.7	33
URBAN MAJOR COLLECTOR	0	0	0	0
URBAN LOCAL ROAD OR STREET	1	73	0.2	67
OTHER	0	0	0	0
OTHER	0	0	0	0


Fatalities by Roadway Functional Classification
2008
2009
2010
2011
2012
# of Fatalities
200
150
100
50
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL ROAD OR STREET (R)
PRINCIPAL ARTERIAL - INTERSTATE (U)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (U)
PRINCIPAL ARTERIAL - OTHER (U)
MINOR ARTERIAL (U)
MINOR COLLECTOR (U)
MAJOR COLLECTOR (U)
LOCAL ROAD OR STREET (U)
OTHER
Roadway Functional Classification


Serious Injuries by Roadway Functional Classification
2008
2009
2010
2011
2012
# of Serious Injuries
6000
5000
4000
3000
2000
1000
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL ROAD OR STREET (R)
PRINCIPAL ARTERIAL - INTERSTATE (U)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (U)
PRINCIPAL ARTERIAL - OTHER (U)
MINOR ARTERIAL (U)
MINOR COLLECTOR (U)
MAJOR COLLECTOR (U)
LOCAL ROAD OR STREET (U)
OTHER
Roadway Functional Classification

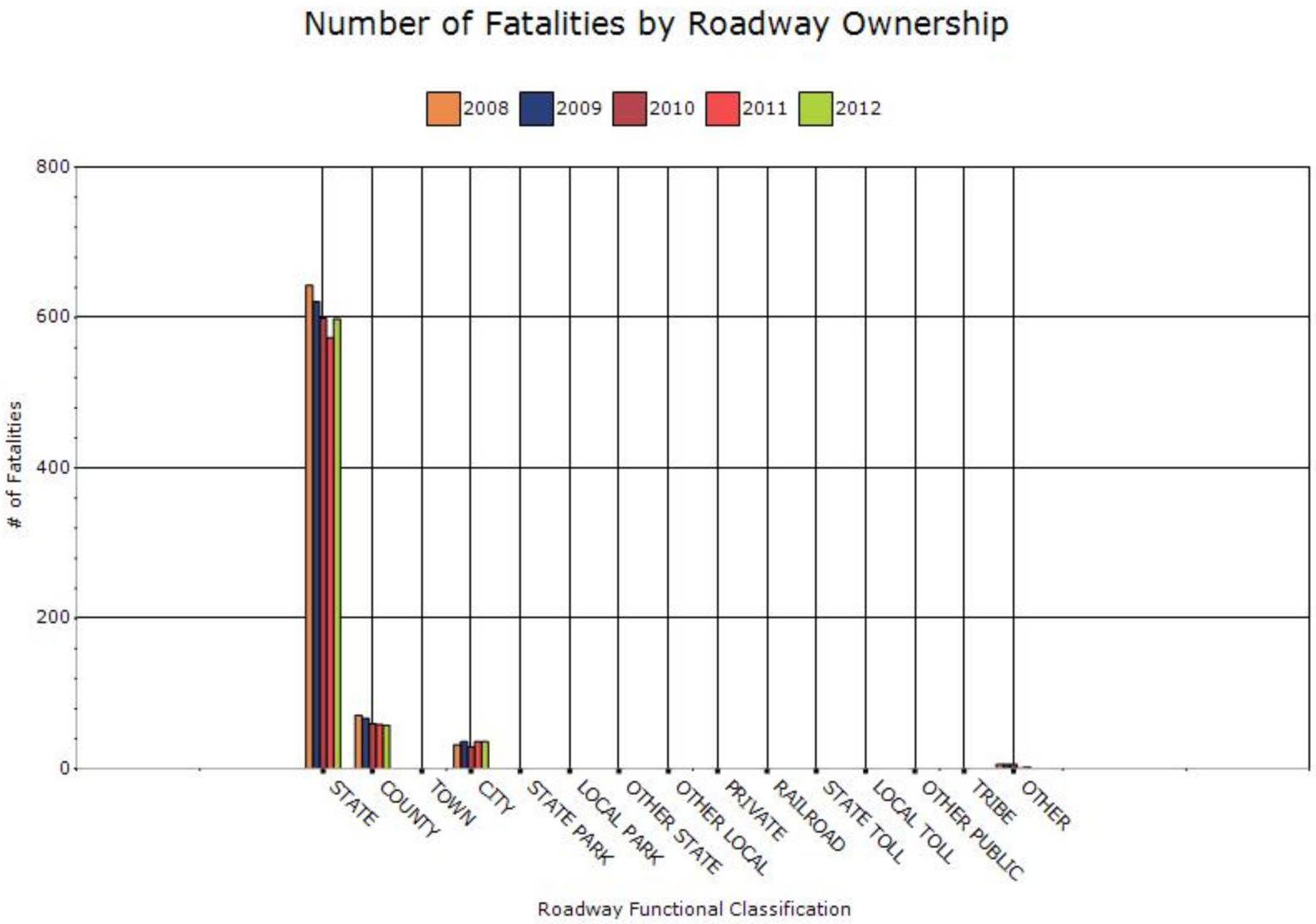

Fatality Rate by Roadway Functional Classification
2008
2009
2010
2011
2012
Fatality Rate (per HMVMT)
0
1
2
3
4
5
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL ROAD OR STREET (R)
PRINCIPAL ARTERIAL - INTERSTATE (U)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (U)
PRINCIPAL ARTERIAL - OTHER (U)
MINOR ARTERIAL (U)
MINOR COLLECTOR (U)
MAJOR COLLECTOR (U)
LOCAL ROAD OR STREET (U)
OTHER
Roadway Functional Classification

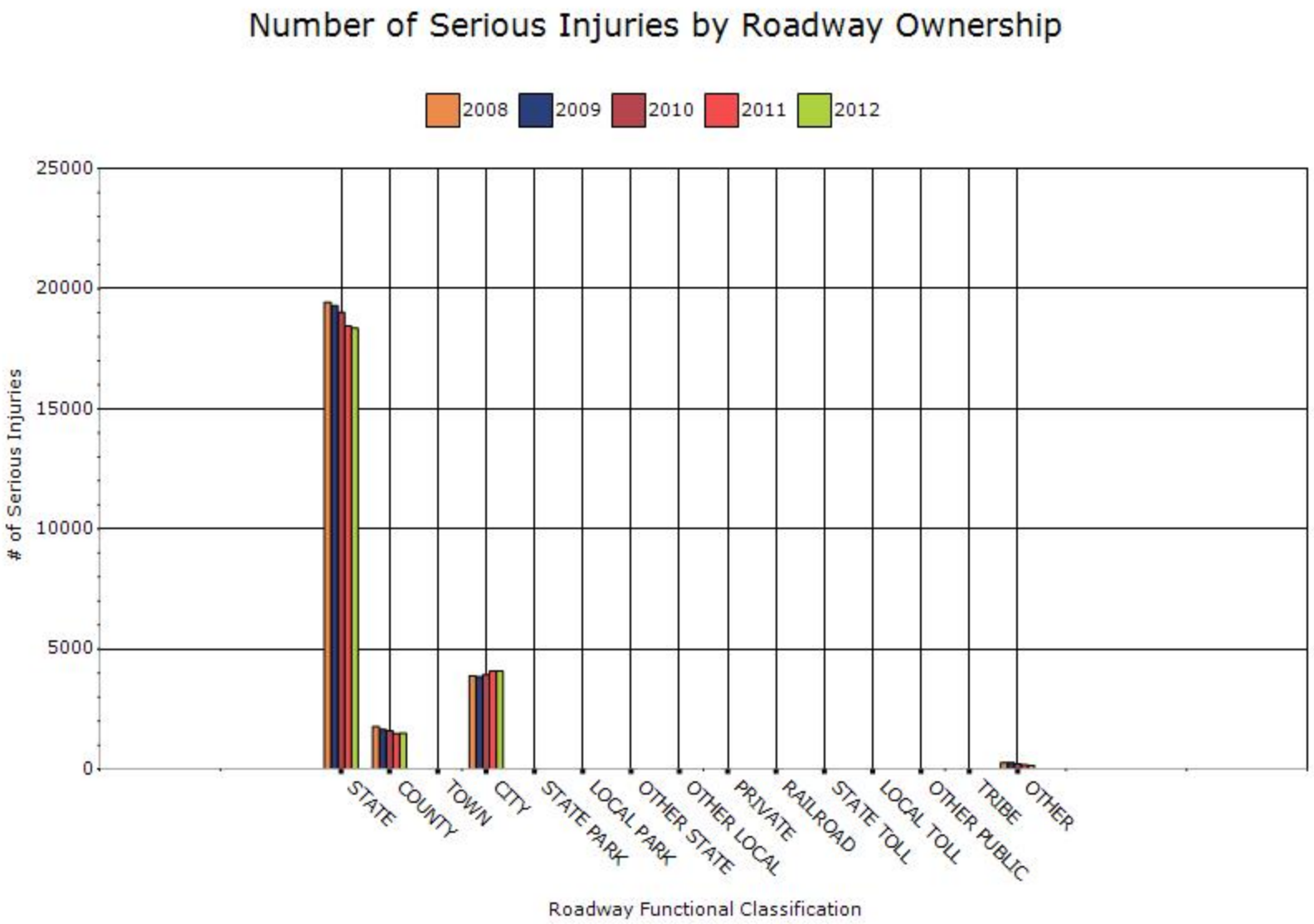

Serious Injury Rate by Roadway Functional Classification
2008
2009
2010
2011
2012
Serious Injury Rate (per HMVMT
100
80
60
40
20
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL ROAD OR STREET (R)
PRINCIPAL ARTERIAL - INTERSTATE (U)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (U)
PRINCIPAL ARTERIAL - OTHER (U)
MINOR ARTERIAL (U)
MINOR COLLECTOR (U)
MAJOR COLLECTOR (U)
LOCAL ROAD OR STREET (U)
OTHER
Roadway Functional Classification

