Highway Safety Improvement Program

Data Driven Decisions

California
Highway Safety Improvement Program
2015 Annual Report

Prepared by: CA

Disclaimer

Protection of Data from Discovery & Admission into Evidence

23 U.S.C. 148(h)(4) states "Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section [HSIP], shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location identified or addressed in the reports, surveys, schedules, lists, or other data."

23 U.S.C. 409 states "Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data."

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Executive Summary

Executive Summary

The Moving Ahead for Progress in the 21st Century Act or "MAP–21" (Pub. L. 112–141, 126 Stat. 405), was signed into law July 6, 2012, and continued the Highway Safety Improvement Program (HSIP) as a core program under title 23 United States Code section 148 to reduce fatalities and injuries on all public roadways. Title 23 United States Code section 148(h) requires each state to submit an annual report to the Federal Highway Administration (FHWA) regarding its HSIP implementation and effectiveness and title 23 Code of Federal Regulations sections 924.15(a)(1) and 924.15(a)(2) specify that the report be submitted no later than August 31 of each year.

This annual report describes the progress being made to implement projects and the status of program evaluations for the HSIP as described in Title 23 United States Code section 148, and for High-Risk Rural Roads (HR3) (23 U.S.C. § 148(g)). The Railway-Highway Crossings (23 U.S.C. § 130(g)) report is submitted to FHWA directly by the California Public Utility Commission as a separate report.

Under the "MAP–21" (Pub. L. 112–141, July 6, 2012; 126 Stat. 405), the High-Risk Rural Roads program was merged into the HSIP for safety improvements on public rural roadways that meet the functional classification requirements of title 23 United States Code section 148(a)(1). In addition to the above, in accordance with title 23 United States Code section 164 repeat intoxicated transfer funds, approximately $35.21million was obligated for alcohol impaired driving countermeasures. These funds will be used to support the California Strategic Highway Safety Plan.

Caltrans' Division of Traffic Operations provided information on the State Highway System (SHS) for this report, and Caltrans' Division of Local Assistance for local roads and the HR3 Program. Caltrans implements the HSIP for State highways by programming and funding projects in the Collision Reduction Category, one of eight categories that make up the State Highway Operation and Protection Program (SHOPP). The Collision Reduction Category is further divided into two programs: Safety Improvement, and Collision Severity Reduction. The Safety Improvement Program is among Caltrans' top priorities in the SHOPP and as a result, all projects that meet the criteria for the Safety Improvement Program are funded. These criteria include a benefit-cost analysis. The projects evaluated in this report are funded by the Collision Reduction Category, which includes both federal HSIP and State highway funds.

Caltrans uses the Transportation System Network (TSN) database to identify locations with significantly high collision concentrations. The identified locations are systematically investigated to determine probable causes of the collisions in order to implement effective countermeasures to improve safety. Other locations identified for investigation and possible implementation of countermeasures are generated from three Monitoring Programs: Cross Median Collision, Two and Three Lane Cross Centerline Collision, and Wrong Way Collision. Nearly 2,468 traffic safety investigations were processed between 01-01-2014 and 12-31-2014. In addition, 528 "Other Safety" investigations were processed. These safety related investigations were not generated by TSN but by citizens' calls, letters, emails, etc. Finally, as of February, 2012, Caltrans has implemented a 5-year "California Roadway Departure Safety Implementation Plan" which identified over 7,000 locations for possible low cost countermeasures to systematically implement on many state highways in an effort to reduce roadway departure crashes.

For this year's reporting period, the most recent ten-year data available was for 2003 to 2012. During the 2012 calendar year, 1,049 fatal collisions, 47,426 injury collisions, and 90,182 property-damage-only (PDO) collisions were reported on the SHS. Caltrans estimates that these collisions resulted in losses of approximately $20.6 billion.

The HSIP and other State programs have made highways safer through the implementation of highway safety projects. This fact is evident from the fatality rate trends. Between 2003 and 2012, the fatality rate on all State highways has decreased 38 percent. For the same period, the fatality rate on freeways decreased 40 percent, and on non-freeways it decreased 32 percent. During the same period, the annual travel increased by 0.2 percent on all highways. The annual travel on freeways increased 1.8 percent, and on non-freeways it decreased by 6.8 percent. Freeway travel in 2012 accounts for 82.9 percent of travel on the SHS even though freeway road miles account for only 29 percent of the SHS.

The reductions in fatality rates have been accomplished by implementing safety projects. Many other improvements such as tree trimming, restriping, or installing warning signs that were requested by Traffic Operations staff and performed by Maintenance staff in the districts also contributed to improved safety. During FY 2014/15, there were 61 Major and Minor-A safety projects awarded at a cost of $100.85 million. All of these project types are consistent with one or more of the 17 challenge areas identified in California's Strategic Highway Safety Plan (SHSP).

The effectiveness of the State HSIP was measured by comparing collision data before and after safety improvements were implemented at project sites. These projects have been completed between 7/1/2010 and 6/30/2011. Three years of collision data before project implementation was compared with three years of collision data after project implementation. A total of 78 projects were considered in the evaluation. Analysis of collision data was based on 110 highway

locations as some of the projects contained more than one highway location. The cost of implementing these projects was $119.4 million. The annual savings, in terms of reductions in collision frequency and severity, was estimated at $78.3 million. This translates to a savings of $1565.2 million or a benefit-cost ratio of 13.1 to1, assuming a project life of 20 years.

A set of 4 performance measures were calculated for California highways including state and local roads. The performance measures were defined as 5 year rolling average of collision frequencies and collision rates for each of the five years, 2008 thru 2012. These performance measures are: 1) the number of fatalities, 2) the number of fatalities per 100 Million Vehicle Mile of Travel (MVMT), 3) the number of persons severely injured, and, 4) the number of persons severely injured per 100 MVMT. The data used to derive the rolling averages is from 2003 to 2012. The rolling averages show a decreasing trend, indicating improvement in road safety on California state and local roads.

MAP-21 is putting focus in certain areas such as older driver and pedestrian fatalities and severe injury rates per capita. Comparison of the 5 year rolling averages for older driver and pedestrian fatal + injury are done for two time periods, 2006-2008 and 2008-2012. The most recent data available was for 2012. Using these two time periods, the moving averages for fatal + injury show a downward trend and therefore the implementation of the special rule as set by MAP 21 does not apply. The data are from all roadways in the state, not just the State Highway System.

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.

Caltrans Division of Local Assistance (DLA) uses an HSIP application benefit-cost tool to provide a consistent, data-driven methodology for ranking local roadway (non-State owned and operated) project applications on a statewide basis. This tool was developed by the DLA in conjunction with the University of California, Berkeley, Safe Transportation Research and Education Center. The DLA HSIP also provides the Local Roadway Safety Manual for California local road owners and directly incorporates UC Berkeley's Transportation Injury Mapping System website to assist applicants applying for local HSIP funds. These tools and resources encourage local agencies to proactively analyze their roadway networks for the highest

crash locations and develop and submit applications with the greatest chance of reducing fatalities and serious injuries.

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

☐ Design

☒ Planning

☐ Maintenance

☒ Operations

☐ Governors Highway Safety Office

☒ Other: Other-Headquarters Traffic Safety and Mobility Program, in partnership with 12 district offices, plans safety projects on the state highway system. Caltrans Division of Local Assistance in conjunction with local agencies, plans projects on local roads.

Briefly describe coordination with internal partners.

On the State Highway System, the Traffic Safety and Mobility Program in Headquarters within the Division of Traffic Operations works with the 12 Caltrans district offices to develop Project Initiation Documents to program projects. For local roads, Caltrans Division of Local Assistance (DLA) staff manage the local agency share of HSIP funds in conjunction with its local agency partners. The DLA prepares the HSIP guidelines and solicits project applications from local agencies.

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

☒ Metropolitan Planning Organizations

☒ Governors Highway Safety Office

☒ Local Government Association

☒ Other: Other-Caltrans has been working with 400 stakeholders from 170 public & private agencies to develop CA-SHSP. Projects developed are consistent with SHSP strategies. Caltrans' DLA with local

agencies are involved in planning projects on local roads.

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-The California Local HSIP Advisory Committee was established. This is an action oriented committee of transportation safety stakeholders which supports the goal to reduce fatalities and serious injuries on all public roadways in California.

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

Eligibility of HSIP funds under MAP-21 now includes more flexibility in the types of projects and States are no longer required to certify they have met various safety infrastructure needs in order to fund non-infrastructure projects. An HSIP project is now any strategy, activity or infrastructure and non-infrastructure types of project on a public road that is consistent with the State's data-driven Strategic Highway Safety Plan (SHSP) and must support the State's safety performance targets. HSIP continues to focus on significantly reducing traffic fatalities and serious injuries on all public roads. HSIP also continues to require a data-driven, strategic approach to improving highway safety on all public roads.

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-2 & 3 Ln Cross Centerline Collision Monitoring Pro	☒ Other: Other-Wrong-Way Monitoring Report	☒ Other: Other-Local Roads Program

Program: **Median Barrier**

Date of Program Methodology: **11/15/1977**

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

☒ Other-Any project that meets the established median barrier criteria for project selection is programmed

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	
☐ Incremental B/C	
☐ Ranking based on net benefit	
☐ Other	
☒ Collision and volume warrants =100 percent. Safety improvement projects are Department's top priority. All District recommended and HQ approved safety improvement projects should have PID documents completed as soon as practicable.	100

Program: **Roadway Departure**

Date of Program Methodology: **11/15/2004**

What data types were used in the program methodology?

Crashes *Exposure* *Roadway*

- ☐ All crashes
- ☐ Fatal crashes only
- ☐ Fatal and serious injury crashes only
- ☐ Other
- ☐ Traffic
- ☒ Volume
- ☐ Population
- ☒ Lane miles
- ☒ Other-Fatal and injury crashes on Wet Pavement
- ☐ Median width
- ☐ Horizontal curvature
- ☒ Functional classification
- ☒ Roadside features
- ☒ Other-Fatal & injury crashes resulting in Overturned Vehicle
- ☒ Other-see the optional description

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-see the optional description for this question

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

☒ Other-see the optional description for this question

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

☐ Incremental B/C

☐ Ranking based on net benefit

☐ Other

☒ 100%	top 25% of run-off-road concentration locations with higher scores +100% of identified long segments selected based on collision frequency, roadway type, geometric characteristics and traffic	100

volume.

Program: **Other-2 & 3 Ln Cross Centerline Collision Monitoring Pro**

Date of Program Methodology: **1/15/1985**

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-See optional description pertaining to this subprogram	☒ 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-All projects meeting established criteria programmed

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

☐ Incremental B/C

☐ Ranking based on net benefit

☐ Other

☒ Crash frequency and rate 100

Program: **Other-Wrong-Way Monitoring Report**

Date of Program Methodology: **1/15/1985**

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-Any identified location that meets the established criteria is programmed for implementation

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

☒ Relative Weight in Scoring

☐ Rank of Priority Consideration

☐ Ranking based on B/C

☐ Available funding

☐ Incremental B/C

☐ Ranking based on net benefit

☐ Other

☒ Crash Frequency and crash rate 100

Program: **Other-Local Roads Program**

Date of Program Methodology: **9/3/2010**

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-Collision History (5 years minimum), Collision Reduction Factors, Life of Improvement, Project Costs

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

If no, describe the methodology used to identify local road projects as part of this program.

HSIP application benefit-cost tool started with Cycle 4 “call for projects” in Fall 2010

How are highway safety improvement projects advanced for implementation?

☒ Competitive application process

☐ selection committee

☒ Other-HSIP Application Benefit-Cost Tool

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

☐ Other

☒ Competitive application process

With respect to the subprogram for the Roadway Departure subprogram, two approaches are utilized to identify locations for investigation, namely the conventional approach and the systemic approach. In the conventional approach 7 criteria including F+I crashes per year per mile, F/(F+I), shoulder width, collisions in darkness, on wet pavement, and overturned vehicle collisions are used to develop a list of run-off-road collision concentrations. Top 25% of locations with high collision concentration from this list are selected for further field investigations. Additionally, a systematic approach is used involving deploying a relatively high number of low-cost countermeasures at longer segments of roadway selected based on crash history, roadway type, geometry, volume, benefit/cost using collision modification factors, etc.

Regarding 2 and 3 Lane Cross Centerline Collision Monitoring subprogram, the collisions considered for selection of locations for investigation are cross-centerline, head-on fatal collisions without left turn, and U-turn related collisions. Headquarters staff, use the statistics for fatality, fatality rate, and total collisions per mile to evaluate the locations meeting the selection criteria.

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

10

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

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

There is no set aside proportion of HSIP funds to addresses systemic improvements. Funding for median barrier projects varies annually depending on the number of projects proposed. Approximately 10 to 20% of the HSIP projects total cost are expended on median barrier projects.

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: Other-New, increased collision costs are used to prioritize projects and develop cost/benefit analysis.

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

1) Caltrans is currently undertaking a research project to develop safety performance functions for highways, intersections and ramps to be used in the Safety Analyst system which is consistent with the methodology in Highway Safety Manual (Type-I & Type-II performance functions). The goal is to replace the existing Traffic Accident Surveillance and Analysis System (TASAS) with Safety Analyst.

2) A comprehensive set of Performance Functions for various road types, intersections and ramps are being developed that will impact our identification of locations with high collision concentrations.

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)	100847353	100 %	134981470	100 %
HRRRP (SAFETEA-LU)				
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)				
State and Local Funds				

Other *****see the Optional Description	0	0 %	0	0 %
Totals	100847353	100%	134981470	100%

1. Please see the attached files to question 17. We were not able to provide programmed funds for all categories. Due to functional limitation of ORT, data had to be provided as an attachment to this question.
2. In reporting the obligated funds for last year's HSIP (SFY 2013-14), Caltrans Division of Budgets provided inaccurate numbers. The correct values for 2013-14 are:

HSIP: $128,622,808

HRRRP: $7,562,233

Penalty Transfer:$28,675,480

Other Federal-aid Funds: $21,674,805

3. Funding summary provided by the Caltrans Division of Local Assistance are:

HSIP Dollars Programmed in FFY 14/15 under 2015 FTIP as of 6/30/15 $98,389,649

HSIP Dollars Obligated (Construction Authorization Date: 7/1/14 to 6/30/15) $55,462,990

Percent HSIP Dollars Obligated 56.37%

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

$98,389,649.00

How much funding is obligated to local safety projects?

$55,462,990.00

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

$35,208,515.00

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

$35,208,515.00

We have been able to provide the obligated funds for various categories listed in the table for question 17, but unable to specify the programming funds for the various categories except the HSIP (section 148) category. The obligated funds of **$35,208,515** was for Section 164 repeat intoxicated transfer funds for alcohol impaired driving countermeasures. In order to be able to complete the question to satisfy the ORT functionality issue, we assumed the same value (**$35,208,515**) for programming.

