
Highway Safety Improvement Program
*Data Driven Decisions*

# Ohio
# Highway Safety Improvement Program
# 2014 Annual Report

Prepared by: OH

## 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

One of the greatest challenges facing Ohio is reducing the number of fatalities and injuries and the costs associated with traffic crashes statewide.

In 2013, there were 269,078 crashes in Ohio – 990 people were killed and 100,145 people were injured. In addition to the emotional impact, the economic cost to Ohio is about $15 billion per year in lost wages, increased health care and other related costs.

The vast majority of these crashes are caused by driver error. To reduce crashes and injuries, and save lives, the Ohio Department of Transportation is working with the Department of Public Safety, the public and local, state and federal agencies to: identify and improve high-crash and severe-crash locations through engineering; enforce traffic laws; and promote safe driving behavior through public education.

Despite these numbers, Ohio has made significant improvements in highway safety over the past several years. Since 2004, Ohio fatalities have decreased 23%; serious injuries decreased 23%; all injuries decreased 29%; and all crashes decreased 30%.

To reduce crashes and injuries, and save lives, the Ohio Department of Transportation routinely works with local, state and federal safety advocates to:

- Identify and improve locations with potential for safety improvement (physical construction projects)
- Enforce traffic laws
- Promote safe driving behavior through public education

Many fatalities are preventable. Hundreds of lives could be saved each year if all motorists used a seatbelt, drove sober and traveled at appropriate speeds.

# 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**.

Local road safety improvements are a focus of both Ohio's SHSP and HSIP. Through our close collaboration with the Local Technical Assistance Program, County Engineers Association and Metropolitan Planning Organizations, we have been expanding training, technical assistance, and funding opportunities available to our local partners.

This collaboration begins with local involvement in developing and implementing Ohio's SHSP. Our plan focuses on the safety of all public roads and all road users, including cars, trucks, trains, motorcycles, pedestrians and bikes.

Ohio has formed a statewide steering committee with local government representation and involvement. This committee meets quarterly to 1) review crash trends and 2) discuss key strategies being implemented across agencies and jurisdictions to reduce fatalities and serious injuries on all Ohio roads. These agencies are then tasked with sharing information and resources with other safety organizations throughout Ohio.

**Emphasis Areas**

Ohio has identified five emphasis areas in the plan based on crash data:

1. Improve the quality, accuracy, timeliness and availability of crash data.
2. Reduce the occurrence and severity of run-off-road, intersection and head-on collisions.
3. Address high-risk drivers and behaviors such as young drivers, impaired driving, low seat belt use, distracted driving and excessive speed.
4. Target motorcycle and bicycle riders, pedestrians and commercial vehicles, which are more likely to be involved in serious crashes.
5. Reduce the high number of rear-end collisions caused by congestion and work zones.

These emphasis areas were chosen because they represent the greatest causes of serious injuries and deaths on Ohio roads. A complete listing of target areas and strategies are elaborated in the Highway Safety Improvement Program implementation section of this report, prior to the project listings.

Local governments can qualify for funding and technical assistance to address emphasis areas through HSIP programs administered by ODOT and the County Engineers Association.

ODOT uses the SHSP as a basis for developing its HSIP. ODOT has one of the largest programs in the country, dedicating about $102 million annually for engineering improvements at high-crash and severe-crash locations across the state. We also dedicate a portion of the funding for low-cost, systematic safety improvements that prevent roadway departure and intersection crashes identified in the SHSP. A small portion of this funding is also used to conduct work zone enforcement efforts and other small enforcement and education efforts.

This funding can be used by ODOT District Offices or local governments to improve safety on any public roadway. While the majority of HSIP investments focus on engineering improvements, ODOT uses a portion of the funding to supplement education (everymove.ohio.gov) and enforcement programs that encourage safer driving.

To qualify for funding, local governments identify and study high-crash or severe-crash locations within their own jurisdiction. To determine the best countermeasures for these locations, local governments typically conduct an engineering analysis that includes a review of existing roadway conditions and crash reports. This analysis will help identify common crash patterns and determine the best strategies to reduce crashes.

Projects sponsors are encouraged to examine a full range of options from short-term, low-cost strategies, such as new signs, pavement markings and drainage improvements to mid-cost, mid-term strategies such as new traffic signals, turn lanes and realignments.

Local governments may pay for these improvements through their annual budget or they can seek money each spring (April 30) and fall (September 30) through ODOT's Highway Safety Improvement Program. The maximum amount of funding available is $5 million per project. A multi-discipline committee at ODOT headquarters reviews all applications and supporting safety studies. The committee can approve a proposal, select a different safety strategy or request further study before allocating money. ODOT spends approximately $85 million dollars in safety funds annually through this program.

Once funding is secured, safety projects are scheduled for construction. How quickly projects proceed to construction depends on the available funding and complexity of the project. Short-term, low-cost projects can be implemented within a few months. Other projects that require environmental mitigation, complex engineering design and/or utility and right of way relocation may take several years. In all cases, ODOT encourages sponsors to act as quickly as possible. Upon project completion, the department monitors locations to make sure the improvements are reducing crashes as designed.

ODOT also provides an additional $12 million, separate from $102 million, annually to the County Engineers Association of Ohio (CEAO) to make safety improvements on county-maintained roads. This funding can be used to make spot and systematic improvements tied to the SHSP. Applications are accepted once a year and scored using criteria developed in conjunction with ODOT.

The CEAO subdivides the $12 million in to several smaller funding categories. Each county is permitted to program eligible construction projects up to $5 million overall for spot safety improvements. In addition to spot safety improvements, CEAO provides up to $300,000 per county for each guardrail project, $150,000 per county for each pavement marking project, $75,000 per county for each raised pavement marker project, and $15,000 per county for curve signage upgrade projects.

ODOT continues to look for opportunities for deployment of safety improvements. With a data driven focus, we have been able to use innovative contracting practices and partnerships through LTAP and CEAO to improve safety performance on local maintained roads. We have developed creative methods to quickly produce signage for local governments and allow them to install them with their own forces. This methodology is being used to upgrade signage in curves to prevent roadway departure crashes and around schools to make walking and biking safer for kids.

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

☒Design

☒Planning

☒Maintenance

☒Operations

☐Governors Highway Safety Office

☐Other:

**Briefly describe coordination with internal partners**.

ODOT's Office of Program Management accepts applications – accompanied by safety studies – from ODOT District Offices and local governments twice a year. Applications must be submitted through the District Offices, which have a multi-disciplinary committee that reviews and approves them for Central Office consideration. Projects are then reviewed and selected for funding by the Safety Review Committee in Central Office, which includes expertise in safety, planning, geometric design, and traffic operations.

Priority is given to any project that improves safety at a roadway location with high frequency, severity and rate of crashes. Projects are scored based on:
• Expected Crash Frequency
• Ratio of Observed Fatal and Serious Injuries to Observed Total Crashes
• Relative Severity Index
• Equivalent Property Damage Only Index
• Percentage of truck traffic
• Benefit-Cost Ratio (anticipated savings in crash costs, property damage, injuries and fatalities relative to the cost of the improvement plus cost of maintenance for the life of the project). Consideration is also given to lower-volume, lower-crash local roads with identified needs and cost-effective countermeasures.
• Highway Safety Improvement Program Funding Percentage

Funding awarded through the program is used to make traditional safety improvements at spot locations, such as intersections, and along sections or corridors throughout the state.

Ohio's program also works collaboratively with other local, state and federal agencies to develop multi-agency safety initiatives through the Strategic Highway Safety Plan. These efforts allow ODOT to pair

engineering expertise with education and enforcement initiatives that play a key role in reducing injuries and deaths.

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

☒Metropolitan Planning Organizations

☒Governors Highway Safety Office

☒Local Government Association

☐Other:

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

☐Multi-disciplinary HSIP steering committee

☒Other: Other-Scoring Criteria

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

Ohio uses a focused approach to safety that targets resources based on the greatest need and greatest opportunity for improvements. We also promote the use of proven, cost-effective, systematic safety solutions that target critical, severe-crash types such roadway departure and intersections crashes. These focus areas are embodied in both the HSIP and the state's Strategic Highway Safety Plan.

We advanced the HSIP through the balanced deployment and implementation of a host of traditional spot safety investments and a host of systematic safety investments.

**ODOT's Highway Safety Improvement Program and AASHTOWare Safety Analyst Implementation**

Each year, ODOT staff reviews the top safety locations in Ohio. Ohio is one of the first states in the country to fully implement Safety Analyst and use it to prioritize safety locations across Ohio. Safety Analyst uses state-of-the-art statistical methodologies to identify roadway locations and safety improvements with the highest potential for reducing crashes. The software systems flags spot locations and road segments that have higher-than-predicted crash frequencies. It also flags locations for review based on crash severity. This methodology is more efficient and cost effective and will allow the department to study fewer locations yet address more crashes each year.

ODOT has developed six priority lists based on rural and urban roadway types. The urban system covers all streets, roads, and highways located within urban boundaries designated by the U.S. Census Bureau. The Bureau defines two types of urban areas based on population. Small urban areas are urban places with a population or 5,000 or more and not located within any urbanized area. An urbanized area is an area with a population of 50,000 or more. As might be expected, the rural functional classification system covers all other streets, roads, and highways that are not located within the boundaries of small urban and urbanized areas. Approximately, $85 million is used to fund projects through this program.

The priority lists are:

1. Rural Intersection Peak Searching Excess Locations: These locations were selected because they have a higher-than-predicted crash frequency for each intersection. Approximately, the Top 50 locations will be studied.
2. Rural Non-Freeway Peak Searching Excess Segment Locations: These locations were selected because they have a higher-than-predicted crash frequency for this roadway type. Approximately, the Top 50 locations will be studied. Only crashes indicated on the OH-1 as being non-intersection crashes were included in this analysis.
3. Rural Freeway Peak Searching Excess Locations: These locations were selected because they have a higher-than-predicted crash frequency for this roadway type or interchange location. Approximately, the Top 50 locations will be studied.
4. Urban Intersection Peak Searching Excess Locations: These locations were selected because they have a higher-than-predicted fatal and injury crash frequency for each intersection. Approximately, the Top 50 locations will be studied.
5. Urban Non-Freeway Peak Searching Excess Segment Locations: These locations were selected because they have a higher-than-predicted fatal and injury crash frequency for this roadway type. Approximately, the Top 50 locations will be studied. Only crashes indicated on the OH-1 as being non-intersection crashes were included in this analysis.
6. Urban Freeway Peak Searching Excess Locations: These locations were selected because they have a higher-than-predicted fatal and injury crash frequency for this roadway type or interchange location. Approximately, the Top 50 locations will be studied.

**Systematics Safety Program**

The Ohio Department of Transportation spends approximately $15 million annually of the $102 million program on systematic safety improvements. These are safety improvements that can be installed across hundreds of road miles for a relatively small public investment. Systematic safety improvements are low cost improvements that are complete at similar locations to address a specific type of crash pattern.

Examples of systematic project types are Curve Signing Upgrade, Edge Line Rumble Stripes, Cable Barrier, Signal Upgrade, Intersection Signing Upgrade, Wider Pavement Markings, and Guardrail End Treatment Upgrade Projects.

**Safe Routes to School Program**

ODOT uses $4 million from the Transportation Alternatives Program to fund Ohio's Safe Routes to School Program. Again, this is separate and in addition to the $102 million ODOT HSIP program. Funds can be used on any public roadway as long as the school has completed a School Travel Plan. The School Travel Plan outlines where investments should be made for a specific school district.

**Other Programs**

Small portions of ODOT's HSIP Program funding ($102 million) are used for work zone enforcement, OVI checkpoints, and other educational opportunities. Although money is not specifically set aside for the High Risk Rural Roads Program in Ohio at this time, we still encourage agencies to apply for funding through our traditional application process. Any projects that are prioritized based on the HRRR Program are funded through the ODOT's HSIP Program ($102 million).

ODOT also combines HSIP funding with other funding sources (such as MPO and Ohio Rail Development Commission) to make safety improvements.

## 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-State HSIP | ☒ Other: Other-CEAO HSIP | ☒ Other: Other-State High Risk |

| Program | Program | Rural Road |
|---|---|---|
| ☒Other: Other-ODOT Systematic - Guardrail | ☒Other: Other-ODOT Systematic - Signal Upgrade | ☒Other: Other-ODOT Systematic - Wet Pavement |
| ☒Other: Other-ODOT Systematic - Median Barrier | ☒Other: Other-ODOT Systematic - Roadway Departure | ☒Other: Other-ODOT Systematic - Intersection Signage |
| ☒Other: Other-CEAO Systematic - Guardrail | ☒Other: Other-CEAO Systematic - Pavement Markings | ☒Other: Other-CEAO Systematic - RPMs |
| ☒Other: Other-CEAO Systematic - Curve Signage | | |

**Program:** **Other-State HSIP Program**

**Date of Program Methodology:** **1/1/2014**

**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-Truck Volume | ☐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-Truck AADT

☒ Other-Volume to Capacity Ratio

**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 | 3 |
| ☐Incremental B/C | |
| ☐Ranking based on net benefit | |
| ☒Cost Effectiveness | 2 |

**Program:** **Other-CEAO HSIP Program**

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

**What data types were used in the program methodology?**

| *Crashes* | *Exposure* | *Roadway* |
|---|---|---|
| ☒All crashes | ☒Traffic | ☐Median width |
| ☐Fatal crashes only | ☐Volume | ☐Horizontal curvature |
| ☒Fatal and serious injury | ☐Population | ☐Functional classification |

crashes only

☐ Other

☐ Lane miles

☐ Roadside features

☐ Other

☒ Other-Rural County Highway System

**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-Amount of Funding Requested

**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 | 3 |
| ☐Incremental B/C | |
| ☐Ranking based on net benefit | |
| ☒Cost Effectiveness | 2 |

**Program:** **Other-State High Risk Rural Road**

**Date of Program Methodology:** **6/1/2008**

**What data types were used in the program methodology?**

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

**What project identification methodology was used for this program?**

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☒ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒Yes

☐No

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

☒Yes

☐No

**How are highway safety improvement projects advanced for implementation?**

☐Competitive application process

☒Selection committee

☐Other

**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 | 3 |
| ☐Incremental B/C | |
| ☐Ranking based on net benefit | |
| ☒Cost Effectiveness | 2 |

**Program:** **Other-ODOT Systematic - Guardrail**

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

**What data types were used in the program methodology?**

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

**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-Systematic Safety Program

**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 | 3 |
| ☐ Incremental B/C | |
| ☐ Ranking based on net benefit | |
| ☐ Other | |
| ☒ Systematic Safety Improvement | 2 |

**Program:** **Other-ODOT Systematic - Signal Upgrade**

**Date of Program Methodology:** **6/1/2009**

**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-Systematic Safety Program

**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 | 3 |
| ☐ Incremental B/C | |
| ☐ Ranking based on net benefit | |
| ☐ Other | |

| | |
|---|---|
| ☒ Systematic Safety Improvement | 2 |

**Program:** **Other-ODOT Systematic - Wet Pavement**

**Date of Program Methodology:** **7/1/2012**

**What data types were used in the program methodology?**

| *Crashes* | *Exposure* | *Roadway* |
|---|---|---|
| ☒ All crashes | ☐ Traffic | ☐ Median width |
| ☐ Fatal crashes only | ☒ Volume | ☒ Horizontal curvature |
| ☐ Fatal and serious injury crashes only | ☐ Population | ☐ Functional classification |
| ☒ Other-Wet crashes | ☐ Lane miles | ☐ Roadside features |
| ☒ Other-Fixed object crashes | ☐ 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-Systematic Safety Program

**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 | 3 |

☐ Incremental B/C

☐ Ranking based on net benefit

☐ Other

☒ Systematic Safety Improvement 2

**Program:** **Other-ODOT Systematic - Median Barrier**

**Date of Program Methodology:** **10/1/2009**

**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-Cross-Median Crashes | ☐ 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-Systematic Safety Program

**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 | 3 |
| ☐ Incremental B/C | |
| ☐ Ranking based on net benefit | |
| ☐ Other | |
| ☒ Systematic Safety Improvement | 2 |

**Program:** **Other-ODOT Systematic - Roadway Departure**

**Date of Program Methodology:** **8/1/2013**

**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-Shoulder width |
| | | ☒ Other-Lane width |
| | | ☒ Other-Urban / Rural |

**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-FHWA Roadway Departure Safety Project Identification Methods

**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-Systematic Safety Program

**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 | 3 |
| ☐Incremental B/C | |
| ☐Ranking based on net benefit | |
| ☐Other | |
| ☒Systematic Safety Improvement | 2 |

**Program:** **Other-ODOT Systematic - Intersection Signage**

**Date of Program Methodology:** **7/12/2012**

**What data types were used in the program methodology?**

| *Crashes* | *Exposure* | *Roadway* |
|---|---|---|
| ☒All crashes | ☐Traffic | ☐Median width |
| ☐Fatal crashes only | ☐Volume | ☐Horizontal curvature |

| | | |
|---|---|---|
| ☐ Fatal and serious injury crashes only | ☐ Population | ☒ Functional classification |
| ☐ Other | ☐ Lane miles | ☐ Roadside features |
| | ☐ Other | ☐ Other |

