Highway Safety Improvement Program

Data Driven Decisions

Minnesota
Highway Safety Improvement Program
2013 Annual Report

Prepared by: MN

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

Minnesota distributes HSIP funds based on the percentage of serious injuries and fatalities. This approach uses the Strategic Highway Safety Plan as a basis. Road Safety Plans for Minnesota districts and counties have further directed the focus of safety funds to lower-cost, systemic strategies.

Definition of Terms:
MnDOT: Minnesota Department of Transportation

Greater Minnesota: Minnesota is split into 8 MnDOT districts. District 5 is the Metro District. All other districts when referred to as a collective, are called Greater Minnesota.

OTST: MnDOT's Office of Traffic, Safety and Technology. MnDOT's Central Office Safety Unit resides within OTST.

SALT: MnDOT's Office of State Aid for Local Transportation. This is the MnDOT office that works most directly with local agencies.

ATP: Area Transportation Partnership.Boundaries are synonymous with MnDOT district investment boundaries. The partnerships have as their members metropolitan and non-metropolitan stakeholders and can include Metropolitan planing organizations, Regional development commissions, cities, counties, townships, transit providers, tribal governments, other interests and MnDOT.

SFY: State Fiscal Year

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.

MnDOT distributes funds to local roads through the Greater Minnesota Combined Solicitation. This solicitation distributed over $23M over three years of local projects for two programs: HSIP and the Section 164 Funds, as well as additional unprogrammed HSIP funds. OTST, with representatives from State-Aid prioritizes the local HSIP projects for each ATP. Districts are given the opportunity to comment on the prioritization of projects.

The allocation of HSIP funds is based on the distribution of fatal and A-injury crashes. Funds are

distributed as follows:

Step 1: Funds are split based on % of K and A crashes in each District.
Step 2: Funds are split again based on % of K and A crashes occurring on State vs. local system.

The resulting "HSIP Goals" and local/state split of this fund are shown in the table attached to the Program Administration section. The file shows 2004-2006 crash data was used to distribute funds for SFY 2016 and prior. The next solicitation, held in fall 2013, will use the newest crash data (2009-2011) and the new apportionments to program projects in SFY 2017 and beyond.

The 2007 Minnesota Strategic Highway Safety Plan (SHSP) is the main guidance for project selection and evaluation. The goal for this solicitation is that 70% of Greater Minnesota projects and 30% of Metro projects be systemic. Systemic projects make up 65% of all the projects awarded for Minnesota in 2012. Historically, a subset of that program, local projects in Greater Minnesota, is comprised of approximately 95% systemic projects since 2007.

Additionally, Minnesota has funded a County Safety Plan for each of its 87 counties and 8 districts. These plans have been completed and are being implemented. They provide each county and district with a prioritized list of low-cost, systemic projects.

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

☒ Design

☐ Planning

☐ Maintenance

☐ Operations

☐ Governors Highway Safety Office

☒ Other: Other-MnDOT District Traffic Engineers

Briefly describe coordination with internal partners.

MnDOT's office of Traffic, Safety and Technology (OTST) works closely with the State Aid for Local Transportation (SALT) office as well as district traffic engineers in the distribution of HSIP funds.

A representative from the state aid office sits on the both the steering and selection committees for HSIP. The offices work together to educate local agencies and district personnel on the HSIP program. Once projects are selected the state aid office coordinates with the local agencies and provides support as necessary.

The HSIP project selection committee asks for input from the district traffic engineers during the selection and award processes. District traffic engineers provide vital background information on proposed projects as well as adding the local perspective.

MnDOT also holds quarterly TEO (Traffic Engineering Organization) Safety Subcommittee meetings, at which additional HSIP coordination occurs.

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

☒ Metropolitan Planning Organizations

☐ Governors Highway Safety Office

☐ Local Government Association

☒ Other: Other-City Engineer Safety Committee

☒ Other: Other-County Engineer Safety Committee

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-Minnesota has added a District Traffic Engineer to our existing Local HSIP selection committee. One District Traffic Engineer sits on the committee at a time and this seat will rotate between all of the districts.

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

Beginning with projects programmed in SFY 2017, the way Minnesota administers state projects will be changing. Decisions will be made in the central office level rather than the district level. Prior to SFY 2017 projects, only the local HSIP projects are selected by Central Office. District projects were approved by the district personnel in the past, but will now go through Central Office in a more formalized 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: Other-MnDOT funds these countermeasures through HSIP.		

Program: **Other-MnDOT funds these countermeasures through HSIP.**

Date of Program Methodology: **10/1/2007**

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-Road surface: In one particular county, gravel roads make up almost half of the system but fewer than 15 percent of all severe crashes occur on these roads.

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☒ Crash rate

☒ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☒ Excess proportions of specific crash types

☒ Other-Severe Crash Rate

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

☒ Yes

☐ No

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

☒ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☒ Competitive application process

☒ selection committee

☐ Other

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

☐ Relative Weight in Scoring

☒ Rank of Priority Consideration

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

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

65

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: Other-County and District Safety Plans

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

☐ Highway Safety Manual

☐ Road Safety audits

☐ Systemic Approach

☒ Other: Other-None

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

HSIP funds are distributed in three separate processes: Met Council HSIP, Greater Minnesota Combined Solicitation and the MnDOT districts. Each solicitation utilizes a risk based analysis (Road Safety Plans) to select projects.

Lower cost, systemic treatments (lighting, signage, rumble strips and enhanced edgelines) are the focus of the Greater Minnesota projects. Any entity that is eligible for State Aid funds can apply directly to the Greater Minnesota Combined Solicitation. Cities and Tribes that are not State Aid eligible must apply for HSIP funds through their county.

In the Metro District, systemic projects are funded as well as projects that address a spot location safety problem (B/C ranking). Cities can apply for these HSIP funds and compete directly with Counties and MnDOT.

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)	13877079	98 %	24710420.36	85 %
HRRRP (SAFETEA-LU)				
HRRR Special Rule				
Penalty Transfer - Section 154				
Penalty Transfer – Section 164	325000	2 %	4135000	14 %

Incentive Grants - Section 163				
Incentive Grants (Section 406)	0	0 %	155719	1 %
Other Federal-aid Funds (i.e. STP, NHPP)				
State and Local Funds				
Totals	14202079	100%	29001139.36	100%

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

$7,835,946.00

How much funding is obligated to local safety projects?

$12,079,649.00

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

$775,000.00

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

$775,000.00

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.

The Office of Traffic, Safety and Technology continues to work with the financial office to increase our obligation numbers.

In September 2012, OTST, held a special one time only solicitation for previously unprogrammed HSIP funds. By early November 2012, $12.8M of state projects had been identified for construction in FFY 2013.

Minnesota continues to see a number of HSIP projects that are let with a significant savings from the engineer's estimate as contractors become more familiar with the types of strategies being implemented and as the economy flucuates. Minnesota has made efforts to identify HSIP project further out in the STIP than in previous years. This will provide the State with the option of moving projects forward when a savings is realized.

Minnesota's HSIP program has consisted mainly of stand-alone safety projects. Each district is also required to spend an additional 2X HSIP on safety add-ons to other projects in their program.

Some higher cost projects, such as roundabouts, while eligible for HSIP funds, have normally been funded through other programs.

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

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
'043-070-006','4304-90'	Intersection traffic control Modify control - all-way stop to roundabout	1 Numbers	980000	1402745	HSIP (Section 148)		0	0	Project affects both State and County Roads	Improving the design and operation of highway intersections	Cost effective intersection improvements
'3808-35','3808-38016'	Shoulder treatments Pave existing shoulders	5 Miles	927714	1030794	HSIP (Section 148)		0	0	State Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'8828-144'	Roadside Barrier - cable	5 Miles	675000	750000	HSIP (Section 148)		0	0	State Highway Agency	Reducing head-on and across-median crashes	Cost Effective Lane Departure Improvements

'197-020-003','002-617-020'	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	459000	593059	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'002-601-046'	Intersection traffic control Modify traffic signal - modernization/replacement	1 Numbers	367200	465904	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
002-601-045'	Access management Median crossover - close crossover	1 Numbers	65858	73176	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'003-070-004','003-606-018','208-147-001','003-	Roadway delineation Longitudinal pavement markings - new	13 Miles	250000	488188 4	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements

749-003','003-601-016','003-605-009'											
'003-070-004','003-606-018','208-147-001','003-749-003','003-601-016','003-605-009'	Shoulder treatments Widen shoulder - paved or other	13 Miles	0	0	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'1380-82','1380-80','8280-45'	Roadside Barrier - cable	8 Miles	0	4064000	HSIP (Section 148)		0	0	State Highway Agency	Reducing head-on and across-median crashes	Cost Effective Lane Departure Improvements
'018-070-008'	Roadway signs and traffic control Curve-related warning signs and flashers	153 Numbers	72630	80700	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improveme

											nts
'024-070-012','024-070-014','024-070-013'	Shoulder treatments Widen shoulder - paved or other	15 Miles	0	0	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'024-070-012','024-070-014','024-070-013'	Roadway Rumble strips - edge or shoulder	15 Miles	617200	712671	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'035-070-002','035-622-007'	Roadway Rumble strips - edge or shoulder	6 Miles	170105	170105	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'035-070-002','035-622-007'	Shoulder treatments Widen shoulder - paved or other	6 Miles	0	0	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements

'042-610-034','042-070-003'	Shoulder treatments Widen shoulder - paved or other	7 Miles	241200	454671	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'042-610-037','042-070-005'	Shoulder treatments Widen shoulder - paved or other	5 Miles	0	2889988	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'4814-51'	Intersection geometry Auxiliary lanes - add left-turn lane	2 Miles	899425	1000361	HSIP (Section 148)		0	0	State Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
049-070-013'	Roadway delineation Longitudinal pavement markings - new	21 Miles	122676	140321	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'049-070-	Lighting Intersection	9 Numb	10350	11926	HSIP (Sectio		0	0	County Highway	Improving the design	Cost Effective

010'	lighting	ers	0	9	n 148)				Agency	and operation of highway intersections	Intersection Improvements
'060-070-004'	Roadway Rumble strips - edge or shoulder	5 Miles	126459	140510	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'060-070-004'	Roadway Rumble strips - center	5 Miles	0	0	HSIP (Section 148)		0	0	County Highway Agency	Reducing head-on and across-median crashes	Cost Effective Lane Departure Improvements
'6205-37','6205-62072','6205-38','6205-62071'	Interchange design Convert at-grade intersection to interchange	1 Numbers	1000000	1000000	HSIP (Section 148)		0	0	State Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'6205-37','6205-62072','62	Interchange design Convert at-grade intersection to	1 Numb	1000000	1000000	HSIP (Sectio		0	0	State Highway	Improving the design and	Cost Effective Intersectio

05-38','6205-62071'	interchange	ers			n 148)				Agency	operation of highway intersections	n Improvements
'062-610-003'	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	266220	373293	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'066-070-008'	Roadway Rumble strips - edge or shoulder	27 Miles	87065	96739	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'066-070-009'	Roadway Rumble strips - edge or shoulder	4 Miles	193329	214809	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'066-070-010'	Roadway delineation Longitudinal pavement markings - new	37 Miles	199177	220716	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the	Cost Effective Lane Departure

										roadway	Improvements
'070-646-005'	Intersection traffic control Modify control - all-way stop to roundabout	1 Numbers	476345	939587	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'071-070-021','071-070-020'	Roadway delineation Delineators post-mounted or on barrier	52 Numbers	68045	68045	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'071-070-021','071-070-020'	Intersection traffic control Intersection signing - add enhanced regulatory sign (double-up and/or oversize)	7 Numbers	0	0	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'071-070-019','071-070-018'	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	429453	477170	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway	Cost Effective Intersection Improveme

										intersections	nts
'071-070-019','071-070-018'	Intersection geometry Auxiliary lanes - add right-turn lane	1 Numbers	0	0	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'073-604-037','73214-49','162-114-012'	Advanced technology and ITS Congestion detection / traffic monitoring system	1 Numbers	369000	578121	HSIP (Section 148)		0	0	State Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'073-070-006'	Roadway delineation Longitudinal pavement markings - new	12 Miles	91800	109808	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'073-070-007'	Roadway signs and traffic control Curve-related warning signs and flashers	72 Numbers	88965	98850	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improveme

											nts
'080-070-003'	Roadway delineation Longitudinal pavement markings - new	74 Miles	174463	217173	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'082-604-010','8206-41'	Intersection traffic control Modify control - all-way stop to roundabout	1 Numbers	1283734	1426371	HSIP (Section 148)		0	0	Project involves an intersection between a State owned road and a County owned road	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'086-070-008'	Lighting Intersection lighting	10 Numbers	124880	137530	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements

'086-070-007'	Roadway Rumble strips - edge or shoulder	10 Miles	31874	35415	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'086-070-009'	Roadway delineation Longitudinal pavement markings - new	20 Miles	218466	299116	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'8823-148'	Roadway signs and traffic control Curve-related warning signs and flashers	109 Numbers	34445	38273	HSIP (Section 148)		0	0	State Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'8816-1764'	Non-infrastructure Transportation safety planning	1 Numbers	375000	416667	HSIP (Section 148)		0	0	State Highway Agency	Toward Zero Death Regional Coordinators	Safety Planning
'8822-146'	Intersection traffic control Modify traffic signal timing - signal	1 Numbers	54000	60000	HSIP (Section 148)		0	0	State Highway Agency	Improving the design and operation	Cost Effective Intersection

	coordination									of highway intersections	Improvements
'8816-1765'	Advanced technology and ITS Advanced technology and ITS - other	1 Numbers	1083305	2832338	HSIP (Section 148)		0	0	State Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'8827-155'	Lighting Site lighting - interchange	1 Numbers	537500	597222	HSIP (Section 148)		0	0	State Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'8822-147'	Roadway Rumble strips - edge or shoulder	222 Miles	139195	154661	HSIP (Section 148)		0	0	State Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'088-070-029'	Roadway signs and traffic control Curve-related warning signs and flashers	109 Numbers	266130	295700	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the	Cost Effective Lane Departure

										roadway	Improvements
'8827-192'	Roadside Barrier - cable	10 Miles	1141898	1268776	HSIP (Section 148)		0	0	State Highway Agency	Reducing head-on and across-median crashes	Cost Effective Lane Departure Improvements
'8822-155'	Intersection traffic control Modify traffic signal - miscellaneous/other/unspecified	4 Numbers	61650	68500	HSIP (Section 148)		0	0	State Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'8824-85'	Roadway Rumble strips - edge or shoulder	62 Miles	0	548190	HSIP (Section 148)		0	0	State Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'8816-1762'	Non-infrastructure Enforcement	1 Numbers	400000	444444	HSIP (Section 148)		0	0	State Highway Agency	Curbing aggressive driving	Highway Enforcement of Aggressive Traffic