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 following are changes that were recently implemented (Local HSIP Cycle 7 application period, 4/7/15 – 7/31/15) to improve the selection, funding and timely delivery of quality safety projects.

- Increase the maximum Local HSIP funds per Agency and per project application to $10 million, so that complete projects can be funded by HSIP.
- Application of 23 USC, Section 120(c)(1) for 100% federal funding for Local HSIP projects, which includes low-cost, proven safety countermeasures that can be delivered in a timely manner.
- Require incremental approach, using lower cost and lower impact countermeasures (signing, striping upgrades, rumble strips) and evaluating their effectiveness on safety, before moving to higher cost and higher impact countermeasures (road widening, improving horizontal/vertical alignments and curve realignment projects).

For Local HSIP Cycle 6 projects, which are funded at 90% federal funds and minimum 10% local match, provide incentive for early project delivery using toll credits to cover 10% local match.

Also, a Systemic Safety Analysis Report (SSAR) Program has been developed, which will be made available to local agencies to provide a comprehensive systemic safety analysis of their roadways and intersections. The SSAR will assist local agencies in addressing safety issues on their roadway networks and help them prepare for future HSIP applications. The SSAR will focus on low-cost, proven safety countermeasures that can be delivered in a timely manner.

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

None

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
See Optional Description	Access management Median crossover - close crossover	Miles			HSIP (Section 148)	Rural Major Collector			State Highway Agency	Roadway Departure	

Two excel files are provided as attachments to this question. One file provides the list of projects on the state highways that are awarded in State Fiscal Year 2014-15. The second file provided by the Division of Local Assistance includes the list of projects on local roads.

Progress in Achieving Safety Performance Targets

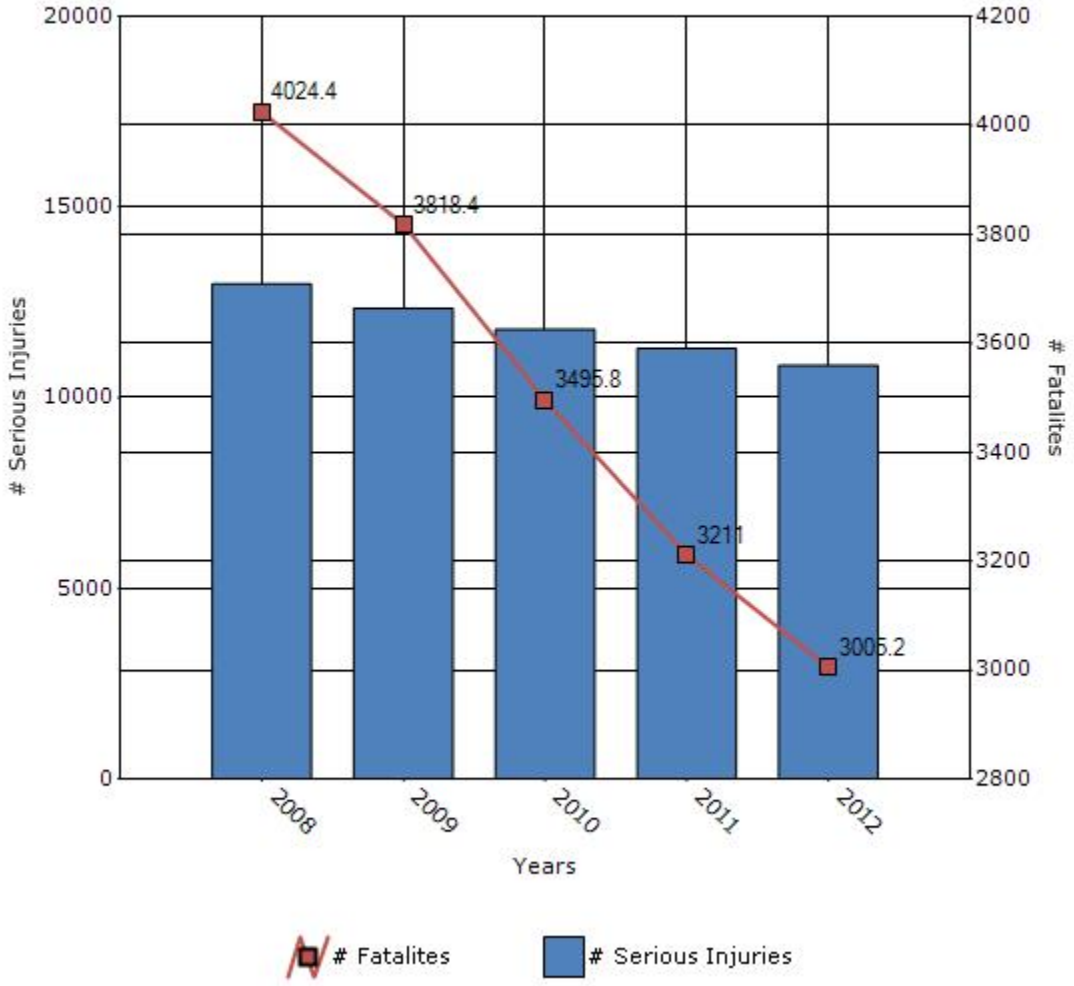
Overview of General Safety Trends

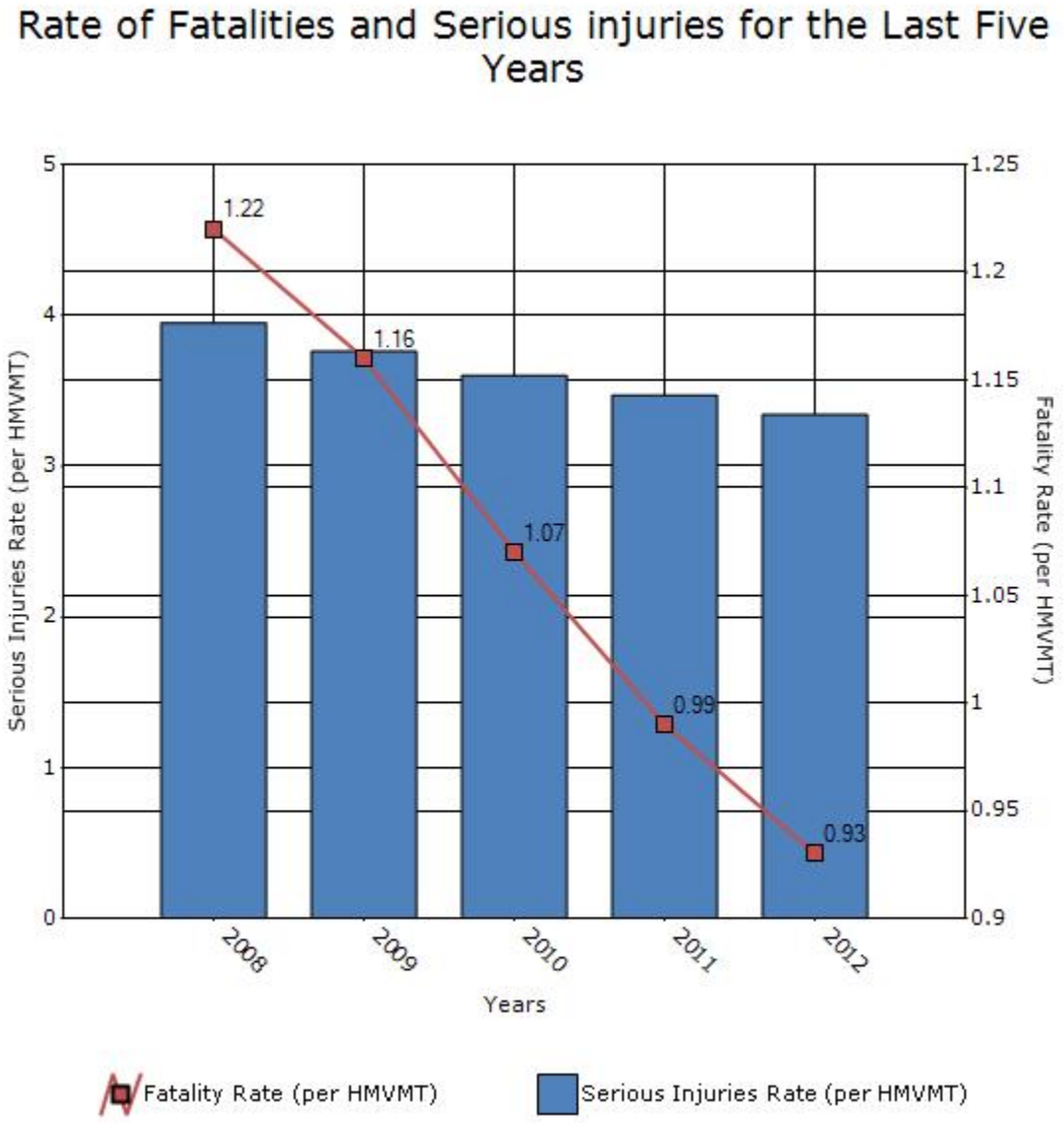
Present data showing the general highway safety trends in the state for the past five years.

Performance Measures*	2008	2009	2010	2011	2012
Number of fatalities	4024.4	3818.4	3495.8	3211	3005.2
Number of serious injuries	12981.4	12339.6	11791.4	11295	10841.2
Fatality rate (per HMVMT)	1.22	1.16	1.07	0.99	0.93
Serious injury rate (per HMVMT)	3.95	3.76	3.6	3.47	3.34

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

Number of Fatalities and Serious injuries for the Last Five Years





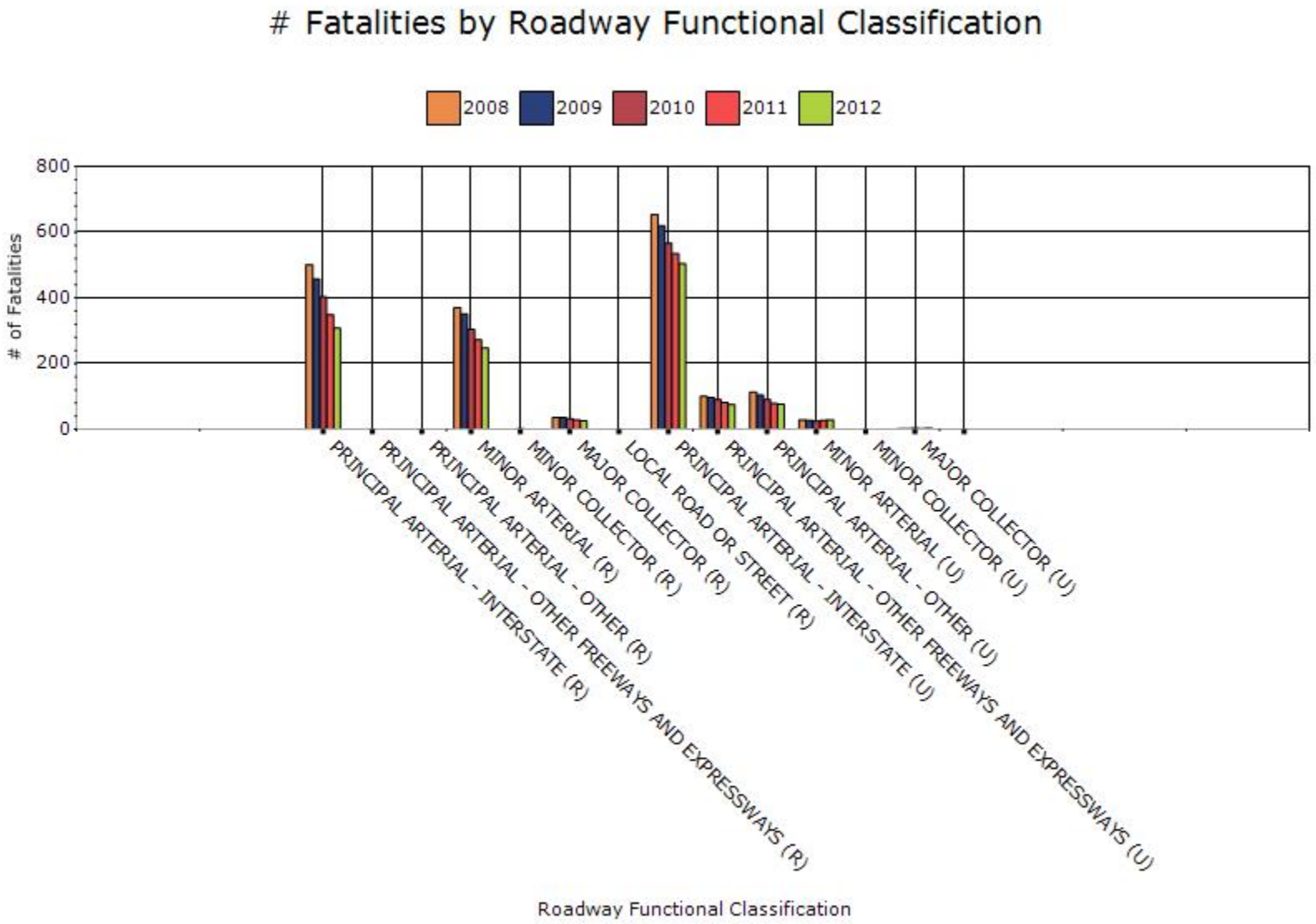
A set of 4 performance measures were calculated for California highways including the state and local roads. The performance measures were defined as 5 year rolling average of collision frequencies and collision rates for each of the five years, 2008 thru 2012. These performance measures are: 1) the number of fatalities, 2) the number of fatalities per 100 Million Vehicle Mile of Travel (MVMT), 3) the number of persons severely injured, and, 4) the number of persons severely injured per 100 MVMT. The data used to derive the rolling averages is from 2003 to 2012. The rolling averages show a decreasing trend, indicating improvement in road safety on California's state and local roads.