**What project identification methodology was used for this program?**

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☒ Other-FHWA Intersection Safety Project Location Identification Methods

**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-Systematic Safety Program

**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 | 3 |
| ☐Incremental B/C | |
| ☐Ranking based on net benefit | |
| ☐Other | |
| ☒Systematic Safety Improvement | 2 |

**Program:** **Other-CEAO Systematic - Guardrail**

**Date of Program Methodology: 6/1/2011**

**What data types were used in the program methodology?**

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

**What project identification methodology was used for this program?**

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☒ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☒ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

**How are highway safety improvement projects advanced for implementation?**

☒ Competitive application process

☒ Selection committee

☐ Other

**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 3
- ☐ Incremental B/C
- ☐ Ranking based on net benefit
- ☐ Other

| | |
|---|---|
| ☒ Relative County Ranking | 1 |
| ☒ Systematic Safety Improvement | 2 |

**Program:** **Other-CEAO Systematic - Pavement Markings**

**Date of Program Methodology:** **5/1/2011**

**What data types were used in the program methodology?**

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

**What project identification methodology was used for this program?**

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☒ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☒ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

**How are highway safety improvement projects advanced for implementation?**

☒ Competitive application process

☒ Selection committee

☐ Other

**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 3

☐Incremental B/C

☐Ranking based on net benefit

☐Other

☒Relative County Ranking 1

☒Systematic Safety Improvement 2

**Program:** **Other-CEAO Systematic - RPMs**

**Date of Program Methodology:** **5/1/2011**

**What data types were used in the program methodology?**

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

**What project identification methodology was used for this program?**

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☒ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☒ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

**How are highway safety improvement projects advanced for implementation?**

☒ Competitive application process

☒Selection committee

☐Other

**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 | 3 |
| ☐Incremental B/C | |
| ☐Ranking based on net benefit | |
| ☐Other | |
| ☒Relative County Rankin | 1 |
| ☒Systematic Safety Improvement | 2 |

**Program:** **Other-CEAO Systematic - Curve Signage**

**Date of Program Methodology:** **5/1/2012**

**What data types were used in the program methodology?**

*Crashes* *Exposure* *Roadway*

| | | |
|---|---|---|
| ☒ All crashes | ☐ Traffic | ☐ Median width |
| ☐ Fatal crashes only | ☒ Volume | ☒ Horizontal curvature |
| ☒ Fatal and serious injury crashes only | ☐ Population | ☐ Functional classification |
| ☐ Other | ☐ Lane miles | ☐ Roadside features |
| | ☐ Other | ☒ Other-Rural County Roadway System |

**What project identification methodology was used for this program?**

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ Probability of specific crash types

☐ Excess proportions of specific crash types

☐ Other

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

☒ Yes

☐ No

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

☒ Yes

☐ No

**How are highway safety improvement projects advanced for implementation?**

☒ Competitive application process

☒ Selection committee

☐ Other

**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 | 3 |
| ☐ Incremental B/C | |
| ☐ Ranking based on net benefit | |
| ☐ Other | |
| ☒ Relative County Ranking | 1 |
| ☒ Systematic Safety Improvement | 2 |

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

15

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

- ☒ 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-Wet Pavement Locations
- ☒ Other Other-Roadway Departure

**What process is used to identify potential countermeasures?**

- ☒ Engineering Study
- ☒ Road Safety Assessment
- ☒ Other: Other-Using Safety Analyst software to identify potential systematic safety improvement locations.

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

☒Highway Safety Manual

☐Road Safety audits

☐Systemic Approach

☐Other:

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

None.

# 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)** | 74398069 | 31 % | 63842083 | 30 % |
| **HRRRP (SAFETEA-LU)** | 3409981 | 1 % | 7462210 | 4 % |
| **HRRR Special Rule** | | | | |
| **Penalty Transfer - Section 154** | | | | |
| **Penalty Transfer – Section 164** | 26369579 | 11 % | 26369579 | 12 % |
| **Incentive Grants - Section 163** | | | | |
| **Incentive Grants (Section 406)** | | | | |
| **Other Federal-aid Funds (i.e. STP, NHPP)** | 67457897 | 28 % | 44234396 | 21 % |
| **State and Local Funds** | 70481028 | 29 % | 70481028 | 33 % |

| | | | | |
|---|---|---|---|---|
| **Totals** | 242116554 | 100% | 212389296 | 100% |

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

$21,124,248.00

**How much funding is obligated to local safety projects?**

$25,732,826.00

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

$40,500.00

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

$40,500.00

**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**.

In FFY 2013, Ohio obligated 100% of its HSIP funds. For SFY 2014, Ohio has obligated approximately 63%. ODOT's safety program is making great progress working with our SHSP partners to further highway safety in Ohio.

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

Ohio uses the Strategic Highway Safety Plan to guide project selection for the HSIP Program. The following contains a complete list of Emphasis Areas, Targets Areas, and Strategies contained in the current plan posted at the following link:
http://www.dot.state.oh.us/Divisions/Planning/SPPM/MajorPrograms/Safety/Documents/SHSP%20Report.pdf
These have been provided at the end of each SHSP Strategy field in the project listing table in the following section. An example of improve signage or install warning signs for a fixed object crash location would be coded as "II-a-4".

**Emphasis Area I – Data and Support Systems**

Targets

α. Timely Data
β. Reliable Data
χ. Comprehensive Data
δ. Integrated Data and Analysis Systems

Strategies

1. Provide statistical crash information and reports to outside agencies through web-based applications that allow local governments, law enforcement and the public to download the information quickly.

2. Develop a multi-jurisdictional, statewide road inventory network that contains accurate centerline information, valid address ranges and other information features critical to improving crash information, analysis and emergency response.
3. Design and implement a centralized statewide citation tracking system so law enforcement officers, court personnel and prosecutors have up-to-date driver histories
4. Improve railroad crossing data and integrate into statewide crash analysis system
5. Identify those municipal and county law enforcement agencies that report the largest number of crashes and work with them to reduce delays in submitting crash reports to ODPS
6. Implement Ohio's Crash Outcome Data Evaluation System (CODES)
7. Use this information in crash analysis, problem identification, and program evaluation to improve decision-making at the local, state and national levels
8. Update the Emergency Medical System Incident Reporting System to meet the standards set forth by the National EMS Information System (NEMSIS).

**Emphasis Area II – Serious Crash Types**

Targets

α. Fixed Object Crashes
β. Intersection Crashes
χ. Head-On Crashes
δ. Cross-Median Crashes
ε. Highway/Railroad Crossing Crashes

Strategies – Fixed Object Crashes (a)

1. Identify areas with disproportionate number of roadway departure crashes
2. Implement asset management for roadside safety features
3. Conduct roadway safety audits
4. Improve signs or install warning signs
5. Remove or relocate obstacles, or delineate with reflective paint and/or reflectors
6. Provide adequate clear zones, flatten slopes and reduce sharp curves
7. Shield motorists from trees, poles, or other fixed objects using guardrail or other barrier types
8. Alertmotorists by installing rumble strips (pilot locations to be selected)
9. Provide selective enforcement aimed at speeding and impaired driving
10. Investigate new technologies

Strategies – Intersection Crashes (b)

1. Stop approach rumble strips

2. Improve signs and visibility of the intersection including the installation of sign post/drive post delineators, dual stop and stop ahead signs and flashing LED or beacon enhanced stop signs
3. Improve sight distance
4. Improve signal timing
5. Dynamic flashing beacons
6. Install or enhance intersection lighting
7. Increase enforcement of intersection violations
8. Access management to reduce intersection conflicts
9. Conduct roadway safety audits
10. Investigate new technologies
11. Educate motorists on intersection crash issues and encourage safer driving behavior

Strategies – Head-On Crashes (c)

1. Identify areas with disproportionate number of roadway departure crashes
2. Deploy centerline rumble strips
3. Deploy, as appropriate, “No Passing Zone” signs
4. Deploy, as appropriate, passing lanes on rural, two-lane roads
5. Train and educate motorists on passing zone markings and lanes
6. Provide selective enforcement aimed at speeding and impaired driving

Strategies – Cross-Median Crashes (d)

1. Identify areas with a disproportionate number of cross-median crashes
2. Establish policy and guidelines for installing median barrier
3. In congested areas, install “Watch for stopped traffic” signs to prevent cross-median crashes
4. Provide selective enforcement aimed at speeding, impaired and aggressive driving

Strategies – Highway/Railroad Crossing Crashes (e)

1. Streamline the process to help local governments reduce crossing profiles, eliminate redundant crossings and separate highway/rail crossings
2. Market existing programs that expand the use of alternative crash prevention methods, such as improved street lighting at approaches, rumble strips, warning signs and flashing lights
3. Continue the use of visible, high-profile law enforcement programs at problem crossings to deter drivers from violating gates and lights
4. Use automated enforcement of crossing violations to the extent allowed by law
5. Encourage greater participation in programs that establish multi-disciplinary teams to examine railroad corridors for improvements and fatal crash locations for quick corrective action
6. Modify the project selection by hazard index to include the review of older circuitry on gates and lights

7. Encourage all Ohio counties to develop or expand the County Task Force Program to encourage grass roots interest in railroad safety and to identify problem locations
8. Expand involvement with Operation Lifesaver and other highway safety education and enforcement programs
9. Encourage railroads to provide accurate and timely railroad crossing data such as crash, train volume and speed data, which can be better integrated into the Federal Railroad Administration's Accident Prediction Model and other statewide analysis systems used to create safer crossings
10. Develop policies that encourage ODOT district offices and local governments to identify and include rail improvements early in the project development process for highway improvements
11. Encourage the closure of redundant crossings through policies and funding commitments To ensure railroad compliance at crossings, FRA will increase inspection activities with railroad managers by conducting field test and observations of crossing activation failures

**Emphasis Area III – High-Risk Behaviors/Drivers**

Targets

α. Occupant Protection Devices – Nonuse and Misuse
β. Impaired by Alcohol
χ. Young Driver – 15 to 25
δ. Distracted or Fatigued Driver
ε. Aggressive Driving
ϕ. Older Driver – 65 or Older

Strategies – Occupant Protection Devices – Nonuse and Misuse (a)

1. Support efforts to enact primary safety belt legislation through state law or local ordinances
2. Upgrade child restraint law to include booster seats
3. Expand the Rural Demonstration Project designed to increase safety belt use in rural areas
4. Implement media and education campaign targeting pick-up drivers
5. Encourage law enforcement to aggressively enforce safety belt and child restraint laws
6. Increase emphasis on special occupant protection mobilizations (public information and high visibility enforcement campaigns)
7. Continue campaigns to educate the general public and target groups about the importance of occupant protection
8. Pilot test the "I'm Safe" Occupant Protection Program for K through Second Grade and continue to provide other child-based educational programs
9. Educate parents, caregivers, and grandparents about proper selection and installation of child safety seats and booster seats

10. Encourage corporations to enact policies to require safety belt use in company vehicles or when driving on company or personal time

Strategies – Impaired by Alcohol (b)

1. Targeted Alcohol Counties –Continue target law enforcement and educational grants to those counties with the worst fatal alcohol crash problems
2. You Drink & Drive. You Lose. (YD&DYL) Crackdown – Ohio will continue to participate in the national crackdown, which combines highly visible law enforcement with both local and national media exposure.
3. Continued use of OVI checkpoints
4. Implement an OVI Tracking System to collect data from all law enforcement, courts and treatment facilities
5. Develop Statewide Citation Tracking System to improve the OVI process and Conviction rate
6. Streamline the impaired driving arrest process and provide standardized electronic OVI reporting format to all law enforcement agencies
7. Pilot Test the OVI Court Model, which is a multidisciplinary effort to forcefully intervene and break the cycle of substance abuse, addiction, crime and impaired driving
8. Expand "Traffic Safety Resource Prosecutor Program" to improve prosecution of impaired driving cases, serve as an information resource for prosecutors and conduct training for prosecutors as needed
9. Expand alcohol server programs for on and off-premise sales
10. Increase law enforcement training on alcohol-related detection techniques and issues, including training to address underage consumption and detection of impaired motorcyclists
11. Secure Ohio Department of Health approval for law enforcement agencies to use portable evidential breath testing instruments by 2007

Strategies – Young Driver – 15 to 25 (c)

1. Support strengthening the Graduated Driver Licensing (GDL) law to restrict the number of passengers and nighttime driving
2. Continue Safe Communities programs that target young drivers and passengers. These community-based organizations conduct youth educational programs, including safety belt challenges, mock crashes, "None for Under 21" rallies and teen countermeasure programs like "Every 15 Minutes," "You Hold the Key," and "Buckle Up for a Successful Season"
3. Expand alcohol server programs for on and off-premise sales
4. Increase law enforcement training on alcohol-related youth programs
5. Provide selective enforcement aimed at speeding and impaired drivers
6. Support court-based programs, such as the Clermont County Sheriff's Office, "Last Chance" program, which uses educational strategies to reduce repeat driving offenses among 16 to 24-year-olds.

Strategies – Distracted or Fatigued Driver (d)

1. Deploy shoulder, edge line and centerline rumble strips
2. Expand available parking in rest areas
3. Educate roadway users and employers on the dangers of distracted and fatigued driving
4. Consider public and corporate policies regulating cell phone use and other electronic devices

Strategies – Aggressive Driving (e)

1. Develop common definition for aggressive driving in Ohio
2. Expand high visibility enforcement , such as Operation TRIAD (Targeting Reckless Intimidating and Aggressive Drivers), which uses aircraft and on-road target enforcement and media coverage to discourage unsafe driving behavior
3. Educate roadway users on the dangers of aggressive driving and the rules of the road
4. Expand use of speed monitoring and changeable message signs
5. Minimize work zone delays, which can lead to aggressive driving
6. Support legislative efforts to define aggressive driving and impose increasing penalties and fines on repeat offenders of aggressive driving laws
7. Add aggressive driving as a causative crash factor on Ohio's crash reports (OH-1) once it is defined by law

Strategies – Older Driver – 65 or Older (f)

1. Expand use of Mature Driver Program and senior driver presentations that educate older drivers and their caregivers about driving risks associated with this age group
2. Expand number of facilities to test older drivers
3. Expand and maintain roadway features including larger signs and more visible pavement markings
4. Increase safety belt use among older drivers

**Emphasis Area IV – Special Vehicles/Roadway Users**

Targets

α. Commercial Vehicles
β. Motorcycles
χ. Bicycles
δ. Pedestrians

Strategies – Commercial Vehicles (a)

1. Enhance the electronic data capture software used to report commercial vehicle crashes to increase the accuracy and timeliness of data reported by local law enforcement (90-day requirement to report)
2. Expand use of Commercial Vehicle Information Systems and Networks program, which electronically collects and exchanges motor carrier safety, registration and other related information used for national roadside screening
3. Reduce the percentage of "at-fault" commercial vehicle drivers involved in work zone crashes by raising the awareness of the possibility of enforcement in work zones
4. Expand number of work zones targeted for increased enforcement, crash data and speed monitoring. Post "Target Zone Enforcement" signs to alert and deter unwanted behavior
5. Maintain and improve efforts to ensure only qualified drivers and properly maintained vehicles are used on Ohio highways. (Continue FMSCA audit of new carriers and compliance reviews on existing carriers)
6. Continue aggressive driver/vehicle inspections throughout Ohio
7. Identify high-crash corridors and initiate appropriate engineering and enforcement interventions
8. Coordinate efforts regarding hazardous moving violations by cars and trucks under the new SAFETEA-LU FMCSA authority
9. Educate roadway users, motor carriers and the agriculture community on commercial vehicle performance, visibility, and regulations including the Share the Road Program, hazardous materials, Highway Watch, etc.
10. Conduct analysis on commercial motor vehicle seat belt use in Ohio to better understand geographic locations and causes for nonuse.
11. Expand commercial motor vehicle seat belt outreach efforts

<u>Strategies – Motorcycles (b)</u>

1. Encourage the use of FMVSS 218 compliant helmets and other protective gear
2. Initiate a program to decrease the number of unendorsed motorcyclists
3. Expand Ohio motorcycle rider education programs through public and private sponsors and continue marketing campaigns to encourage training
4. Increase the awareness among motorcyclists of the dangers of riding impaired and enlist the support of motorcycle organizations to promote the separation between drinking and riding
5. Distribute NHTSA's "Detection of DWI Motorcyclists" materials to law enforcement agencies
6. Increase the use of warning signs to alert motorcyclists when roadway surface conditions are changing significantly (metal bridge gratings, bumps, rain grooves, grating of roadway surface, etc.)
7. Provide training to law enforcement on OH-1 Failure to Control code relative to motorcycle crashes
8. Educate roadway users on motorcycle performance, visibility, sharing the roadway with motorcyclists, etc.

9. Establish a motorcycle liaison at OSHP facilities who can speak to groups about motorcycle safety and respond to related inquiries and issues
10. Hold motorcycle awareness month to educate the public about motorcycle safety issues.