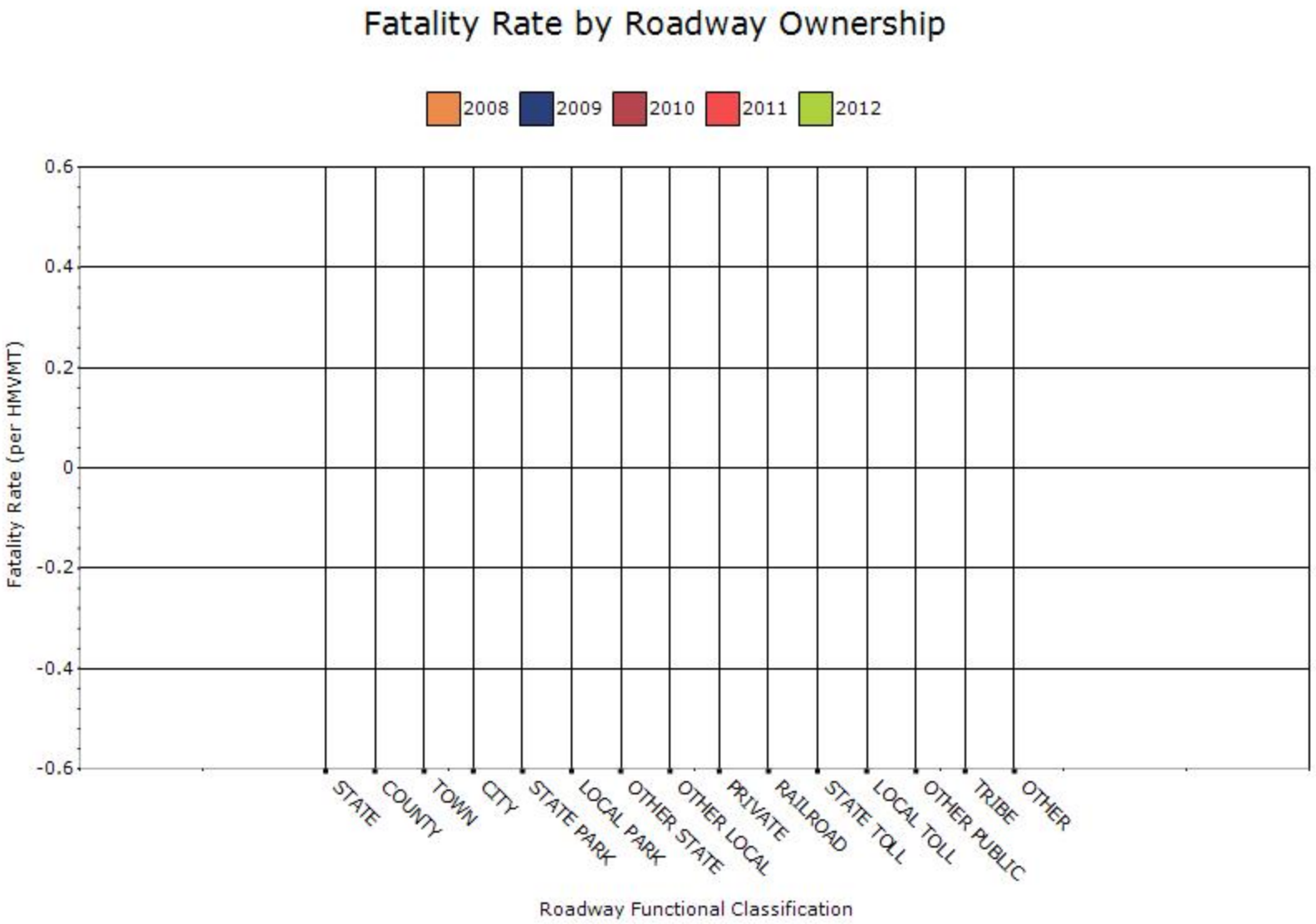
Year - 2012

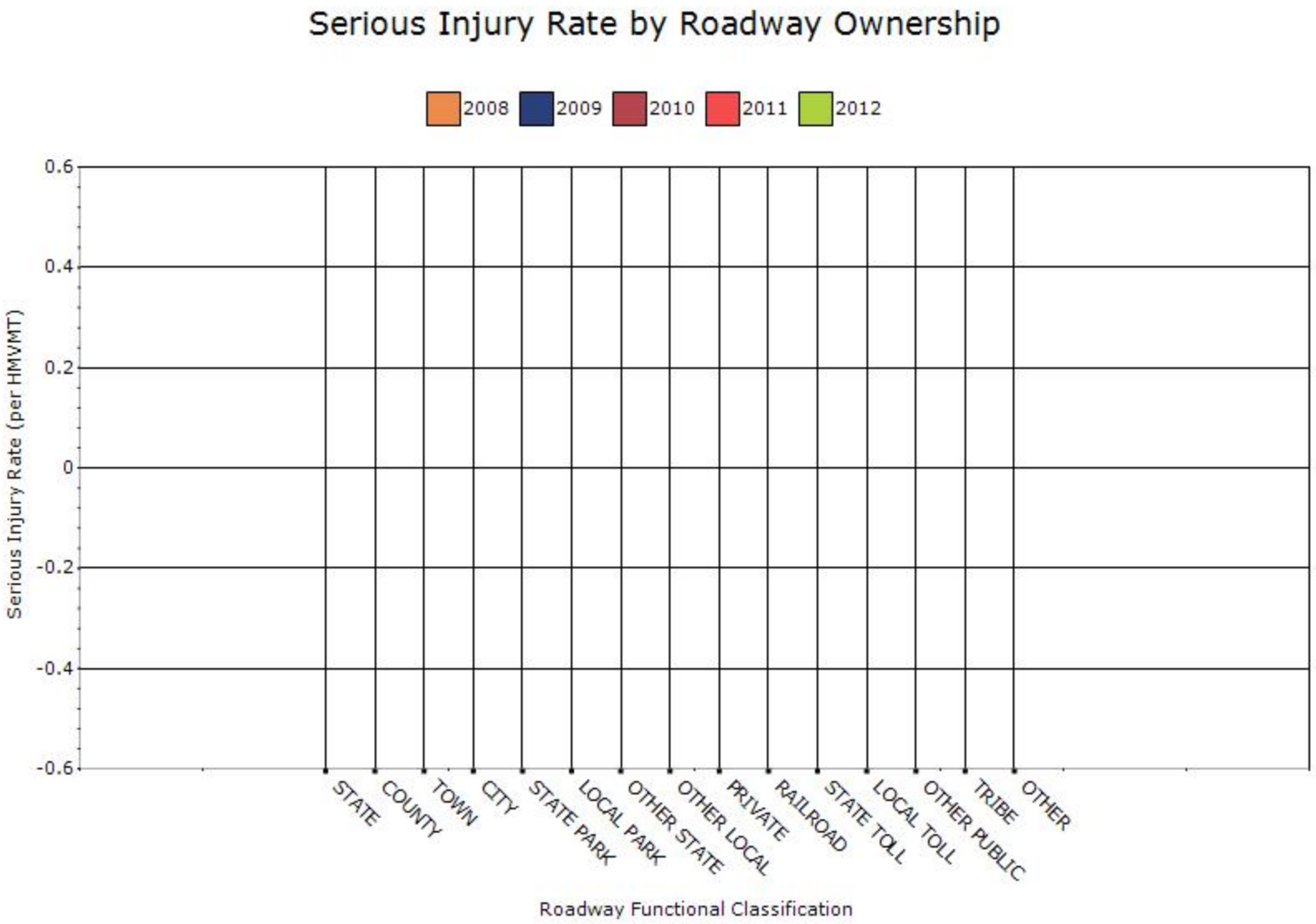
Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	598	18353	0	0
COUNTY HIGHWAY AGENCY	58	1491	0	0
TOWN OR TOWNSHIP HIGHWAY AGENCY	0	0	0	0
CITY OF MUNICIPAL HIGHWAY AGENCY	36	4078	0	0
STATE PARK, FOREST, OR RESERVATION AGENCY	0	0	0	0
LOCAL PARK, FOREST OR RESERVATION AGENCY	0	0	0	0
OTHER STATE AGENCY	0	0	0	0
OTHER LOCAL AGENCY	0	0	0	0
PRIVATE (OTHER THAN RAILROAD)	0	0	0	0

RAILROAD	0	0	0	0
STATE TOLL AUTHORITY	0	0	0	0
LOCAL TOLL AUTHORITY	0	0	0	0
OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, UNIVERSITY)	0	0	0	0
INDIAN TRIBE NATION	0	0	0	0
OTHER	2	155	0	0
OTHER	2	155	0	0


Number of Fatalities by Roadway Ownership
2008
2009
2010
2011
2012
800
600
400
200
0
# of Fatalities
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER PUBLIC
TRIBE
OTHER
Roadway Functional Classification


Number of Serious Injuries by Roadway Ownership
2008
2009
2010
2011
2012
25000
20000
15000
10000
5000
0
# of Serious Injuries
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER PUBLIC
TRIBE
OTHER
Roadway Functional Classification


Fatality Rate by Roadway Ownership
2008
2009
2010
2011
2012
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Fatality Rate (per HMVMT)
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER PUBLIC
TRIBE
OTHER
Roadway Functional Classification


Serious Injury Rate by Roadway Ownership
2008
2009
2010
2011
2012
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Serious Injury Rate (per HMVMT)
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER PUBLIC
TRIBE
OTHER
Roadway Functional Classification

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

Fatal crashes have decreased year to date in CY 2013 as compared to the same period for CY 2012.