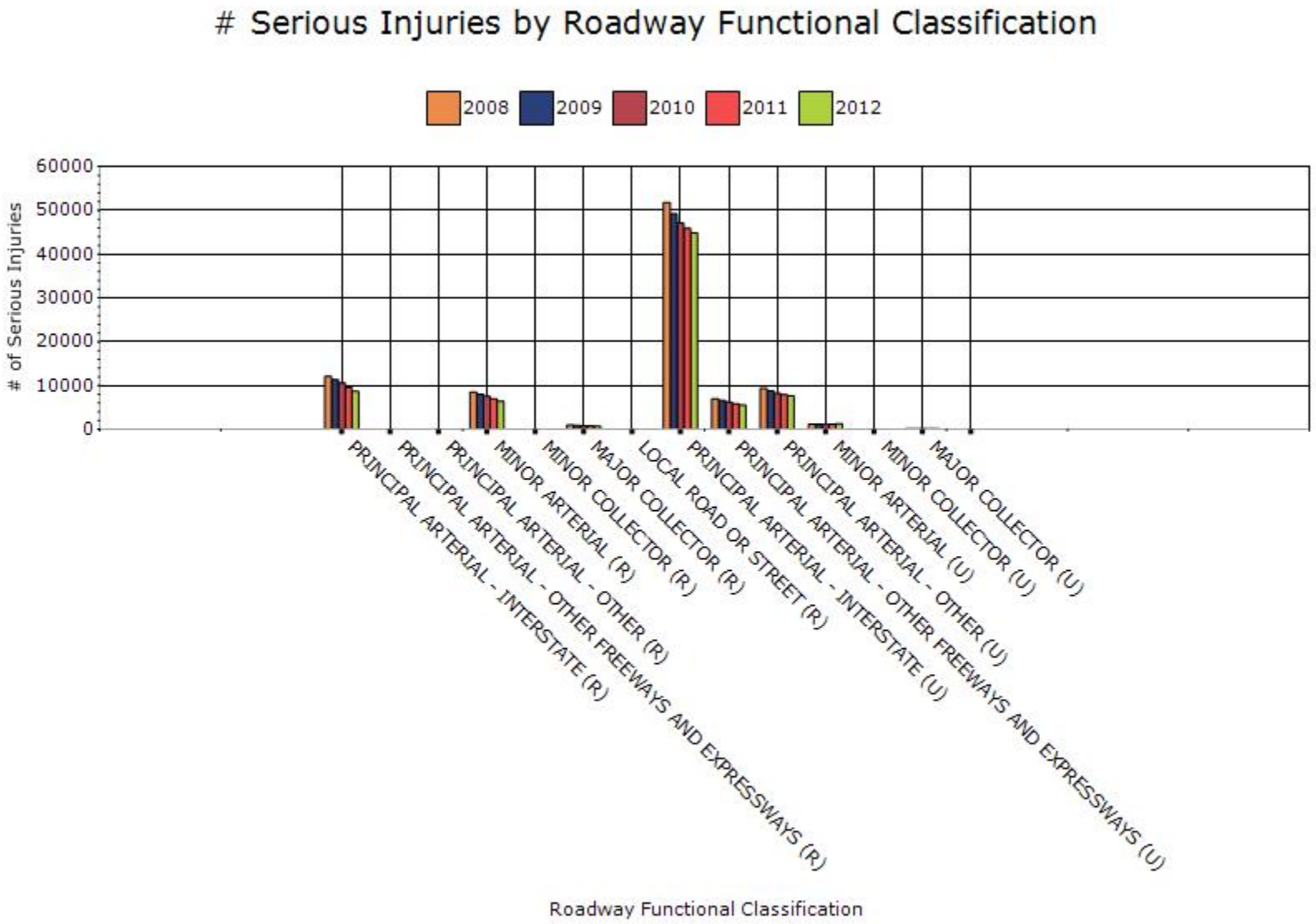
To the maximum extent possible, present performance measure* data by functional classification and ownership.

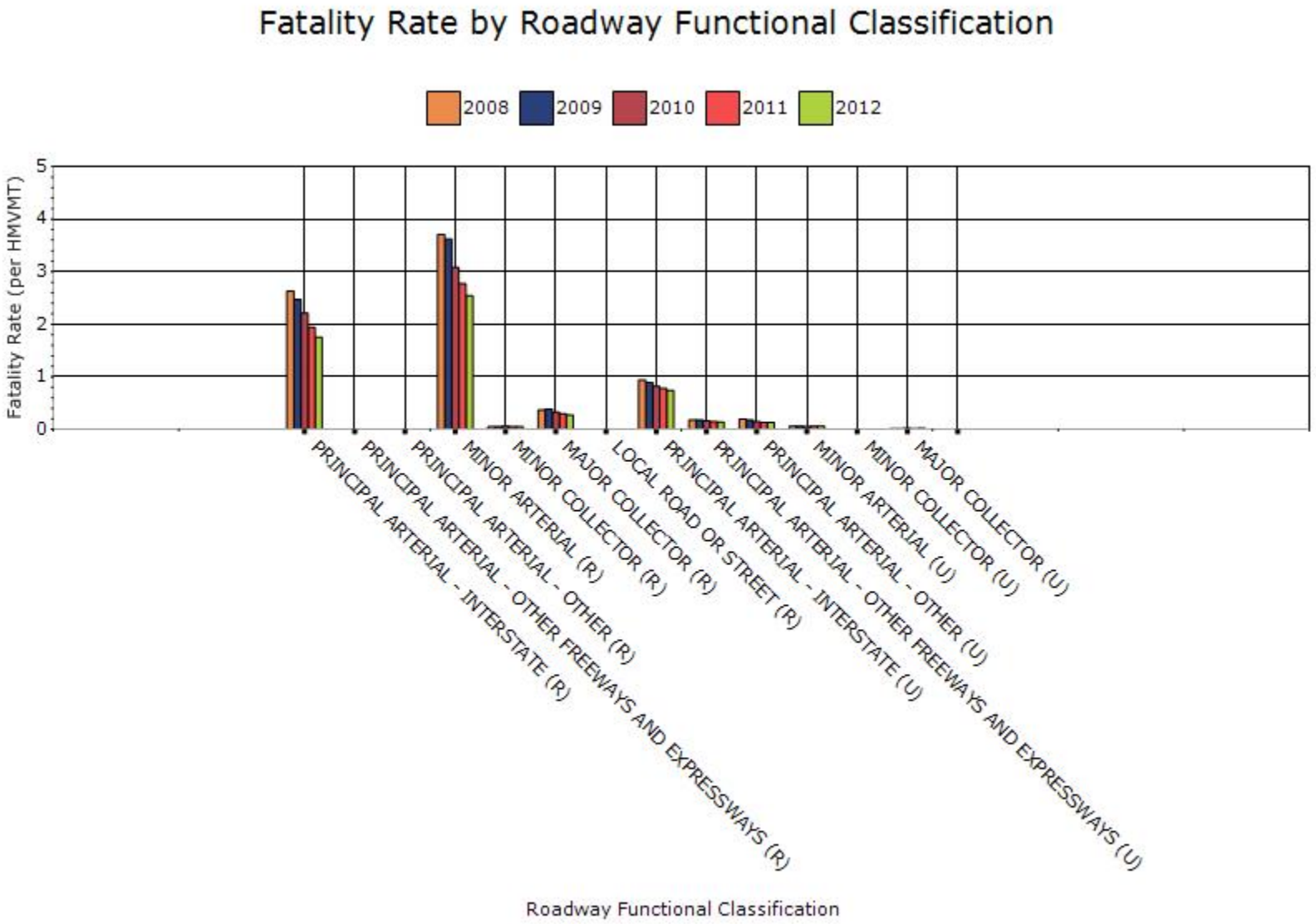
Year - 2012

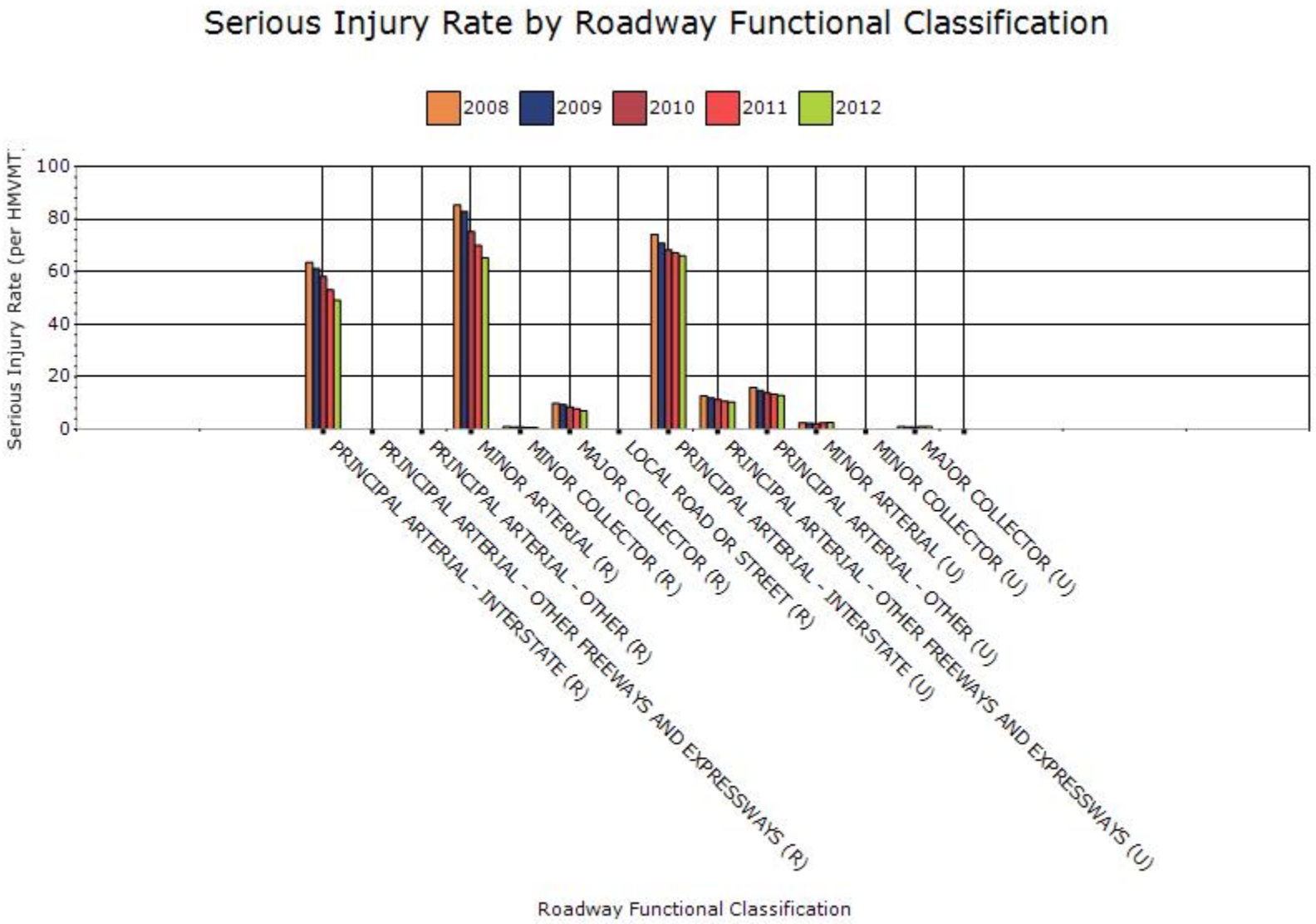
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	308	8651	1.75	49.08
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	0	0	0	0
RURAL PRINCIPAL ARTERIAL - OTHER	0	0	0	0
RURAL MINOR ARTERIAL	248	6409	2.54	65.22
RURAL MINOR COLLECTOR	1	21	0.05	0.78
RURAL MAJOR COLLECTOR	26	694	0.27	7.1
RURAL LOCAL ROAD OR STREET	0	0	0	0
URBAN PRINCIPAL	504	44897	0.74	66.02

ARTERIAL - INTERSTATE				
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	75	5553	0.14	10.32
URBAN PRINCIPAL ARTERIAL - OTHER	76	7637	0.13	12.83
URBAN MINOR ARTERIAL	29	1270	0.06	2.59
URBAN MINOR COLLECTOR	0	0	0	0
URBAN MAJOR COLLECTOR	3	178	0.02	0.96
URBAN LOCAL ROAD OR STREET	0	2	0	0.01


Fatalities by Roadway Functional Classification
2008
2009
2010
2011
2012
800
600
400
200
0
# of Fatalities
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)
Roadway Functional Classification


Serious Injuries by Roadway Functional Classification
2008
2009
2010
2011
2012
# of Serious Injuries
60000
50000
40000
30000
20000
10000
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)
Roadway Functional Classification

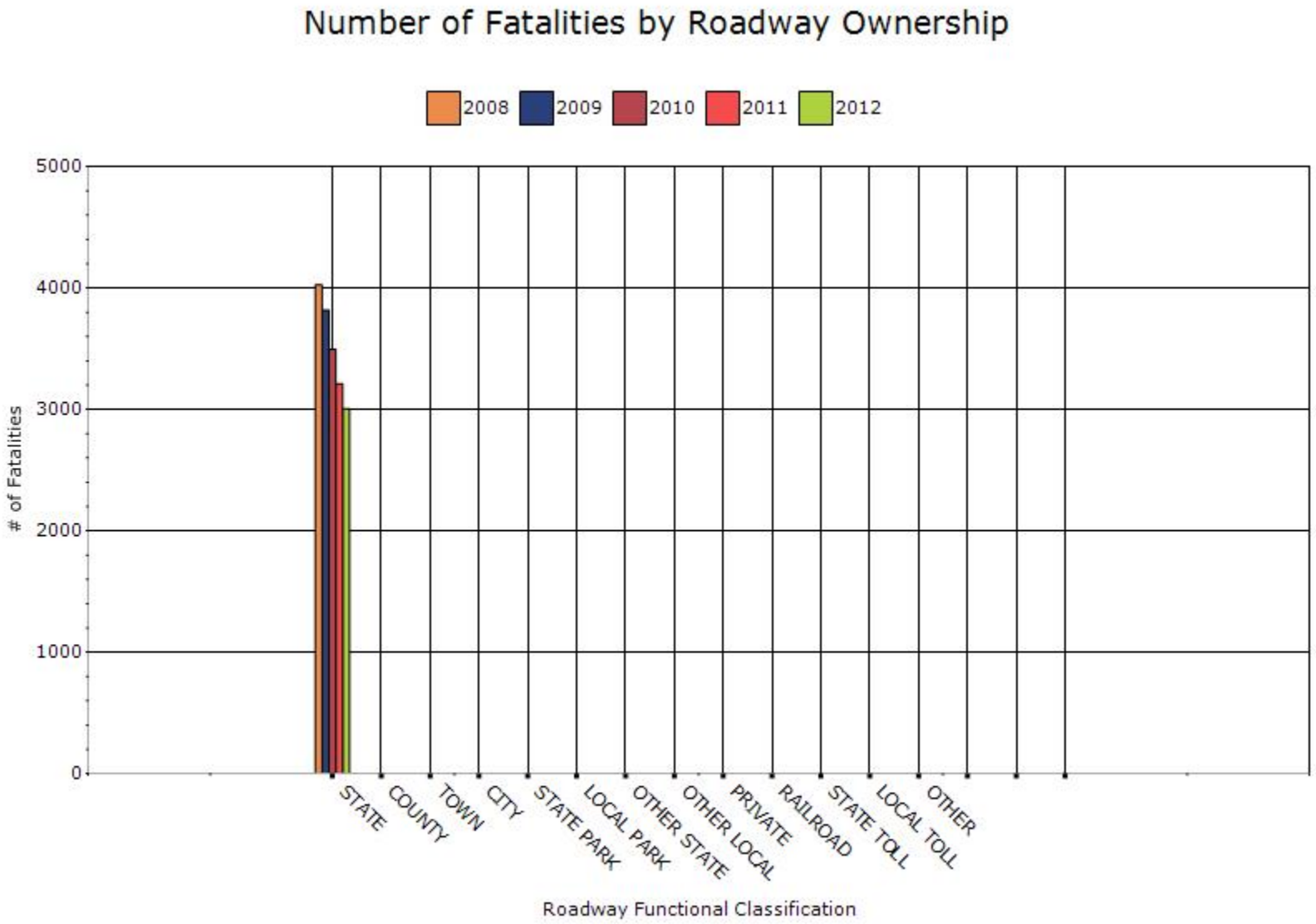

Fatality Rate by Roadway Functional Classification
2008
2009
2010
2011
2012
Fatality Rate (per HMVMT)
0
1
2
3
4
5
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL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