Strategies – Bicycles (c)

1. Increase enforcement, education and training in bicycle/pedestrian laws and safety through Ohio's Safe Routes to Schools Program
2. Increase problem identification and infrastructure planning for bicycle and pedestrian facilities through Ohio's Safe Routes to Schools Program
3. Conduct target enforcement of bicycle/pedestrian traffic laws in high crash zones
4. Strengthen penalties/enforcement for right of way, assured clear distance and marked lane violations that endanger bicyclists and pedestrians
5. Conduct law enforcement and judicial awareness seminars to educate these groups in the violations and penalties associated with bicycle/pedestrian related traffic violations

Strategies – Pedestrians (d)

1. Improve pedestrian signs and road markings
2. Increase enforcement, education and training in bicycle/pedestrian laws and safety through Ohio's Safe Routes to Schools Program
3. Increase problem identification and infrastructure planning for bicycle and pedestrian facilities throughOhio's Safe Routes to Schools Program
4. Conduct target enforcement of bicycle/pedestrian traffic laws in high crash zones
5. Strengthen penalties/enforcement for right of way, assured clear distance and marked lane violations that endanger bicyclists and pedestrians.
6. Conduct law enforcement and judicial awareness seminars to educate these groups in the violations and penalties associated with bicycle/pedestrian related traffic violations.

**Emphasis Area V – Incident and Congestion Related Crashes**

Targets

α. Rear End Crashes
β. Work Zone Crashes

Strategies - Rear End Crashes (a)

1. Target congested highway segments for improvements, including adding roadway capacity and Intelligent Transportation Systems, as well as deploying access management techniques

2. Continue to develop innovative practices designed to maintain traffic flow throughout construction
3. Develop pre-planned detours for closures on any link of the state freeway system to reduce the impact of lane closures due to spills, crashes etc.
4. Educate motorists to move minor crashes off the road
5. Educate law enforcement and fire departments on “Quick Clear” protocols
6. Work with law enforcement agencies to develop special enforcement programs that target congested, high-crash areas, such as Ohio Safe Commute
7. Educate motorists and EMS on the use of urban freeway reference markers so cellular telephone callers can accurately report crash locations
8. Deploy freeway service patrols to clear debris and minor incidents before they cause a major problem
9. Develop intelligent transportation systems (cameras, overhead message signs) to inform motorists of incidents, congestion and detours
10. Develop Homeland Security and Critical Incident Management Plan to prepare and respond to natural disasters and terrorism incidents.

Strategies - Work Zone Crashes (b)

1. Evaluate effectiveness of 2005 special enforcement and crash data collection effort in select work zones for possible expansion
2. Consider use of innovative technology in candidate work zones to supplement available law enforcement officers
3. Advertise (signs) work zones with increased law enforcement
4. Reduce the percentage of “at-fault” commercial vehicle drivers involved in work zone crashes by raising the awareness of the possibility of enforcement in work zones
5. Provide work zone training to ODOT, local agencies, law enforcement, contractors, and utility companies
6. Provide work zone information to the public
7. Update current state guidelines, policies, regulations and statutes pertaining to work zone safety including those of public safety and motor vehicles to adopt the FHWA final rule on Work Zone Safety and Mobility
8. Utilize new and innovative ITS technologies to obtain traffic count data, verify traffic queue lengths in order to deploy a reliable traffic alert system.
9. Require trucks to use lanes that don’t have conflicting merges/diverges due to ramps
10. Require paved shoulders of at least 2’ wherever practical and possible
11. Use rumble strips to alert motorists of construction work zones and changes in traffic patterns

## 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 |
| **93030 - FRA IR 71 19.430 (Lighting)** | Lighting Intersection lighting | 0.02 Miles | 380268 | 443494 | HSIP (Section 148) | Urban Principal Arterial - Interstate | 150460 | 55 | State Highway Agency | Intersections | Adding lighting to reduce night-time/dark crashes (II-b-6) |
| **92273 - CLI CR VAR Guardrail Phase 4** | Roadside Barrier- metal | 1.23 Miles | 306516.11 | 306516.11 | HSIP (Section 148) | Rural Major Collector | 0 | 0 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **89193 - MAR SR 423 4.210** | Intersection geometry Intersection geometrics - miscellaneous/other/u | 0.11 Miles | 290748.14 | 456857.13 | HRRRP (SAFETEA-LU) | Rural Major Collector | 6461 | 55 | State Highway | Intersections | Improving roadway to reduce rear end and |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | nspecified | | | | | | | | Agency | | angle crashes (II-b-3) |
| **91927 - LAW SR 243 17.83** | Roadway Roadway widening - travel lanes | 0.12 Miles | 368742.54 | 1070259 | HRRRP (SAFETEA-LU) | Rural Major Collector | 2415 | 25 | State Highway Agency | Intersections | Widening a highway corridor to reduce the number of sideswipe crashes (II-b-7) |
| **91050 - GEA GR FY2016 LOCAL** | Roadside Barrier- metal | 1.41 Miles | 435626.37 | 435626.37 | HSIP (Section 148) | Rural Major Collector | 0 | 55 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **93518 - D12 GR FY2014(B)** | Roadside Barrier end treatments (crash cushions, terminals) | 105 Numbers | 226520 | 226520 | HSIP (Section 148) | Urban Minor Arterial | 3040 | 0 | State Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |

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| **90948 - ALL Lima Elizabeth/ West Streets** | Roadway Roadway narrowing (road diet, roadway reconfiguration) | 0.19 Miles | 1080000 | 1633712.59 | HSIP (Section 148) | Urban Local Road or Street | 2180 | 35 | City of Municipal Highway Agency | Intersections | Narrowing a highway corridor to reduce sideswipe and angle crashes (II-b-2) |
| **81541 - SCI SR 140 4.94 Safety** | Alignment Horizontal and vertical alignment | 0.21 Miles | 1218108.6 | 1357509 | HSIP (Section 148) | Urban Minor Collector | 4160 | 0 | State Highway Agency | Roadway Departure | Realigned roadway to reduce fixed object and overturning crashes (II-a-6) |
| **93027 - FRA NORTHWEST BLVD** | Alignment Horizontal curve realignment | 0.22 Miles | 332478.24 | 356531.8 | HSIP (Section 148) | Urban Minor Arterial | 8609 | 45 | City of Municipal Highway Agency | Roadway Departure | Realigned roadway to reduce fixed object crashes (II-a-6) |
| **93543 - SHE SR 47 13.45** | Access management Change in access - close or restrict existing access | 0.24 Miles | 348097.14 | 387108.6 | HSIP (Section 148) | Urban Minor Arterial | 10260 | 0 | City of Municipal Highwa | Roadway Departure | Limiting in and out movements to |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | y Agency | | driveways in order to reduce turning related crashes (II-b-8) |
| **92498 - MED CR GR FY2013** | Roadside Barrier- metal | 0.26 Miles | 475887.5 | 475887.5 | HSIP (Section 148) | Rural Local Road or Street | 1200 | 55 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **94460 - FRA IR 70/Hilliard Rome Int** | Roadway Roadway widening - add lane(s) along segment | 0.38 Miles | 254830.61 | 5543621 | HSIP (Section 148) | Urban Principal Arterial - Other | 46722 | 25 | City of Municipal Highway Agency | Intersections | Widening a highway corridor to add turn lanes and reduce the number of rear end and angle crashes (II-b-6) |
| **97305 -** | Roadside Barrier- metal | 0.5 | 300000 | 364848 | HSIP | Rural | 0 | 35 | County | Roadway | Installed |

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| **CLE VAR Guardrail FY 14** | | Miles | | | (Section 148) | Local Road or Street | | | Highway Agency | Departure | guardrail to address issue of roadway departure crashes (II-a-7) |
| **89541 - CAR SR 542 13.18** | Alignment Vertical alignment or elevation change | 0.5 Miles | 1538598.3 | 1961591.77 | HRRRP (SAFETEA-LU) | Rural Major Collector | 1130 | 35 | State Highway Agency | Roadway Departure | Realigned roadway to reduce fixed object crashes (II-a-6) |
| **86846 - HEN SR 108 16.10 Minor Widen** | Roadway Roadway widening - add lane(s) along segment | 0.53 Miles | 2777239.24 | 3452250.88 | HSIP (Section 148) | Urban Principal Arterial - Other | 8480 | 0 | State Highway Agency | Intersections | Widening a highway corridor to add turn lanes and reduce the number of rear end and angle crashes (II-b-3) |
| **93801 - BRO US 68** | Intersection geometry Auxiliary lanes - add | 0.61 Miles | 1745019 | 2105455.5 | HSIP (Sectio | Rural Minor | 15253 | 45 | State Highwa | Intersections | Constructing turn |

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| **30.72 Safety** | left-turn lane | | | | n 148) | Arterial | | | y Agency | | lanes to rear end and left turn crashes (II-b-2) |
| **97304 - CLE VAR Pavement Markings FY 14** | Roadway delineation Roadway delineation - other | 0.64 Miles | 150000 | 150000 | HSIP (Section 148) | Urban Minor Collector | 0 | 45 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |
| **86923 - SUM 31st Street (CR17)** | Roadway Roadway widening - add lane(s) along segment | 0.66 Miles | 1214003.25 | 3857537.72 | HSIP (Section 148) | Urban Minor Collector | 0 | 40 | County Highway Agency | Intersections | Widening a highway corridor to add turn lanes and reduce the number of rear end and angle crashes (II-b-5) |
| **83018 - FRA US 40** | Access management Change in access - close | 0.69 Miles | 420026 | 4697736.26 | Other Federa | Urban Principal | 28200 | 0 | City of Munici | Roadway Departur | Limiting in and out |

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| **6.31** | or restrict existing access | | | | l-aid Funds (i.e. STP, NHPP) | Arterial - Other | | | pal Highway Agency | e | movements to driveways in order to reduce turning related crashes (II-b-8) |
| **89090 - MAH Guardrail CEAO FY13** | Roadside Barrier- metal | 0.71 Miles | 316826.1 | 316826.1 | HSIP (Section 148) | Rural Major Collector | 11834 | 40 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **77563 - ATB US 0020 13.78** | Roadway Roadway widening - add lane(s) along segment | 0.9 Miles | 4178234 | 5759485.01 | HSIP (Section 148) | Urban Principal Arterial - Other | 21070 | 0 | State Highway Agency | Intersections | Widening a highway corridor to add turn lanes and reduce the number of rear end and angle crashes (II- |

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| | | | | | | | | | | | b-4) |
| **94665 - BUT CR VAR RPM FY 2013** | Roadway delineation Raised pavement markers | 0.94 Miles | 64747.76 | 64747.76 | HSIP (Section 148) | Urban Minor Collector | 0 | 0 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |
| **96002 - MAR Campbell St CSX Preemption** | Intersection traffic control Modify traffic signal - modernization/replacement | 1 Numbers | 267307 | 268531.48 | HSIP (Section 148) | Urban Minor Arterial | 5480 | 35 | City of Municipal Highway Agency | Intersections | Improving signal operation and visibility to reduce intersection related crashes (II-b-4) |
| **90154 - MUS PM 2014** | Roadway delineation Longitudinal pavement markings - new | 1 Miles | 150000 | 160134.7 | HSIP (Section 148) | Urban Minor Collector | 0 | 0 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |

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| **96841 - FRA-Cosgray Rd RRFB** | Pedestrians and bicyclists Pedestrian signal - Pedestrian Hybrid Beacon | 1 Numbers | 127376.97 | 138364.97 | HSIP (Section 148) | Urban Minor Collector | 4303 | 55 | City of Municipal Highway Agency | Pedestrians | Constructing signal to reduce pedestrian crashes (IV-d-1) |
| **92557 - DEL SR 37 10.36** | Intersection traffic control Modify traffic signal timing - signal coordination | 1 Numbers | 250660.43 | 274139.43 | HSIP (Section 148) | Urban Minor Arterial | 10310 | 40 | City of Municipal Highway Agency | Intersections | Improving signal operation and visibility to reduce intersection related crashes (II-b-4) |
| **85602 - JAC CR 9 0.12 Keystone Furnace** | Intersection geometry Intersection geometrics - miscellaneous/other/unspecified | 1 Numbers | 4943819.85 | 5502505.63 | HSIP (Section 148) | Rural Major Collector | 0 | 45 | County Highway Agency | Intersections | Realigning roadway intersections to reduce rear end, angle, and sideswipe passing crashes (II-b-3) |

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| **96210 - FRA SR 161 15.240** | Pedestrians and bicyclists Install new crosswalk | 1 Numbers | 98829 | 110130 | HSIP (Section 148) | Urban Principal Arterial - Other | 24190 | 55 | City of Municipal Highway Agency | Pedestrians | Providing crossing lanes to reduce pedestrian related crashes (IV-d-1) |
| **93564 - LUC US 20 10.65 Safety** | Intersection traffic control Modify traffic signal - modernization/replacement | 1 Numbers | 205060 | 235050.96 | HSIP (Section 148) | Urban Principal Arterial - Other | 32340 | 60 | City of Municipal Highway Agency | Intersections | Improving signal operation and visibility to reduce intersection related crashes (II-b-4) |
| **87664 - POR Summit Rd. (CR-148-3.85)** | Intersection traffic control Modify control - all-way stop to roundabout | 1 Numbers | 487680.55 | 613349.98 | HSIP (Section 148) | Urban Minor Arterial | 0 | 40 | County Highway Agency | Intersections | Constructing a roundabout to reduce angle and rear end crashes (II-b-10) |
| **94639 -** | Intersection traffic | 1 | 100933 | 1360771 | HSIP | Rural | 3425 | 25 | State | Intersecti | Constructin |

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| **CLA SR 41/235 30.79/8.65** | control Modify control - traffic signal to roundabout | Numbers | 9 | | (Section 148) | Major Collector | | | Highway Agency | ons | g a roundabout to reduce angle and rear end crashes (II-b-10) |
| **94723 - CUY IR 480 11.60 Interchange** | Interchange design Interchange design - other | 1 Numbers | 1423539.01 | 2109332.5 | HSIP (Section 148) | Urban Principal Arterial - Interstate | 125336 | 65 | State Highway Agency | Intersections | Reconfiguration of the interchange to reduce rear end, sideswipe passing and angle crashes (V-a-1) |
| **83548 - ERI US 0250 01.92** | Intersection geometry Intersection geometrics - miscellaneous/other/unspecified | 1 Numbers | 1491179 | 3732936.13 | HSIP (Section 148) | Urban Principal Arterial - Other | 22420 | 45 | State Highway Agency | Intersections | Realigning roadway intersections to reduce rear end, angle, and sideswipe passing crashes (II- |

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| **93427 - FUL US 20A 19.65 (Signals)** | Pedestrians and bicyclists Pedestrian signal - Pedestrian Hybrid Beacon | 1 Numbers | 50944.07 | 277455.64 | HSIP (Section 148) | Rural Minor Arterial | 7480 | 45 | City of Municipal Highway Agency | Pedestrians | Constructing signal to reduce pedestrian crashes (IV-d-1) |
| **93938 - WAR IR 71 0.07** | Intersection geometry Auxiliary lanes - add right-turn lane | 1 Numbers | 85409.7 | 1338879.2 | Other Federal-aid Funds (i.e. STP, NHPP) | Urban Principal Arterial - Interstate | 76920 | 35 | State Highway Agency | Intersections | Constructing turn lanes to rear end crashes (II-b-2) |
| **89488 - MER CR VAR PM PH 6** | Roadway delineation Longitudinal pavement markings - new | 1.03 Miles | 183329.37 | 184329.37 | HSIP (Section 148) | Rural Local Road or Street | 0 | 45 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |
| **76439 - STA SR 0800 07.05** | Intersection geometry Auxiliary lanes - add left-turn lane | 1.03 Miles | 6148755 | 8779524 | HSIP (Section 148) | Urban Minor Arterial | 12550 | 35 | State Highway Agency | Intersections | Constructing turn lanes to rear end and left |

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| | | | | | | | | | | | turn crashes (II-b-2) |
| **84977 - SUM Graham Road (Widening)** | Intersection geometry Auxiliary lanes - add left-turn lane | 1.21 Miles | 1700000 | 7358324.75 | Other Federal-aid Funds (i.e. STP, NHPP) | Urban Minor Arterial | 12451 | 55 | City of Municipal Highway Agency | Intersections | Constructing turn lanes to rear end and left turn crashes (II-b-2) |
| **92500 - CRA CR GR FY2013** | Roadside Barrier- metal | 1.21 Miles | 307867.76 | 307867.76 | HSIP (Section 148) | Rural Minor Collector | 621 | 0 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **92452 - HAN US 224 15.67** | Intersection geometry Auxiliary lanes - modify turn lane storage | 1.24 Miles | 389853 | 440461.65 | HSIP (Section 148) | Urban Principal Arterial - Other | 19690 | 45 | State Highway Agency | Intersections | Constructing turn lanes to reduce sideswipe passing and rear end |

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| | | | | | | | | | | | crashes (II-b-2) |
| **92514 - OTT CR Var GR FY-2013** | Roadside Barrier- metal | 1.3 Miles | 259897 | 259897 | HSIP (Section 148) | Rural Principal Arterial - Other | 8290 | 60 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **92957 - HUR CR GR FY2014** | Roadside Barrier- metal | 1.33 Miles | 283652.18 | 283652.18 | HSIP (Section 148) | Urban Local Road or Street | 0 | 0 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **95413 - JAC PM Various Routes** | Roadway delineation Longitudinal pavement markings - new | 1.49 Miles | 132080 | 190288.4 | HSIP (Section 148) | Rural Major Collector | 860 | 0 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |