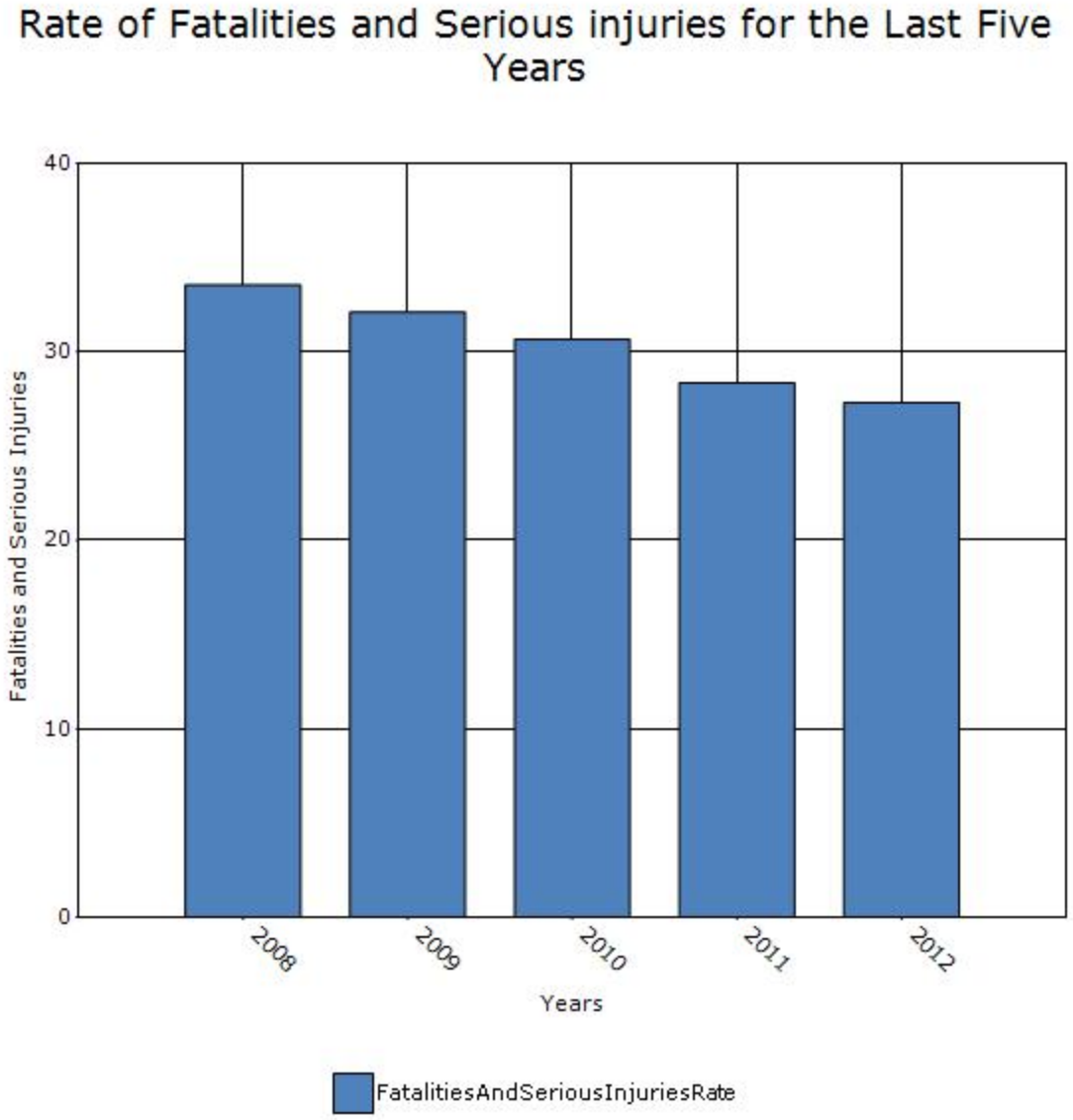
Application of Special Rules

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

Older Driver Performance Measures	**2008**	**2009**	**2010**	**2011**	**2012**
Fatality rate (per capita)	6.14	6.1	5.82	5.35	5.21
Serious injury rate (per capita)	27.41	26.01	24.85	23	22.1
Fatality and serious injury rate (per capita)	33.55	32.11	30.67	28.36	27.31

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

Averages calculated based on MAP-21, Section 142 guidance. Results when comparing the 5-year rolling averages ending in CY 2009 with CY 2011indicate a decrease in all three performance measures when data is rounded to the tenths.



Does the older driver special rule apply to your state?

No

Assessment of the Effectiveness of the Improvements (Program Evaluation)

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

☐ None

☒ Benefit/cost

☐ Policy change

☐ Other:

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

☐ Shift Focus to Fatalities and Serious Injuries

☐ Include Local Roads in Highway Safety Improvement Program

☐ Organizational Changes

☐ None

☒ Other: Other-Creation of KYTC HSIP Investment Plan

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

In May of 2013 the KYTC HSIP Investment Plan was approved by KYTC Leadership and shared with the FHWA Kentucky Division. The plan includes the history of KYTC's activities in the HSIP with information about the methodology, implementation, and benefits of each of the emphasis areas stemming from the Kentucky Strategic Highway Safety Plan including Roadway Departure and Intersections. Inside each of the emphasis areas are initiatives to accomplish significant reductions in traffic fatalities and serious injuries on public roads including high friction surface treatments, horizontal alignment signing, installation of cable barriers, markings and delineation, systematic intersection improvements and targeted intersection improvements based on prior safety performance. The plan clearly communicates how HSIP funds are to be programmed and invested in the upcoming years.