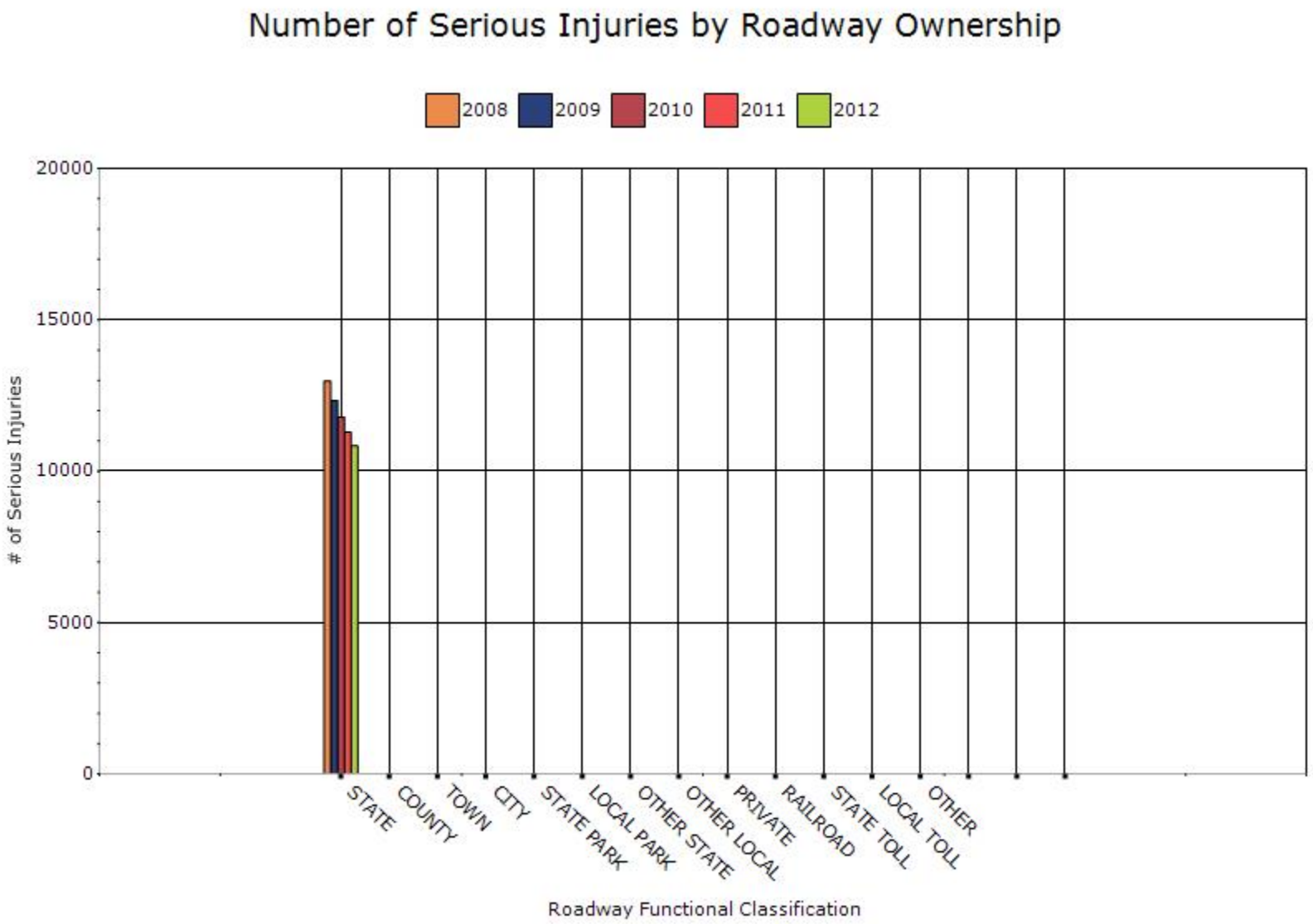

Serious Injury Rate by Roadway Functional Classification
2008
2009
2010
2011
2012
Serious Injury Rate (per HMVMT)
100
80
60
40
20
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR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

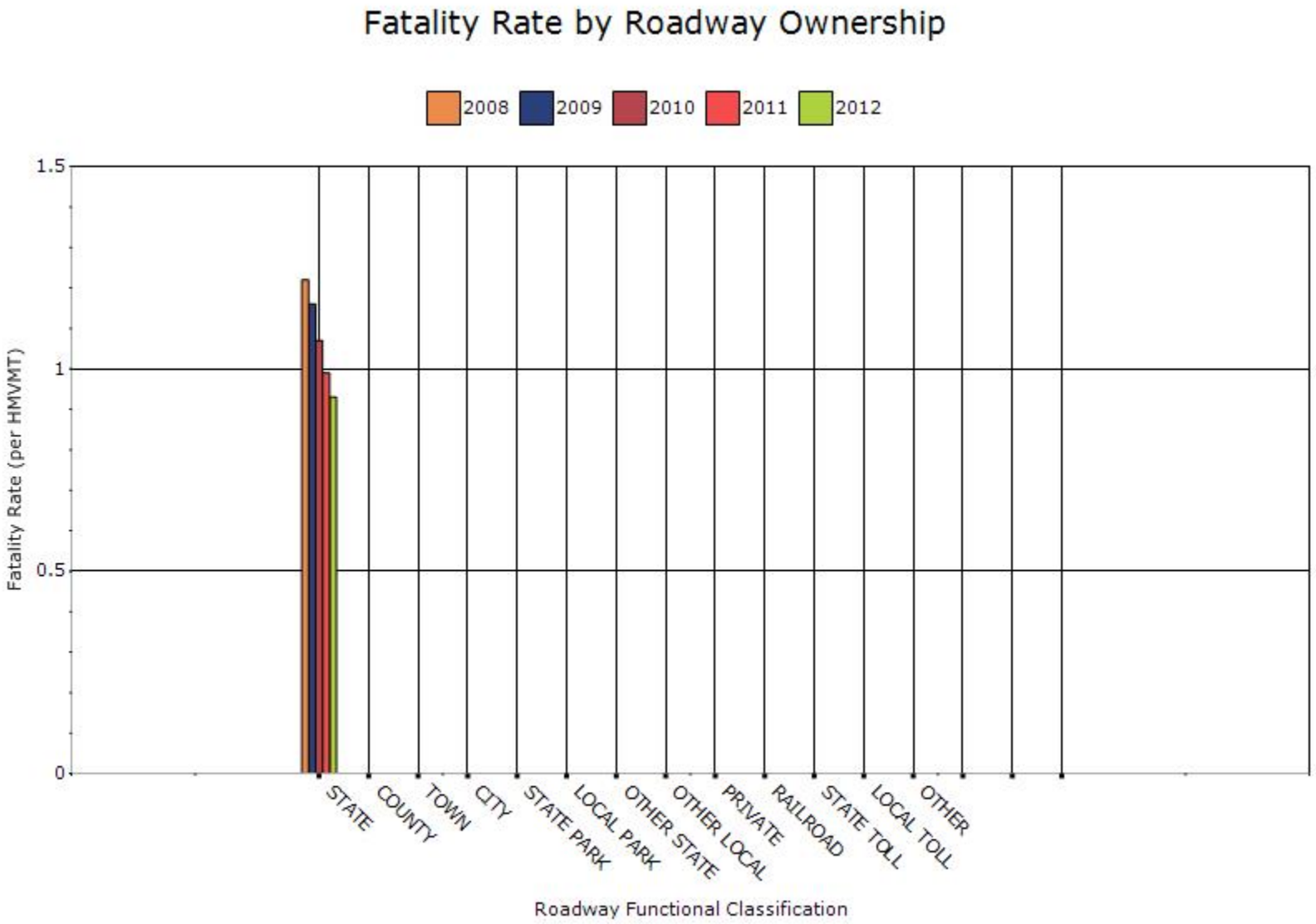
Year - 2012

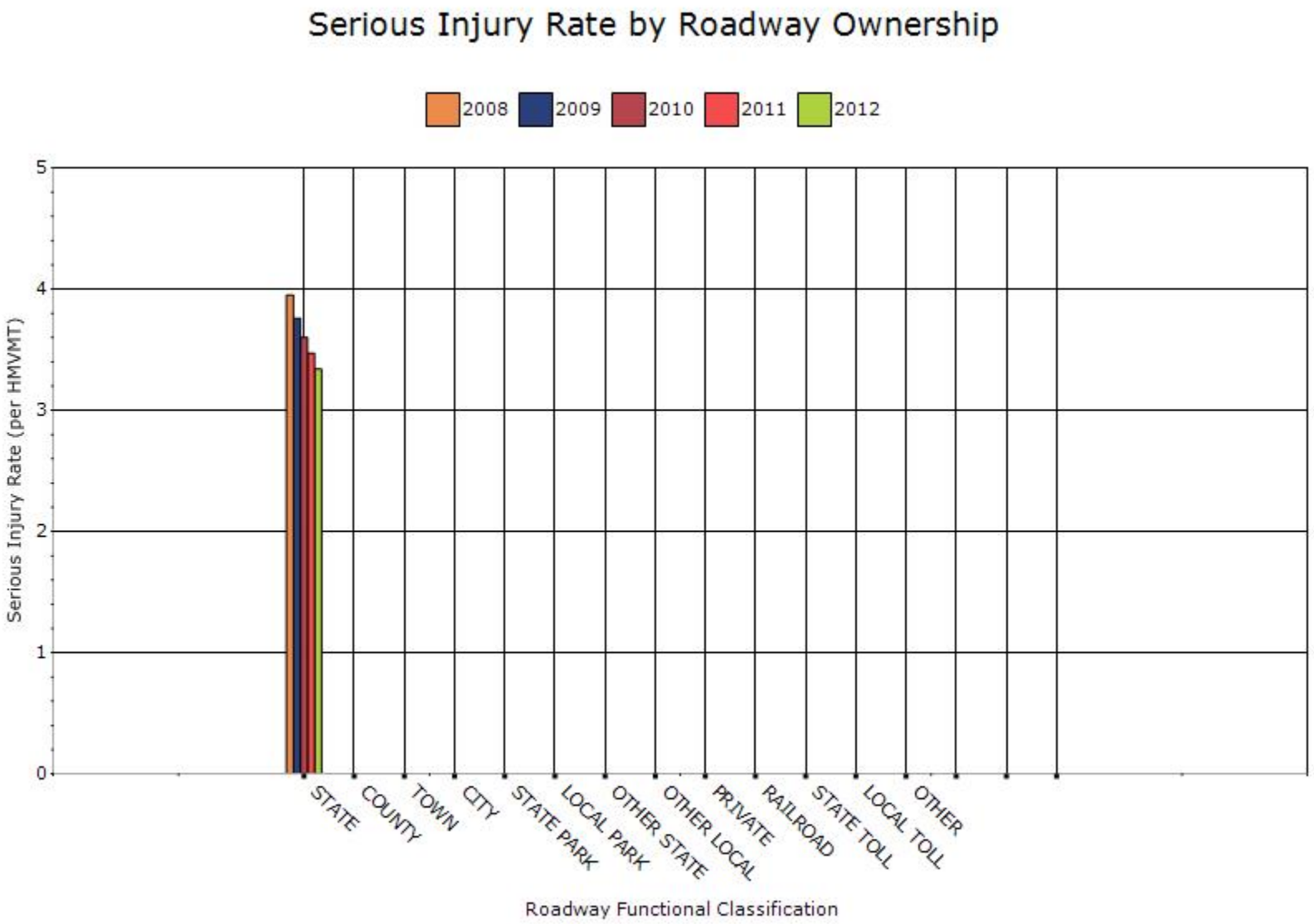
Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	3005.2	10841.2	0.93	3.34
COUNTY HIGHWAY AGENCY	0	0	0	0
TOWN OR TOWNSHIP HIGHWAY AGENCY	0	0	0	0
CITY OF MUNICIPAL HIGHWAY AGENCY	0	0	0	0
STATE PARK, FOREST, 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
STATE HIGHWAY AGENCY (FREEWAYS)	0	0	0	0

STATE HIGHWAY AGENCY (NON-FREEWAYS)	0	0	0	0
STATE HIGHWAY AGENCY (ALL-HIGHWAYS)	0	0	0	0


Number of Fatalities by Roadway Ownership
2008
2009
2010
2011
2012
5000
4000
3000
2000
1000
0
# of Fatalities
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification


Number of Serious Injuries by Roadway Ownership
2008
2009
2010
2011
2012
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
Roadway Functional Classification


Fatality Rate by Roadway Ownership
2008
2009
2010
2011
2012
1.5
1
0.5
0
Fatality Rate (per HMVMT)
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification


Serious Injury Rate by Roadway Ownership
2008
2009
2010
2011
2012
Serious Injury Rate (per HMVMT)
0
1
2
3
4
5
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification

1. The most recent calendar data available to us was for 2012.
2. The classification “Major Collector” in urban area in Caltrans data is specified as “Collector”.
3. Note that Caltrans currently does not compile collision data for *severe* injury as a separate category. However, the data is available for 3 levels of injuries (i.e., severe injury, visible injury, and complaint of pain) combined. Therefore, the input data in ORT columns for *severe injury* and *severe injury rate* are in fact for *injury* and *injury rate*.
4. For this Fiscal Year reporting period, we developed the travel data for road classifications listed in ORT. The travel data are specific to each of the road classifications and are for state highways (travel data on specific local roads not available).
5. The data input for the“State Highway Agency” in Part-2 (Roadway Ownership) of this question are for state and local roads.

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

For this year reporting period, the most recent ten-year data was available for 2003 to 2012. During the 2012 calendar year, 1,049 fatal collisions, 47,426 injury collisions, and 90,182 property-damage-only (PDO) collisions were reported on the SHS. Caltrans estimates that these collisions resulted in losses of approximately $20.6 billion.

The HSIP and other State programs have made highways safer through the implementation of highway safety projects. This fact is evident from the fatality rate trends. Between 2003 and 2012, the fatality rate on all State highways has decreased 38 percent. For the same period, the fatality rate on freeways decreased 40 percent, and on non-freeways it decreased 32 percent. During the same period, the annual travel increased by 0.2 percent on all highways. The annual travel on freeways increased 1.8 percent, and on non-freeways it decreased by 6.8 percent. Freeway travel in 2012 accounts for 82.9 percent of travel on the SHS even though freeway road miles account for only 29 percent of the SHS.