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| **91743 - CUY IR 090 00.06 Barrier Rail** | Roadside Barrier- metal | 1.76 Miles | 409390 | 409390 | HSIP (Section 148) | Urban Principal Arterial - Interstate | 65210 | 55 | State Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **85297 - CUY CLEMENS ROAD** | Interchange design Installation of new lane on ramp | 1.76 Miles | 1589144 | 4872585.5 | State and Local Funds | Urban Minor Arterial | 0 | 60 | City of Municipal Highway Agency | Intersections | Reconfiguration of the interchange to reduce rear end, sideswipe passing and angle crashes (V-a-1) |
| **95229 - BEL VAR GR Phase 3** | Roadside Barrier- metal | 2 Miles | 300000 | 300000 | HSIP (Section 148) | Rural Minor Collector | 0 | 0 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |

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| **95547 - LIC Newark Signal Upgrade** | Intersection traffic control Modify traffic signal - add backplates | 2 Numbers | 59319 | 65909.25 | HSIP (Section 148) | Urban Principal Arterial - Other | 22440 | 45 | City of Municipal Highway Agency | Intersections | Improving signal operation and visibility to reduce intersection related crashes (II-b-4) |
| **91655 - CUY IR 090 00.95** | Intersection geometry Auxiliary lanes - add right-turn lane | 2 Numbers | 984008 | 1281964.61 | HSIP (Section 148) | Urban Principal Arterial - Interstate | 65210 | 55 | City of Municipal Highway Agency | Intersections | Constructing turn lanes to rear end crashes (II-b-2) |
| **89434 - CLA UPPER VALLEY BRIDGE** | Intersection geometry Intersection geometrics - miscellaneous/other/unspecified | 2 Numbers | 889514.31 | 1404355.35 | HSIP (Section 148) | Rural Major Collector | 3446 | 65 | City of Municipal Highway Agency | Intersections | Realigning roadway intersections to reduce rear end, angle, and sideswipe passing crashes (II-b-3) |

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| **90771 - MOT SR 741 5.80** | Intersection traffic control Modify traffic signal - modernization/replacement | 2 Numbers | 763436.7 | 1585285.9 | HSIP (Section 148) | Urban Principal Arterial - Other | 23271 | 55 | City of Municipal Highway Agency | Intersections | Improving signal operation and visibility to reduce intersection related crashes (II-b-4) |
| **95064 - DEL SR 750 5.880** | Intersection geometry Auxiliary lanes - add left-turn lane | 2 Numbers | 93647.35 | 662878.47 | HSIP (Section 148) | Urban Principal Arterial - Other | 13930 | 45 | State Highway Agency | Intersections | Constructing turn lanes to rear end and left turn crashes (II-b-2) |
| **94732 - LUC IR 475 9.05 Ramp Reconfig** | Interchange design Interchange design - other | 2 Numbers | 0 | 17613017.28 | State and Local Funds | Urban Principal Arterial - Interstate | 80570 | 55 | State Highway Agency | Intersections | Reconfiguration of the interchange to reduce rear end, sideswipe passing and angle crashes (V- |

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| **93871 - LIC CR VAR PM FY2013** | Roadway delineation Longitudinal pavement markings - new | 2.07 Miles | 121932.23 | 124155.42 | HSIP (Section 148) | Rural Major Collector | 7590 | 0 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |
| **95338 - ASD CR GR FY2014** | Roadside Barrier- metal | 2.27 Miles | 321338 | 321338 | HSIP (Section 148) | Urban Local Road or Street | 0 | 45 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **96859 - HUR CR PM FY2014** | Roadway delineation Longitudinal pavement markings - new | 2.37 Miles | 147986.53 | 163913.84 | HSIP (Section 148) | Rural Minor Arterial | 3220 | 55 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |
| **93870 - LIC CR VAR** | Roadside Barrier- metal | 2.51 | 300000 | 320486.7 | HSIP (Sectio | Rural Minor | 2782 | 45 | County Highwa | Roadway Departur | Installed guardrail to |

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| **GR FY13** | | Miles | | 5 | n 148) | Collector | | | y Agency | e | address issue of roadway departure crashes (II-a-7) |
| **89853 - COS/GUE GR2013** | Roadside Barrier- metal | 2.66 Miles | 42720 | 532122.23 | Other Federal-aid Funds (i.e. STP, NHPP) | Rural Local Road or Street | 0 | 35 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **94664 - BUT CRVAR Pavement Markings FY13** | Roadway delineation Longitudinal pavement markings - new | 2.81 Miles | 141267.48 | 162385.97 | HSIP (Section 148) | Urban Principal Arterial - Other | 21080 | 35 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |
| **89876 - STA Parks Bike Crossings** | Pedestrians and bicyclists Install new crosswalk | 3 Numbers | 74360 | 74360 | HSIP (Section 148) | Urban Minor Arterial | 8434 | 55 | County Highway Agency | Pedestrians | Providing crossing lanes to reduce pedestrian |

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| | | | | | | | | | | | related crashes (IV-d-1) |
| **86863 - WAS SR 7 22.900 Green/7th ST** | Intersection traffic control Intersection traffic control - other | 3 Numbers | 2173612.5 | 3034557.39 | HSIP (Section 148) | Urban Principal Arterial - Other | 34000 | 0 | City of Municipal Highway Agency | Intersections | Improving intersection to reduce rear end and angle crashes (II-b-2) |
| **96675 - MOT SR 48/201 VAR** | Roadway Pavement surface - high friction surface | 3 Numbers | 0 | 147090 | State and Local Funds | Urban Principal Arterial - Other | 24350 | 55 | State Highway Agency | Roadway Departure | Installing high friction surfaces to reduce the number of roadway departure and rear end crashes (II-a-1) |
| **95269 - SCI CEAO GR Various FY2013** | Roadside Barrier- metal | 3.31 Miles | 362230.25 | 362230.25 | HSIP (Section 148) | Rural Principal Arterial - Other | 11970 | 55 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway |

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| | | | | | | | | | | | departure crashes (II-a-7) |
| **80450 - CLA CR 333 0.00** | Intersection geometry Auxiliary lanes - add two-way left-turn lane | 3.36 Miles | 4820541.52 | 6822751.09 | HSIP (Section 148) | Urban Minor Collector | 0 | 40 | County Highway Agency | Intersections | Constructing a Two Way Left Turn Lane to reduce the number of head-on, sideswipe meeting, rear end and turning-related crashes (II-b-2) |
| **95218 - TUS VAR GR Phase 3** | Roadside Barrier- metal | 3.59 Miles | 276392.03 | 276392.03 | HSIP (Section 148) | Rural Major Collector | 1892 | 45 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |

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| **79011 - CLA CR 327 0.55** | Intersection traffic control Modify traffic signal - modernization/replacement | 4 Numbers | 1419328.88 | 1792032.52 | HSIP (Section 148) | Urban Minor Arterial | 12624 | 55 | County Highway Agency | Intersections | Improving signal operation and visibility to reduce intersection related crashes (II-b-4) |
| **86843 - LUC US 20 10.12 (Central/H-Syl)** | Intersection geometry Auxiliary lanes - add right-turn lane | 4 Numbers | 4026516.31 | 5732965.37 | HSIP (Section 148) | Urban Principal Arterial - Other | 32340 | 0 | State Highway Agency | Intersections | Constructing turn lanes to rear end crashes (II-b-2) |
| **89293 - LUC US 20 16.61 Safety Resurf** | Intersection traffic control Modify traffic signal - modernization/replacement | 4 Numbers | 1686734.03 | 3081945.81 | HSIP (Section 148) | Urban Principal Arterial - Other | 24890 | 40 | City of Municipal Highway Agency | Intersections | Improving signal operation and visibility to reduce intersection related crashes (II-b-4) |
| **93363 -** | Roadside Barrier- metal | 4.31 | 286543. | 286543.7 | HSIP | Rural | 3061 | 65 | County | Roadway | Installed |

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| **BUT CR VAR Guardrail** | | Miles | 73 | 3 | (Section 148) | Major Collector | | | Highway Agency | Departure | guardrail to address issue of roadway departure crashes (II-a-7) |
| **90536 - STA Long Line PM FY 2013** | Roadway delineation Longitudinal pavement markings - new | 4.36 Miles | 176110.71 | 176110.71 | HSIP (Section 148) | Rural Local Road or Street | 1000 | 55 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |
| **91127 - COL SR 45 16.27** | Pedestrians and bicyclists Pedestrian signal - audible device | 5 Numbers | 87360 | 325914.3 | HSIP (Section 148) | Urban Principal Arterial - Other | 9660 | 25 | State Highway Agency | Pedestrians | Constructing signal to reduce pedestrian crashes (IV-d-1) |
| **77920 - GRE IR 675 9.48** | Roadway Roadway widening - travel lanes | 5.48 Miles | 1980000 | 18088264.6 | Other Federal-aid Funds (i.e. STP, | Urban Principal Arterial - Interstate | 71785 | 35 | State Highway Agency | Intersections | Widening a highway corridor to reduce the number of rear end |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | NHPP) | | | | | | and angle crashes (II-b-8) |
| **83062 - SCI-335-1.89** | Roadside Barrier- metal | 5.73 Miles | 1314470 | 2145330 | HSIP (Section 148) | Urban Minor Collector | 4383 | 0 | State Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **90588 - MEG CR 14/VAR PM FY2014** | Roadway delineation Longitudinal pavement markings - new | 6.38 Miles | 139770 | 139770 | HSIP (Section 148) | Rural Major Collector | 1520 | 55 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |
| **91593 - WOO SR 64 0.00 BG signal upgrade** | Intersection traffic control Modify traffic signal - add backplates | 7 Numbers | 164000 | 214610 | HSIP (Section 148) | Urban Principal Arterial - Other | 5120 | 25 | State Highway Agency | Intersections | Improving signal operation and visibility to reduce intersection related |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | crashes (II-b-4) |
| **96973 - HAM US 127 Ped Improvements** | Pedestrians and bicyclists Pedestrian signal - modify existing | 8 Numbers | 0 | 40270 | State and Local Funds | Urban Minor Arterial | 0 | 60 | City of Municipal Highway Agency | Pedestrians | Constructing signal to reduce pedestrian crashes (IV-d-1) |
| **87902 - D05 GR FY 2014** | Roadside Barrier- metal | 8.25 Miles | 865580 | 1273885.84 | HSIP (Section 148) | Rural Principal Arterial - Other | 7240 | 55 | State Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **92496 - RIC CR PM FY2014** | Roadway delineation Longitudinal pavement markings - new | 9.18 Miles | 150000 | 150000 | HSIP (Section 148) | Urban Principal Arterial - Other | 12266 | 55 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |
| **93087 - D10 Signal Maint. FY** | Intersection traffic control Modify traffic signal - | 10 Numb | 154105.07 | 363557.48 | HSIP (Sectio | Rural Principal Arterial - | 8300 | 55 | State Highway | Intersections | Improving signal operation |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **2014** | modernization/replacement | ers | | | n 148) | Other | | | Agency | | and visibility to reduce intersection related crashes (II-b-4) |
| **91021 - TRU CR Guardrail Repair FY2013** | Roadside Barrier- metal | 10.10 Miles | 22572.8 | 297494.35 | Other Federal-aid Funds (i.e. STP, NHPP) | Rural Major Collector | 2090 | 0 | County Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **92495 - D05 FY2014 Signal Upgrade** | Intersection traffic control Modify traffic signal - modernization/replacement | 11 Numbers | 1002950 | 1032668.95 | HSIP (Section 148) | Rural Principal Arterial - Other | 11340 | 0 | State Highway Agency | Intersections | Improving signal operation and visibility to reduce intersection related crashes (II-b-4) |
| **93473 - D02 GR** | Roadside Barrier- metal | 15.53 Miles | 3321670 | 3321670 | HSIP (Sectio | Rural Principal | 5100 | 65 | State Highwa | Departur | Installed guardrail to |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FY2013 Safety** | | | | | n 148) | Arterial - Other | | | y Agency | e | address issue of roadway departure crashes (II-a-7) |
| **95270 - SCI CEAO PM Various FY2013** | Roadway delineation Longitudinal pavement markings - new | 18.76 Miles | 80476.2 | 80876.55 | HSIP (Section 148) | Rural Minor Arterial | 0 | 50 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II-a-5) |
| **93389 - D07 Systematic GR FY 13** | Roadside Barrier end treatments (crash cushions, terminals) | 29 Numbers | 741810 | 788198.7 | HSIP (Section 148) | Urban Minor Arterial | 0 | 45 | State Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **93553 - FRA Loop FY13** | Intersection traffic control Intersection flashers - add miscellaneous/other/unspecified | 47 Numbers | 31650 | 437900.27 | HSIP (Section 148) | Urban Principal Arterial - Interstate | 92130 | 0 | State Highway Agency | Roadway Departure | Improving signing to reduce angle and rear end |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | crashes (II-b-2) |
| **93750 - D01 GR FY13 End Trtmnt Upgrade** | Roadside Barrier end treatments (crash cushions, terminals) | 60 Numbers | 166420 | 167831 | HSIP (Section 148) | Urban Minor Arterial | 8340 | 0 | State Highway Agency | Roadway Departure | Installed guardrail to address issue of roadway departure crashes (II-a-7) |
| **93303 - STA/SUM TSG FY2013 (UPS)** | Intersection traffic control Modify traffic signal - miscellaneous/other/unspecified | 72 Numbers | 436648.44 | 502857.22 | HSIP (Section 148) | Urban Principal Arterial - Other | 16900 | 0 | State Highway Agency | Intersections | Improving signal operation and visibility to reduce intersection related crashes (II-b-4) |
| **92218 - HEN CR Var PM FY2013** | Roadway delineation Longitudinal pavement markings - new | 240 Miles | 14099.22 | 142316.83 | State and Local Funds | Rural Minor Arterial | 0 | 0 | County Highway Agency | Roadway Departure | Added pavement markings to reduce roadway departure crashes (II- |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | a-5) |
| | | | | | | | | | | | |

Funding contained in the project listing is total project cost. Larger projects are likely funded in multiple fiscal years. The total safety dollars shown in the project listing will not match the fiscal year expenditures.