'088-070-034'	Roadway signs and traffic control Curve-related warning signs and flashers	13 Numbers	584263	649181	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'8821-238'	Roadway Rumble strips - edge or shoulder	69 Miles	760500	845000	HSIP (Section 148)		0	0	State Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'088-070-037'	Roadway delineation Longitudinal pavement markings - new	148 Miles	723700	842496	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'7480-123'	Roadside Barrier - cable	9 Miles	972000	1080000	HSIP (Section 148)		0	0	State Highway Agency	Reducing head-on and across-median crashes	Cost Effective Lane Departure Improvements
'5680-131'	Roadside Barrier - cable	9 Miles	926638	1029598	HSIP (Sectio		0	0	State Highway	Reducing head-on and	Cost Effective Lane

					n 148)				Agency	across-median crashes	Departure Improvements
'8821-239'	Roadside Barrier - cable	21 Miles	550800	807754	HSIP (Section 148)		0	0	State Highway Agency	Reducing head-on and across-median crashes	Cost Effective Lane Departure Improvements
'8816-1763'	Non-infrastructure Educational efforts	1 Numbers	0	696959	Penalty Transfer – Section 164		0	0	State Highway Agency	Statewide Traffic Safety Education - Toward Zero Deaths Education Program	Public Information and Education
'8816-1972'	Non-infrastructure Transportation safety planning	1 Numbers	360285	104556	Penalty Transfer – Section 164		0	0	State Highway Agency	Statewide Toward Zero Death Regional Coordinators	Public Information and Education
'002-611-033'	Intersection geometry Auxiliary lanes - add left-	1 Numb	1362912	1514347	HSIP (Sectio		0	0	County Highway	Improving the design and	Cost Effective Intersectio

	turn lane	ers			n 148)				Agency	operation of highway intersections	n Improvements
'004-070-006','004-070-005'	Roadway Rumble strips - edge or shoulder	11 Miles	552914	614349	HSIP (Section 148)		0	0	State Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'004-070-006','004-070-005'	Shoulder treatments Widen shoulder - paved or other	11 Miles	0	0	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'019-632-033','019-632-034'	Intersection geometry Auxiliary lanes - add right-turn lane	1 Numbers	1507500	1675000	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'019-632-033','019-632-034'	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	0	0	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation	Cost Effective Intersection

										of highway intersections	Improvements
'062-631-010'	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	0	213201	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'070-030-006'	Roadway Rumble strips - edge or shoulder	18 Miles	552914	612349	HSIP (Section 148)		0	0	County Highway Agency	Minimizing the consequences of leaving the road	Cost Effective Lane Departure Improvements
'070-030-006'	Roadway delineation Longitudinal pavement markings - new	90 Miles	0	0	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'070-030-006'	Intersection traffic control Pavement markings - add advance stop ahead	16 Numbers	0	0	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway	Cost Effective Intersection Improveme

										intersections	nts
'070-030-006'	Roadway signs and traffic control Curve-related warning signs and flashers	45 Numbers	0	0	HSIP (Section 148)		0	0	County Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements
'070-030-006'	Intersection traffic control Intersection signing - add enhanced advance warning (double-up and/or oversize)	10 Numbers	0	0	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'070-030-006'	Intersection traffic control Modify traffic signal - miscellaneous/other/unspecified	12 Numbers	0	0	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
'088-070-043'	Intersection traffic control Intersection signing - add enhanced advance warning (double-	93 Numbers	191881	213201	HSIP (Section 148)		0	0	County Highway Agency	Improving the design and operation of highway	Cost Effective Intersection Improveme

	up and/or oversize)									intersections	nts
088-070-043	Intersection traffic control Pavement markings - add advance stop ahead	73 Numbers	0	0	HSIP (Section 148)				County Highway Agency	Improving the design and operation of highway intersections	Cost Effective Intersection Improvements
8824-85	Roadway Rumble strips - center	27 Miles	0	0	HSIP (Section 148)				State Highway Agency	Keeping vehicles in the roadway	Cost Effective Lane Departure Improvements

Progress in Achieving Safety Performance Targets

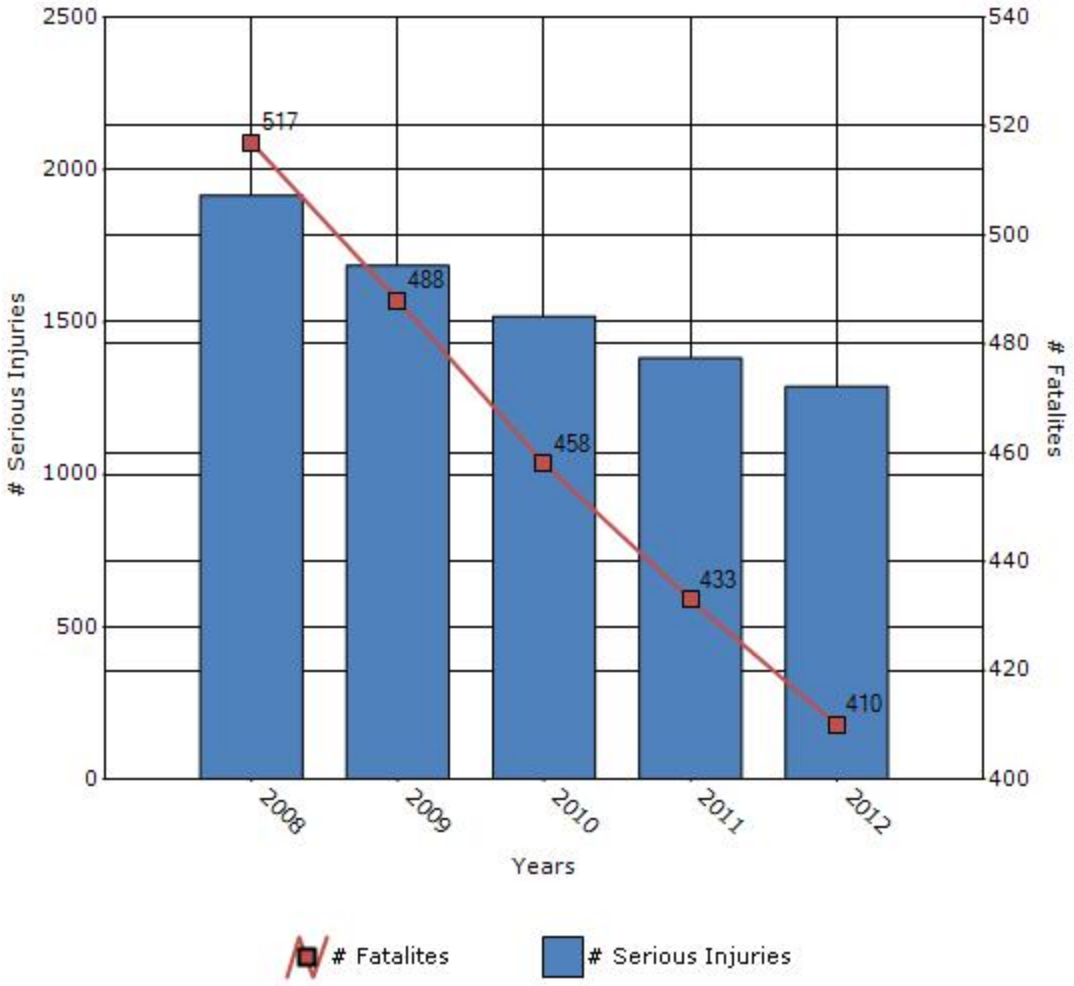
Overview of General Safety Trends

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

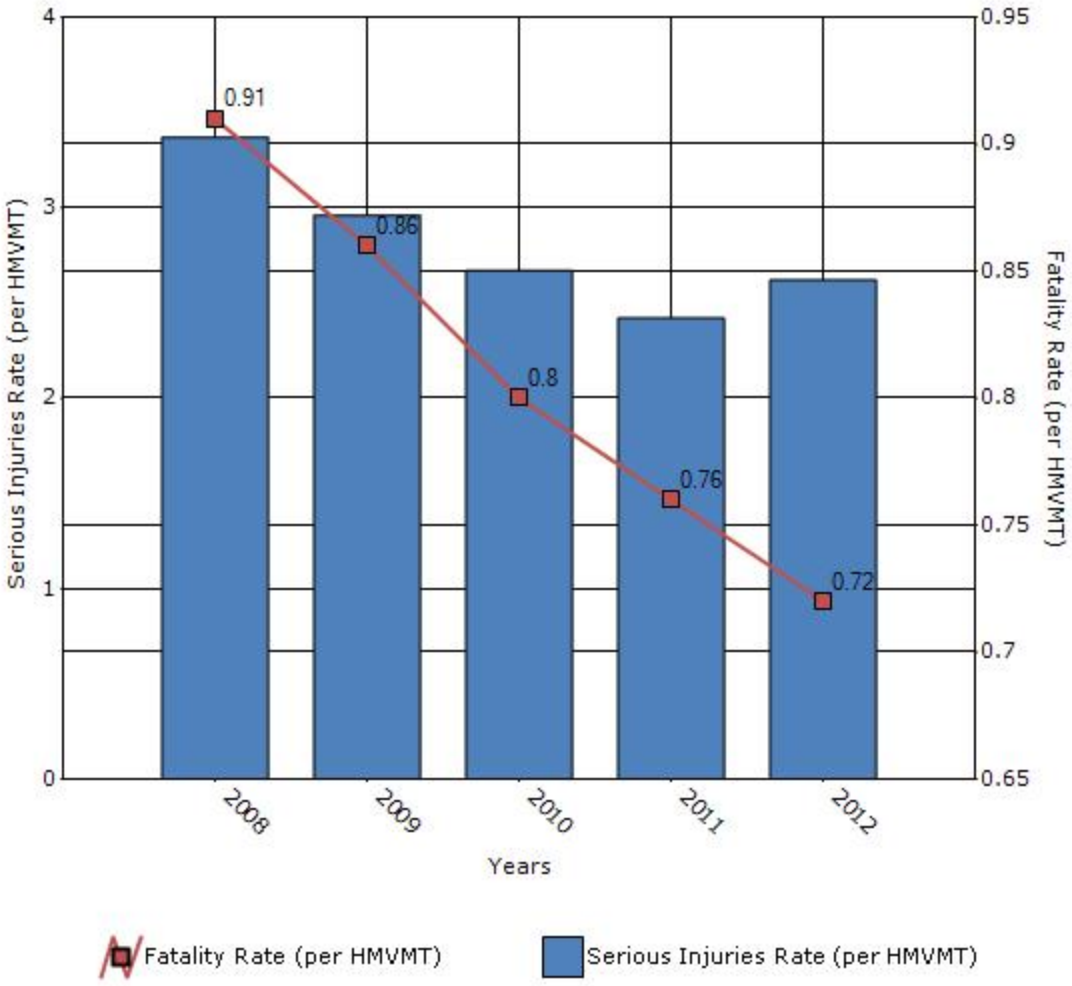
Performance Measures*	2008	2009	2010	2011	2012
Number of fatalities	517	488	458	433	410
Number of serious injuries	1915	1685	1519	1382	1288
Fatality rate (per HMVMT)	0.91	0.86	0.8	0.76	0.72
Serious injury rate (per HMVMT)	3.37	2.96	2.67	2.42	2.62