The reductions in fatality rates have been accomplished by implementing safety projects. Many other improvements such as tree trimming, restriping, or installing warning signs that were requested by Traffic Operations staff and performed by Maintenance staff in the districts also contributed to improved safety. During FY 2014/15, there were 61 Major and Minor-A safety projects awarded at a cost of $100.85 million. All of these project types are consistent with one or more of the 17 challenge areas identified in California's Strategic Highway Safety Plan (SHSP).

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	**2009**	**2010**	**2011**	**2012**	**2013**
Fatality rate (per capita)	5.132	4.894	4.71	4.836	4.826
Serious injury rate (per capita)	216.634	210.478	206.658	206.084	206.628
Fatality and serious injury rate (per capita)	221.766	215.37	211.366	210.918	211.45

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

Calculation:

1. **Calculate 5 year average F+I per capita for 2013**

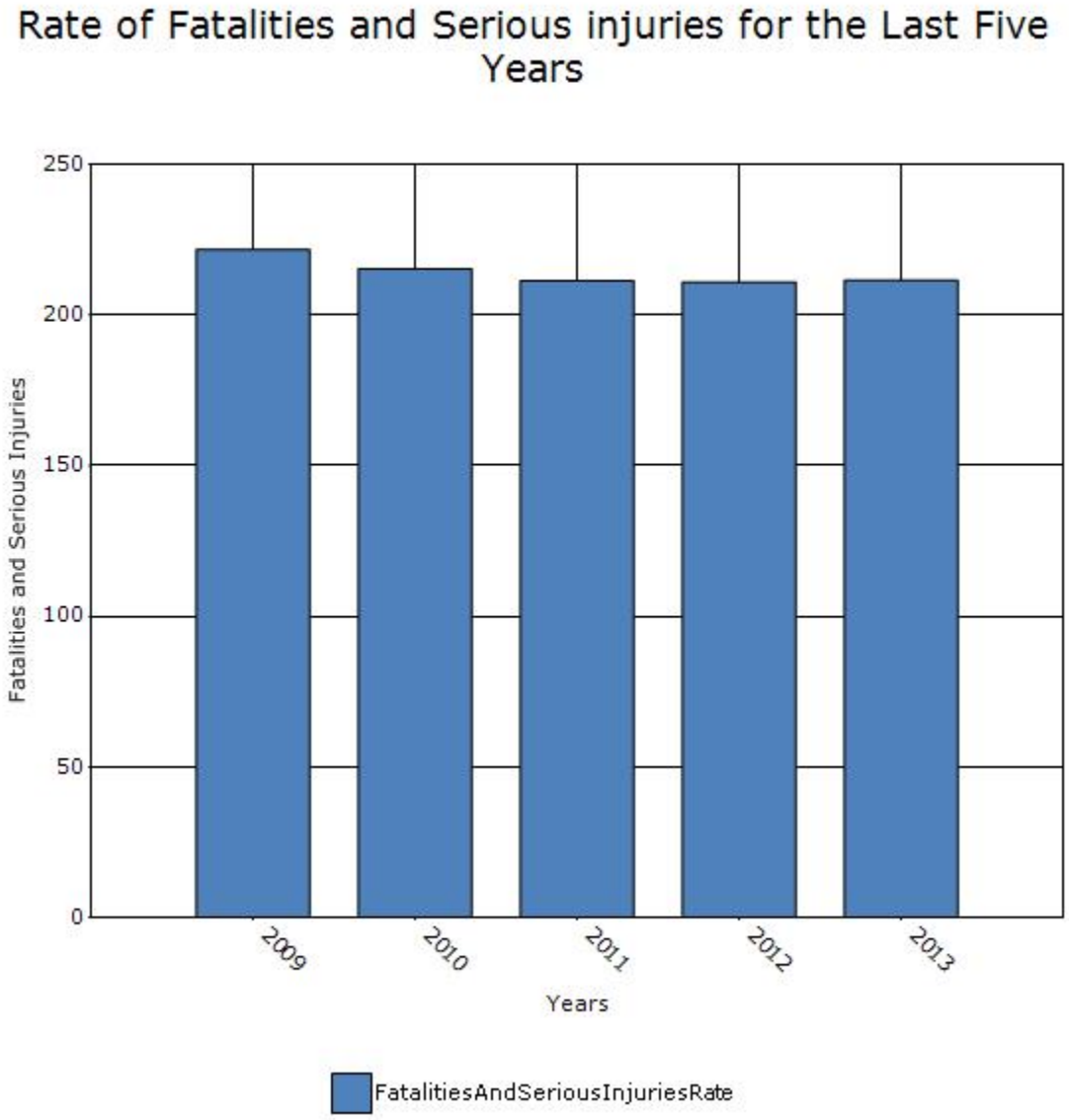
   F+I collisions for Driver & Pedestrian (65 yr. and older) for 2009 to 2013 denoted as X9, X10, X11, X12, X13. Corresponding Population denoted as P9, P10, P11, P12, P13

2. F+I per capita 2009-2013 denoted as: X9/P9, X10/P10, X/11/P11, X12/P12, X13/P13

   Five Yr. Avg. F+I per capita for 2013 = (X9/P9+X10/P10+ X/11/P11+ X12/P12+X13/P13)/5= (210.59+ 211.64+211.28+ 210.05+213.69)/5 =211.45

3. **Similarly, 5 Yr. Avg. F+I per capita for 2011 = (**X7/P7+ X8/P8 + X9/P9+X10/P10+X11/P11)/5 = (211.28+210.05+213.69+207.93+213.88)/5= 211.37
4. **Compare 2011 to 2013: = (211.45-211.37)/211.37= 0.0% ***

*****Per the Special Rule, all rates should be calculated to the hundredths after the decimal point and then rounded to the nearest tenths.



1) The actual calculation is described in the main window for this question.

2) Please note that the data for severe injury in the table of performance measure was not available. We used the data for all injuries (severe + visible + complaint of pain) instead so the default plots produced by ORT do not show erroneous and confusing results.

Does the older driver special rule apply to your state?

No

Assessment of the Effectiveness of the Improvements (Program

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-Benefit cost derived based on changes in the number of fatal, injury and PDO collsions

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.

The safety work related to the Strategic Highway Safety Plan (SHSP) & HSIP are now under the same office.

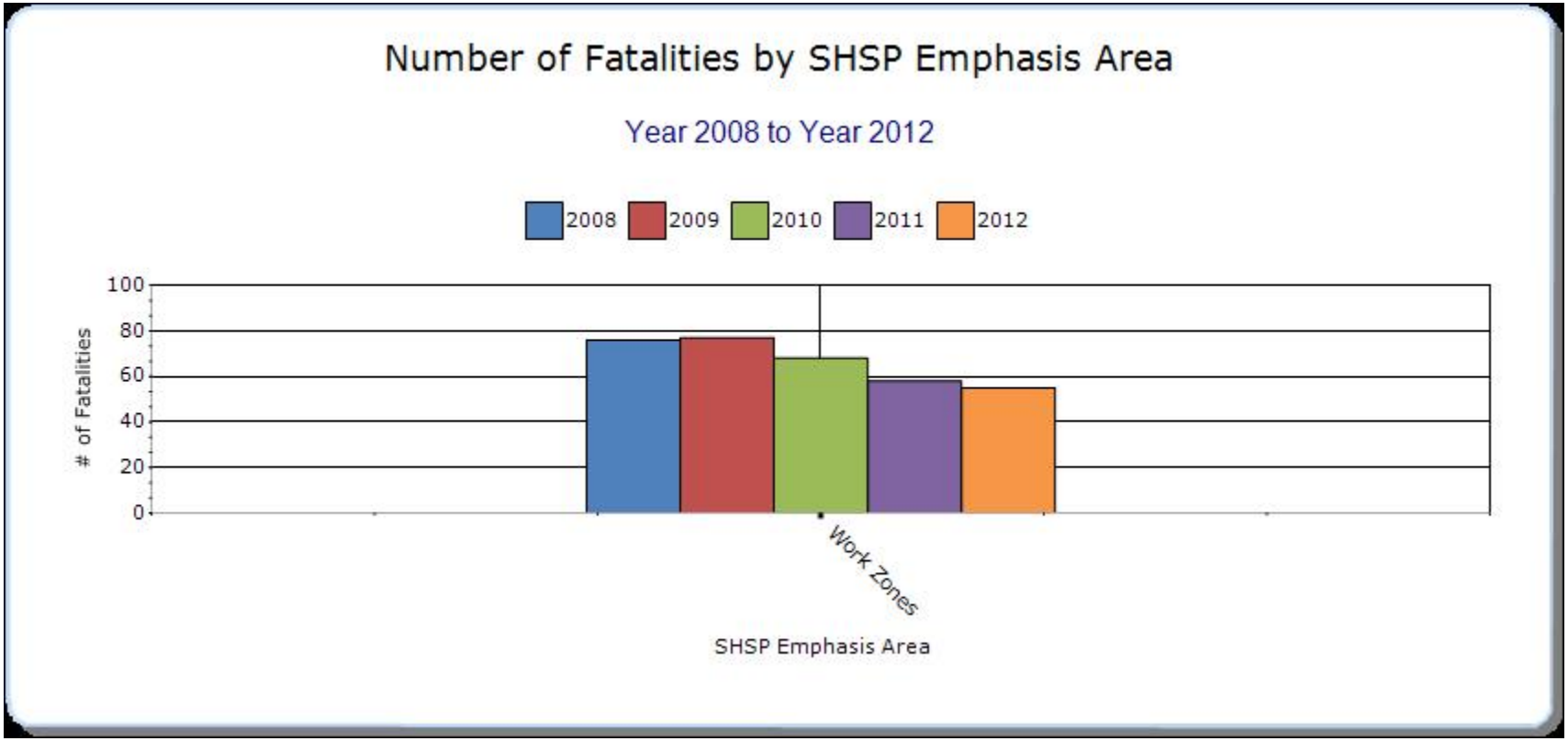
SHSP Emphasis Areas

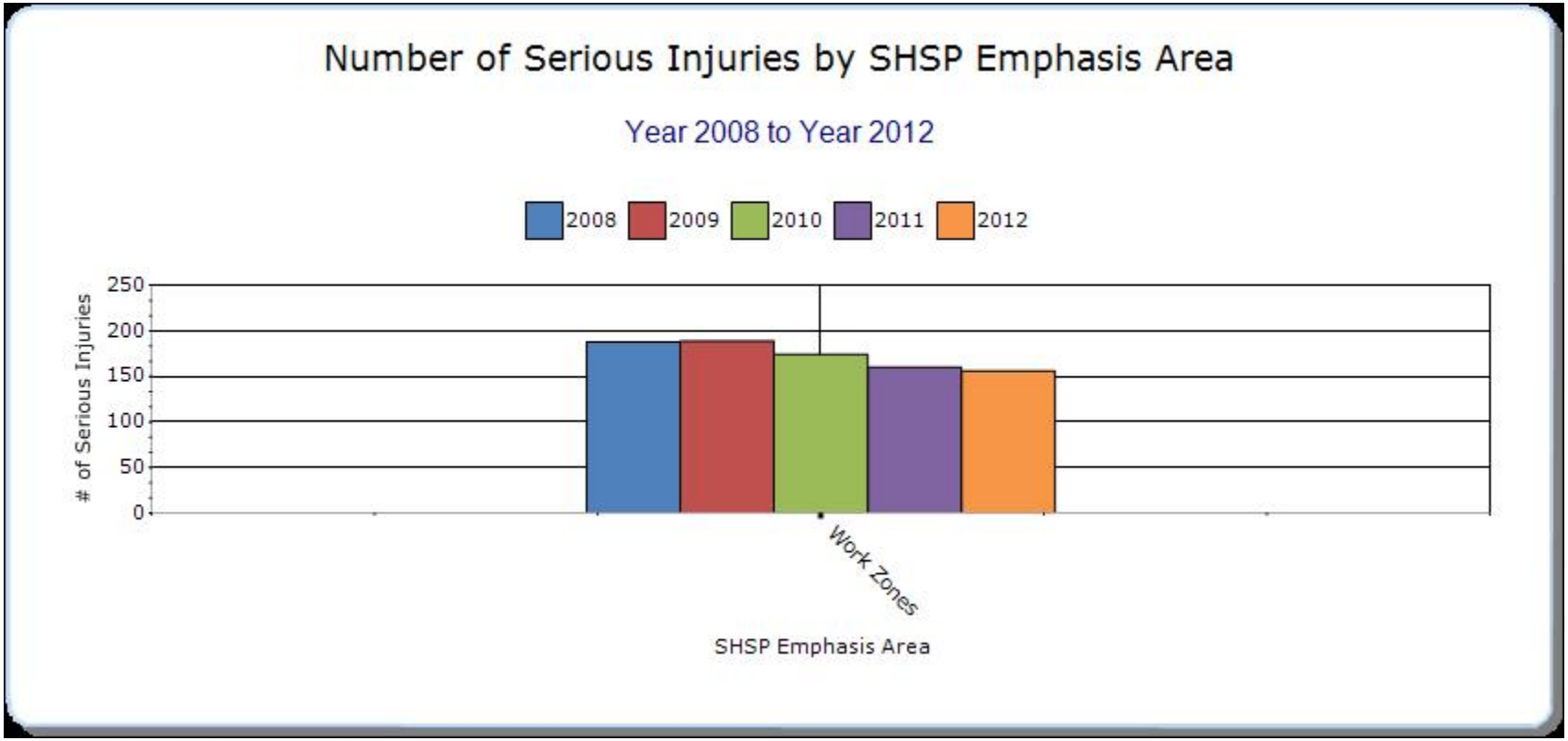
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