# Progress in Achieving Safety Performance Targets

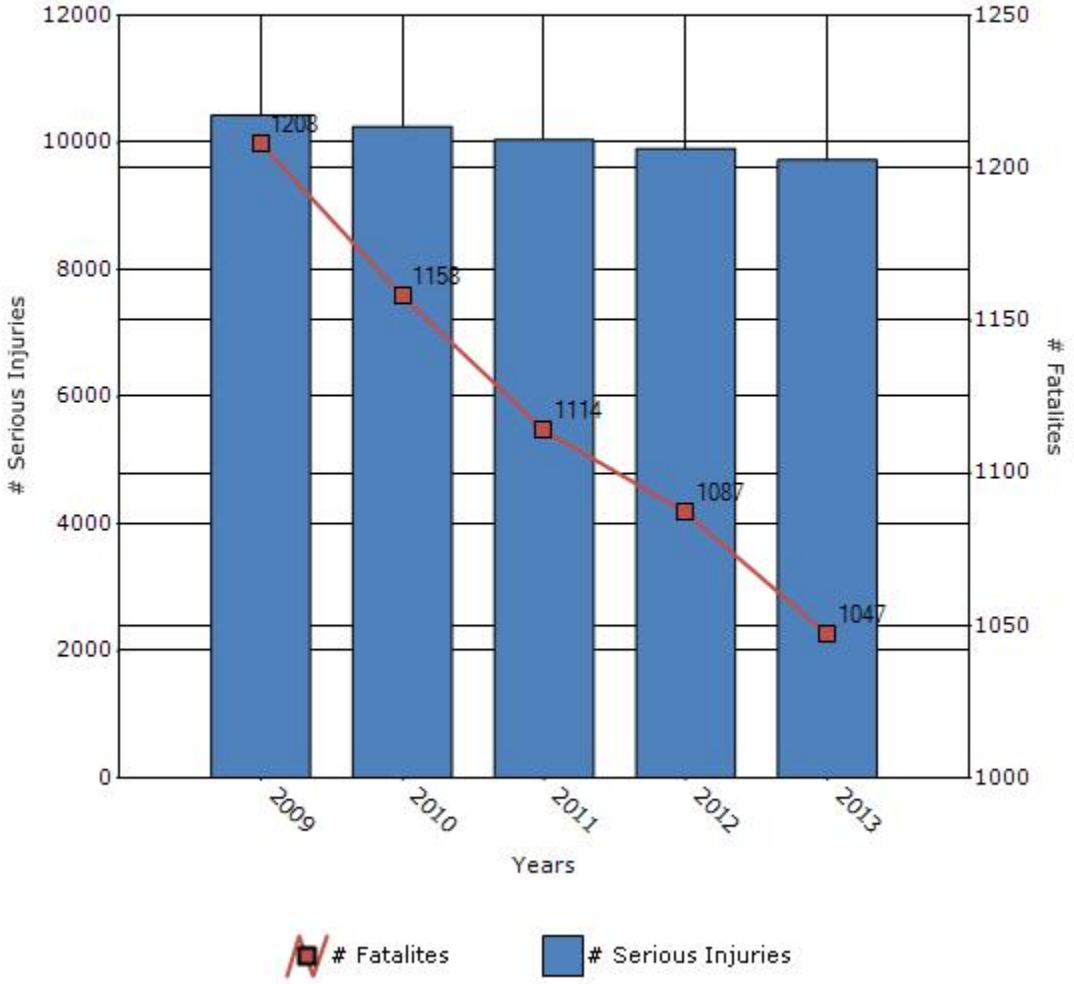
## Overview of General Safety Trends

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

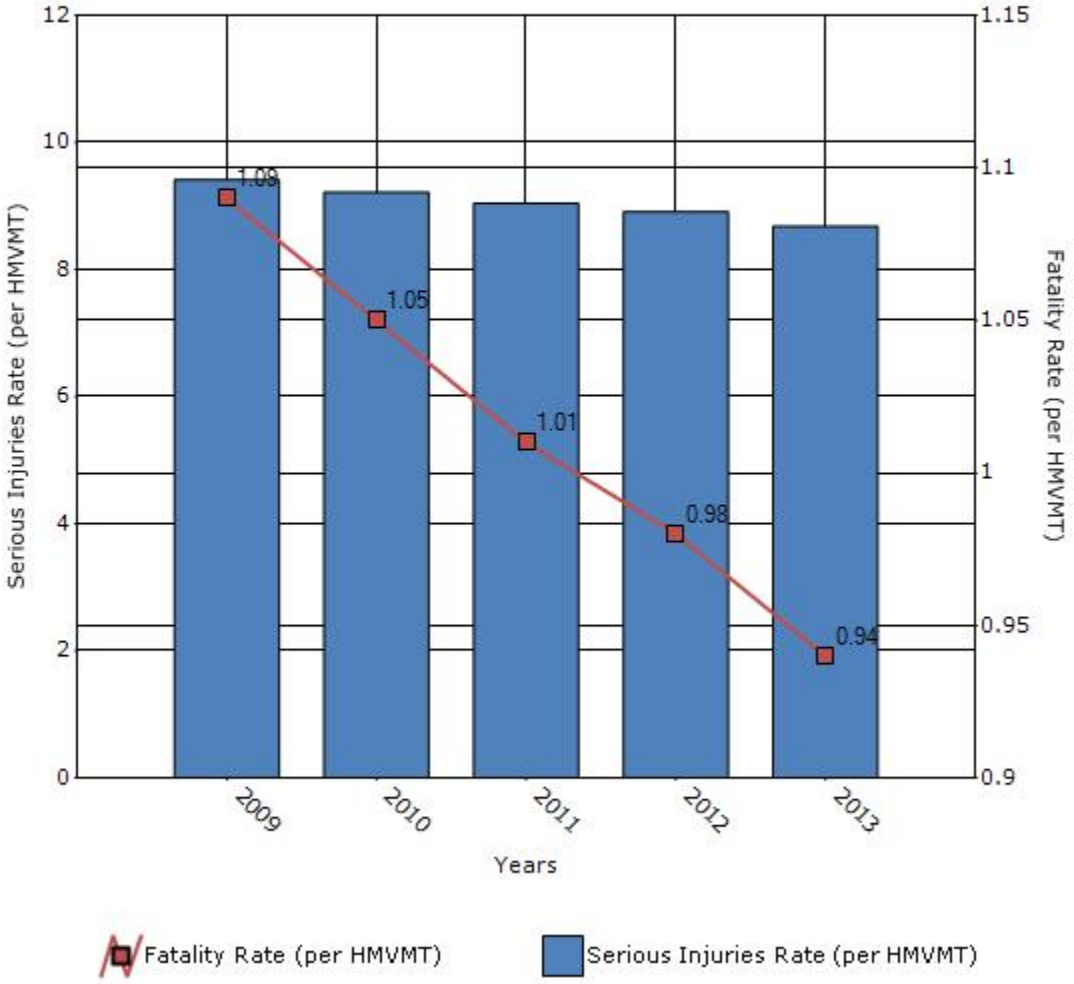
| Performance Measures* | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| Number of fatalities | 1208 | 1158 | 1114 | 1087 | 1047 |
| Number of serious injuries | 10427 | 10249 | 10041 | 9902 | 9727 |
| Fatality rate (per HMVMT) | 1.09 | 1.05 | 1.01 | 0.98 | 0.94 |
| Serious injury rate (per HMVMT) | 9.41 | 9.22 | 9.04 | 8.91 | 8.68 |

*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

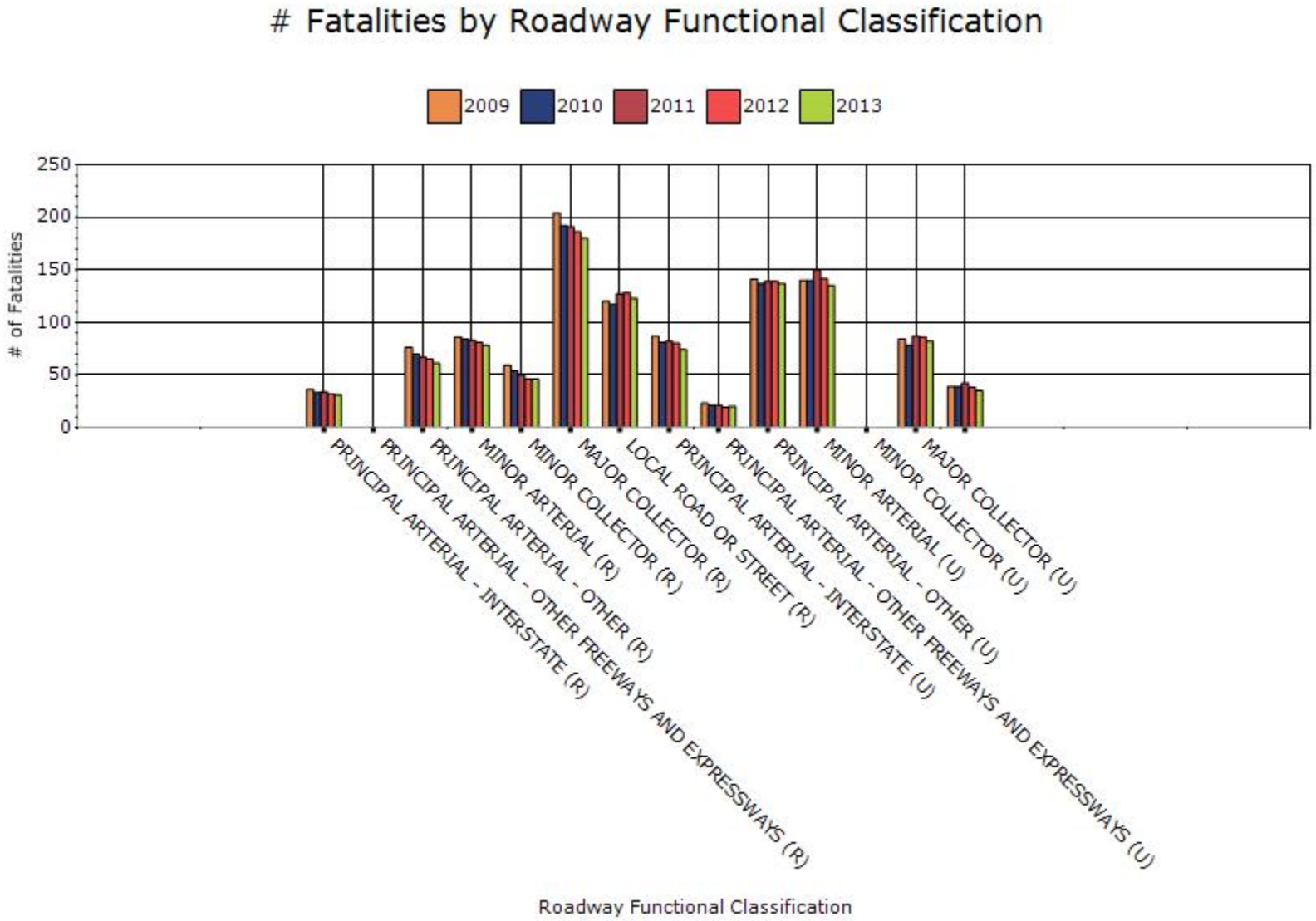


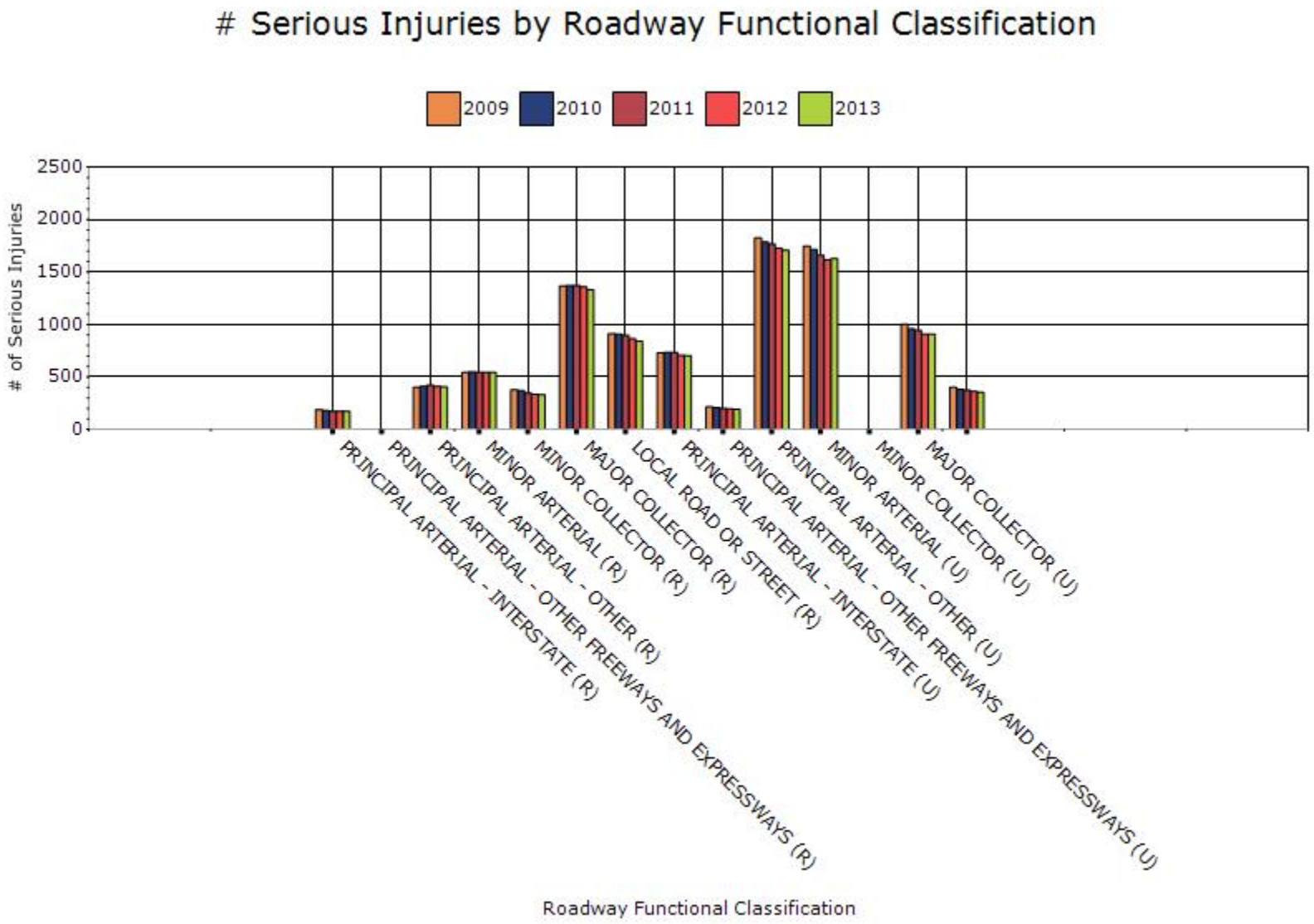
**To the maximum extent possible, present performance measure* data by functional classification and ownership.**