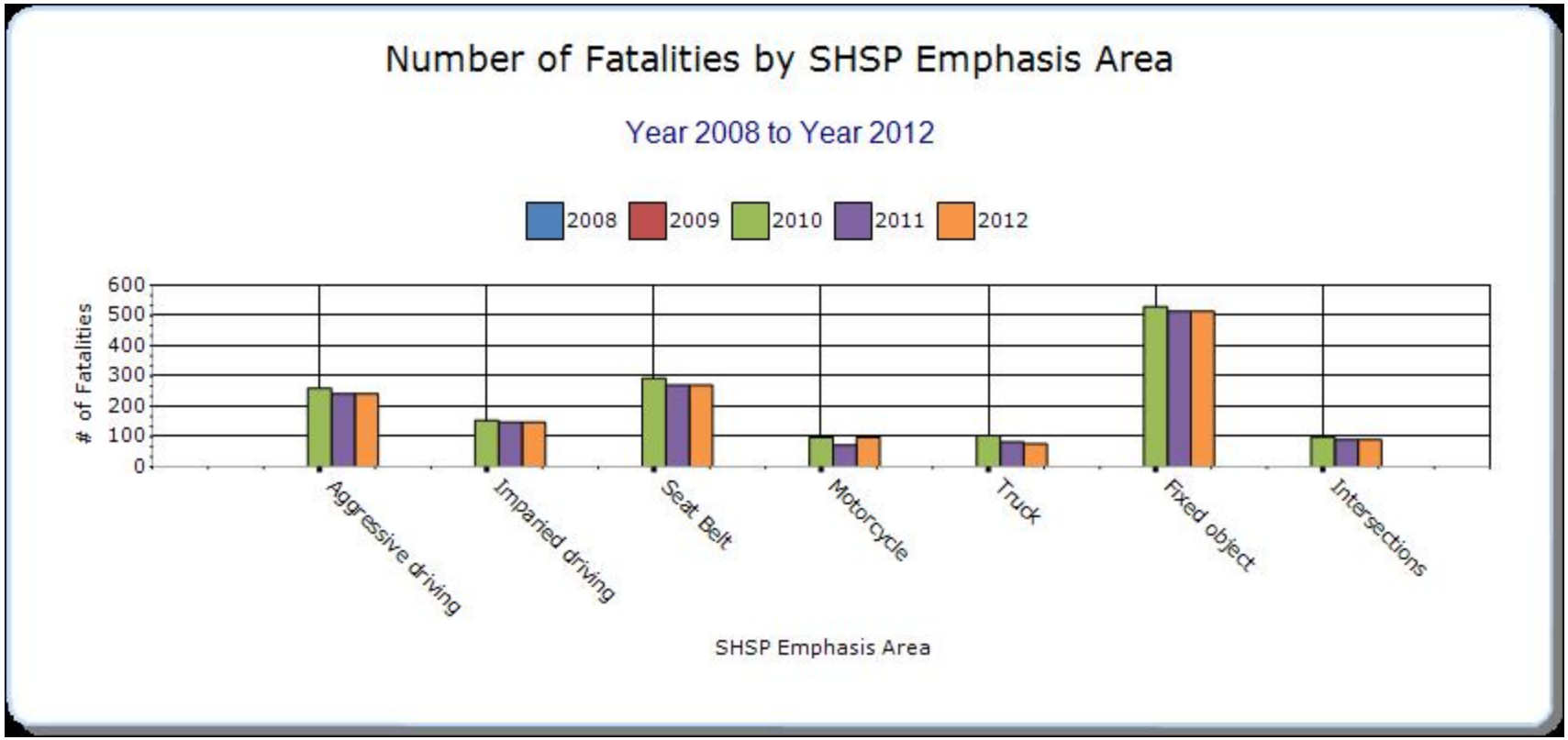
SHSP Emphasis Areas

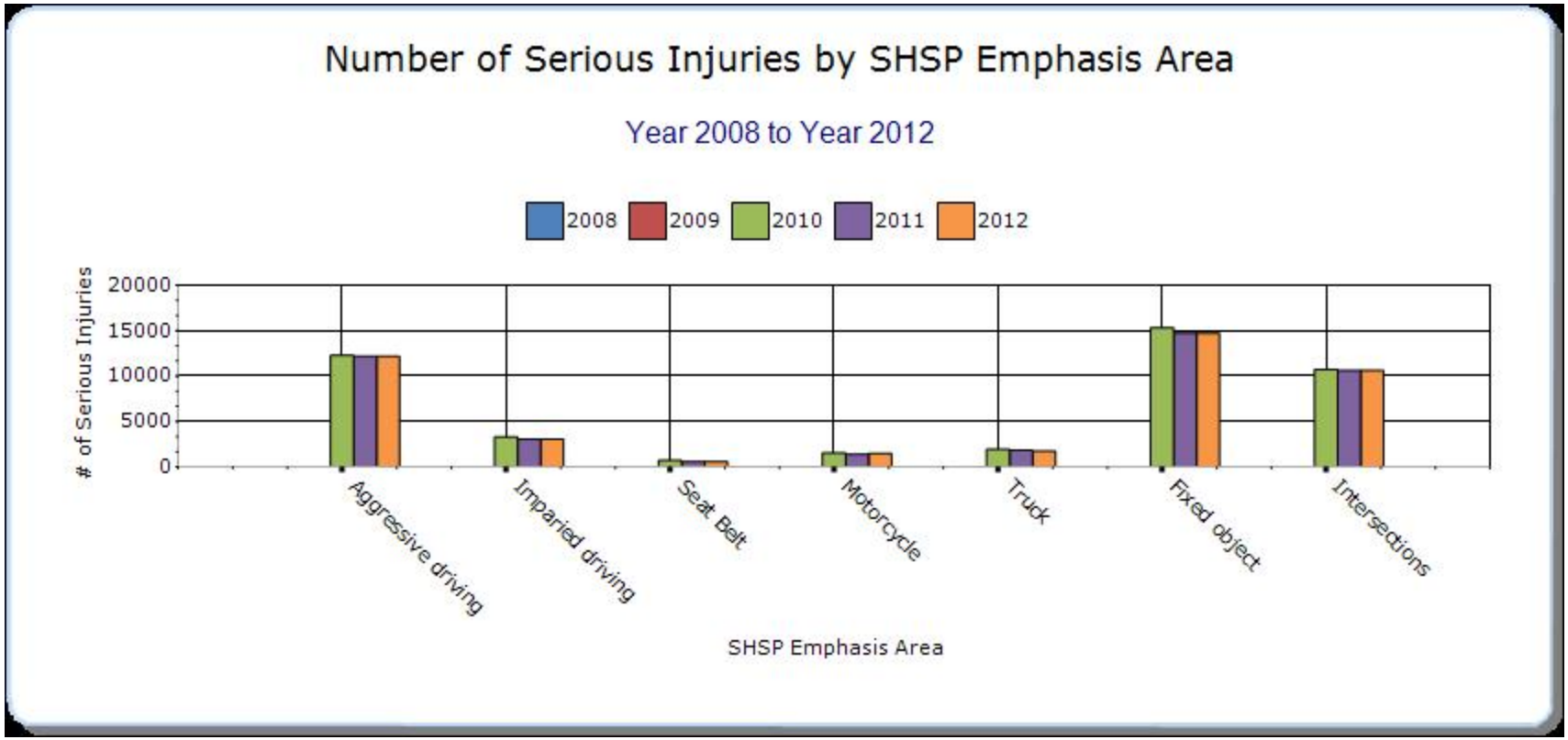
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