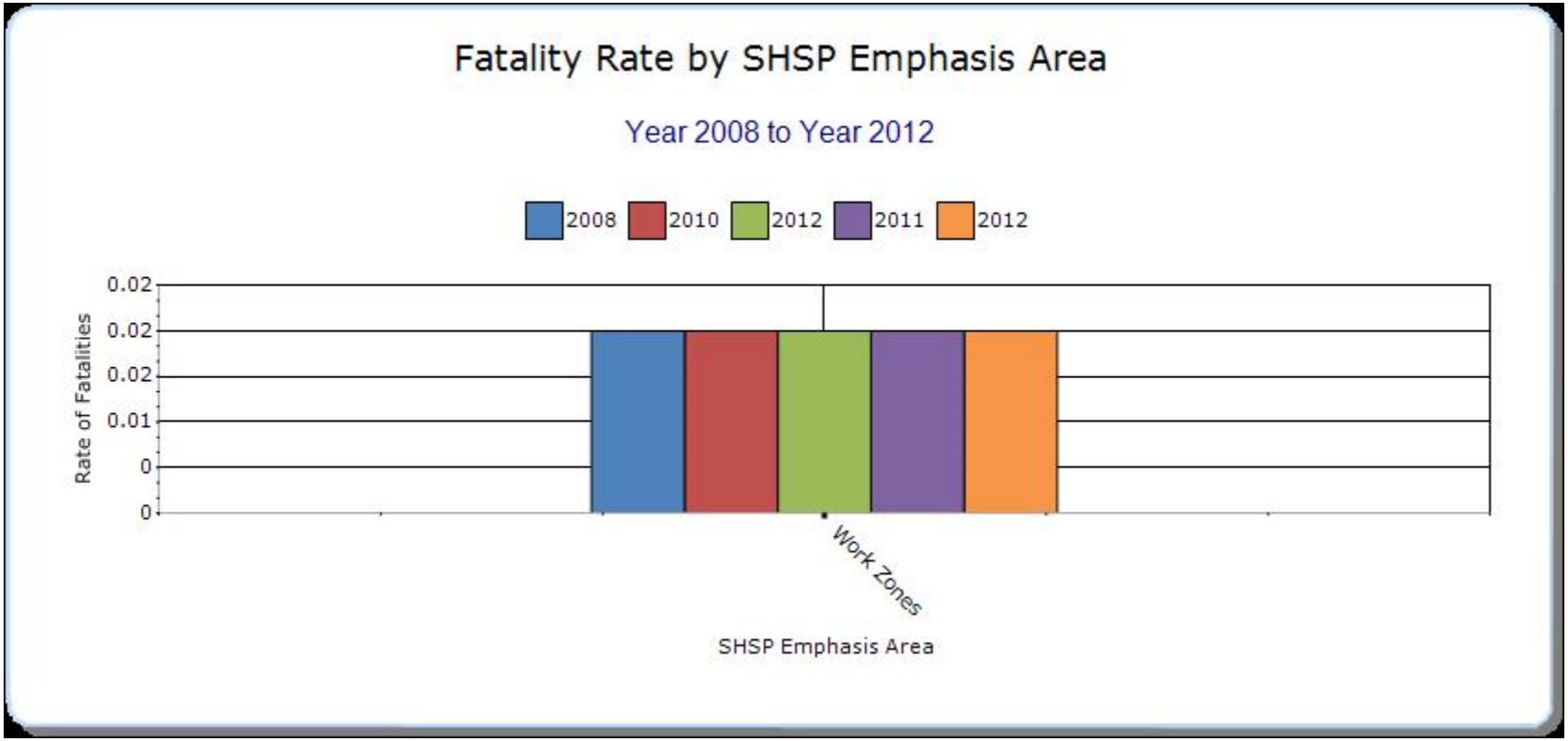
Year - 2012

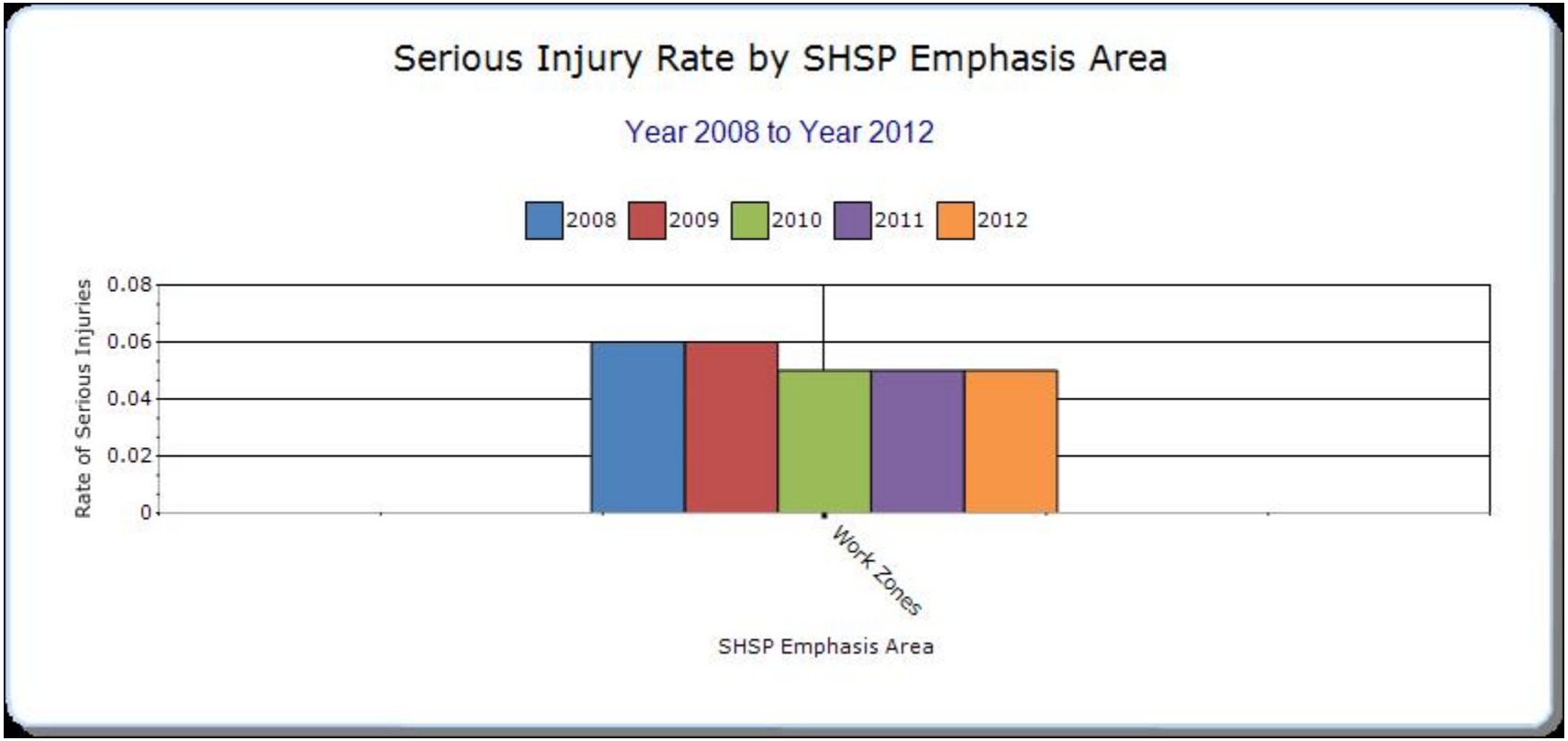
Work Zones	Maintence & Veh Accidents	55	156	0.02	0.05	0	0	0
Reduce Occurrance & Conseq of Leaving Roadway & Head-On Colli	Head-on & Run-off-road	843	2560	0.26	0.49	0	0	0
Improve Driver Decisions about Rights-of-Way and Turning	All	698	2355	0.21	0.72	0	0	0
Improve Intersection and	Intersection	575	2571	0.18	0.79	0	0	0

Interchange Safety	Accidents							
Make Walking and Street Crossing Safer	Vehicle/pedestrian	644	1673	0.2	0.51	0	0	0
Improve Safety for Older Roadway Users	Vehicle/pedestrian	559	1389	0.17	0.43	0	0	0
Reduce Speeding and Aggressive Driving	Speed-related	476	1985	0.15	0.61	0	0	0
Improve Commercial Vehicle Safety	Truck-related	301	627	0.09	0.19	0	0	0
Improve Motorcycle Safety	Motorcycle accidents	426	2000	0.13	0.61	0	0	0
Improve Bicycle Safety	Vehicle/bicycle	127	917	0.04	0.28	0	0	0


Number of Fatalities by SHSP Emphasis Area
Year 2008 to Year 2012
2008
2009
2010
2011
2012
100
80
60
40
20
0
# of Fatalities
Work Zones
SHSP Emphasis Area


Number of Serious Injuries by SHSP Emphasis Area
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Serious Injuries
250
200
150
100
50
0
Work Zones
SHSP Emphasis Area


Fatality Rate by SHSP Emphasis Area
Year 2008 to Year 2012
2008
2010
2012
2011
2012
Rate of Fatalities
0.02
0.02
0.02
0.01
0
0
Work Zones
SHSP Emphasis Area



ORT does not have the capability to plot the data for performance measure added by the users. ORT plots data only for default PMs that are defined originally in ORT. Work Zone was an ORT defined PM and the data for this challenge area was plotted. The remaining challenge areas are user's defined and specific to Caltrans and therefore not plotted.

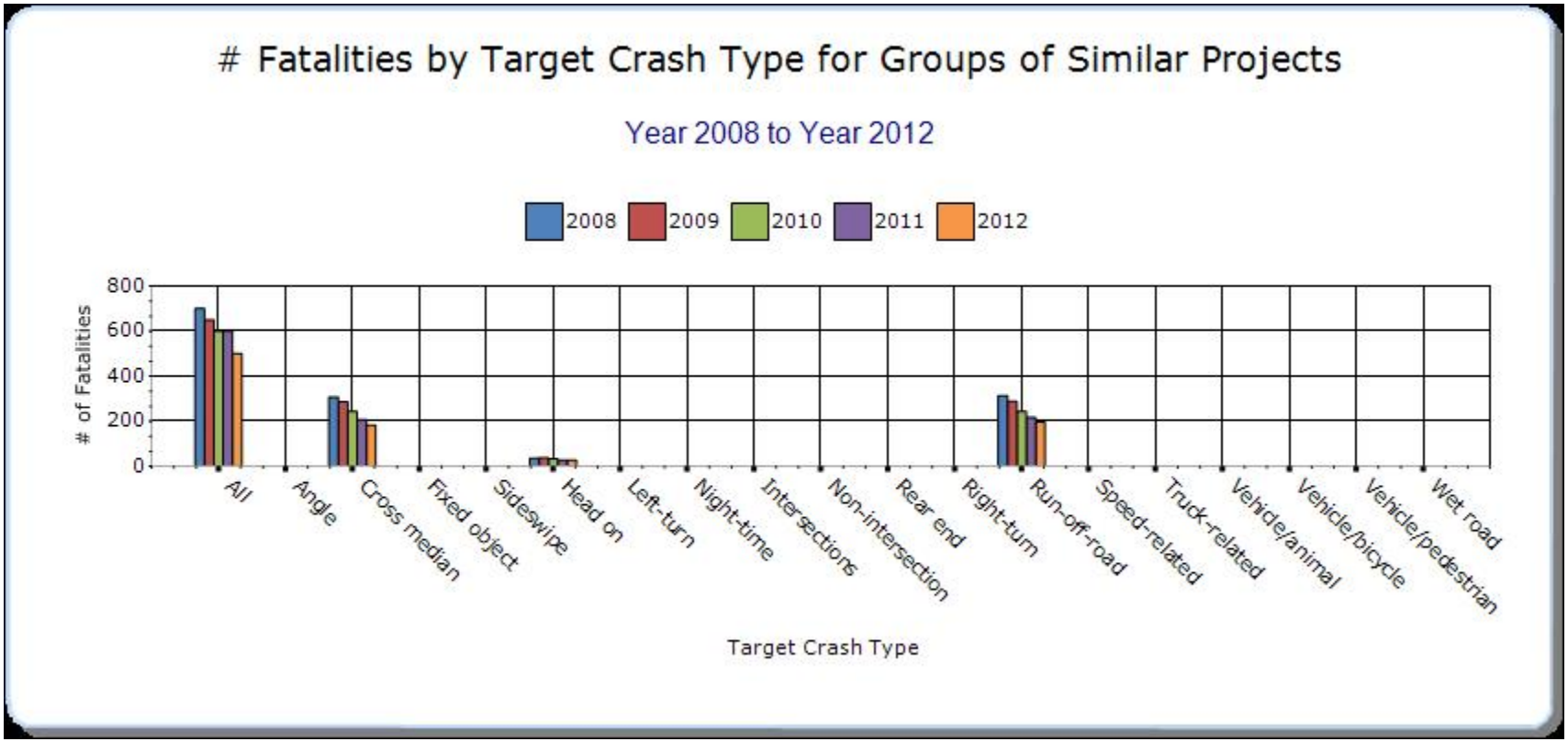
The data for challenge areas were retrieved from SafeTREC, UC Berkeley. For this year HSIP report, the fatalities and severe injuries were available by victim counts as opposed to collision counts. In developing the performance measure, we revised the analysis for this report to develop the 5 year rolling averages based victim counts of fatalities and severe injuries.