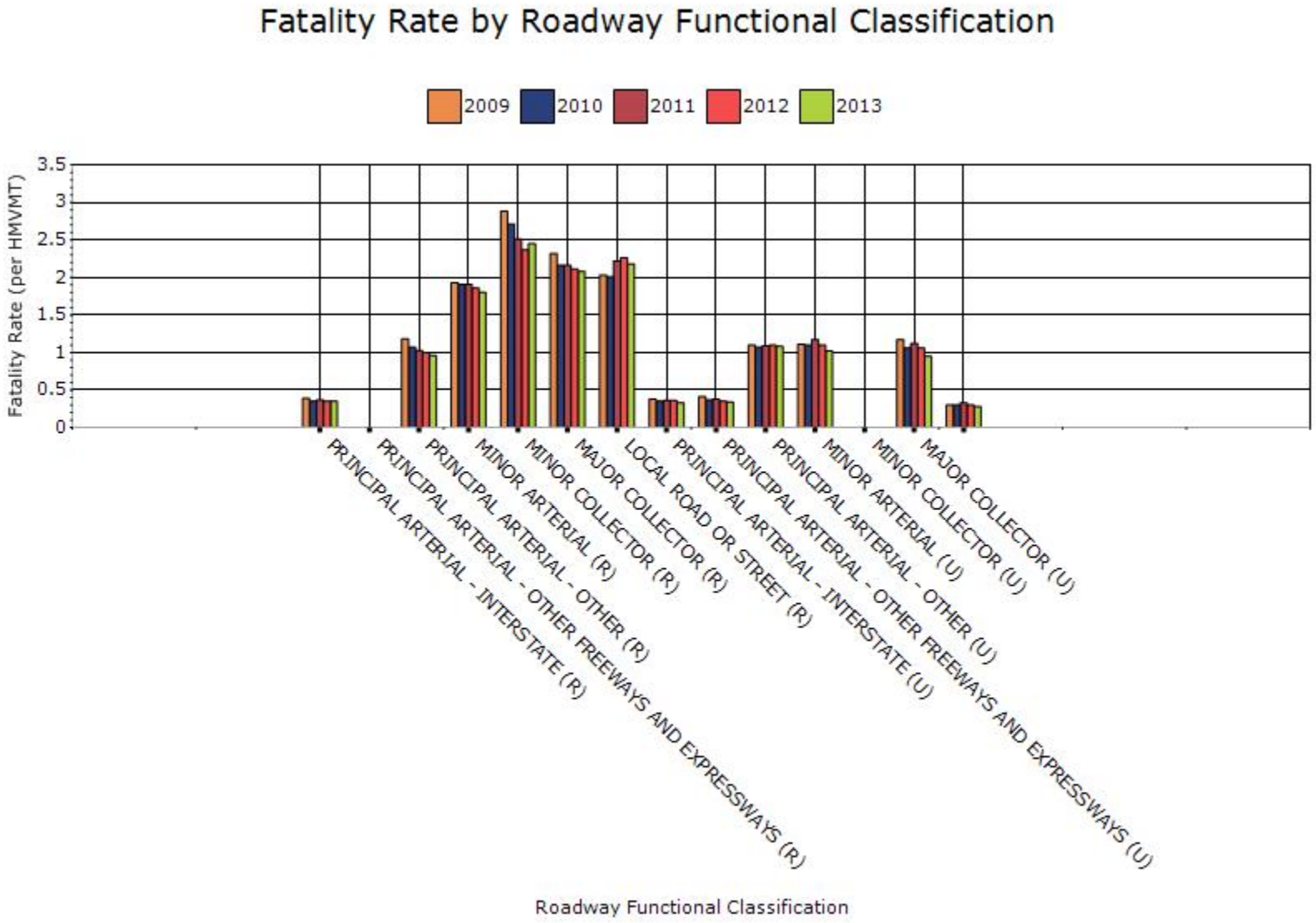
## Year - 2013

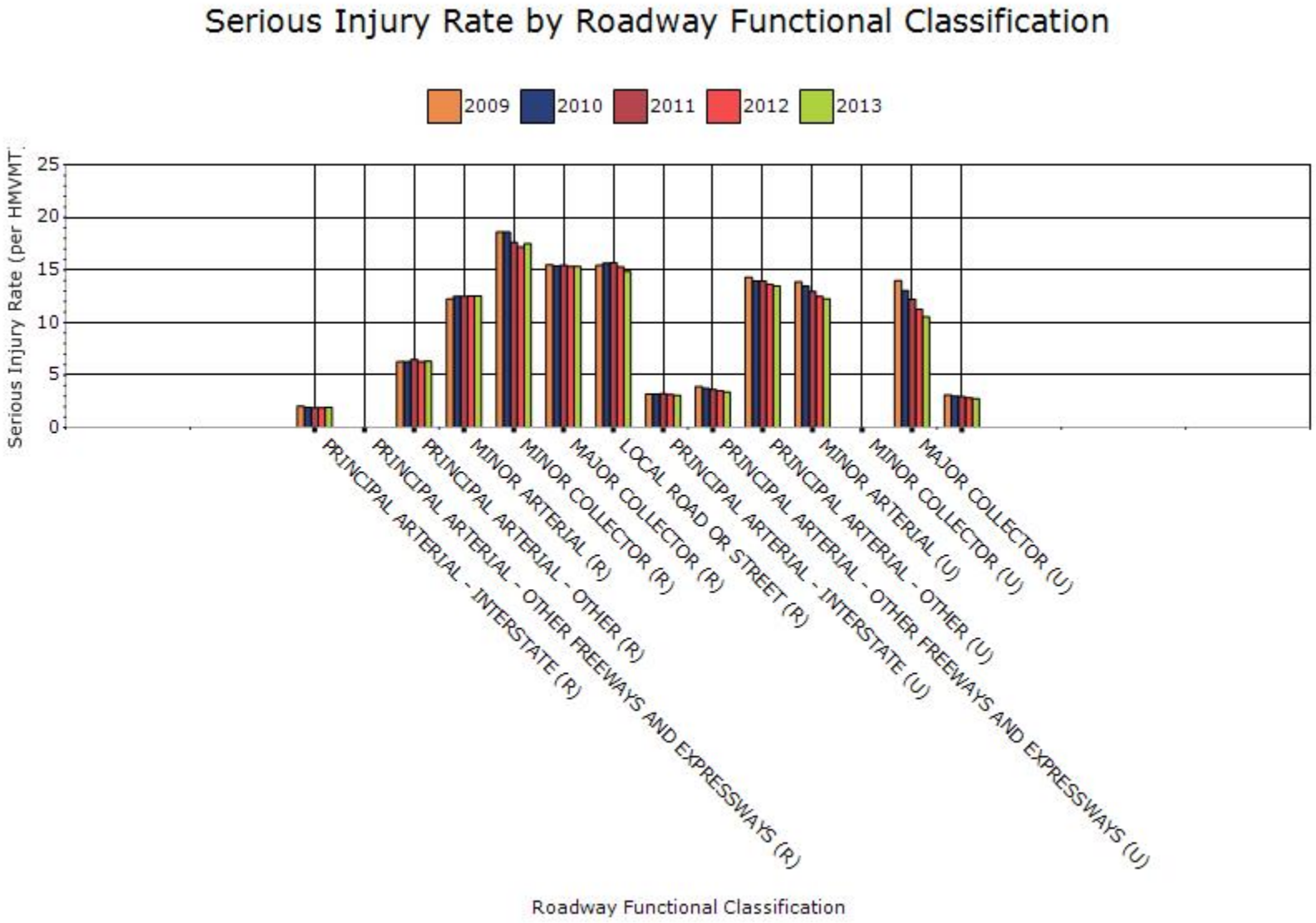
| Function Classification | Number of fatalities | Number of serious injuries | Fatality rate (per HMVMT) | Serious injury rate (per HMVMT) |
|---|---|---|---|---|
| **RURAL PRINCIPAL ARTERIAL - INTERSTATE** | 31 | 173 | 0.35 | 1.93 |
| **RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS** | 0 | 0 | 0 | 0 |
| **RURAL PRINCIPAL ARTERIAL - OTHER** | 61 | 404 | 0.96 | 6.3 |
| **RURAL MINOR ARTERIAL** | 78 | 542 | 1.8 | 12.51 |
| **RURAL MINOR COLLECTOR** | 46 | 331 | 2.45 | 17.51 |
| **RURAL MAJOR COLLECTOR** | 180 | 1330 | 2.08 | 15.31 |
| **RURAL LOCAL ROAD OR STREET** | 123 | 839 | 2.18 | 14.86 |
| **URBAN PRINCIPAL** | 74 | 701 | 0.33 | 3.07 |

| | | | | |
|---|---|---|---|---|
| **ARTERIAL - INTERSTATE** | | | | |
| **URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS** | 20 | 191 | 0.34 | 3.37 |
| **URBAN PRINCIPAL ARTERIAL - OTHER** | 137 | 1708 | 1.08 | 13.45 |
| **URBAN MINOR ARTERIAL** | 135 | 1626 | 1.02 | 12.26 |
| **URBAN MINOR COLLECTOR** | 0 | 0 | 0 | 0 |
| **URBAN MAJOR COLLECTOR** | 82 | 906 | 0.95 | 10.54 |
| **URBAN LOCAL ROAD OR STREET** | 35 | 354 | 0.28 | 2.76 |


# Fatalities by Roadway Functional Classification
2009
2010
2011
2012
2013
# of Fatalities
250
200
150
100
50
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (R)
LOCAL ROAD OR STREET (R)
PRINCIPAL ARTERIAL - INTERSTATE (U)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (U)
PRINCIPAL ARTERIAL - OTHER (U)
MINOR ARTERIAL (U)
MINOR COLLECTOR (U)
MAJOR COLLECTOR (U)
Roadway Functional Classification

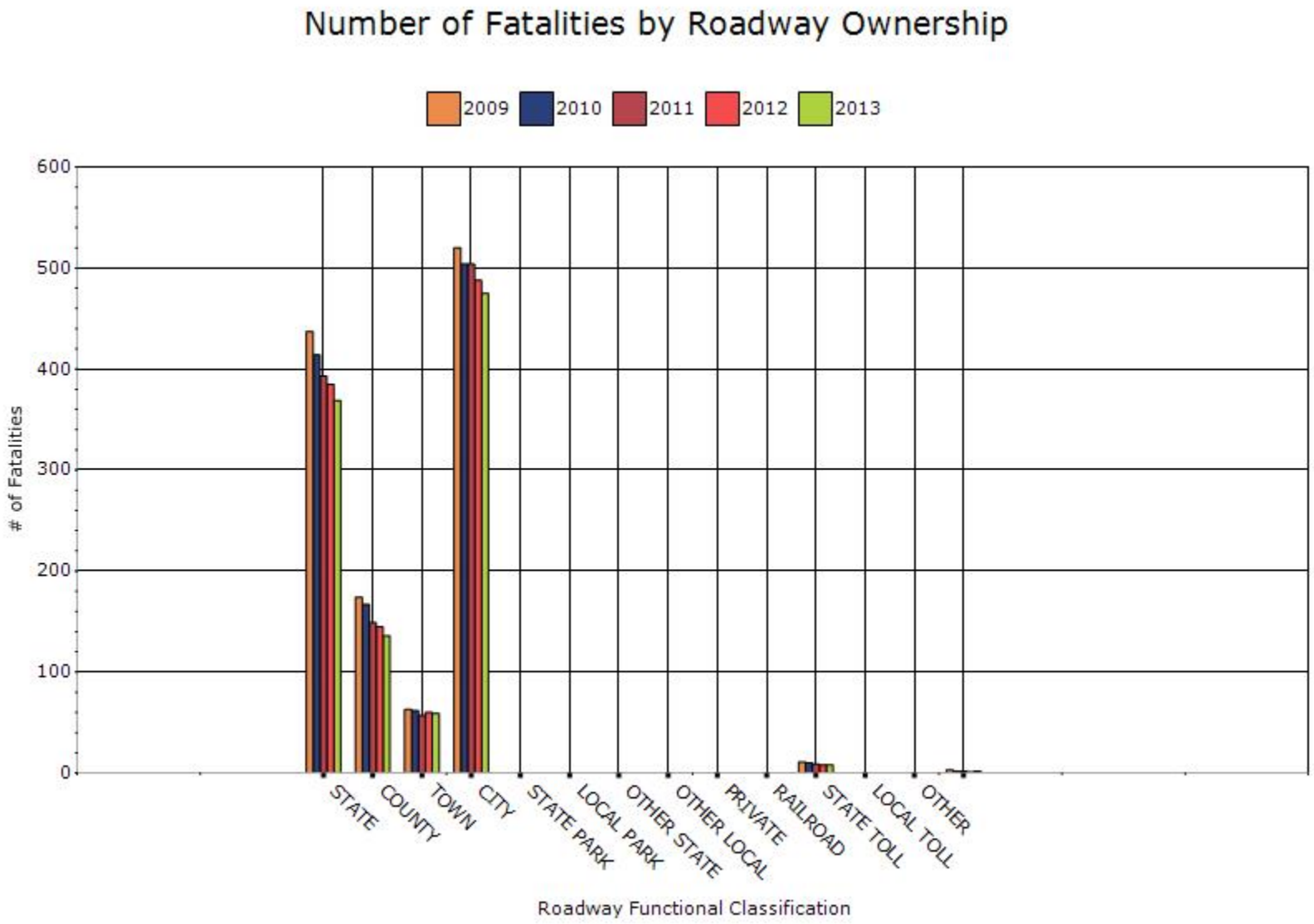

# Serious Injuries by Roadway Functional Classification
2009
2010
2011
2012
2013
# of Serious Injuries
2500
2000
1500
1000
500
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (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

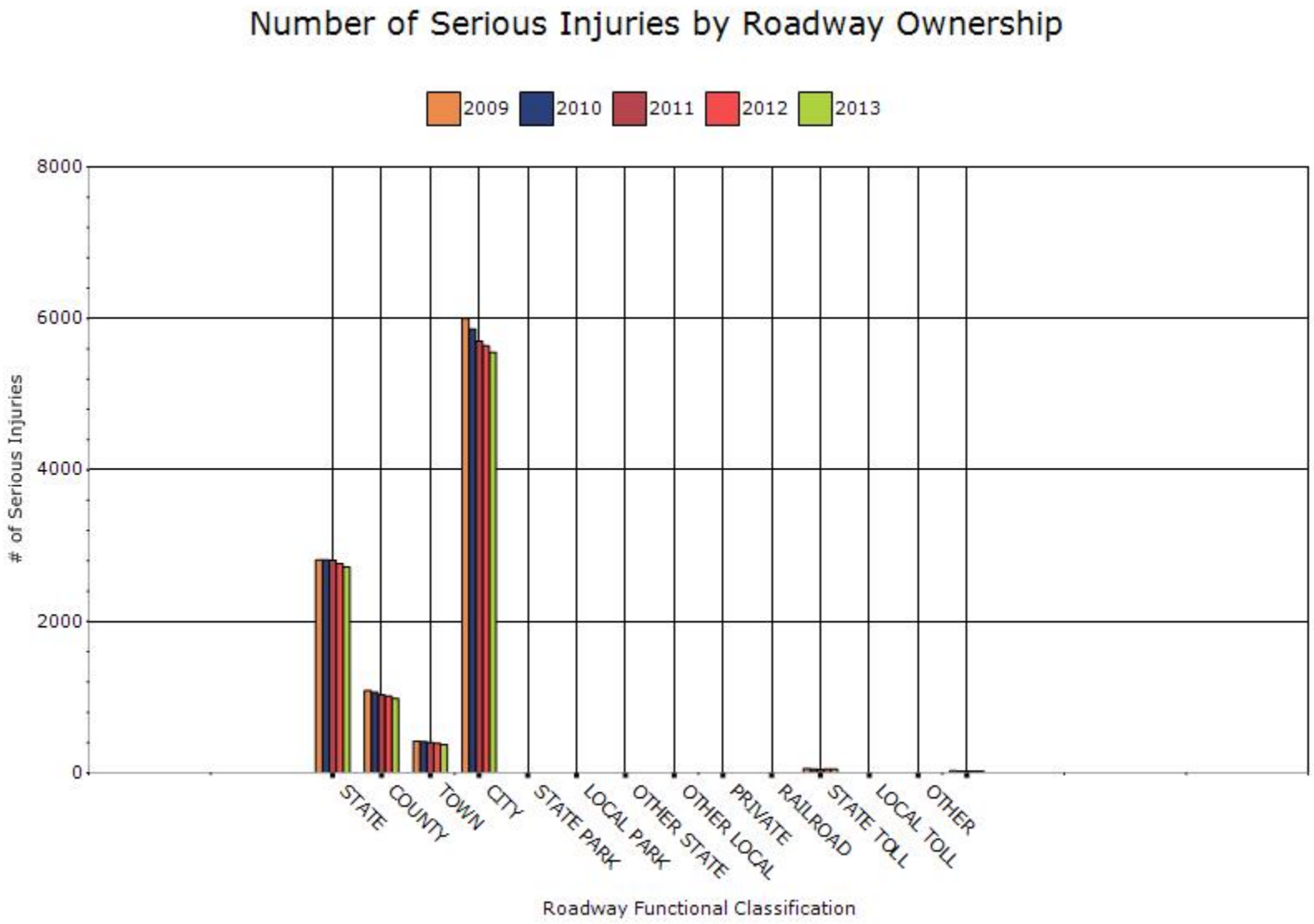

Fatality Rate by Roadway Functional Classification
2009
2010
2011
2012
2013
Fatality Rate (per HMVMT)
3.5
3
2.5
2
1.5
1
0.5
0
PRINCIPAL ARTERIAL - INTERSTATE (R)
PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS (R)
PRINCIPAL ARTERIAL - OTHER (R)
MINOR ARTERIAL (R)
MINOR COLLECTOR (R)
MAJOR COLLECTOR (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


Serious Injury Rate by Roadway Functional Classification
2009
2010
2011
2012
2013
Serious Injury Rate (per HMVMT)
25
20
15
10
5
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

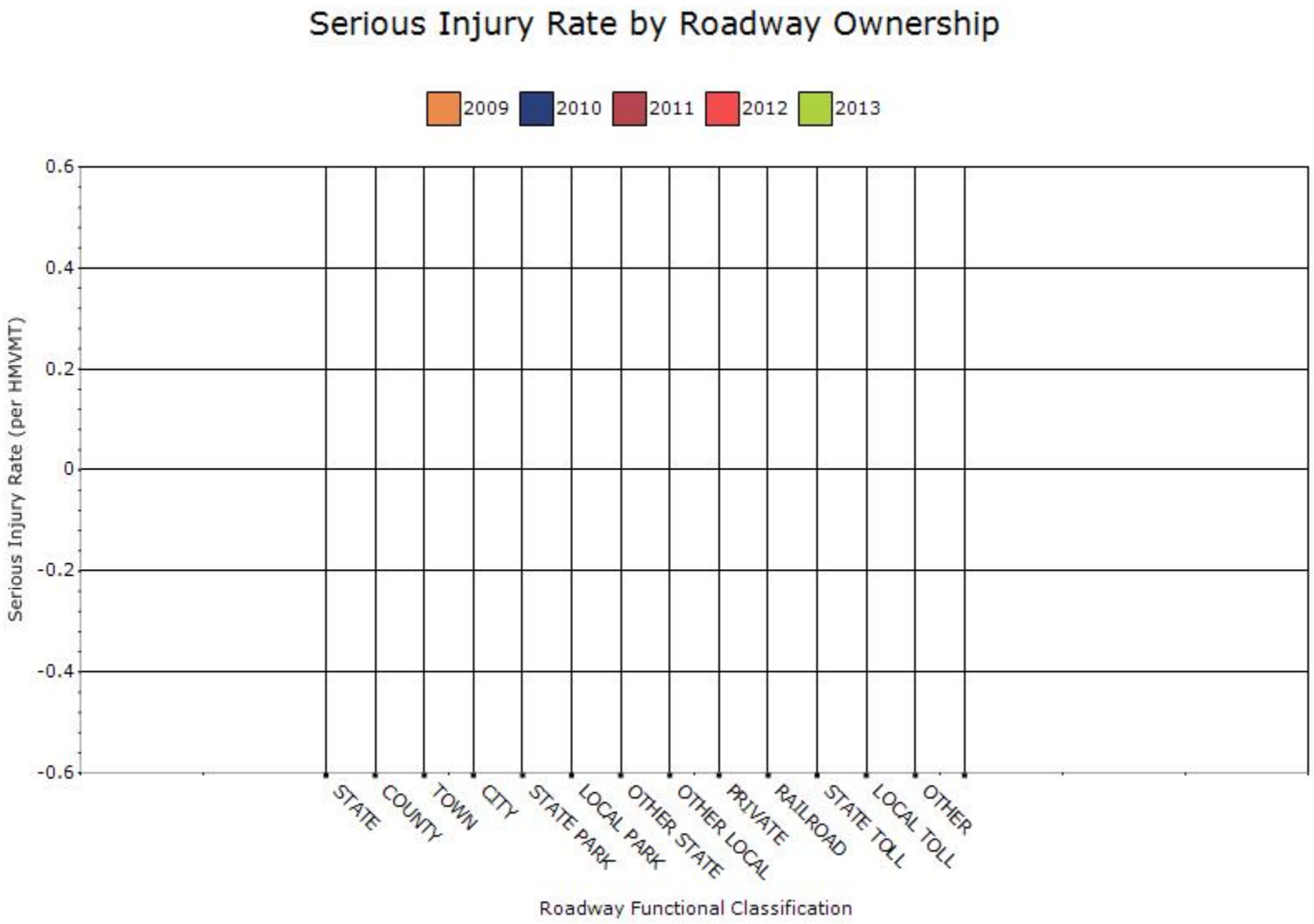
# Year - 2013

| Roadway Ownership | Number of fatalities | Number of serious injuries | Fatality rate (per HMVMT) | Serious injury rate (per HMVMT) |
|---|---|---|---|---|
| **STATE HIGHWAY AGENCY** | 369 | 2720 | 0 | 0 |
| **COUNTY HIGHWAY AGENCY** | 136 | 983 | 0 | 0 |
| **TOWN OR TOWNSHIP HIGHWAY AGENCY** | 59 | 375 | 0 | 0 |
| **CITY OF MUNICIPAL HIGHWAY AGENCY** | 475 | 5555 | 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** | 8 | 52 | 0 | 0 |
| **LOCAL TOLL AUTHORITY** | 0 | 0 | 0 | 0 |
| **OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, UNIVERSITY)** | 0 | 0 | 0 | 0 |
| **OTHER** | 2 | 27 | 0 | 0 |


Number of Fatalities by Roadway Ownership
2009
2010
2011
2012
2013
600
500
400
300
200
100
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
2009
2010
2011
2012
2013
8000
6000
4000
2000
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
2009
2010
2011
2012
2013
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Fatality Rate (per HMVMT)
STATE
COUNTY
TOWN
CITY
STATE PARK
LOCAL PARK
OTHER STATE
OTHER LOCAL
PRIVATE
RAILROAD
STATE TOLL
LOCAL TOLL
OTHER
Roadway Functional Classification


Serious Injury Rate by Roadway Ownership
2009
2010
2011
2012
2013
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
Roadway Functional Classification

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

Ohio has also been effective in developing policies that expand the use of new treatments and strategies to drive down fatalities, serious injuries and crashes.