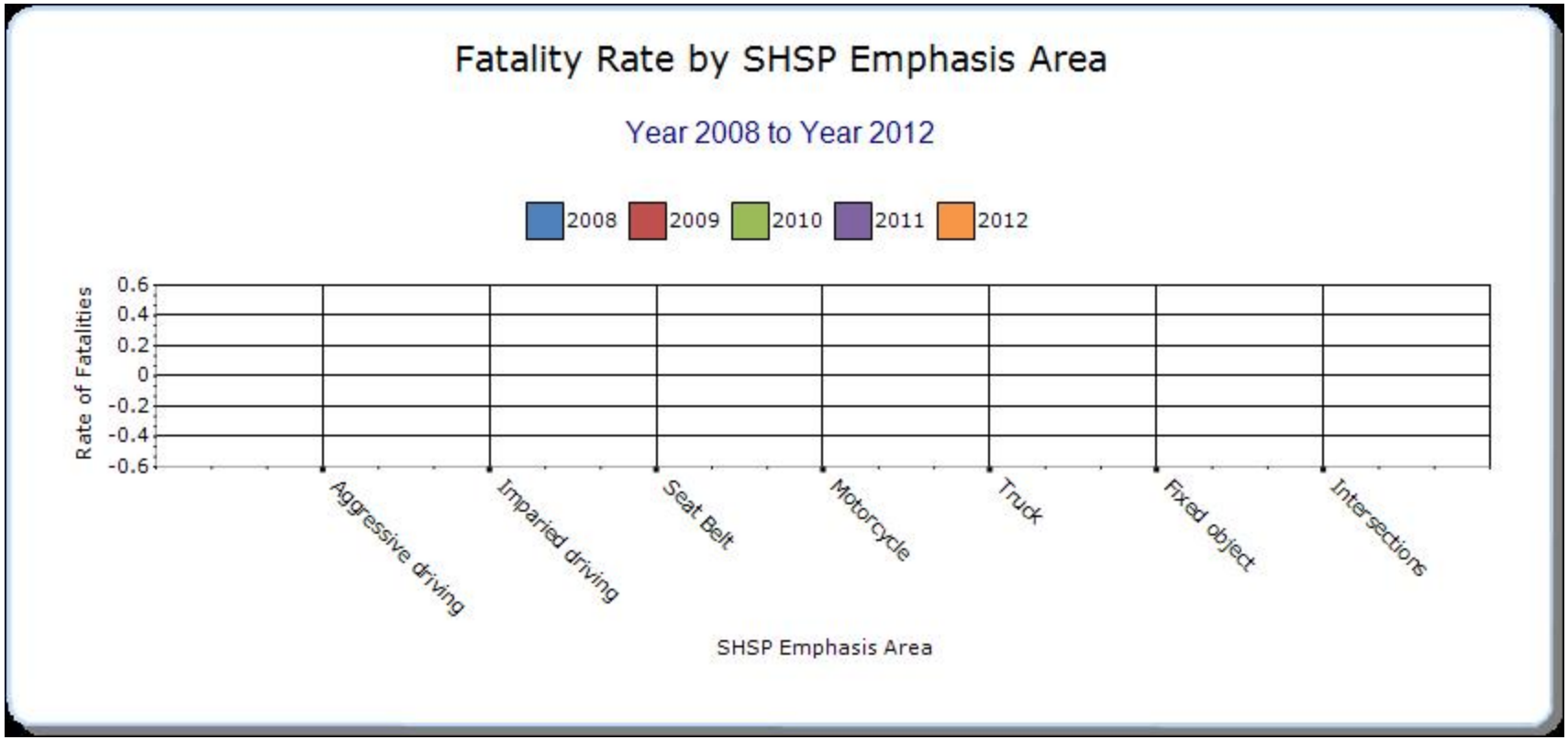
Year - 2012

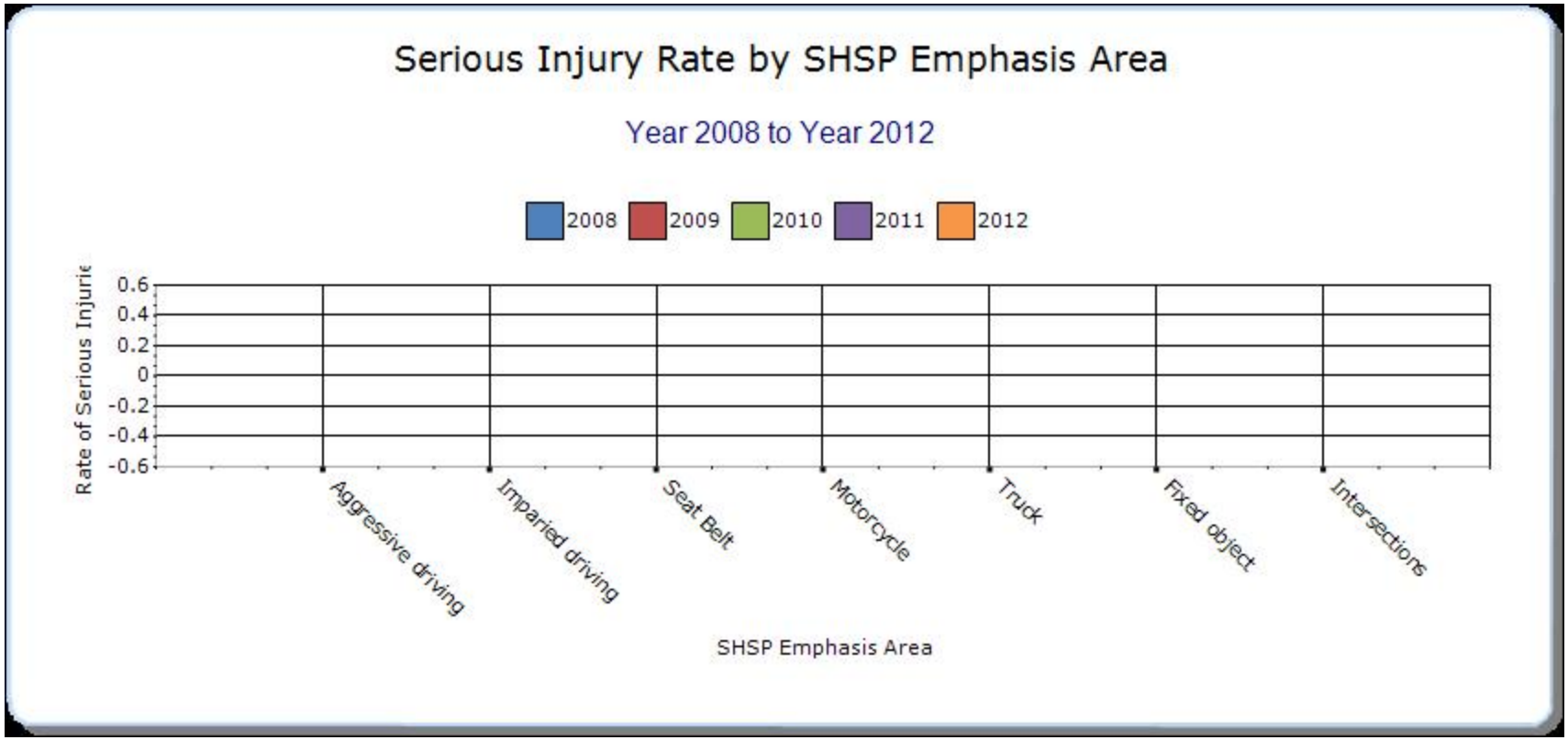
HSIP-related SHSP Emphasis Areas	Target Crash Type	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)	Other-1	Other-2	Other-3
Curbing aggressive driving	**failure to yield right of way, following too close, too fast for conditions, disregarding traffic control, exceeding speed limit, improper passing, weaving in traffic**	**242**	**12187**	**0**	**0**	**0**	**0**	**0**
Reducing impaired driving	driving under the influence of alcohol or other drugs	147	3055	0	0	0	0	0

Increasing seat belt use and improving airbag effectiveness	crashes involving unbelted drivers	270	600	0	0	0	0	0
Improving motorcycle safety and increasing motorcycle awareness	crashes involving motorcycles	98	1490	0	0	0	0	0
Making truck travel safer	Truck-related	76	1732	0	0	0	0	0
Minimizing the consequences of leaving the road	roadway departure crashes	514	14739	0	0	0	0	0
Improving the design and operation of highway intersections	Crashes within limits of intersection	90	10634	0	0	0	0	0


Number of Fatalities by SHSP Emphasis Area
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Fatalities
600
500
400
300
200
100
0
Aggressive driving
Impaired driving
Seat Belt
Motorcycle
Truck
Fixed object
Intersections
SHSP Emphasis Area


Number of Serious Injuries by SHSP Emphasis Area
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Serious Injuries
20000
15000
10000
5000
0
Aggressive driving
Impaired driving
Seat Belt
Motorcycle
Truck
Fixed object
Intersections
SHSP Emphasis Area


Fatality Rate by SHSP Emphasis Area
Year 2008 to Year 2012
2008
2009
2010
2011
2012
Rate of Fatalities
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Aggressive driving
Impaired driving
Seat Belt
Motorcycle
Truck
Fixed object
Intersections
SHSP Emphasis Area

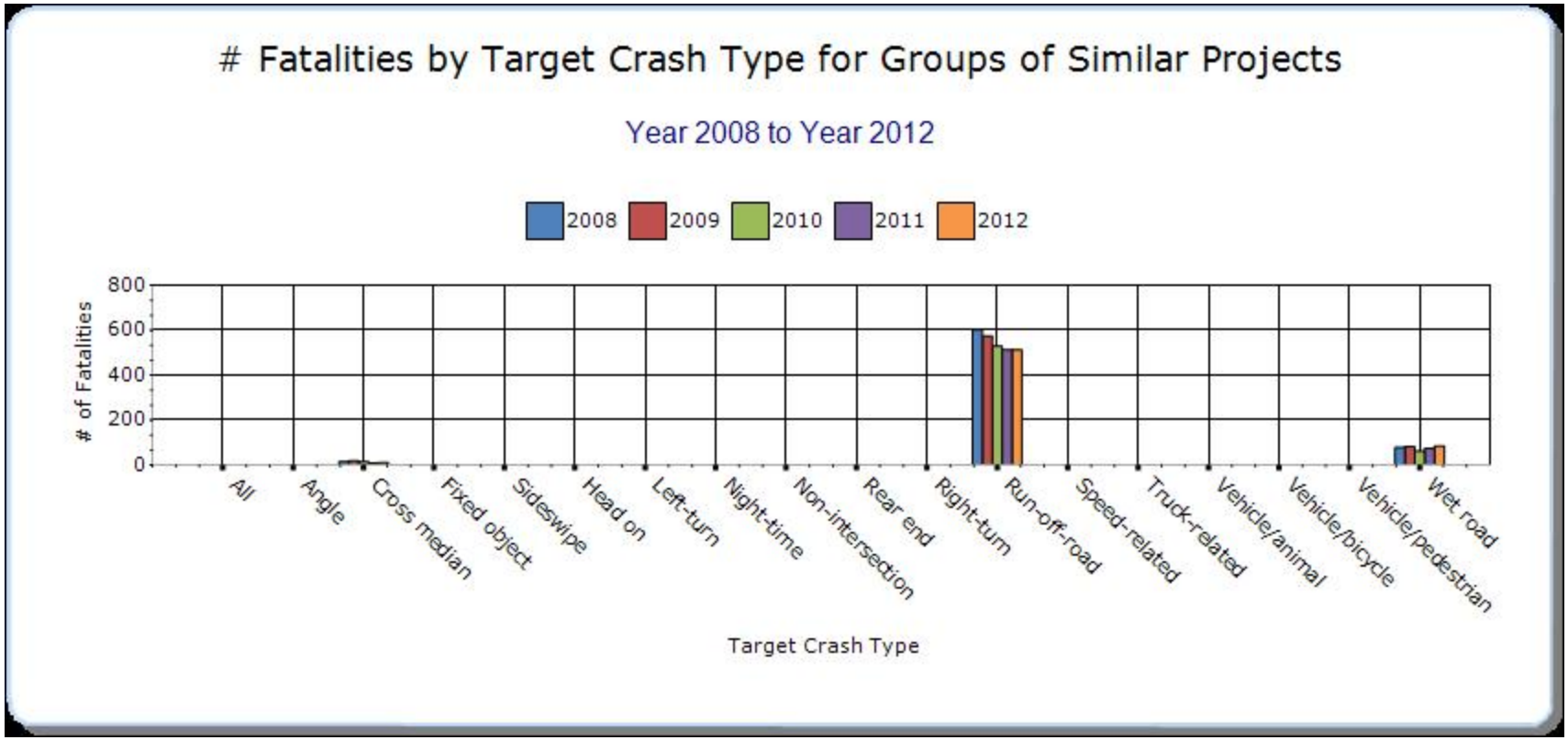

Serious Injury Rate by SHSP Emphasis Area
Year 2008 to Year 2012
2008
2009
2010
2011
2012
Rate of Serious Injurie
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Aggressive driving
Impaired driving
Seat Belt
Motorcycle
Truck
Fixed object
Intersections
SHSP Emphasis Area