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

Number of Fatalities and Serious injuries for the Last Five Years



Rate of Fatalities and Serious injuries for the Last Five Years

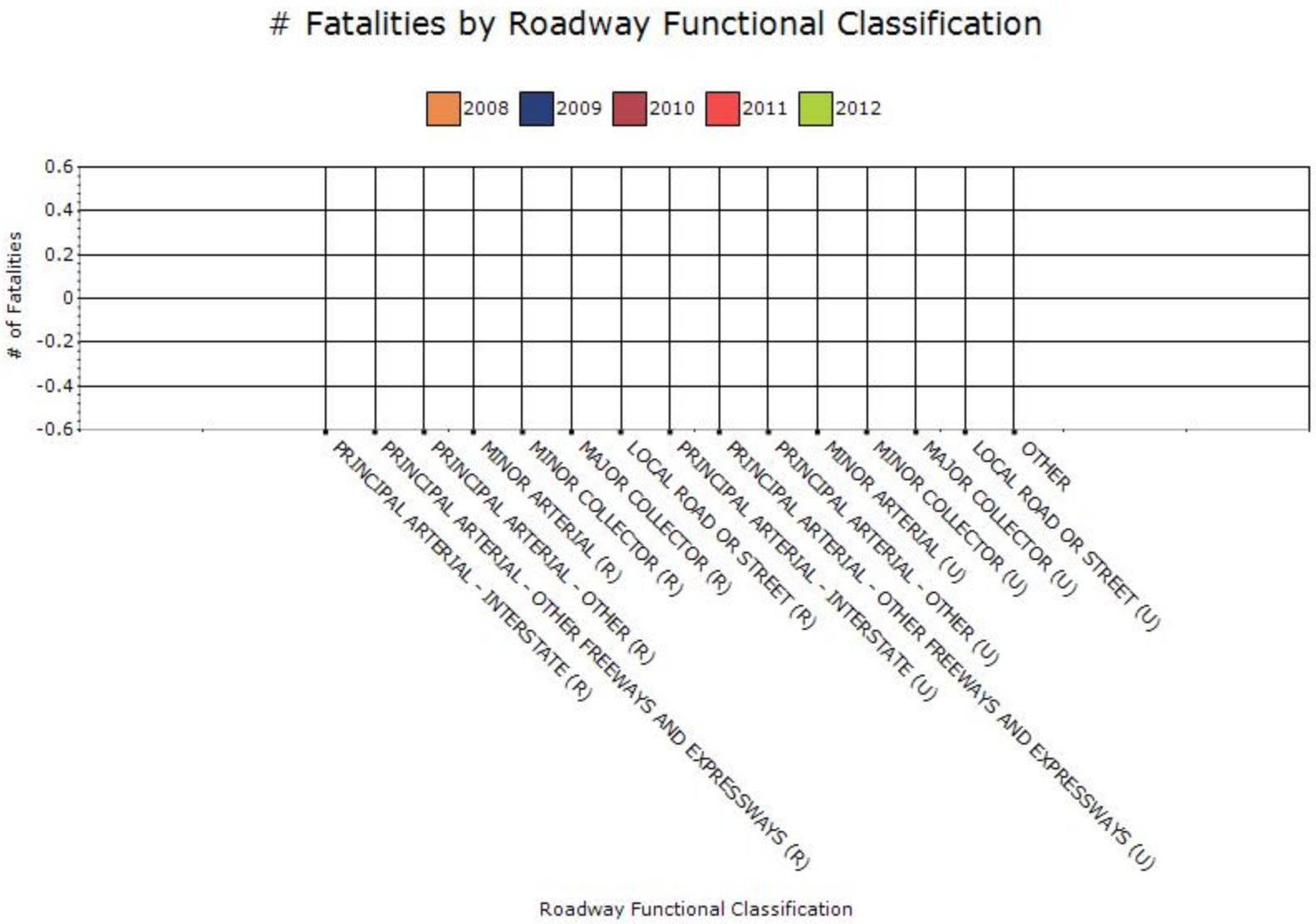


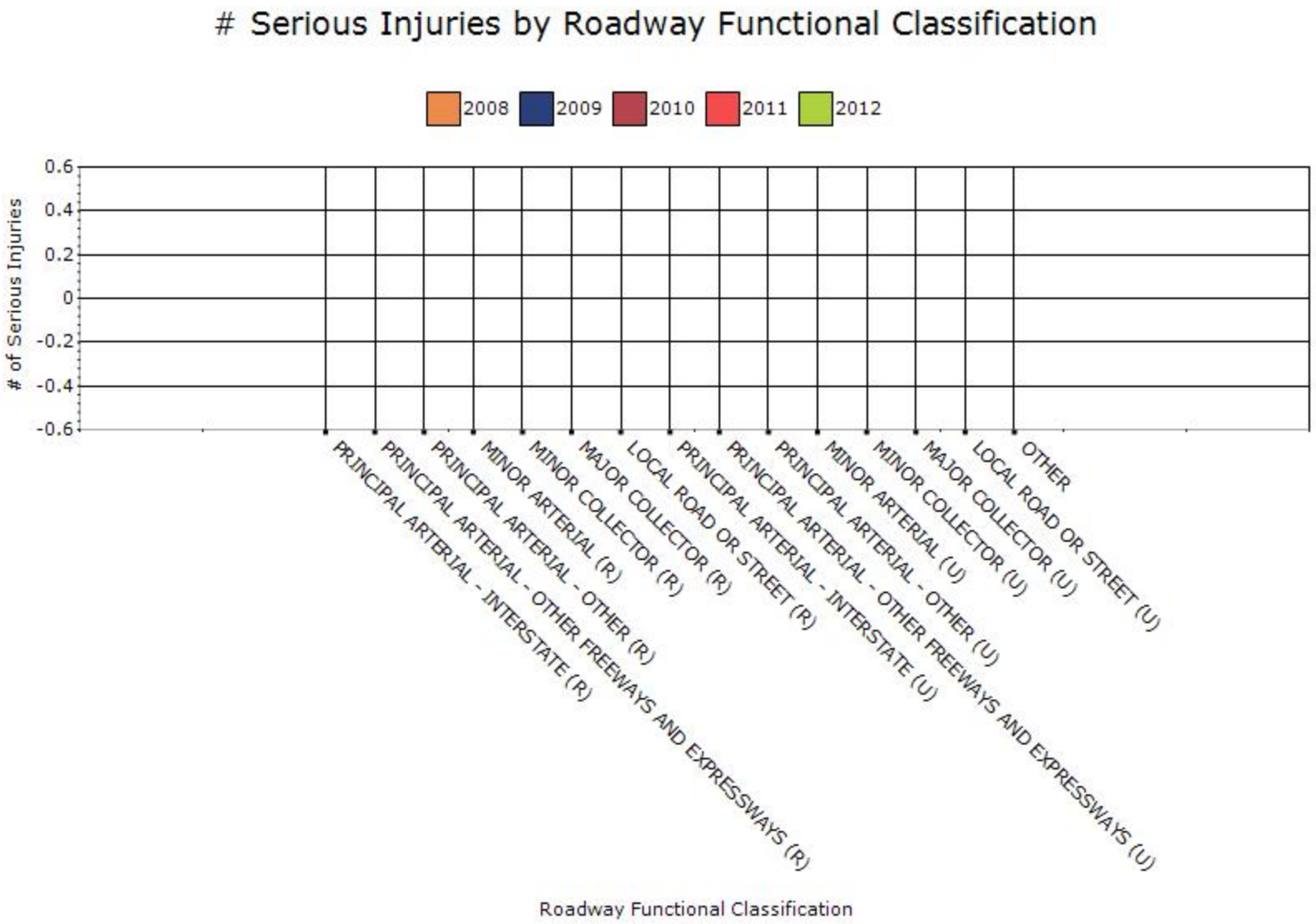
To the maximum extent possible, present performance measure* data by functional classification and ownership.

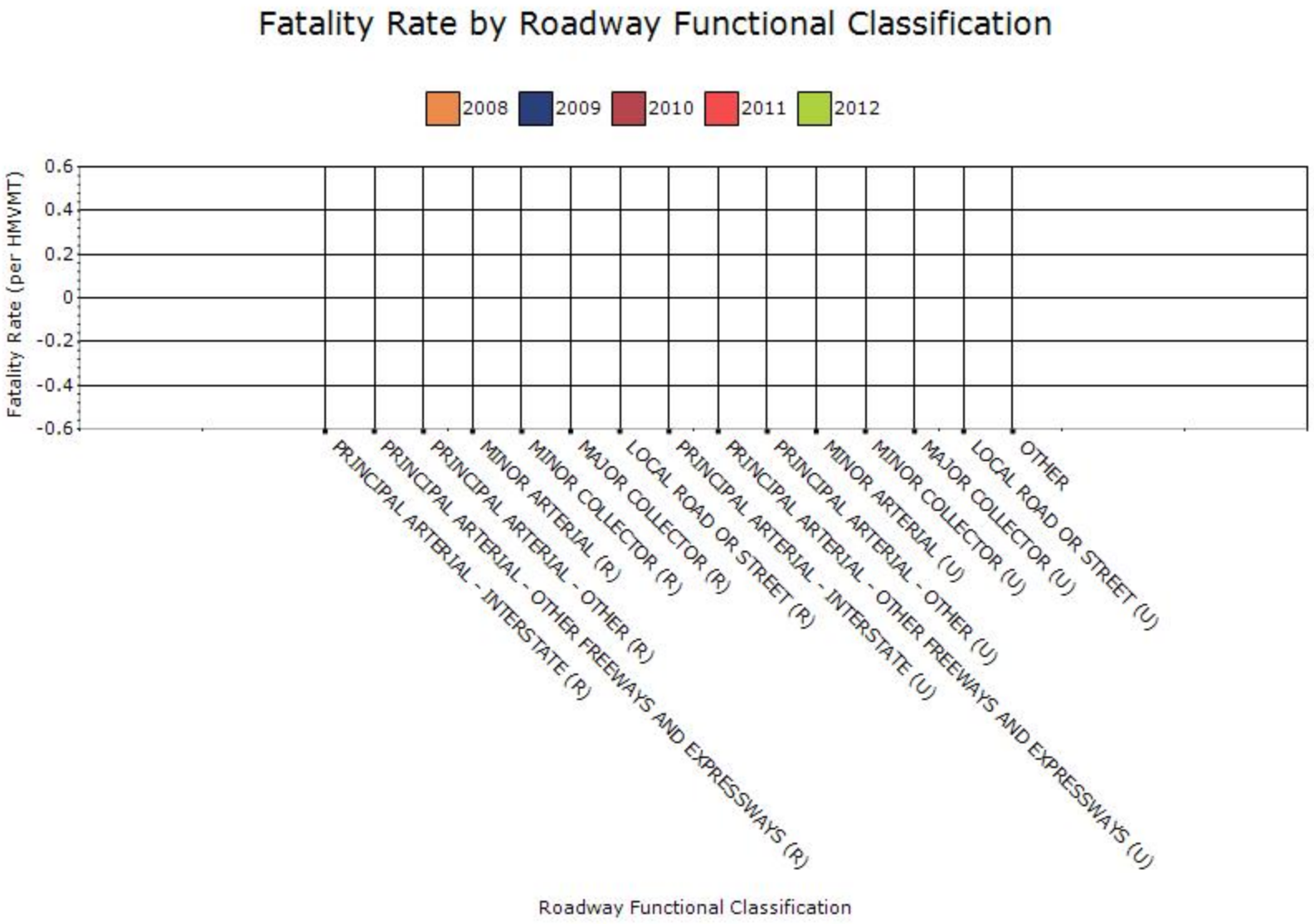
Year - 2012

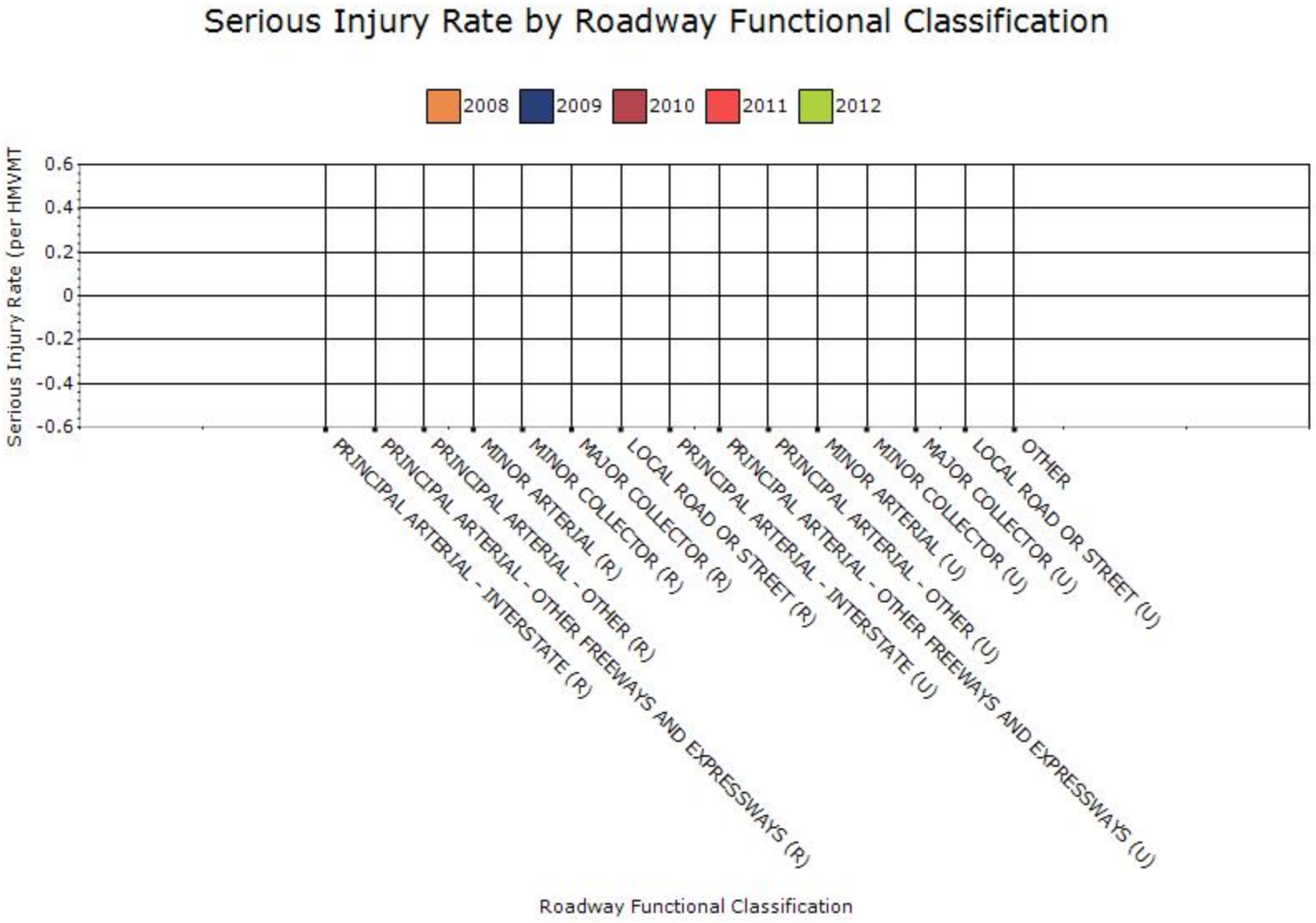
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	0	0	0	0
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	0	0	0	0
RURAL PRINCIPAL ARTERIAL - OTHER	0	0	0	0
RURAL MINOR ARTERIAL	0	0	0	0
RURAL MINOR COLLECTOR	0	0	0	0
RURAL MAJOR COLLECTOR	0	0	0	0
RURAL LOCAL ROAD OR STREET	0	0	0	0
URBAN PRINCIPAL	0	0	0	0