The department sets aside up to $20 million each year for systematic safety improvements. National studies have shown these types of treatments can significantly reduce crashes, including injury and fatal crashes that cost Ohioans millions of dollars each year.

Cable Barrier

ODOT installs cable barrier at freeway locations where the median is 59 feet wide or less, and the average daily traffic is at least 20,000 vehicles. The department also installs cable barrier at locations with a strong history of cross-median crashes. Since 2003, 350 miles of cable barrier have been installed across Ohio with the majority of it being funded through the HSIP Program. The typical cost per mile is $105,000. One in 16 cross-median crashes typically results in death. In those areas where cable barrier has been installed, deadly cross-median crashes have been nearly eliminated. Property damage crashes will increase, but the severity of crashes is dramatically reduced.

Edge Line Rumble Stripes

ODOT is developing a statewide policy to require the use of edge line rumble stripes on two-lane, rural roads with a minimum lane width of 11 feet and shoulder width of 2 feet. About 7,700 miles of roadway are potentially eligible for the treatment. ODOT is focusing on two-lane rural roads because they have a high percentage of fatal crashes, many involving motorists that veer from the travel lane and hit oncoming vehicles, or trees, ditches and utility poles close to the road. Adding shoulder and centerline rumble stripes to a two-lane resurfacing project, one-mile long, costs about $2,000. National studies have shown that this safety improvement can reduce crashes between 7% and 25%. In addition, adding the rumble to the pavement stripe will increase pavement marking visibility.

Curve and Intersection Upgrade

In 2011, ODOT kicked-off a new systematic curve improvement program that targets more than 500 high-crash curves on the state highway system. ODOT staff can select from a menu of options that include bigger, more reflective signs, and pavement treatments meant to prevent drivers from skidding off the road. In 2012, the department also began a multi-year effort to upgrade signage, pavement markings and lighting at high-crash intersections. In 2013, a second round of curve signage was completed to address locations with a significant number of roadway departure crashes. The locations were identified by the FHWA Roadway Departure Project location identification methods.

Wet Pavement Locations

In 2012, the department reviewed almost 500 locations with a high number of crashes occurring under wet conditions. ODOT staff can select from a menu of treatment options to address problem locations, including milling the surface to roughen the pavement texture, and various overlays to the pavement surface to restore friction or skid resistance to acceptable levels. The Top 20 locations will be

investigated every year for possible countermeasures.

Wider Pavement Markings

In 2012, ODOT changed its pavement marking standards to require 6-inch edge and lane line markings on all interstates, interstate lookalikes and rural, high-speed, multi-lane divided roadways. Previously, theses pavement markings were 4 inches wide. Wider pavement markings can increase visibility and help reduce crashes, particularly for older drivers.

Centerline Rumble Stripes

A committee has been assembled to determine the standards for centerline rumble stripes for Ohio. Pilot locations will be completed in SFY2015 which will be used to develop a formal policy and standard. This improvement will be used to target roadway departure crashes as identified by the FHWA Roadway Departure Project. A policy update on where centerline rumble stripes should be installed is currently under review. Moving forward, they will be installed whenever the criteria is met.

## Application of Special Rules

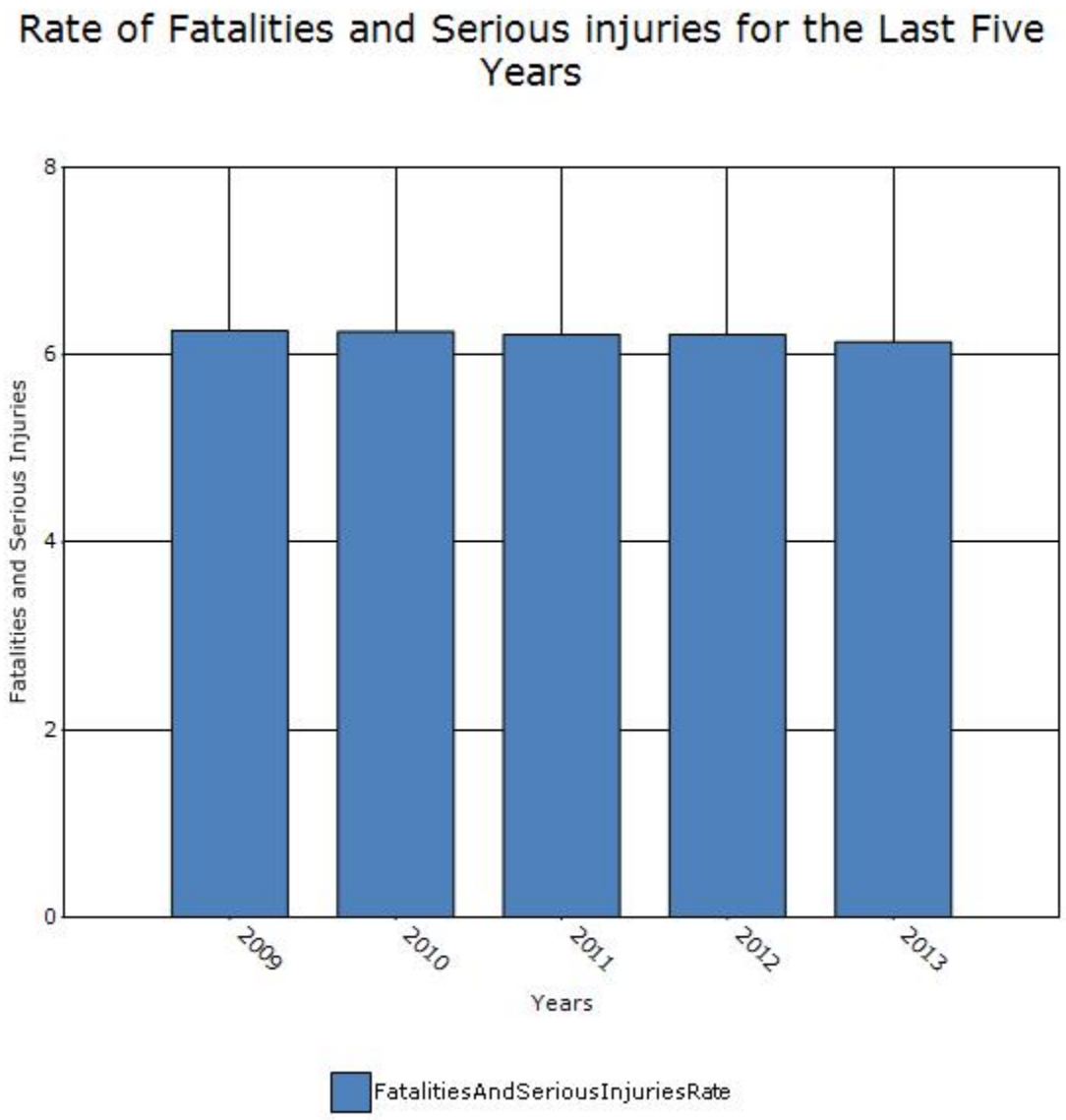
**Present the rate of traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65**.

| **Older Driver Performance Measures** | **2009** | **2010** | **2011** | **2012** | **2013** |
|---|---|---|---|---|---|
| **Fatality rate (per capita)** | 1.1 | 1.06 | 1.03 | 1.04 | 1.01 |
| **Serious injury rate (per capita)** | 5.17 | 5.2 | 5.2 | 5.19 | 5.15 |
| **Fatality and serious injury rate (per capita)** | 6.26 | 6.25 | 6.22 | 6.22 | 6.14 |

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

Note: Assumed 2013 population was equal to 2012 because the 2013 population estimate was not available at the time of the report)

Example calculation for 2009:
[(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




**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-Downward Crash and Severity Trends

Ohio routinely evaluates crash trends, quarterly and annually, to determine the effectiveness of its Highway Safety Improvement Program.

The safety benefits are calculated by using the total number of crashes by year and severity in order to determine a 5-year average. Crash cost were calculated for 2012 based on the Highway Safety Manual methodologies. For each year, the crash severity was multiplied by its associated cost and then summed for all severity levels. A five-year rolling average was calculated for 2012 (2008-2012) and 2013 (2009-2013). The difference between these two values equates to the safety benefits between the two years and is equal to $400,000,000. ODOT spends a total of $102,000,000 annually on safety projects. The ratio of the safety benefits and program cost equates to a benefit-cost ratio of 3.92.

We also track our statewide progress in implementing systematic safety treatments that target serious crash types and roadway features that can potentially increase the likelihood of crashes. This program element has been successful in reducing crashes based on the naïve before-and-after results for the different systematic treatments. In addition, we have increased our efforts to complete systematic projects on locally

maintained roads by working with MPOs, County Engineers and LTAP to provide technical assistance and funding for local road safety improvements.

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

☒Shift Focus to Fatalities and Serious Injuries

☒Include Local Roads in Highway Safety Improvement Program

☐Organizational Changes

☐None

☒Other: Other-Systematic Safety Improvements

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

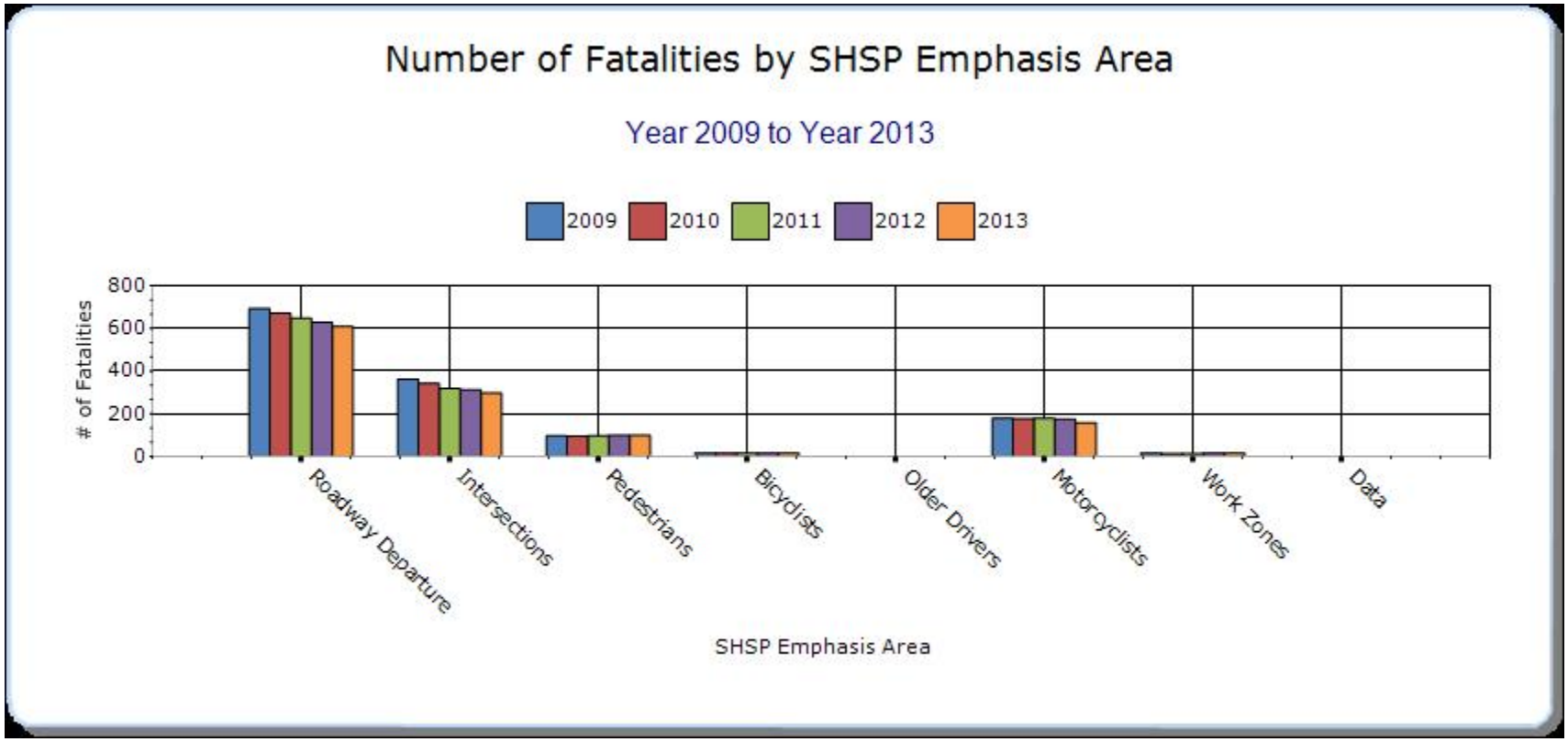
ODOT has made changes in the safety program based on past experiences and new research. We strive to increase our systematic safety programs (median barrier, LED signals & backplates, rumble stripes, guardrail upgrades, curve signing, etc) to continue to reduce crashes. ODOT has also increased outreach efforts to other state, federal, and local agencies as a result of the SHSP. ODOT has also worked closely with MPOs and county engineers on local roadways as a result of the HSIP.