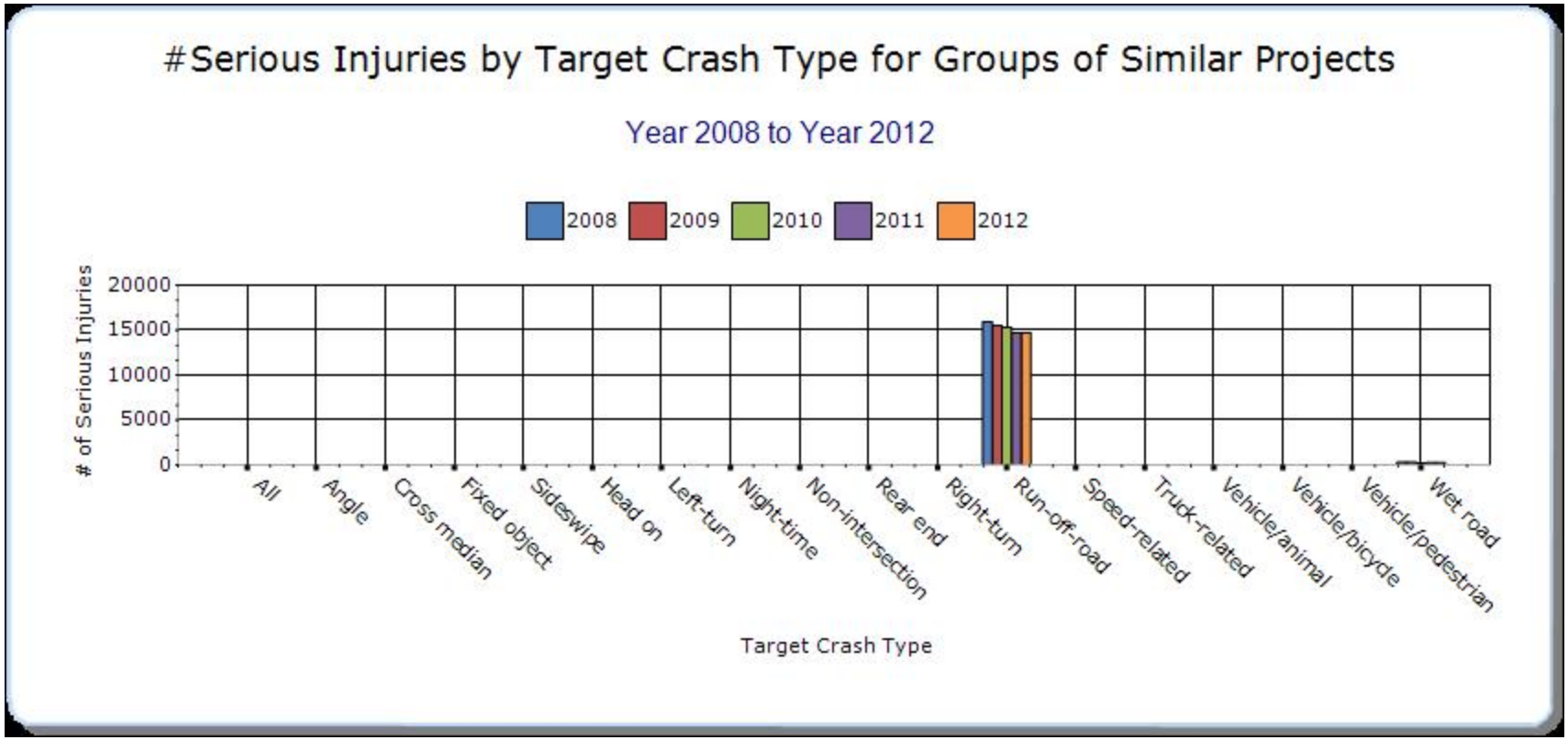
Groups of similar project types

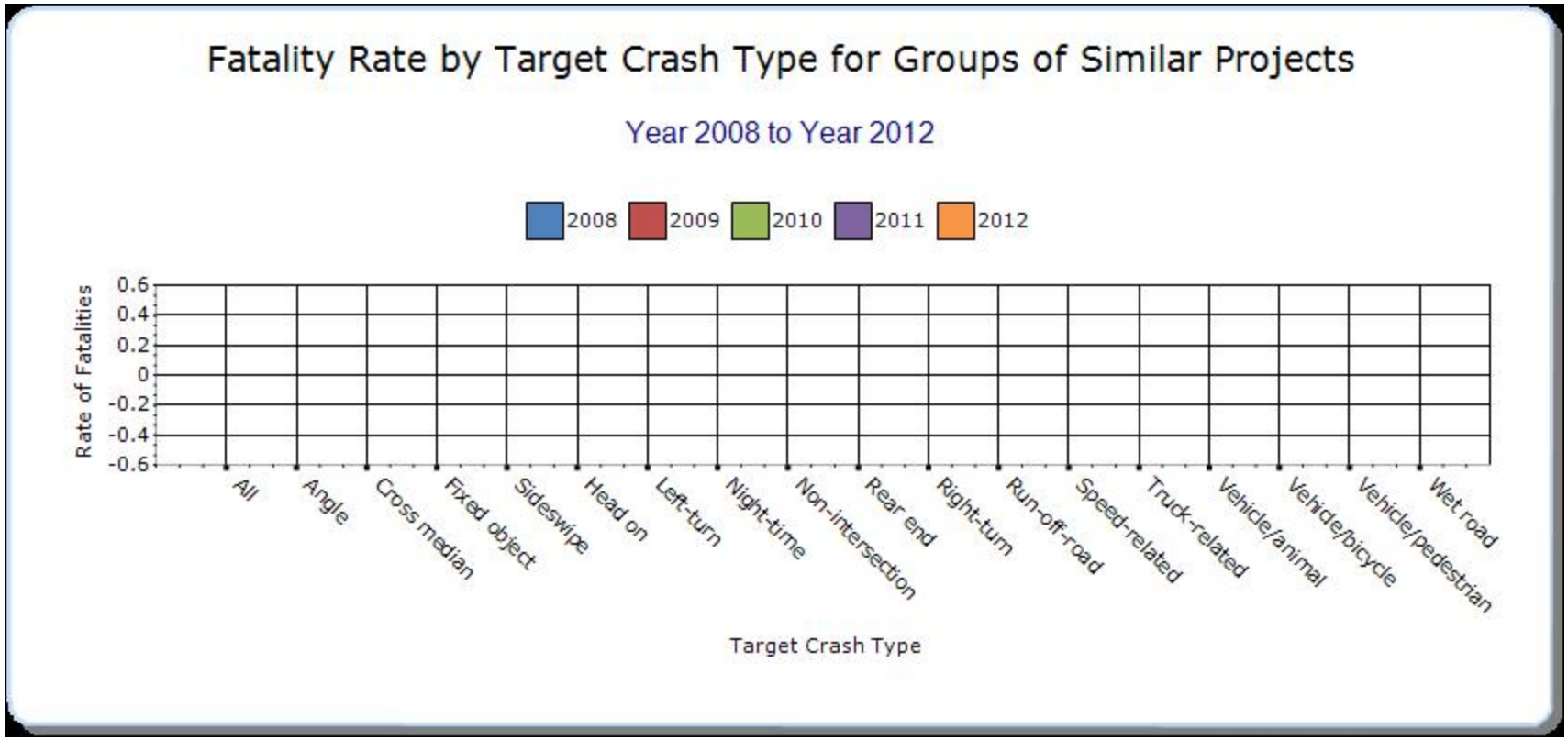
Present the overall effectiveness of groups of similar types of projects.

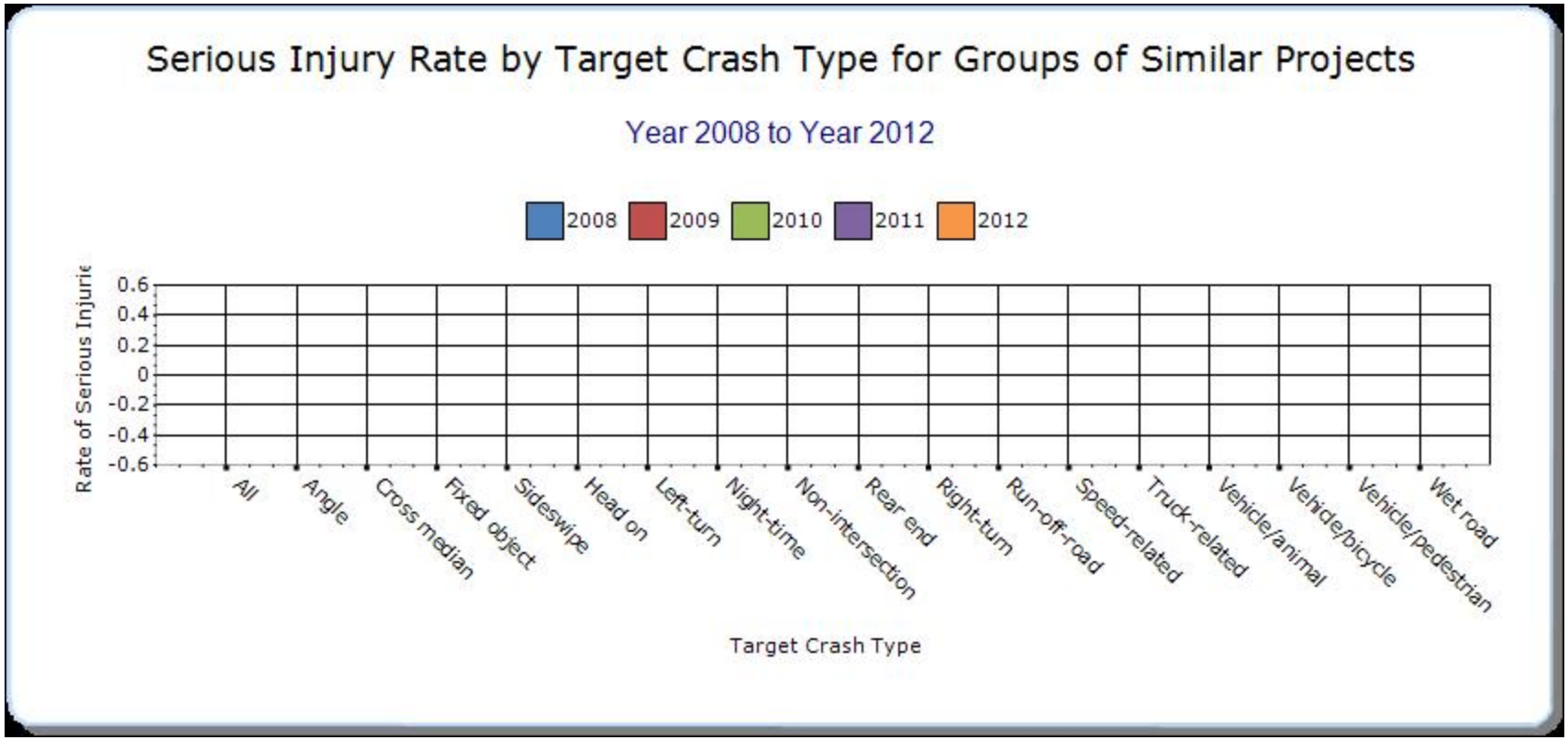
Year - 2012

HSIP Sub-program Types	Target Crash Type	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)	Other-1	Other-2	Other-3
Skid Hazard	**Wet road**	**85**	**277**	**0**	**0**	**7439**	**0**	**0**
Roadway Departure	Run-off-road	514	14739	0	0	40313	0	0
Median Barrier	Cross median	12	10	0	0	284	0	0
Intersection	Crashes within intersection	90	10634	0	0	32186	0	0