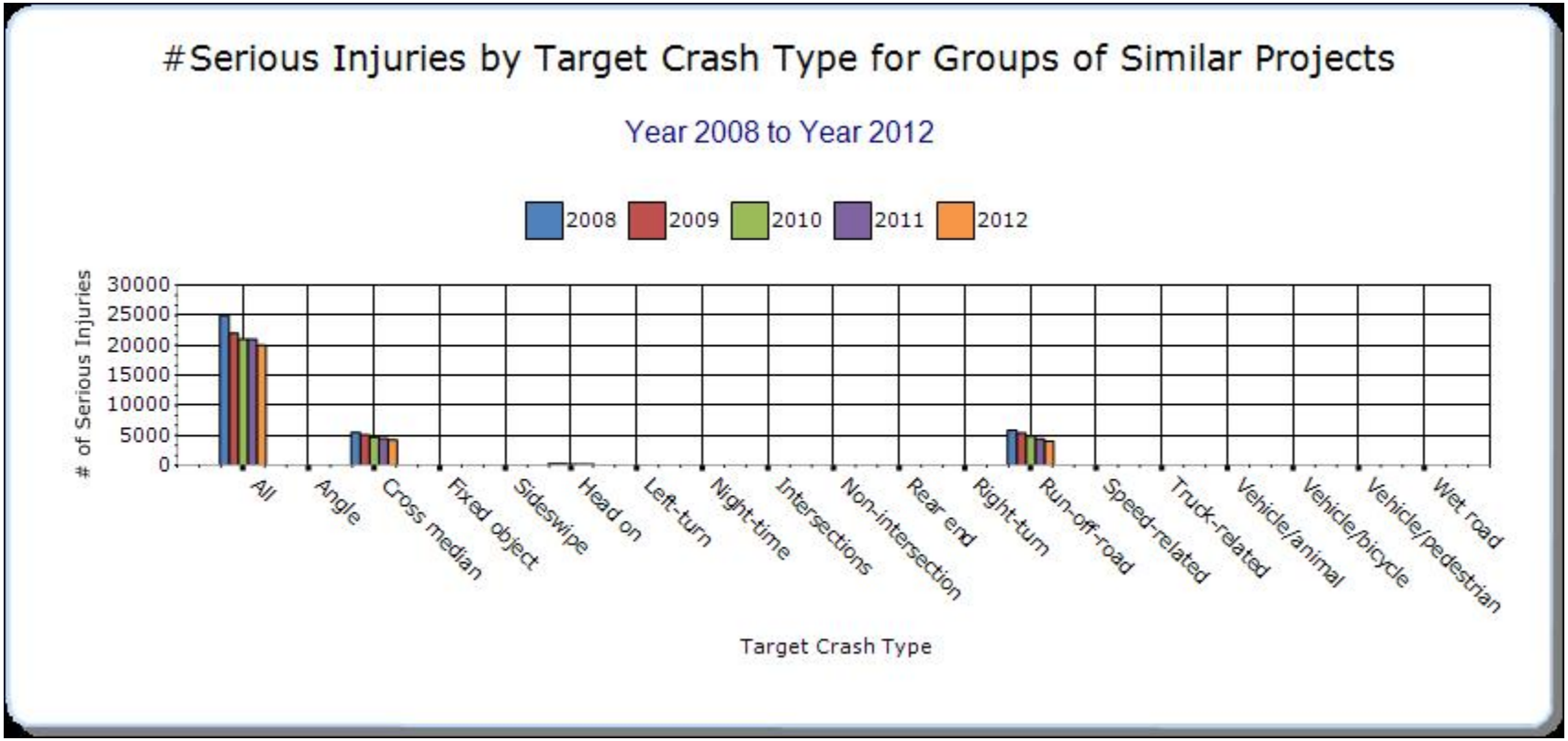
Groups of similar project types

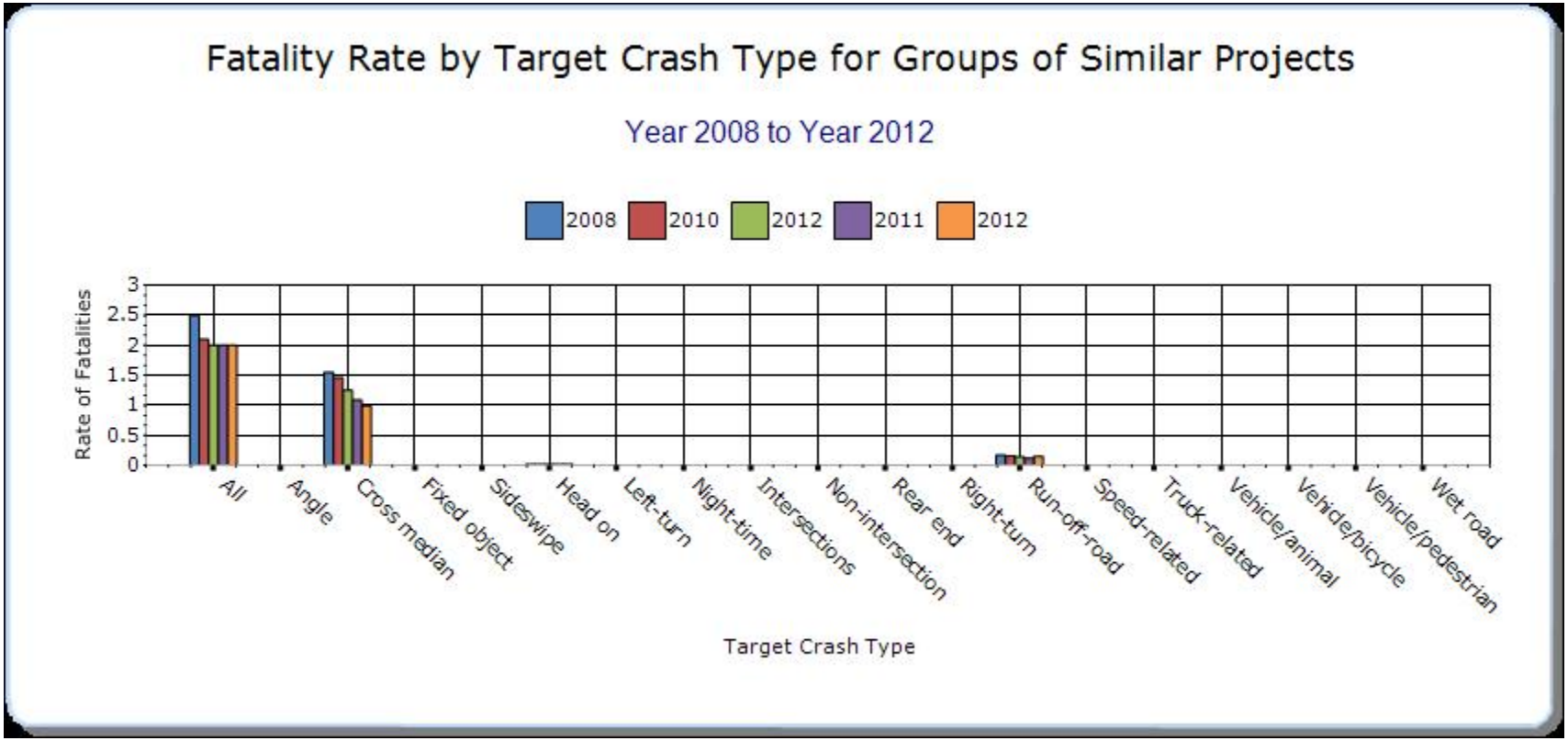
Present the overall effectiveness of groups of similar types of projects.

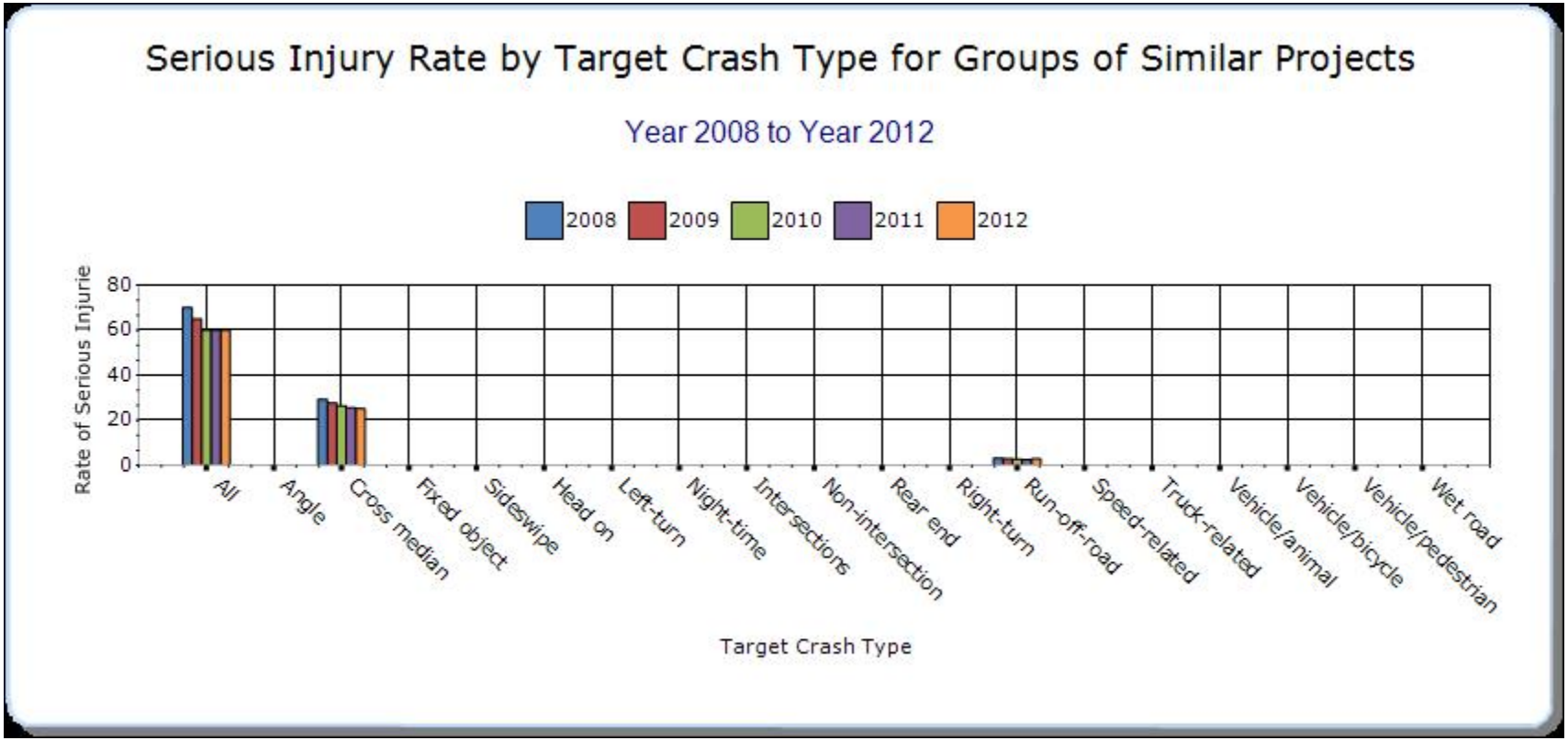
Year - 2012

Other-2 & 3 Ln Cross Centerline Collision Monitoring Pro	Cross median	157	4054.4	0.97	25	0	0	0
Other-Local Roads Program	All	500	20000	2	60	0	0	0
Other-Wrong-Way Monitoring Report	Head on	27.8	208.2	0.02	0.14	0	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
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


#Serious Injuries by Target Crash Type for Groups of Similar Projects
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Serious Injuries
30000
25000
20000
15000
10000
5000
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


Fatality Rate by Target Crash Type for Groups of Similar Projects
Year 2008 to Year 2012
2008
2010
2012
2011
2012
Rate of Fatalities
3
2.5
2
1.5
1
0.5
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type



1. Local Road Program is specified as a subprogram due to ORT functionality limitations. We specified it as a subprogram so Caltrans Division of Local Assistance can report on their program. The performance measures values for only this subprogram are fictitious values so that ORT allows us to show the local roads as a subprogram. The progress for the local road program is reported in a separate attachment to question 23.
2. The data provided in the table of performance measures for the 5 subprograms are not plotted. This is due to ORT limitations where, only the performance measures that are defined by ORT are plotted.

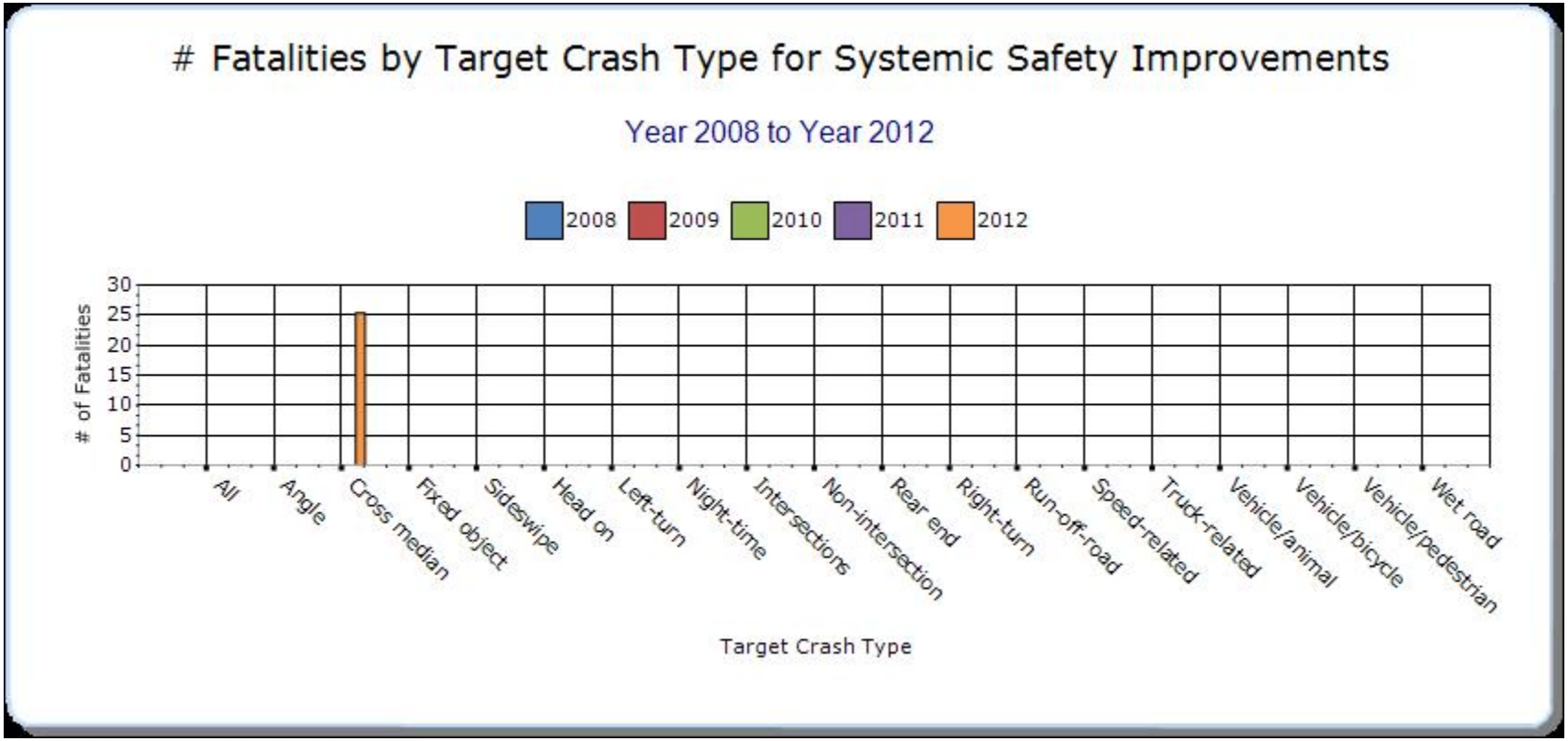
3. Also, note that Caltrans currently does not compile collision data for *severe* injury as a separate category. However, the data is available for 3 levels of injuries (i.e., severe injury, visible injury, and complaint of pain) combined. Therefore, the performance measures were developed for injury as a whole. The values shown for severe injury columns in this question represent the 3 levels of injuries combined.