ARTERIAL - INTERSTATE				
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	0	0	0	0
URBAN PRINCIPAL ARTERIAL - OTHER	0	0	0	0
URBAN MINOR ARTERIAL	0	0	0	0
URBAN MINOR COLLECTOR	0	0	0	0
URBAN MAJOR COLLECTOR	0	0	0	0
URBAN LOCAL ROAD OR STREET	0	0	0	0
OTHER	0	0	0	0
OTHER	0	0	0	0


Fatalities by Roadway Functional Classification
2008
2009
2010
2011
2012
# of Fatalities
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
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
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
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

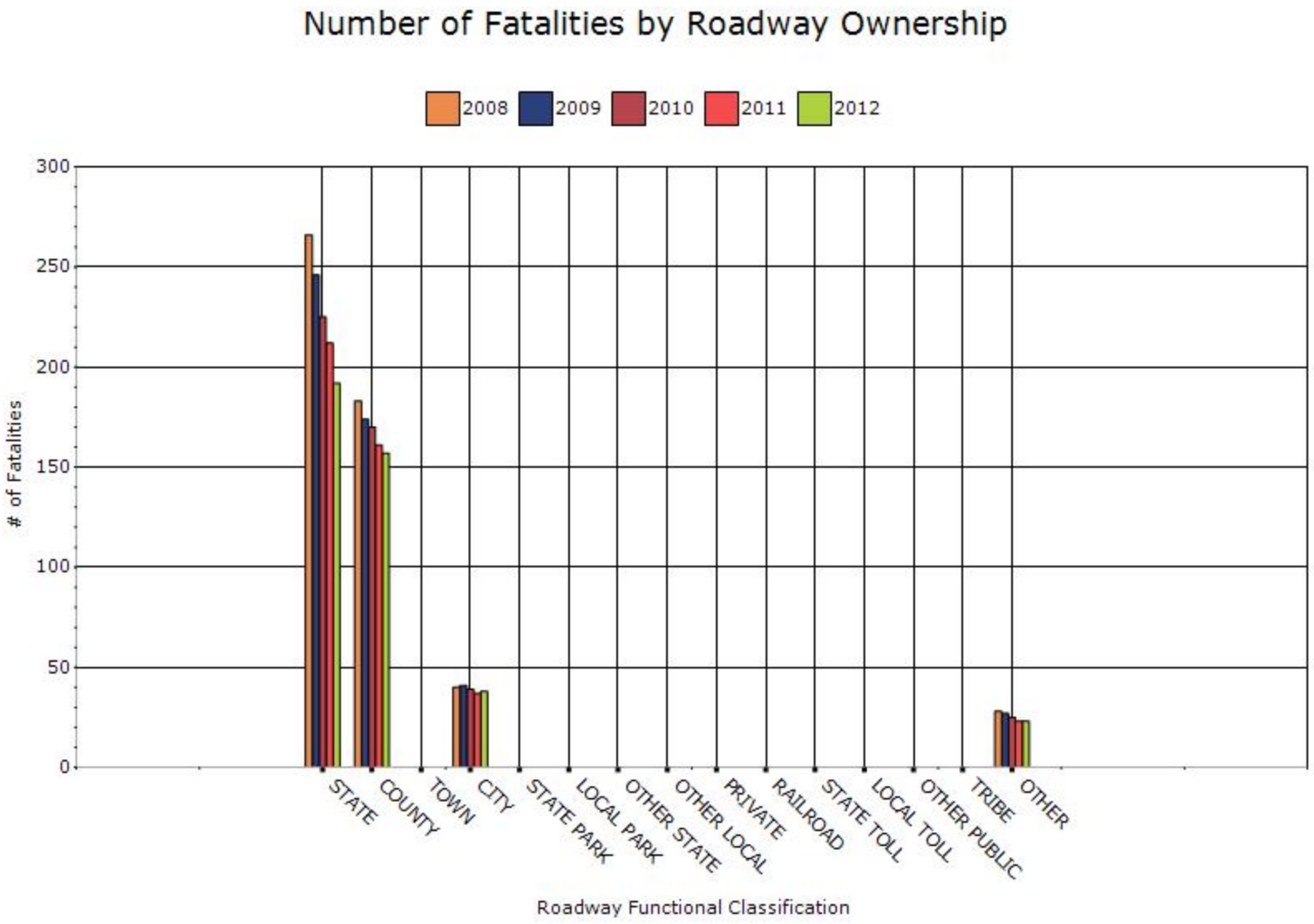

Fatality Rate by Roadway Functional Classification
2008
2009
2010
2011
2012
Fatality Rate (per HMVMT)
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (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

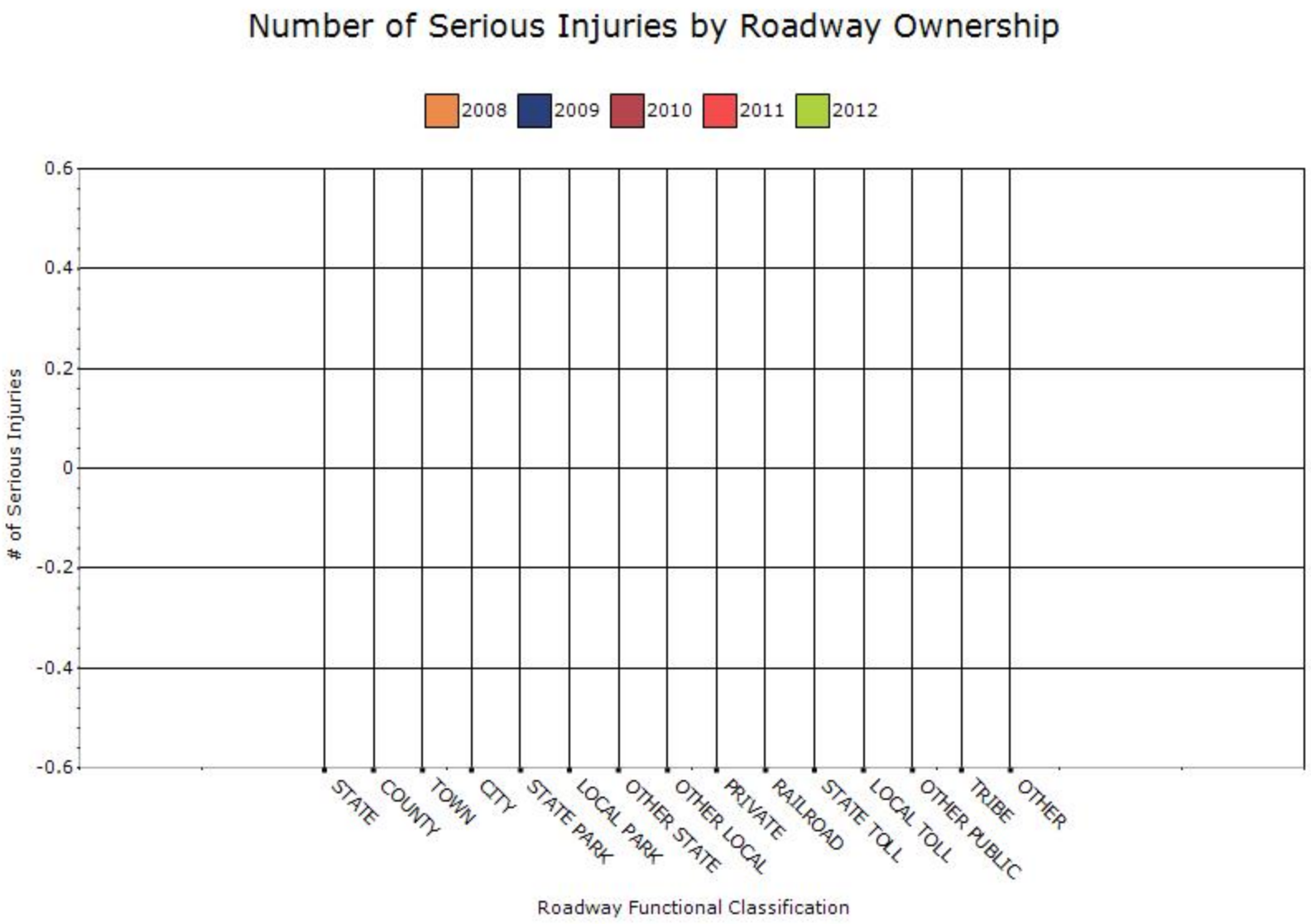

Serious Injury Rate by Roadway Functional Classification
2008
2009
2010
2011
2012
Serious Injury Rate (per HMVMT
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
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