Fatalities by Target Crash Type for Groups of Similar Projects
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Fatalities
800
600
400
200
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


#Serious Injuries by Target Crash Type for Groups of Similar Projects
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Serious Injuries
20000
15000
10000
5000
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


Fatality Rate by Target Crash Type for Groups of Similar Projects
Year 2008 to Year 2012
2008
2009
2010
2011
2012
Rate of Fatalities
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

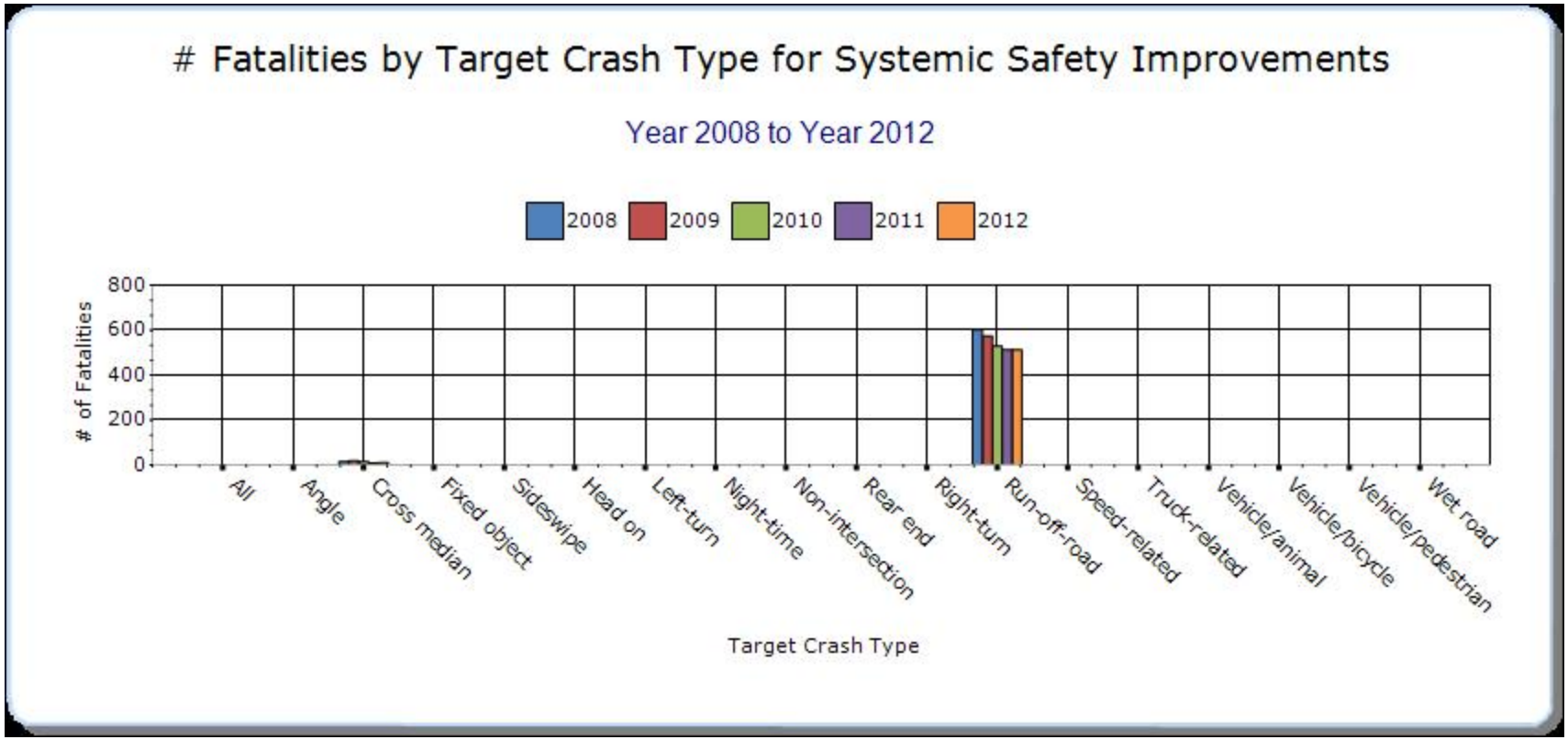

Serious Injury Rate by Target Crash Type for Groups of Similar Projects
Year 2008 to Year 2012
2008
2009
2010
2011
2012
Rate of Serious Injurie
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