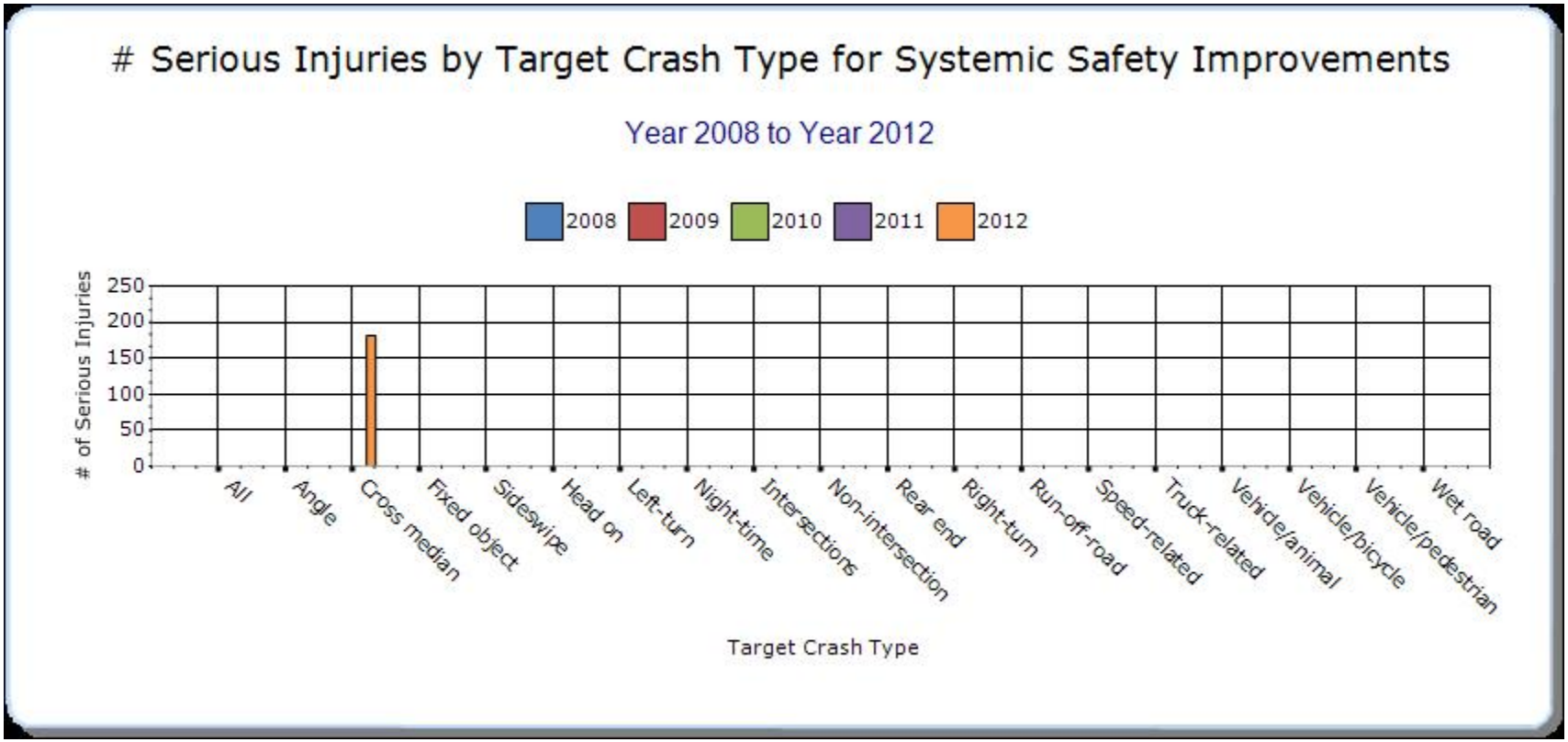
Systemic Treatments

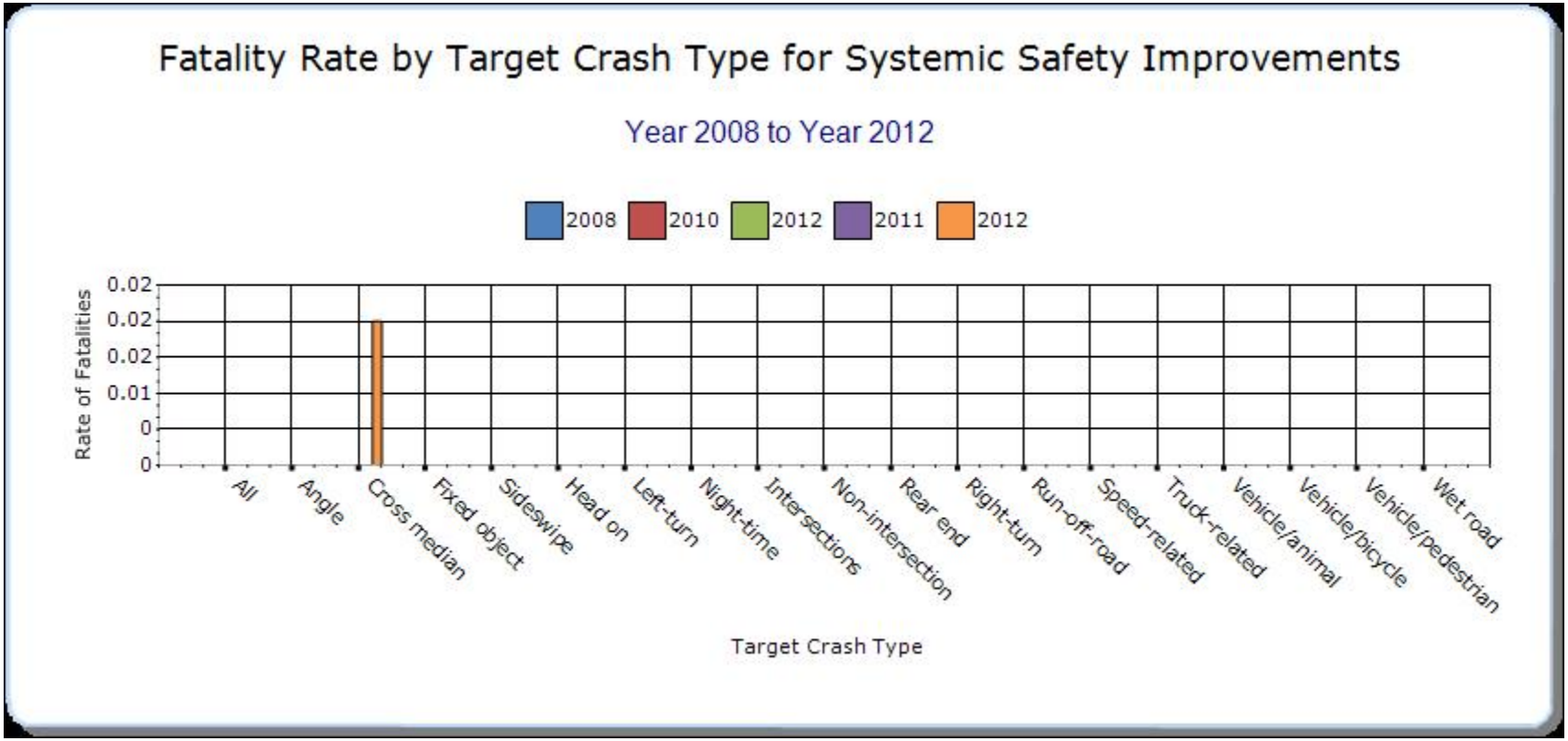
Present the overall effectiveness of systemic treatments.

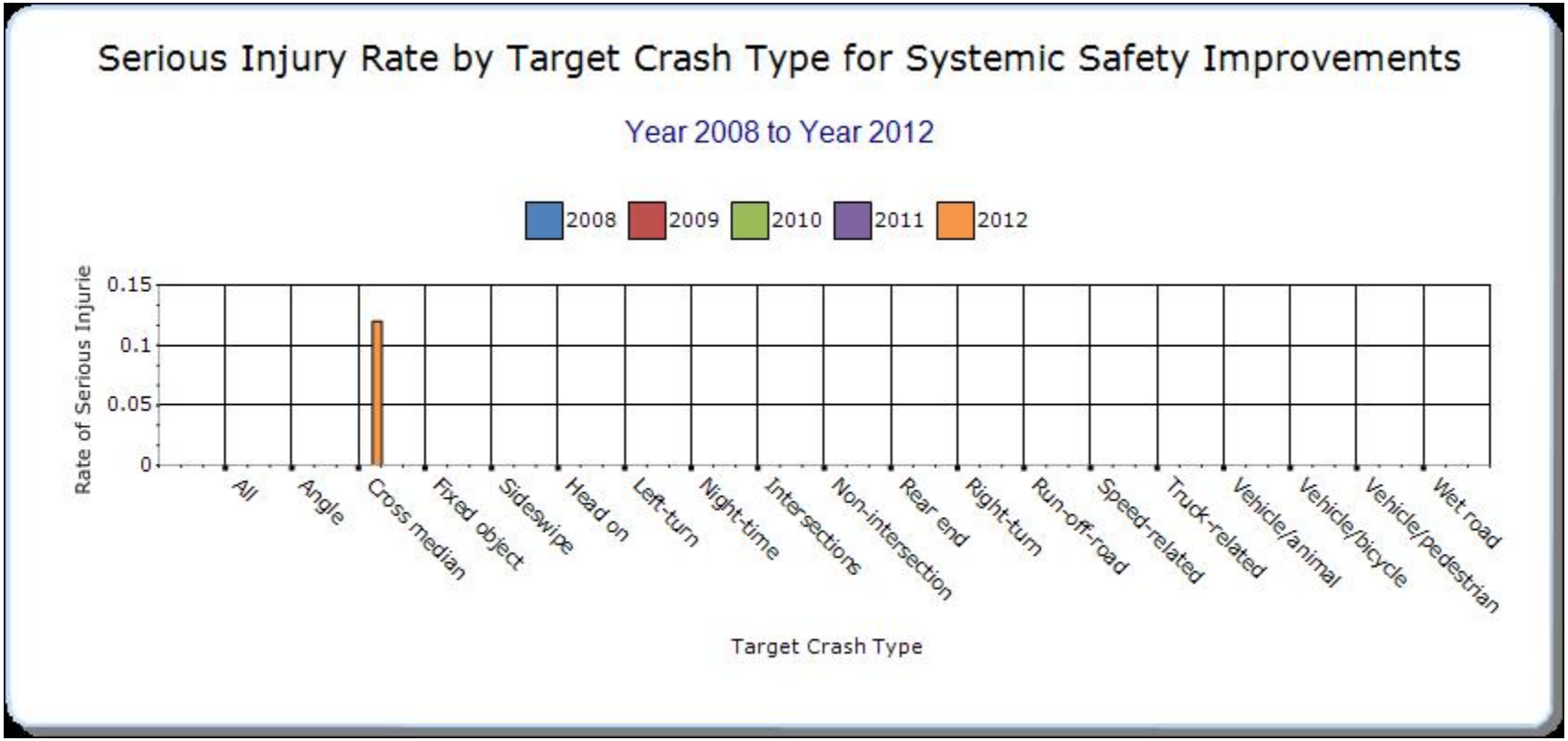
Year - 2012

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
Other-Median Barrier (see optional description)	Cross median	25.4	181.2	0.02	0.12	0	0	0


Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Fatalities
30
25
20
15
10
5
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


Serious Injuries by Target Crash Type for Systemic Safety Improvements
Year 2008 to Year 2012
2008
2009
2010
2011
2012
# of Serious Injuries
250
200
150
100
50
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


Fatality Rate by Target Crash Type for Systemic Safety Improvements
Year 2008 to Year 2012
2008
2010
2012
2011
2012
Rate of Fatalities
0.02
0.02
0.02
0.01
0
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type



Caltrans currently does not compile collision data for *severe* injury as a separate category. However, the data is available for 3 levels of injuries (i.e., severe injury, visible injury, and complaint of pain) combined. Therefore, the performance measures were developed for injury as a whole. The values shown for severe injury columns in this question represent the 3 levels of injuries combined.

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

The most recent annual collision data available was for 2012. Caltrans implements the HSIP for State highways by programming and funding projects in the Collision Reduction Category, one of eight categories that make up the State Highway Operation and Protection Program (SHOPP). The Collision Reduction Category is further divided into two programs: Safety Improvement, and Collision Severity Reduction. The Safety Improvement Program is among Caltrans' top priorities in the SHOPP and as a result, all projects that meet the criteria for the Safety Improvement Program are funded. These criteria include a benefit-cost analysis. The projects evaluated in this report include all projects funded by the Collision Reduction Category, which includes both federal HSIP and State highway funds.

Caltrans uses the Transportation System Network database to identify locations with significantly high collision concentrations. The identified locations are systematically investigated to determine probable causes of the collisions in order to implement effective countermeasures to improve safety. Other locations identified for investigation and possible implementation of countermeasures are generated from three Monitoring Programs: Cross Median Collision, Two and Three Lane Cross Centerline Collision, and Wrong Way Collision. Nearly 2,468 traffic safety investigations were processed between 01-01-2014 and 12-31-2014. In addition, 528 "Other Safety" investigations were processed. These safety related investigations, were not generated by TASAS but by citizens' calls, letters, emails, etc. Finally, as of February, 2012, Caltrans has implemented a 5-year "California Roadway Departure Safety Implementation Plan" which identified over 7,000 locations for possible low cost countermeasures to systematically implement on many state highways in an effort to reduce roadway departure crashes.

The reductions in fatality rates have been accomplished by implementing safety projects. Many other improvements such as tree trimming, restriping, or installing warning signs that were requested by Traffic Operations staff and performed by Maintenance staff in the districts also contributed to improved safety. During FY 2014/15, there were 61 Major and Minor-A safety projects awarded at a cost of $100.85 million. All of these project types are consistent with one or more of the 17 challenge areas identified in California's Strategic Highway Safety Plan (SHSP).

The effectiveness of the State HSIP was measured by comparing collision data before and after safety improvements were implemented at project sites. These projects have been completed between 7/1/2010 and 6/30/2011. Three years of collision data before project implementation was compared with three years of collision data after project implementation. A total of 78 projects were considered in the evaluation. Analysis of collision data was based on 110 highway locations as some of the projects contained more than one highway location. The cost of

implementing these projects was $119.4 million. The annual savings, in terms of reductions in collision frequency and severity, was estimated at $78.3 million. This translates to a savings of $1565.2 million or a benefit-cost ratio of 13.1 to1, assuming a project life of 20 years.

Project Evaluation

Provide project evaluation data for completed projects (optional).

Location	Functional Class	Improvement Category	Improvement Type	Bef-Fatal	Bef-Serious Injury	Bef-All Injuries	Bef-PDO	Bef-Total	Aft-Fatal	Aft-Serious Injury	Aft-All Injuries	Aft-PDO	Aft-Total	Evaluation Results (Benefit/ Cost Ratio)
Response is optional. ORT requires one row. Info is fictitious	Rural Principal Arterial - Other Freeways and Expressways	Intersection geometry	widening	1	1	1	1	4	1	1	1	1	4	10

Optional Attachments

Sections	Files Attached
Progress in Implementing Projects: Funds Programmed	1) Attach-Q17-HSIP-ORT.xlsx
Progress in Implementing Projects: General Listing of Projects	2) Attach-Q23-LOCAL HSIP-ORT.xlsx
Progress in Implementing Projects: General Listing of Projects	5) Attach-Q23-State-HSIP-2015-ORT.xlsx
Progress in Achieving Safety Performance Targets: Overview of General Safety Trends	2) Attach-Q23-State-HSIP-2015-ORT.xlsx
Progress in Achieving Safety Performance Targets: Overview of General Safety Trends	2) Attach-Q23-LOCAL HSIP-ORT.xlsx
Assessment of the Effectiveness of the Improvements (Program Evaluation): Groups of similar project types	4) Attach-Q33-HSIP 2015-ORT.xlsx
Assessment of the Effectiveness of the Improvements (Program Evaluation): Systemic Treatments	5) Attach-Q34-HSIP 2015-ORT.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.