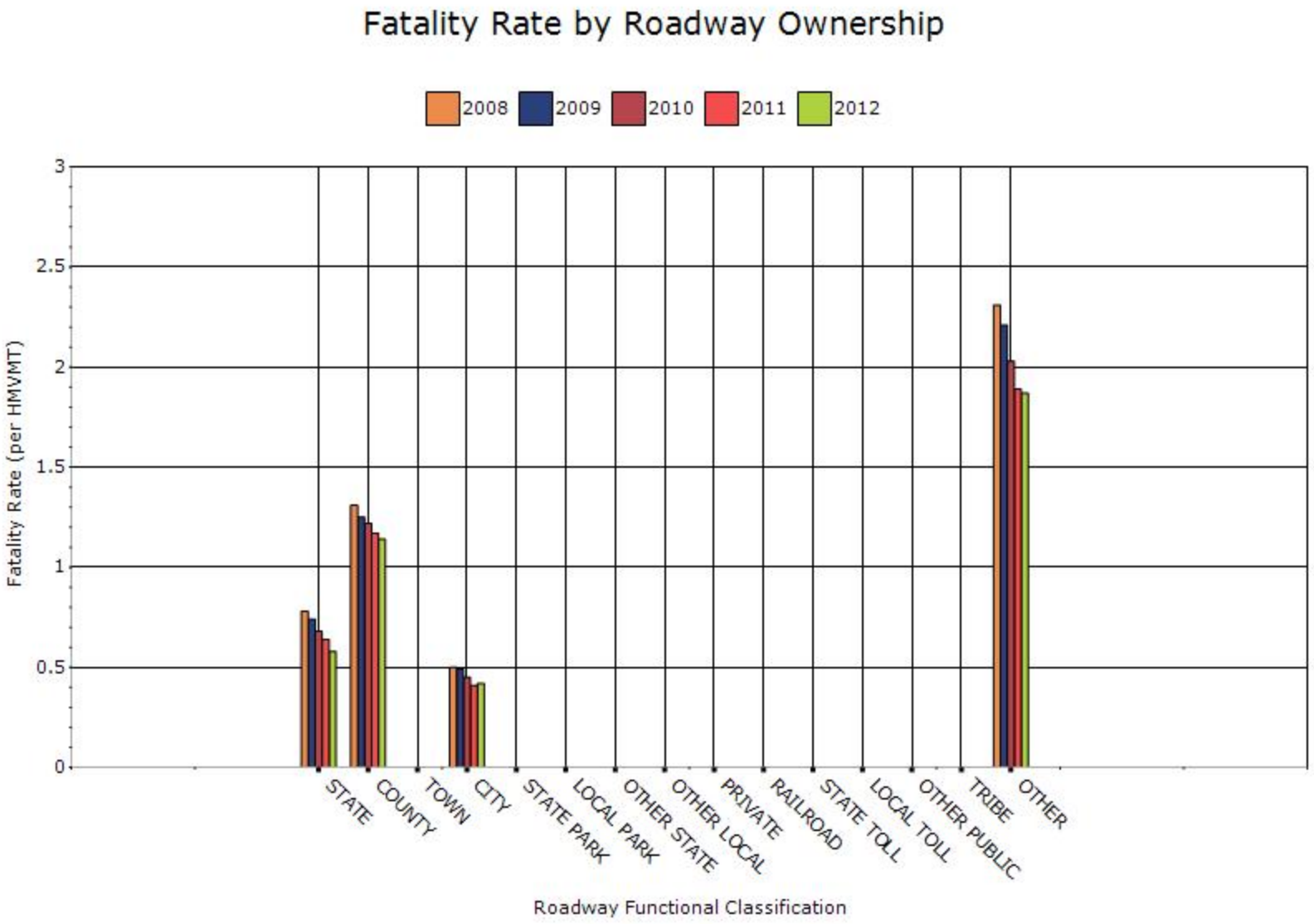
Year - 2012

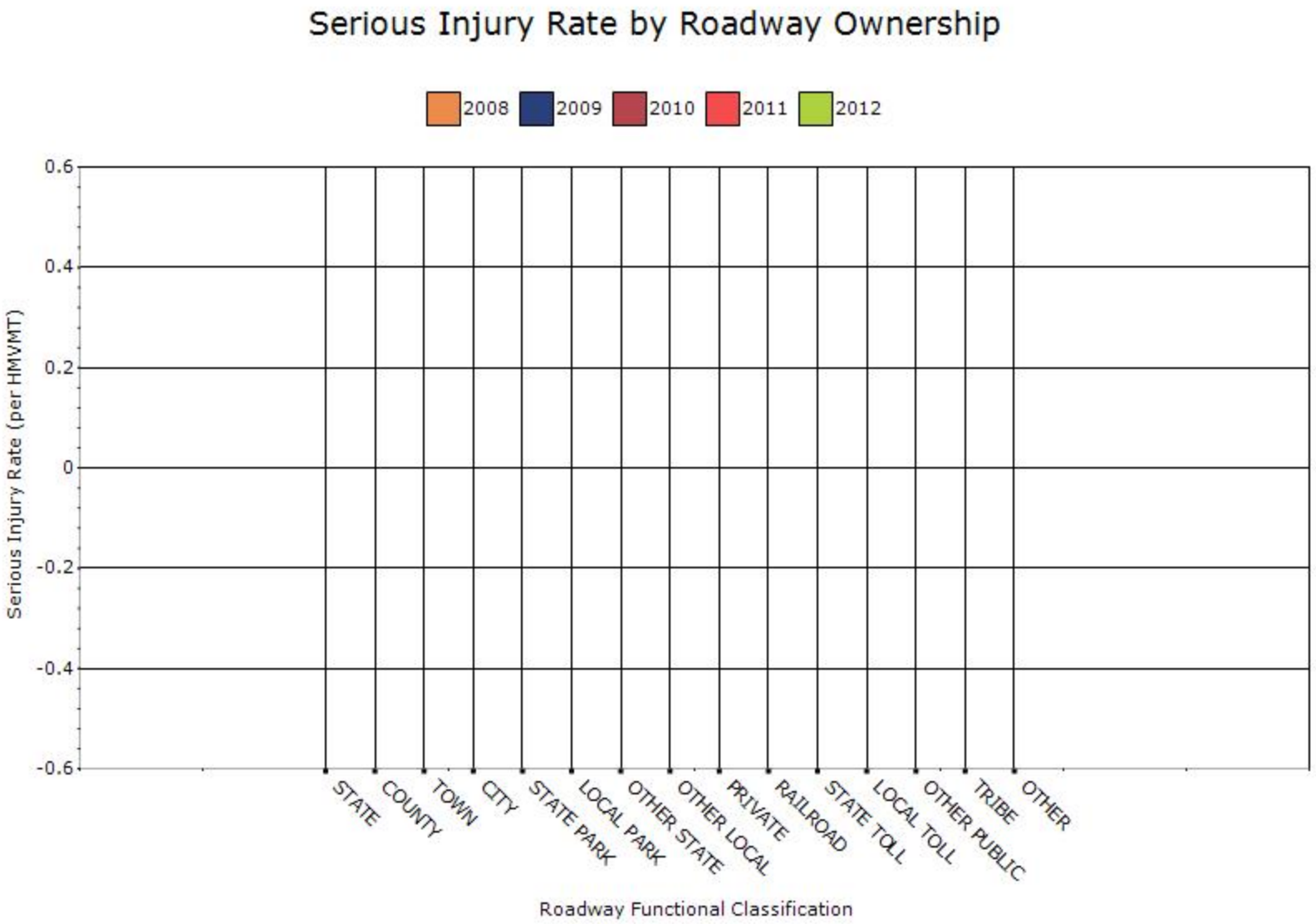
Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	192	0	0.58	0
COUNTY HIGHWAY AGENCY	157	0	1.14	0
TOWN OR TOWNSHIP HIGHWAY AGENCY	0	0	0	0
CITY OF MUNICIPAL HIGHWAY AGENCY	38	0	0.42	0
STATE PARK, FOREST, OR 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	23	0	1.87	0
OTHER	23	0	1.87	0


Number of Fatalities by Roadway Ownership
2008
2009
2010
2011
2012
300
250
200
150
100
50
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
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
# 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
Fatality Rate (per HMVMT)
3
2.5
2
1.5
1
0.5
0
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

The Other category represents crashes occurring on township roadways and all other roadways not included in State, County or City.

The 2008 fatality rate for state roads is only a 4-year rolling average. The miles traveled on state roads was unavailable for 2008. All other rates and numbers represented in this question are 5-year rolling averages.

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

In 2012, Minnesota saw the first rise in traffic deaths since 2007. The 395 deaths in 2012 is a 7 percent increase from 2011 (368), but it is still a 40 percent reduction in traffic deaths from a decade ago. A slight increase in miles traveled, 56.7B to 56.9B, or 0.4%, and a mild winter are part of the reason for this uptick in traffic deaths. Minnesota also experienced a spike in motorcyclist deaths during 2012. There were 55 rider deaths in 2012, up from 42 in 2011. Ridership is at an all-time high.

In addition to the 55 motorcyclist deaths, the 2012 statistics include 116 unbelted motorist deaths and 104 drunk driving crash victims. The 2012 fatality count is the second lowest annual death figure (behind 2011) since 1944.

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)	0.58	0.54	0.52	0.51	0.46
Serious injury rate (per capita)	0.93	0.81	0.75	0.72	0.68
Fatality and serious injury rate (per capita)	1.5	1.4	1.3	1.2	1.1

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

Instructions from the FHWA website:
http://www.fhwa.dot.gov/map21/guidance/guideolder.cfm

Calculate Rate of Fatal (F) and Serious Injuries (SI) per capita for Drivers and Pedestrians 65 years of age and older for year ending in 2011 (2011, 2010, 2009, 2008, 2007) and 2009 (2009, 2008, 2007, 2006, 2005).

Calculate Rate for 2011

1.(F+SI 2011 Drivers and Pedestrians 65 years of age and older/2011 Population Figure*) + (F+SI 2010 Drivers and Pedestrians 65 years of age and older /2010 Population Figure) + (F+SI 2009 Drivers and Pedestrians 65 years of age and older/2009 Population Figure) + (F+SI 2008 Drivers and Pedestrians 65 years of age and older/2008 Population Figure) + (F+SI 2007 Drivers and Pedestrians 65 years of age and older/2007 Population Figure) / 5

Calculate Rate for 2009

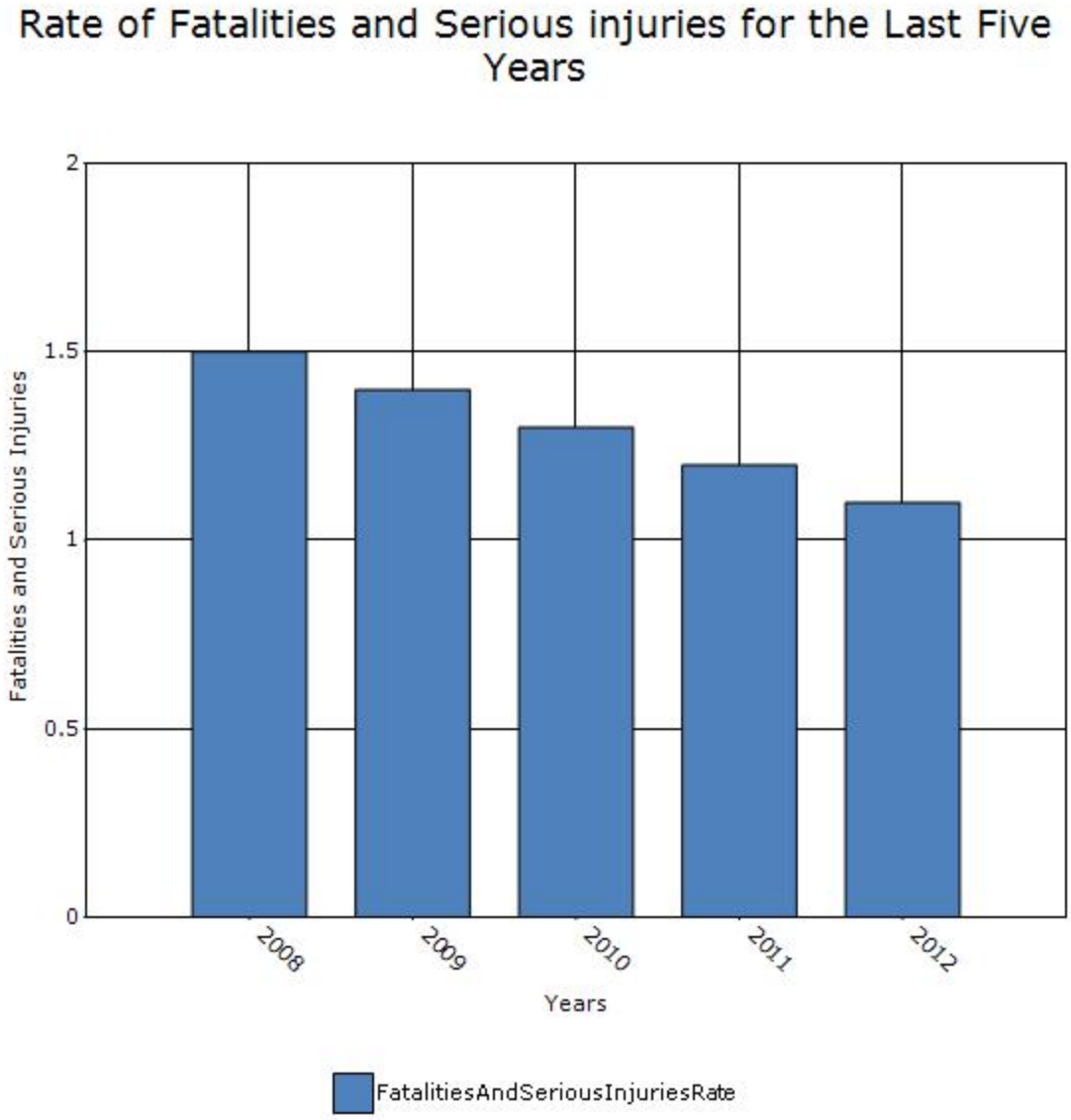
2.(F+SI 2009 Drivers and Pedestrians 65 years of age and older/2009 Population Figure) + (F+SI 2008 Drivers and Pedestrians 65 years of age and older/2008 Population Figure) + (F+SI 2007 Drivers and Pedestrians 65 years of age and older/2007 Population Figure) + (F+SI 2006 Drivers and Pedestrians 65 years of age and older/2006 Population Figure) + (F+SI 2005 Drivers and Pedestrians 65 years of age and over/2005 Population Figure/5

Compare Rate for 2009 to Rate for 2011

3.Is there an increase in the calculated rates between the periods ending in 2009 and 2011? States should consider the rate to have increased and the Special Rule to apply if the increase changes the rounded tenths after the decimal place.

All rates should be calculated to the hundredths after the decimal point and then rounded to the nearest tenths. For example, 415/122 should be calculated as 3.51 and rounded to 3.5.

Actual Calculations are shown in the attached file.



Does the older driver special rule apply to your state?

No

Assessment of the Effectiveness of the Improvements (Program Evaluation)

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

☐ None

☐ Benefit/cost

☒ Policy change

☒ Other: Other-Minnesota is tracking the number of miles touched by HSIP as an indicator of success. We will be following up with analysis in the future.

☒ Other: Other-Minnesota is looking into if there has been a change in the distribution of fatal crash types on a year to year basis. This will also be evaluated on a system basis as well.

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

☐ Shift Focus to Fatalities and Serious Injuries

☐ Include Local Roads in Highway Safety Improvement Program

☐ Organizational Changes

☒ None

☐ Other:

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

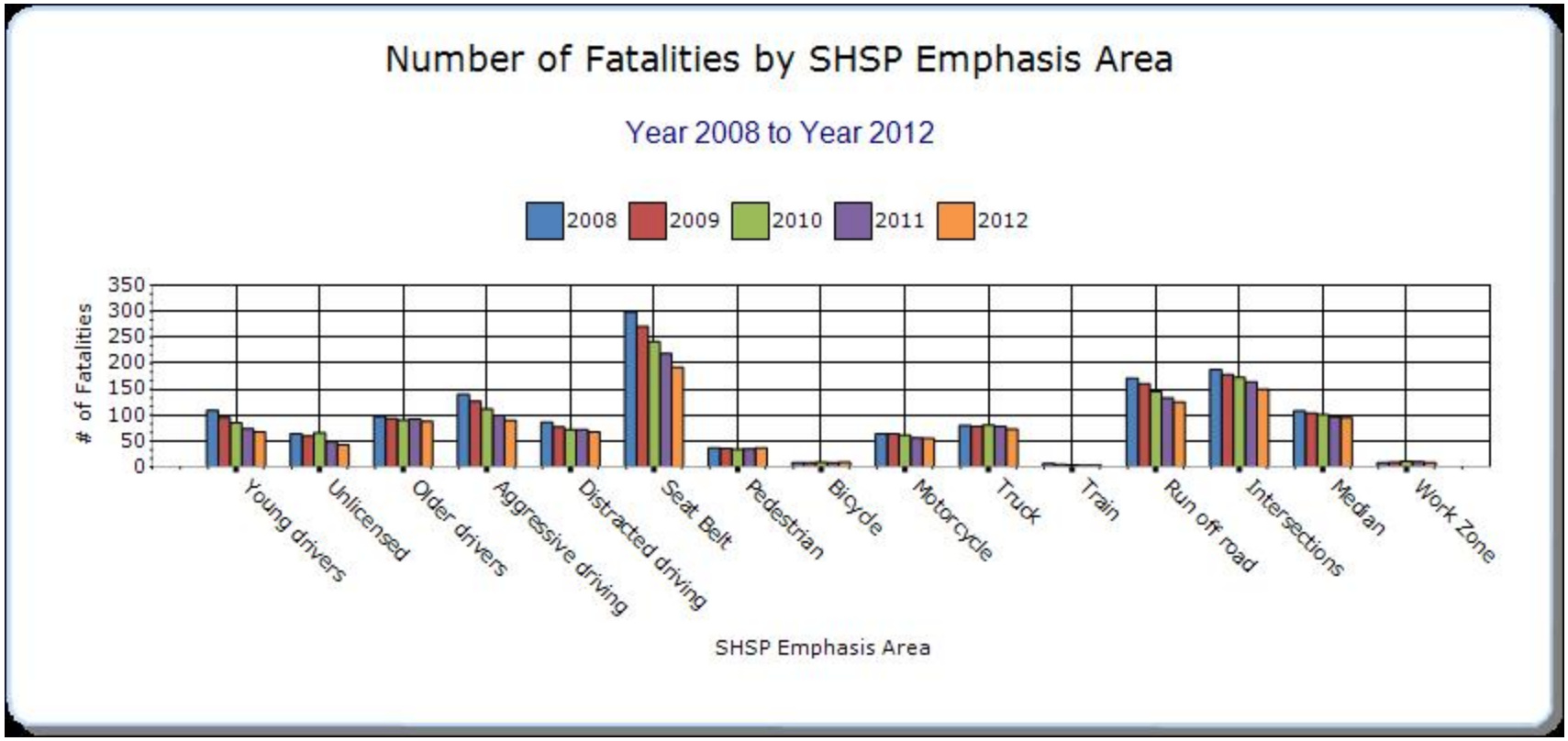
SHSP Emphasis Areas

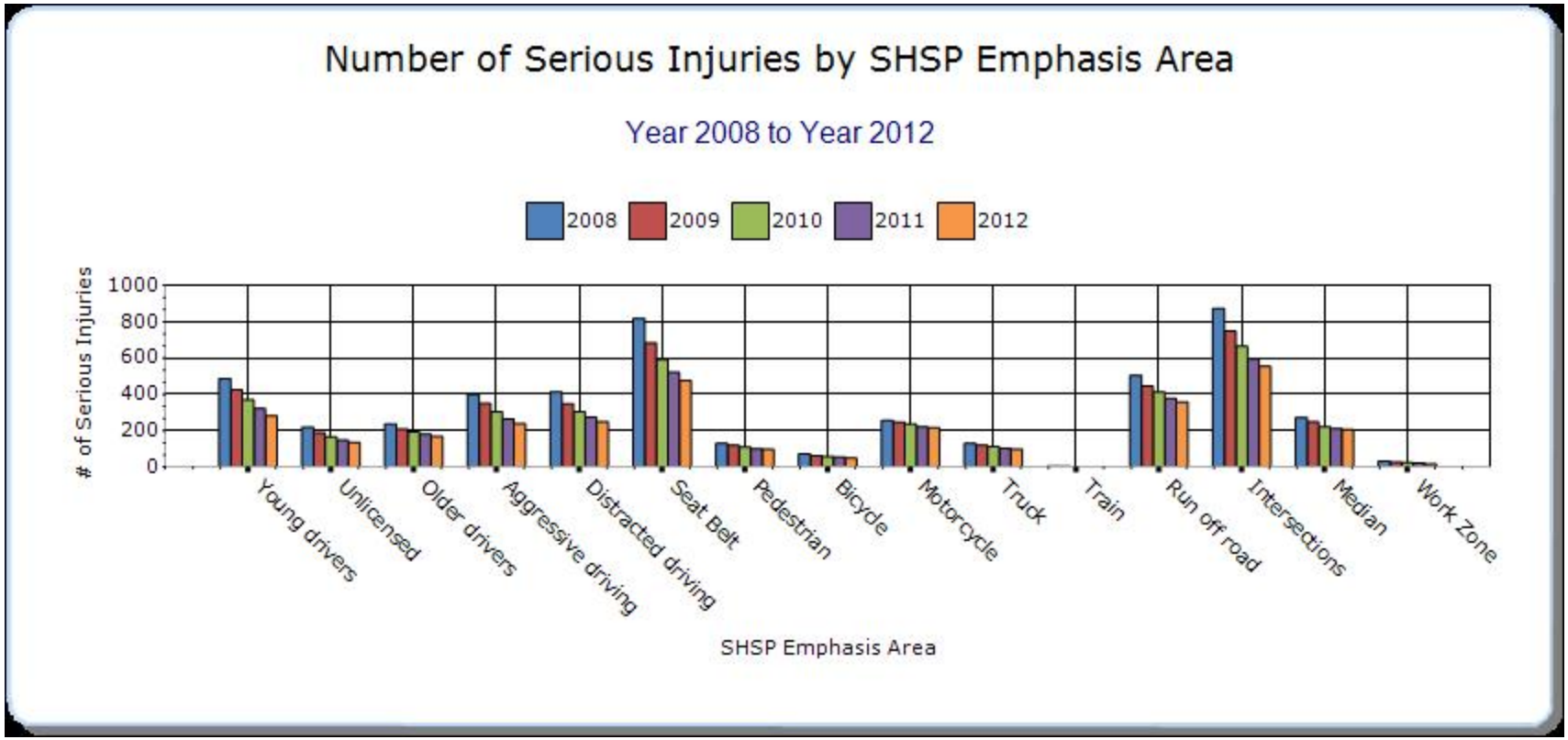
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

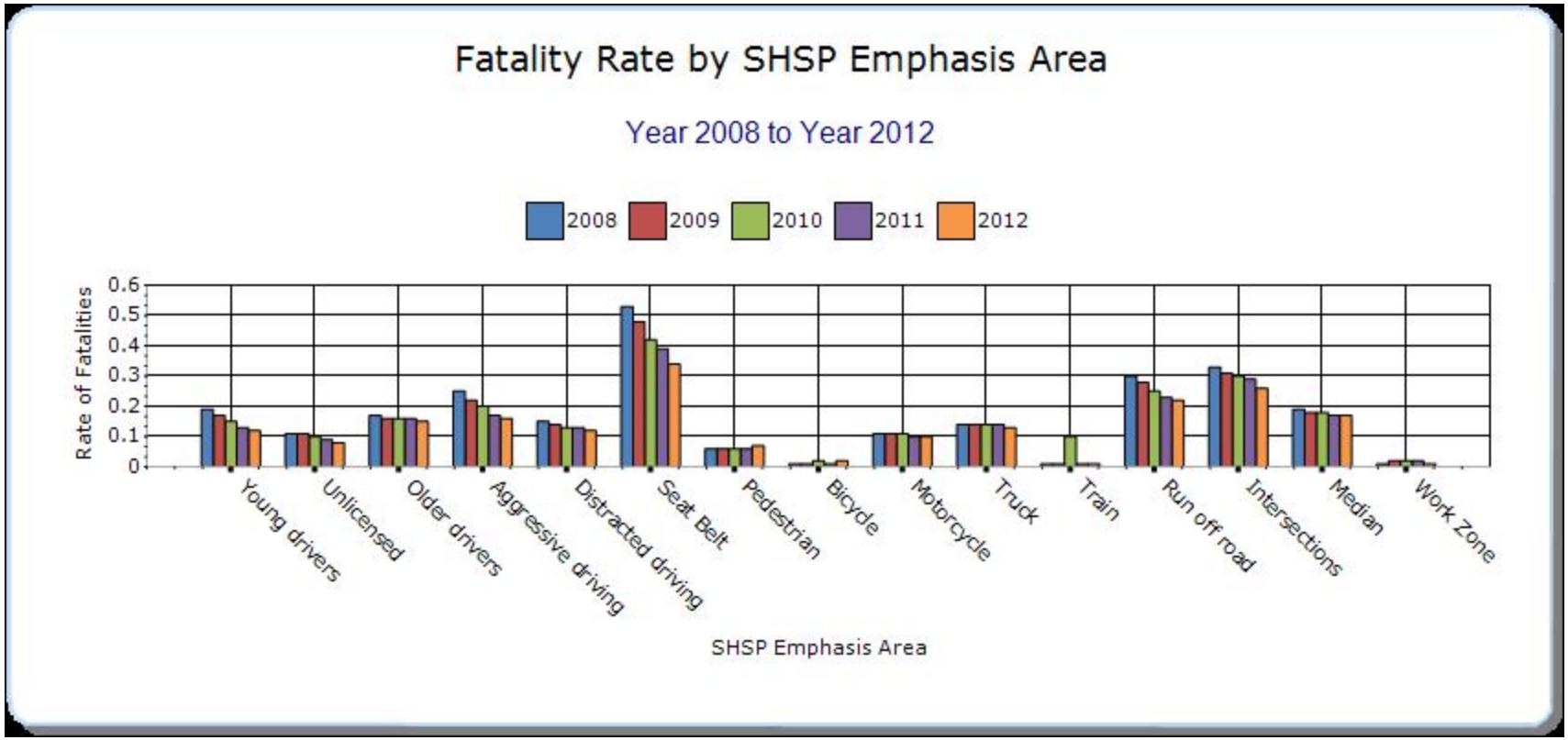
Year - 2012

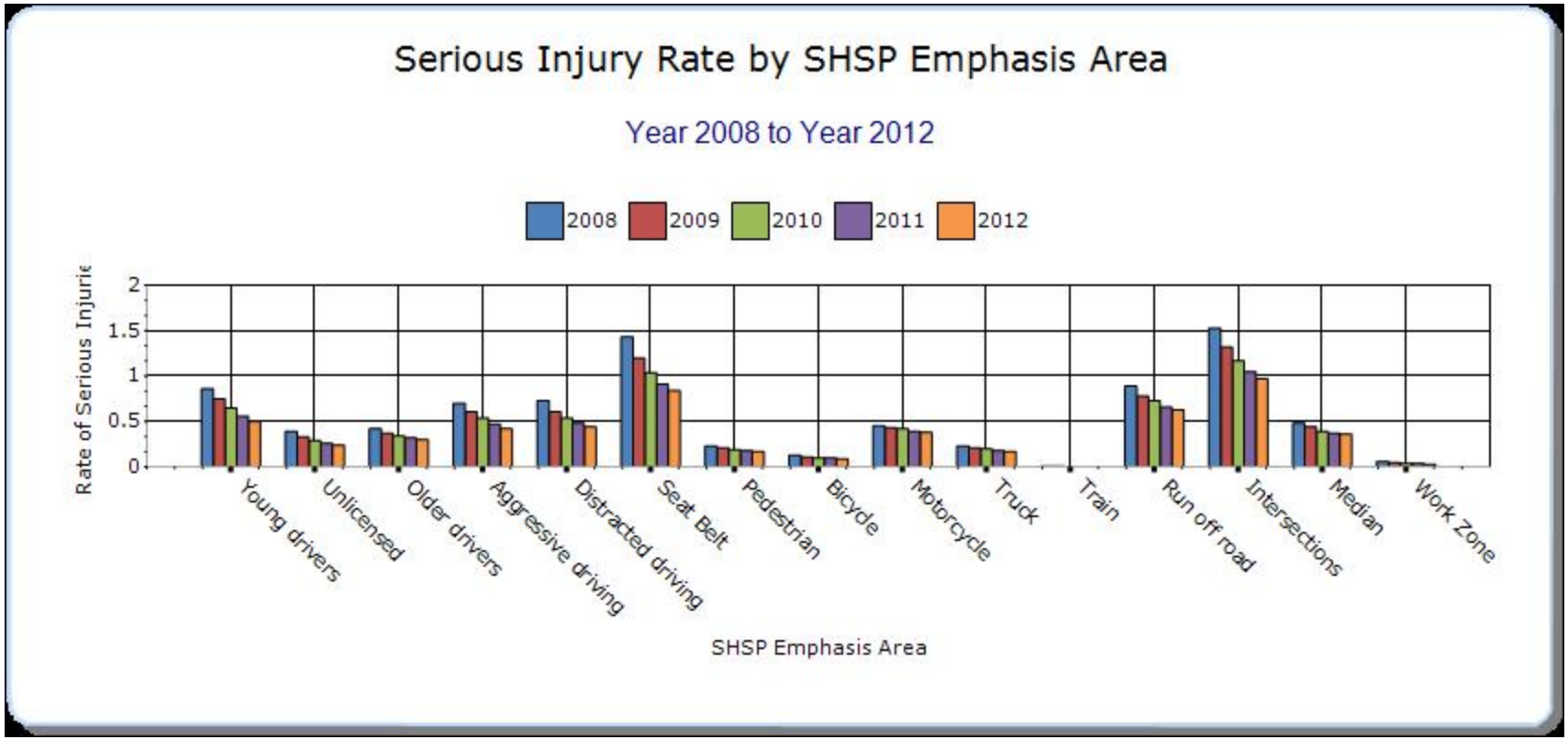
HSIP-related SHSP Emphasis Areas	Target Crash Type	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)	Other-1	Other-2	Other-3
Instituting graduated licensing for younger drivers	**All**	**68**	**282**	**0.12**	**0.5**	**0**	**0**	**0**
Ensuring drivers are licensed and fully competent	All	43	135	0.08	0.24	0	0	0
Sustaining proficiency in older drivers	All	88	169	0.15	0.3	0	0	0
Curbing aggressive driving	Speed-related	90	238	0.16	0.42	0	0	0
Keeping drivers alert	Inattentive Driver or on phone	68	248	0.12	0.44	0	0	0
Increasing seat belt use and improving airbag effectiveness	All	192	476	0.34	0.84	0	0	0
Making walking and	Vehicle/pedestrian	37	97	0.07	0.17	0	0	0

street crossing easier								
Ensuring safer bicycle travel	Vehicle/bicycle	9	49	0.02	0.09	0	0	0
Improving motorcycle safety and increasing motorcycle awareness	Involving motorcycle	55	215	0.1	0.38	0	0	0
Making truck travel safer	Truck-related	73	98	0.13	0.17	0	0	0
Reducing vehicle-train crashes	Crash involving Train	3	2	0.01	0	0	0	0
Keeping vehicles in the roadway	Run-off-road	125	358	0.22	0.63	0	0	0
Improving the design and operation of highway intersections	Intersection or Interchange	150	554	0.26	0.97	0	0	0
Reducing head-on and across-median crashes	Head on and sideswipe opposing	95	207	0.17	0.36	0	0	0
Designing safer work zones	Injured in crash in work zone	8	16	0.01	0.03	0	0	0


Number of Fatalities by SHSP Emphasis Area
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Fatalities
350
300
250
200
150
100
50
0
Young drivers
Unlicensed
Older drivers
Aggressive driving
Distracted driving
Seat Belt
Pedestrian
Bicycle
Motorcycle
Truck
Train
Run off road
Intersections
Median
Work Zone
SHSP Emphasis Area