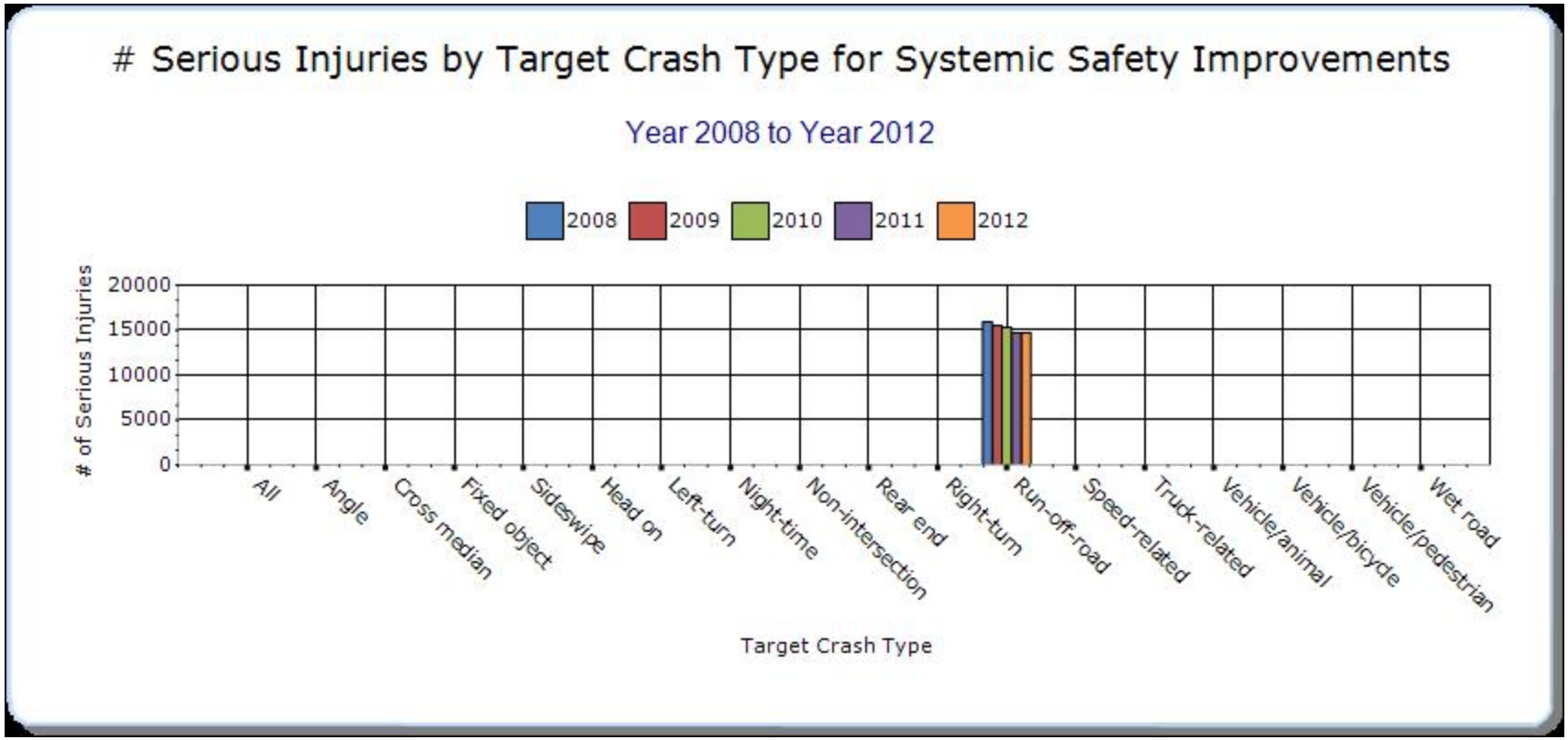
Systemic Treatments

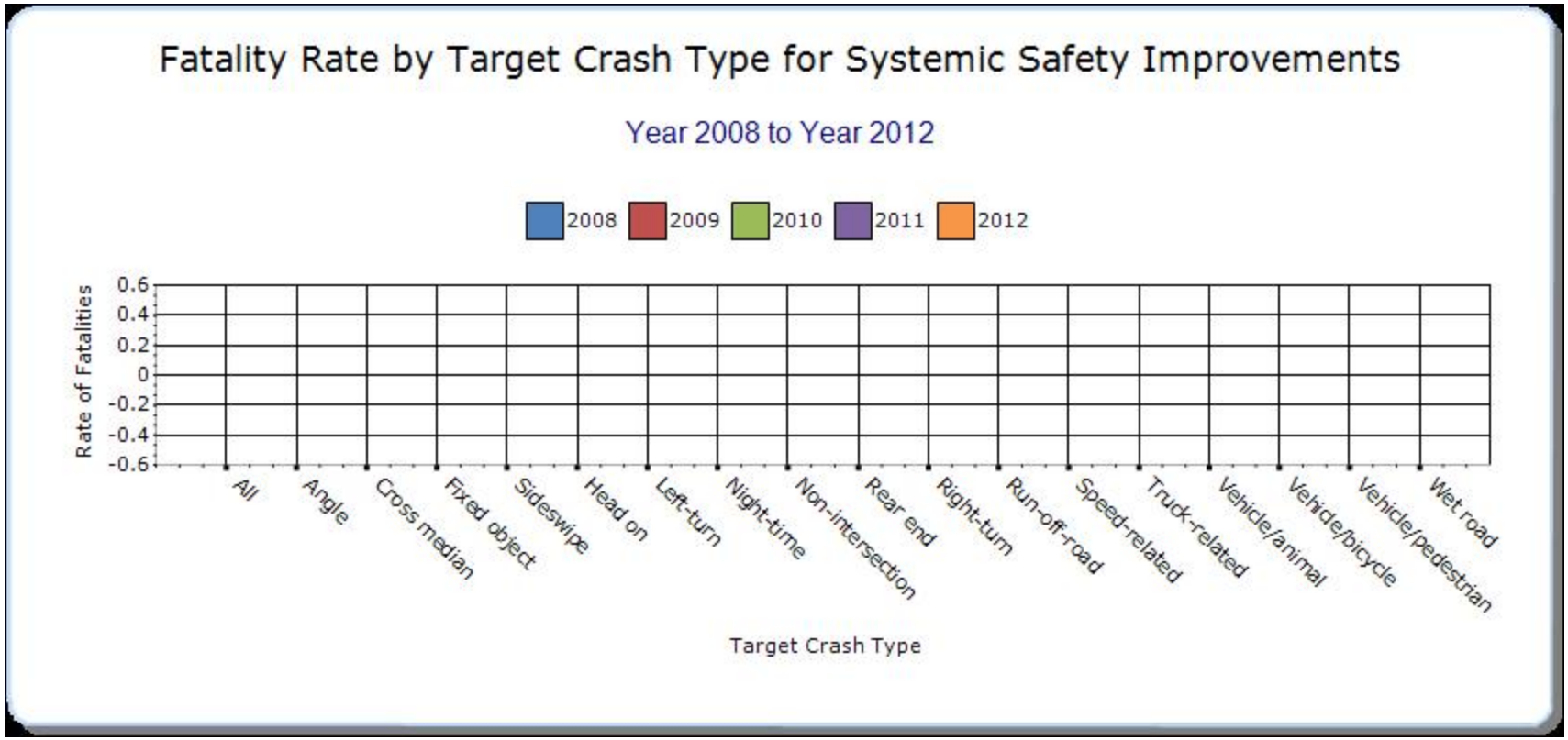
Present the overall effectiveness of systemic treatments..

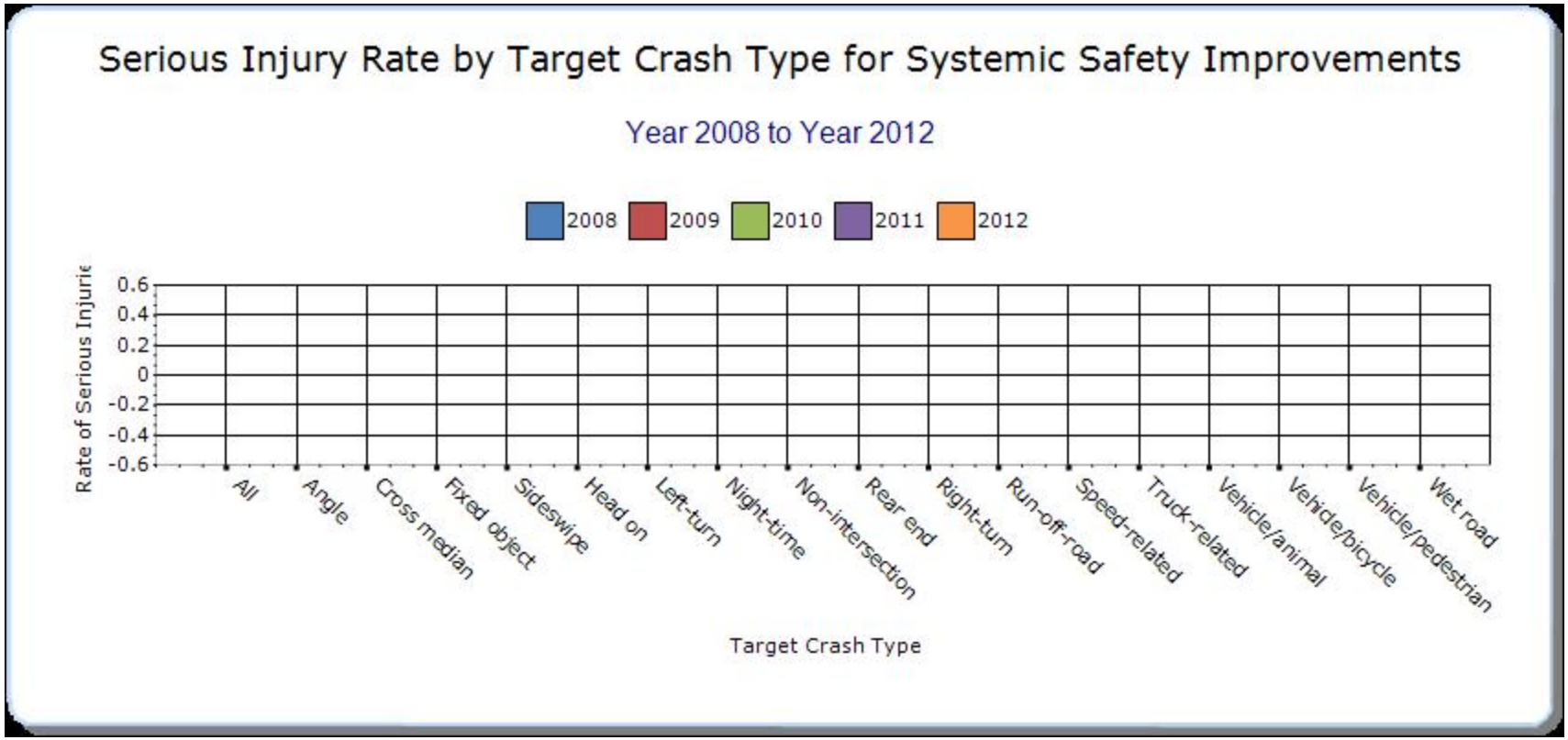
Year - 2012

Systemic improvement	Target Crash Type	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)	Other-1	Other-2	Other-3
Rumble Strips	**Run-off-road**	**514**	**14739**	**0**	**0**	**40313**	**0**	**0**
Cable Median Barriers	Cross median	12	10	0	0	284	0	0


Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Fatalities
800
600
400
200
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
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 2008 to Year 2012
2008
2009
2010
2011
2012
# of Serious Injuries
20000
15000
10000
5000
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
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 2008 to Year 2012
2008
2009
2010
2011
2012
Rate of Fatalities
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
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 2008 to Year 2012
2008
2009
2010
2011
2012
Rate of Serious Injurie
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

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

Systemic treatments have been implemented for rumble stripes, cable median barriers, and high-friction applications on curves. The following benefit-cost ratios have been calculated for the specific projects:

Rumble Stripes	14:1
Cable Median Barriers	1.3:1
High-Friction Surfaces	9:1

Provide project evaluation data for completed projects (optional).

Location	Functional Class	Improvement Category	Improvement Type	Bef-Fatal	Bef-Serious Injury	Bef-Other Injury	Bef-PDO	Bef-Total	Aft-Fatal	Aft-Serious Injury	Aft-Other Injury	Aft-PDO	Aft-Total	Evaluation Results (Benefit/ Cost Ratio)
Statewide	Rural Principal Arterial - Other	Roadway delineation	Roadway delineation - other	13.4		310		323.4	7.5		245		252.5	14:1
	Rural Principal Arterial - Interstate	Roadside	Barrier - cable	0.4		10.6	15.6	26.6	0		2.67	9.33	12	1.3:1
	Statewide on various functional class roads	Roadway	Pavement surface - high friction surface	1.6		42.2	104	147.8	2.1		11.9	31.1	45.1	9:1

Optional Attachments

Sections	Files Attached

Glossary

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

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

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

HMVMT means hundred million vehicle miles traveled.

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

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

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

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

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

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

Systemic safety improvement means an improvement that is widely implemented based on high risk roadway features that are correlated with specific severe crash types.

Transfer means, in accordance with provisions of 23 U.S.C. 126, a State may transfer from an apportionment under section 104(b) not to exceed 50 percent of the amount apportioned for the fiscal year to any other apportionment of the State under that section.