Number of Serious Injuries by SHSP Emphasis Area
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Serious Injuries
1000
800
600
400
200
0
Young drivers
Unlicensed
Older drivers
Aggressive driving
Distracted driving
Seat Belt
Pedestrian
Bicycle
Motorcycle
Truck
Train
Run off road
Intersections
Median
Work Zone
SHSP Emphasis Area


Fatality Rate by SHSP Emphasis Area
Year 2008 to Year 2012
2008
2009
2010
2011
2012
Rate of Fatalities
0.6
0.5
0.4
0.3
0.2
0.1
0
Young drivers
Unlicensed
Older drivers
Aggressive driving
Distracted driving
Seat Belt
Pedestrian
Bicycle
Motorcycle
Truck
Train
Run off road
Intersections
Median
Work Zone
SHSP Emphasis Area

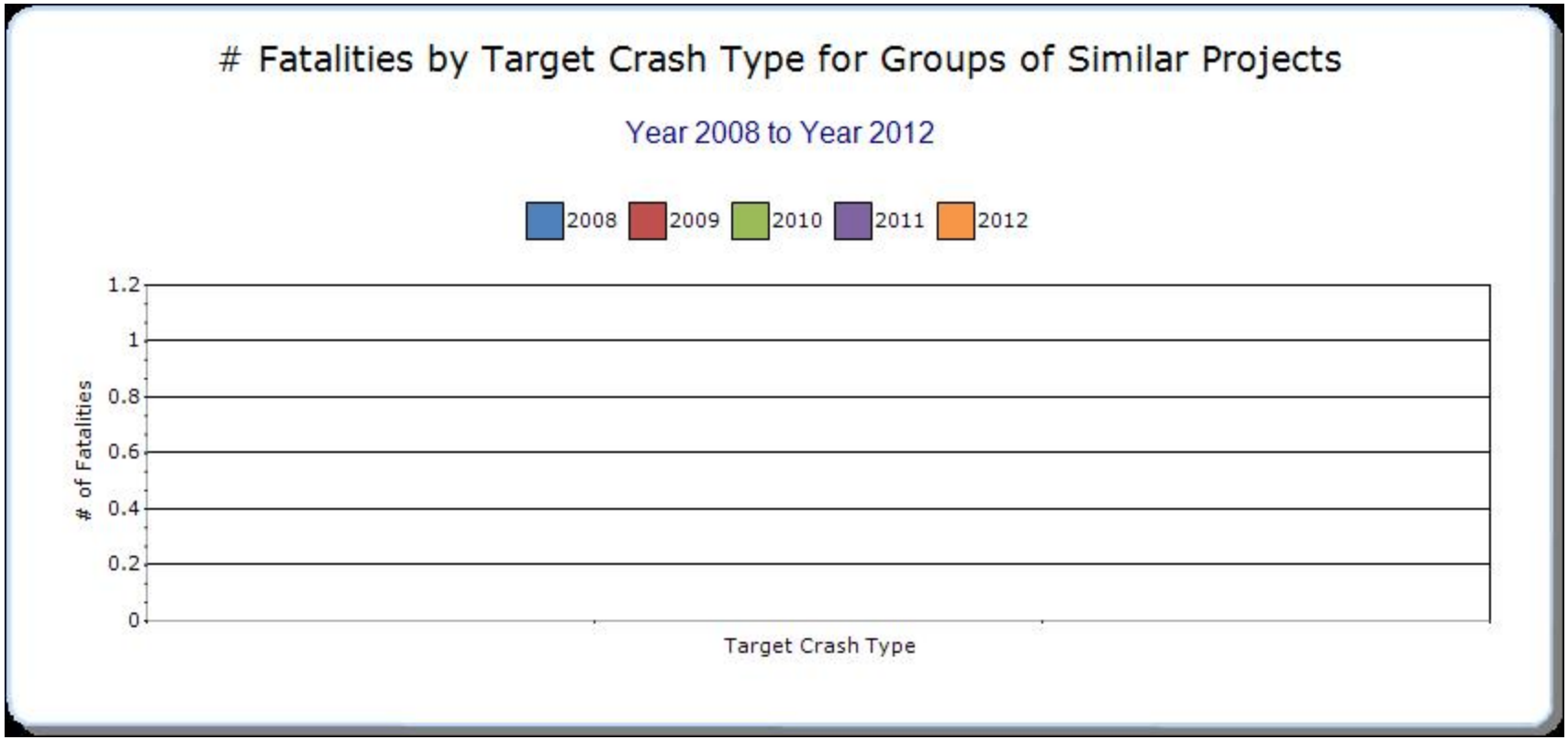

Serious Injury Rate by SHSP Emphasis Area
Year 2008 to Year 2012
2008
2009
2010
2011
2012
Rate of Serious Injurie
2
1.5
1
0.5
0
Young drivers
Unlicensed
Older drivers
Aggressive driving
Distracted driving
Seat Belt
Pedestrian
Bicycle
Motorcycle
Truck
Train
Run off road
Intersections
Median
Work Zone
SHSP Emphasis Area

Groups of similar project types

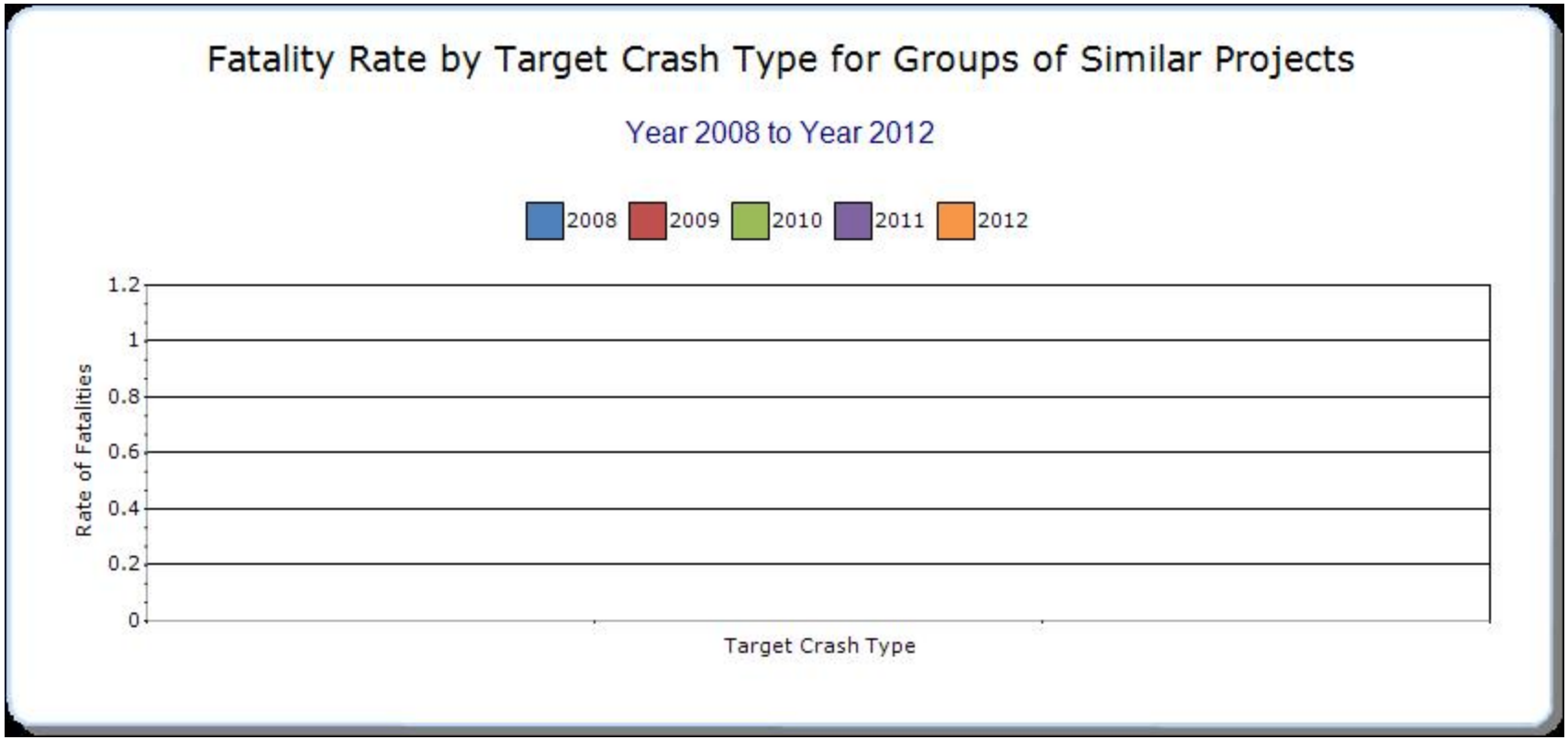
Present the overall effectiveness of groups of similar types of projects.

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
MnDOT has studied several years of six inch edge line installations this year and will look at additional miles next year. The study is attached and discussed in the final section of this report.		0	0	0	0	0	0	0


Fatalities by Target Crash Type for Groups of Similar Projects
Year 2008 to Year 2012
2008
2009
2010
2011
2012
1.2
1
0.8
0.6
0.4
0.2
0
# of Fatalities
Target Crash Type


#Serious Injuries by Target Crash Type for Groups of Similar Projects
Year 2008 to Year 2012
2008
2009
2010
2011
2012
1.2
1
0.8
0.6
0.4
0.2
0
# of Serious Injuries
Target Crash Type


Fatality Rate by Target Crash Type for Groups of Similar Projects
Year 2008 to Year 2012
2008
2009
2010
2011
2012
1.2
1
0.8
0.6
0.4
0.2
0
Rate of Fatalities
Target Crash Type

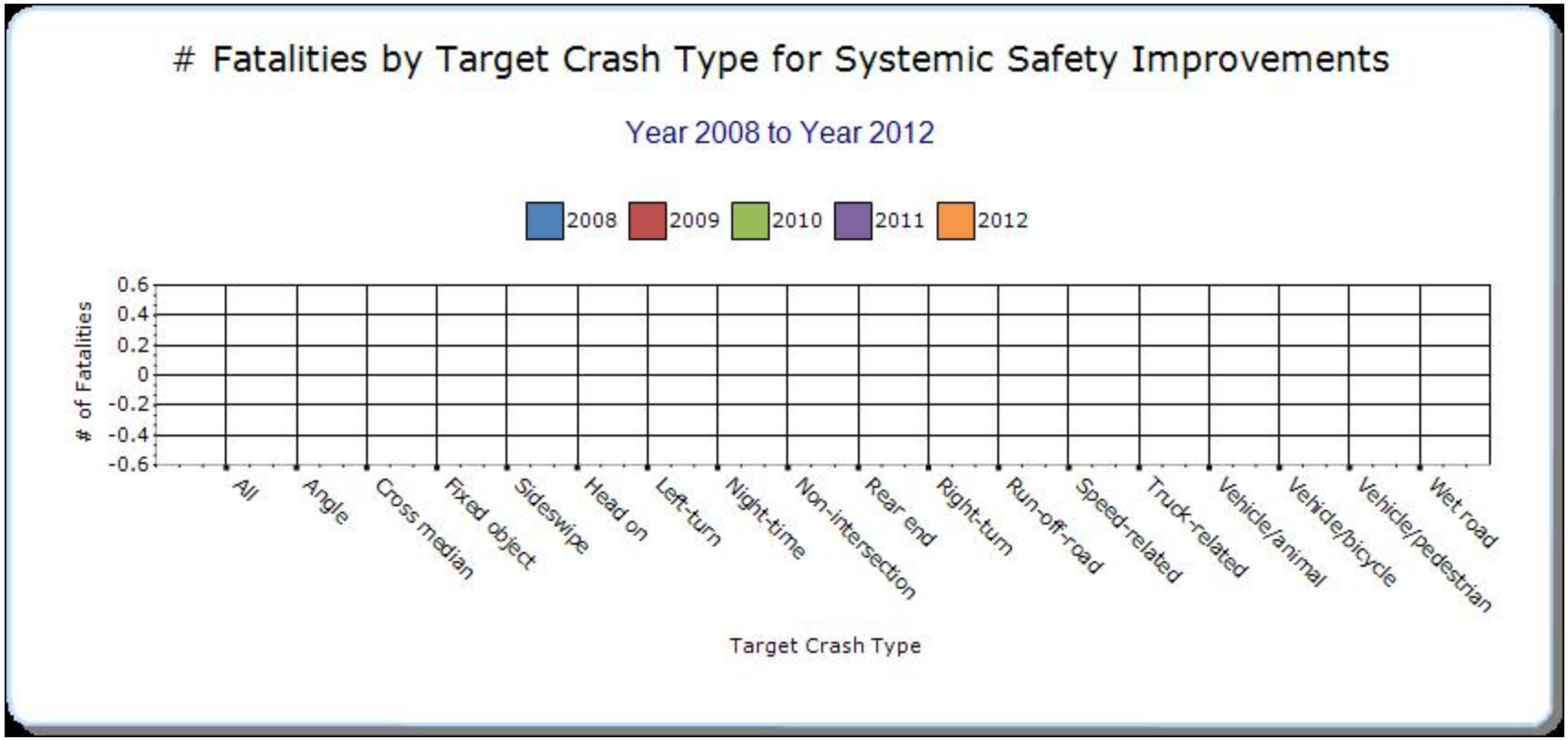

Serious Injury Rate by Target Crash Type for Groups of Similar Projects
Year 2008 to Year 2012
2008
2009
2010
2011
2012
1.2
1
0.8
0.6
0.4
0.2
0
Rate of Serious Injuries
Target Crash Type

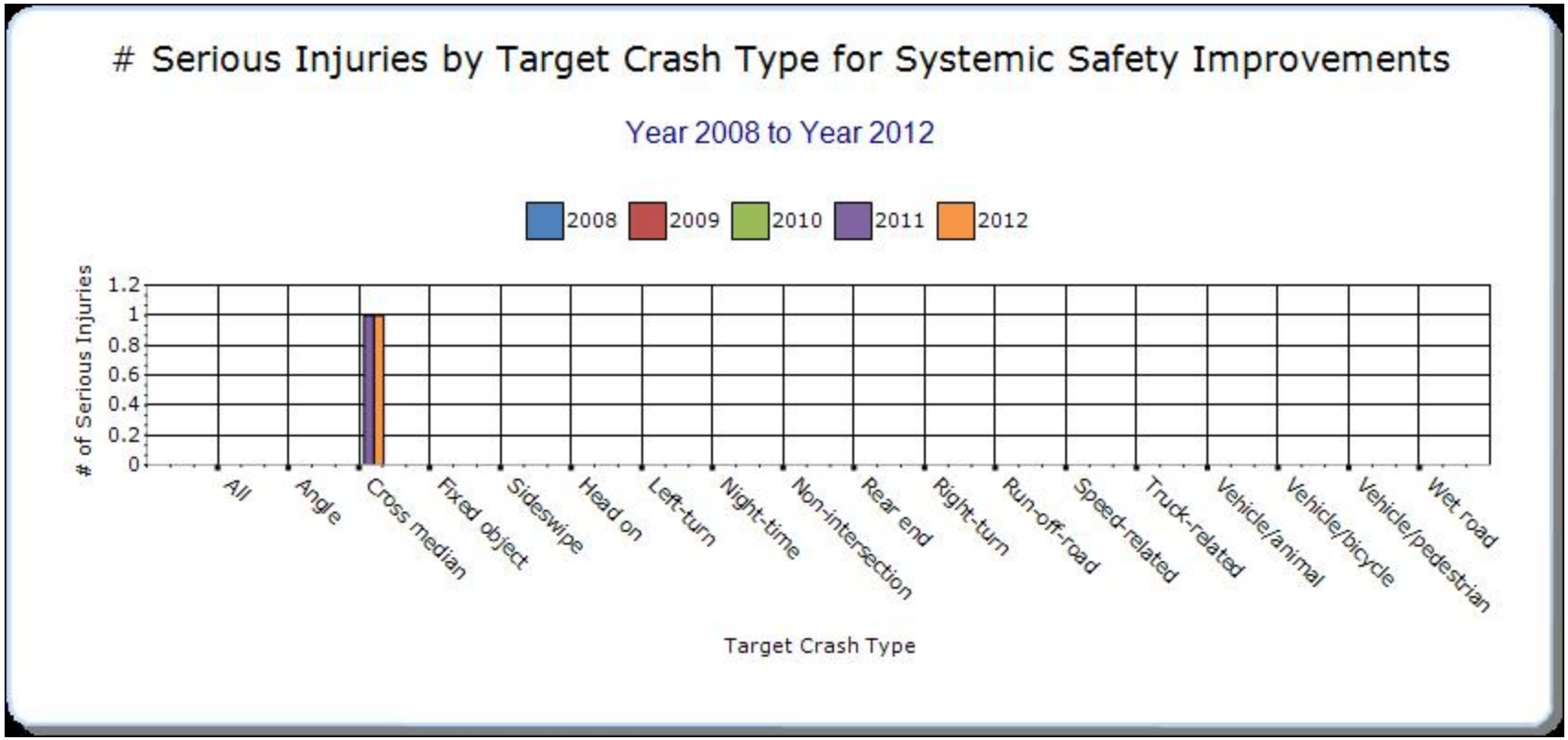
Systemic Treatments

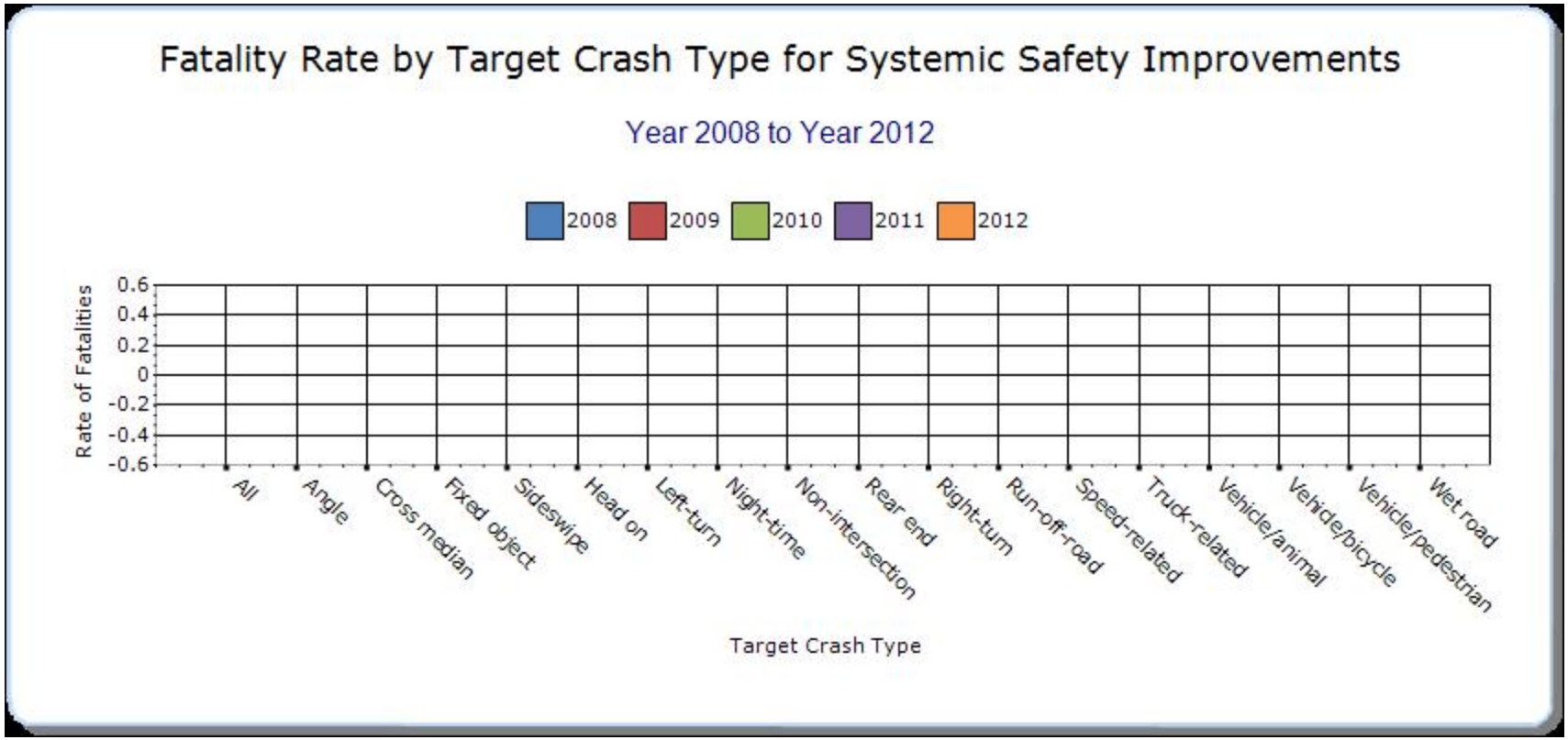
Present the overall effectiveness of systemic treatments..

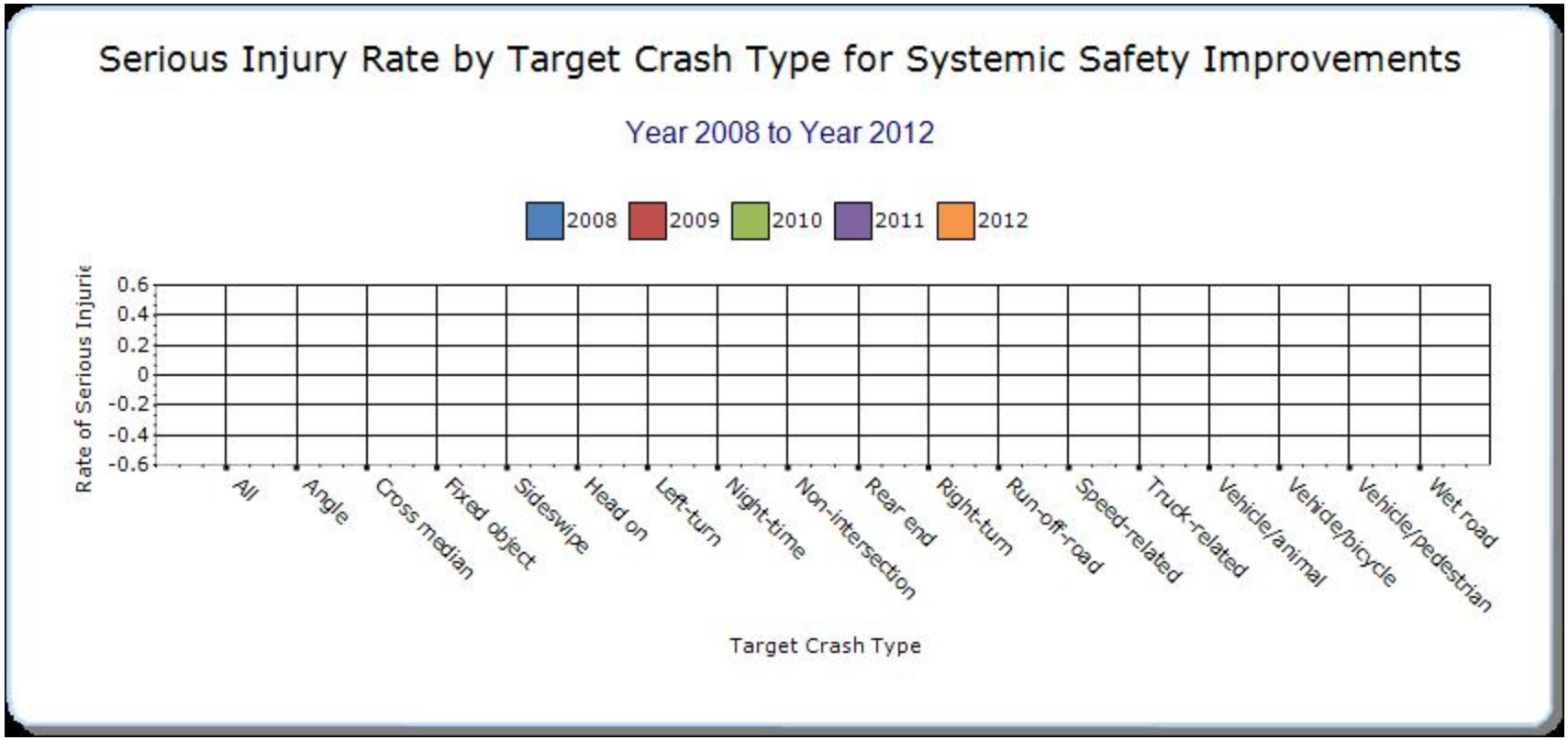
Year - 2012

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		**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cable Median Barriers	Cross median	0	1	0	0	0	0	0
Safety Edge		0	0	0	0	0	0	0
Pavement/Shoulder Widening		0	0	0	0	0	0	0
Install/Improve Signing		0	0	0	0	0	0	0
Install/Improve Lighting		0	0	0	0	0	0	0
Install/Improve Pavement Marking and/or Delineation		0	0	0	0	0	0	0


Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# 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 Injuries by Target Crash Type for Systemic Safety Improvements
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Serious Injuries
1.2
1
0.8
0.6
0.4
0.2
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



Minnesota is installing all of the listed strategies on a systemic basis. Each year we intend to study one of these strategies. At this time Minnesota has only investigated Cable Median Barrier and Wider Edge lines in depth.

Minnesota issued a Safety Edge Tech memo on January 19, 2011. It required safety edges on projects where new bituminous pavement is constructed with 6 feet or less of a paved shoulder.

Minnesota began installing stand-alone rumble strip projects with the HSIP program. As the program progressed, additional guidance was needed. As a result, Minnesota issued a state wide rumble strip tech memo. This memo became effective on November 8, 2011 and affects projects let after April 2012.

Minnesota began installing Cable Median Barrier in 2004. The very first installations saw huge improvements in fatal crashes and the cable median barrier quickly took off as a strategy. The highway Safety Improvement program (in conjunction with Section 164 funds) has been a major source of funding for this strategy.

*The Cable Median Barrier rolling averages listed for 2008 are 4 year rolling averages and not 5 year averages. Minnesota's first cable median barrier was installed in 2004, therefore we did not collect data for the year of installation.

**Minnesota is in the process of studying 6" wide edge lines. There is not enough post installation data to calculate rolling averages. The study data is attached for your information. Minnesota's first installations of six-inch edge lines occurred in 2010. Next year, Minnesota will be able to double the sample size and add additional information, with 2011 installations. Within the confines of our current data limitations we can say with certainty that six inch edge lines show promising crash reduction benefits for our target crash type: run-off-road right.

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

Minnesota is trying to balance out our investment between prevention and reduction. Prevention meaning low-cost systemic projects touching a large number of miles with our HSIP dollars. Local HSIP projects tend to fall under the prevention category. Reduction refers to the high crash locations that focus more dollars on fewer miles.

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)
Multiple Locations of Rural 2-lane, 2-way roads		Roadway delineation	enhanced Edgelines											

Please see attached file:

Optional Project Eval - Six Inch Edge Lines.pdf

for study background and results.

Optional Attachments

Sections	Files Attached
Program Structure: Program Administration	funding comparison.xlsx
Assessment of the Effectiveness of the Improvements: Description of Overall Effectiveness	Q27 Older Driver.xlsx

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.