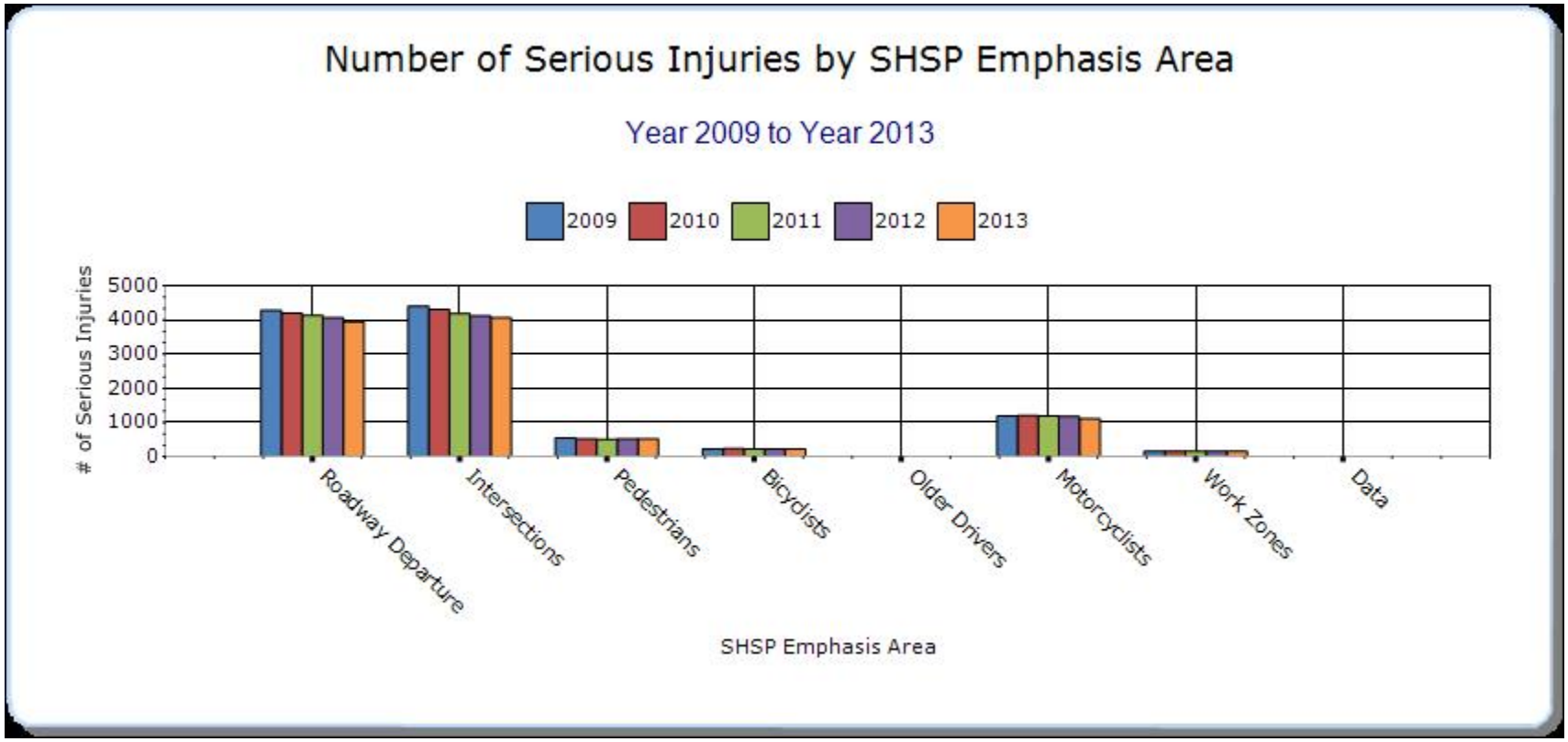
## SHSP Emphasis Areas

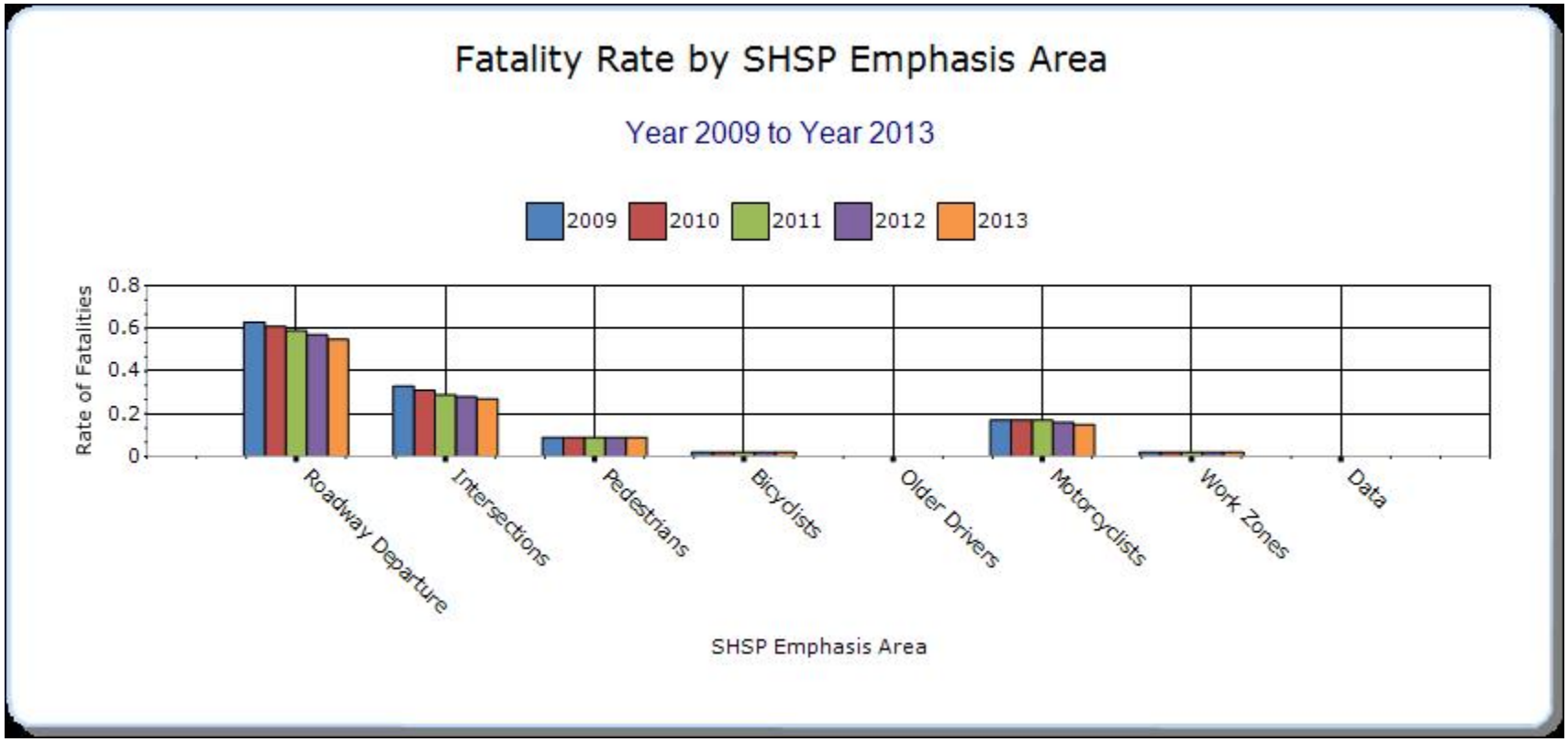
**For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.**

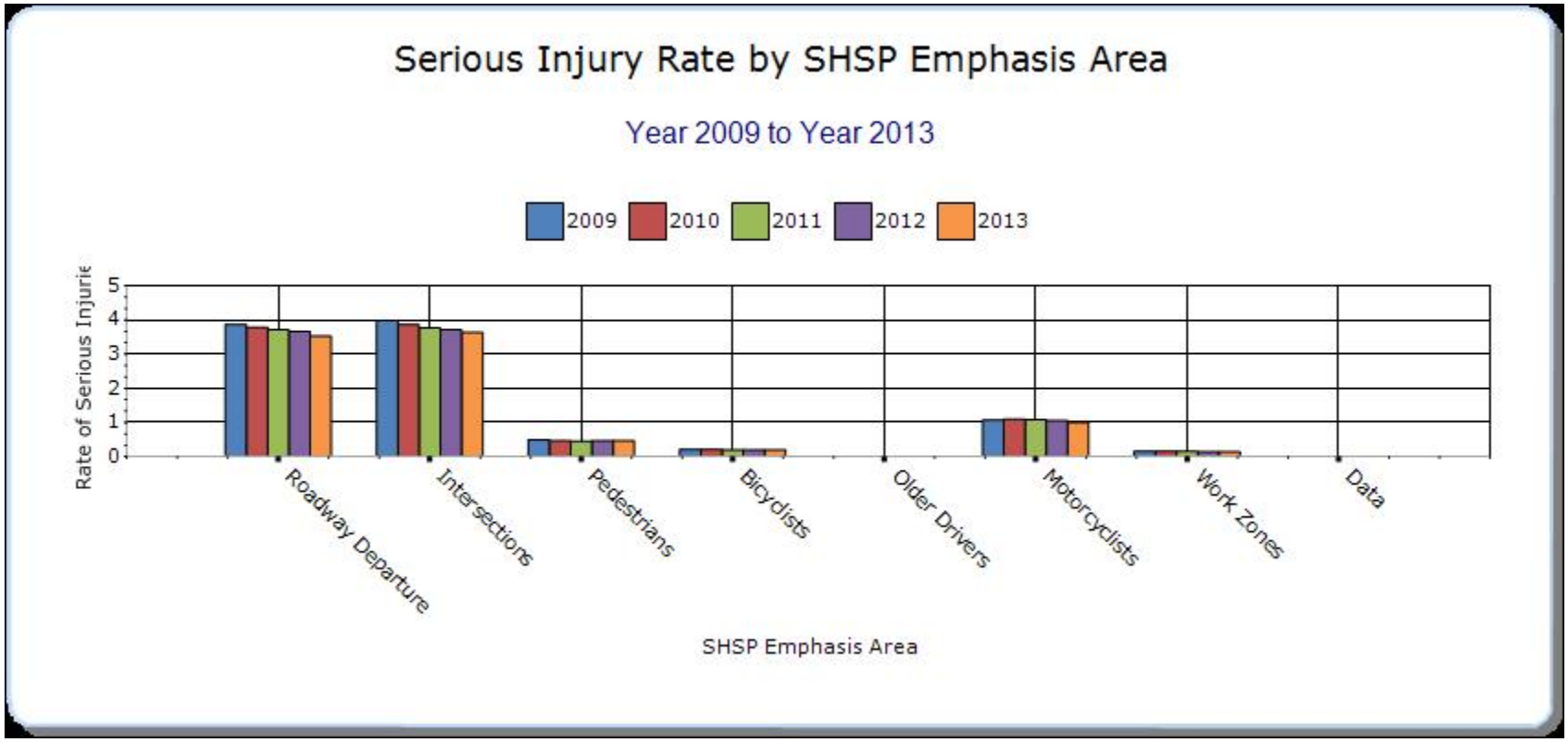
### Year - 2013

| 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 |
|---|---|---|---|---|---|---|---|---|
| **Roadway Departure** | Roadway Departure | 609 | 3944 | 0.55 | 3.53 | 0 | 0 | 0 |
| **Intersections** | Intersection | 297 | 4069 | 0.27 | 3.63 | 0 | 0 | 0 |
| **Pedestrians** | Vehicle/pedestrian | 99 | 523 | 0.09 | 0.47 | 0 | 0 | 0 |
| **Bicyclists** | Vehicle/bicycle | 17 | 221 | 0.02 | 0.2 | 0 | 0 | 0 |
| **Motorcyclists** | Motorcycle Involved | 159 | 1112 | 0.15 | 1 | 0 | 0 | 0 |
| **Work Zones** | Work Zone Related | 16 | 153 | 0.02 | 0.14 | 0 | 0 | 0 |
| | | | | | | | | |


Number of Fatalities by SHSP Emphasis Area
Year 2009 to Year 2013
2009
2010
2011
2012
2013
# of Fatalities
800
600
400
200
0
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Number of Serious Injuries by SHSP Emphasis Area
Year 2009 to Year 2013
2009
2010
2011
2012
2013
# of Serious Injuries
5000
4000
3000
2000
1000
0
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Fatality Rate by SHSP Emphasis Area
Year 2009 to Year 2013
2009
2010
2011
2012
2013
Rate of Fatalities
0.8
0.6
0.4
0.2
0
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Serious Injury Rate by SHSP Emphasis Area
Year 2009 to Year 2013
2009
2010
2011
2012
2013
Rate of Serious Injurie
5
4
3
2
1
0
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area

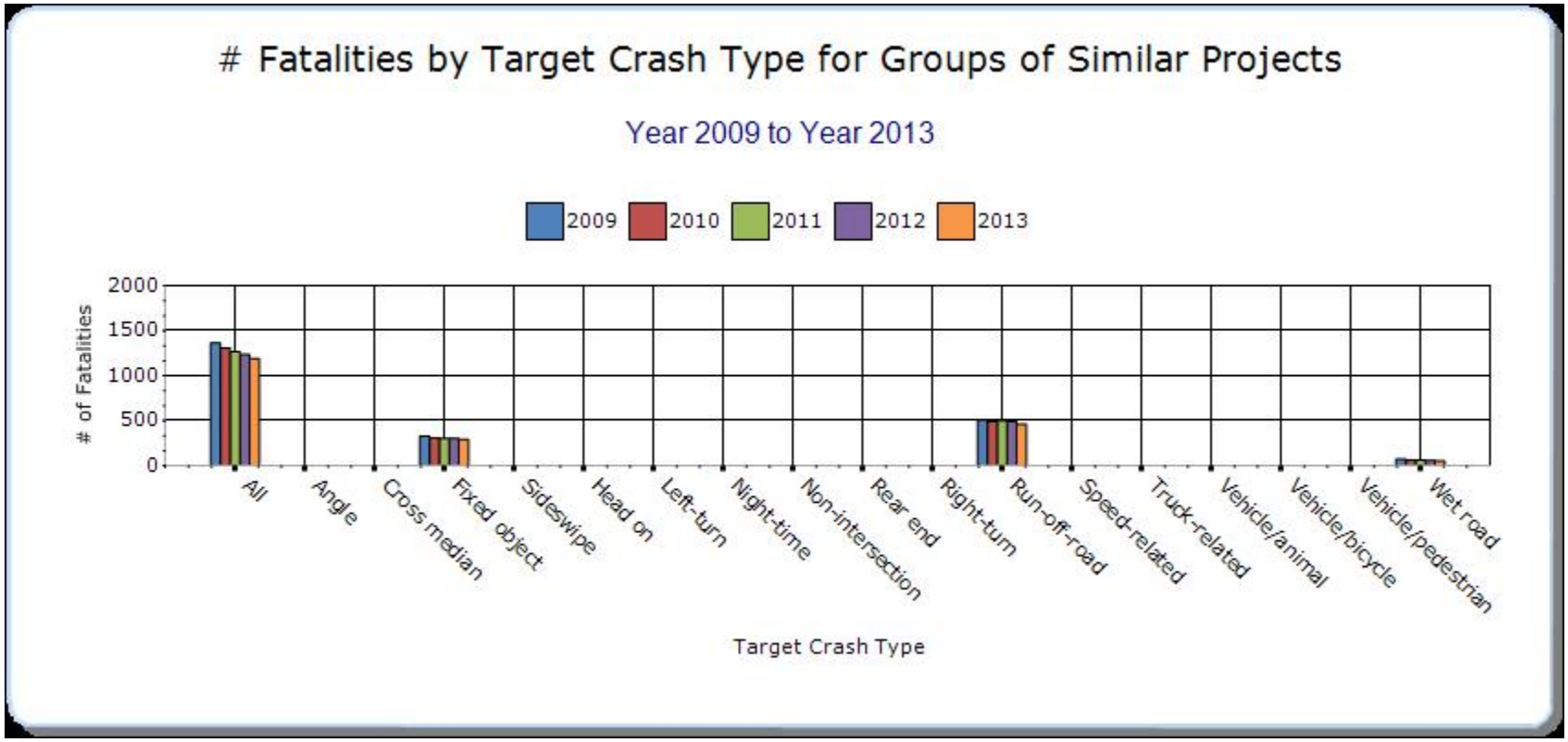
## Groups of similar project types

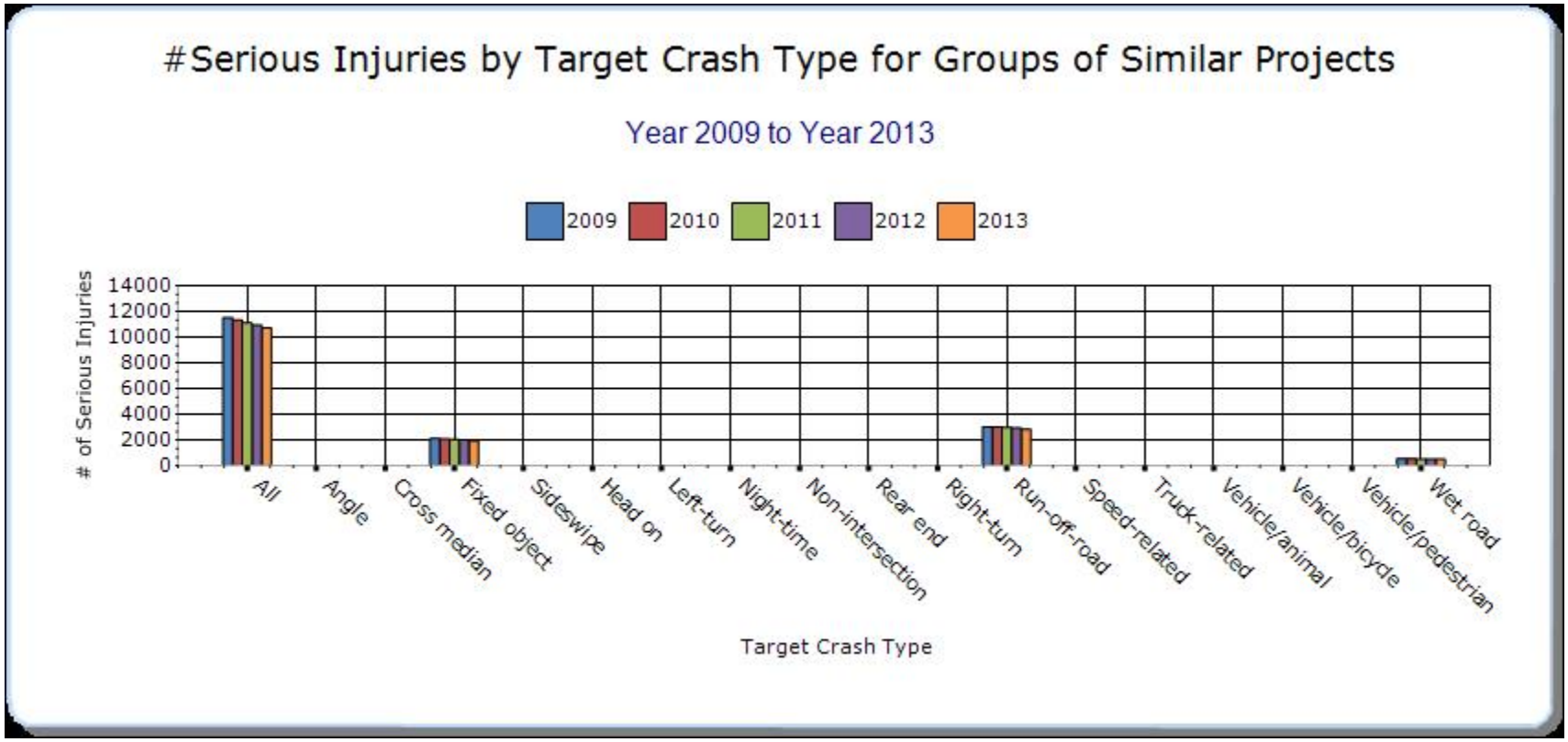
**Present the overall effectiveness of groups of similar types of projects.**

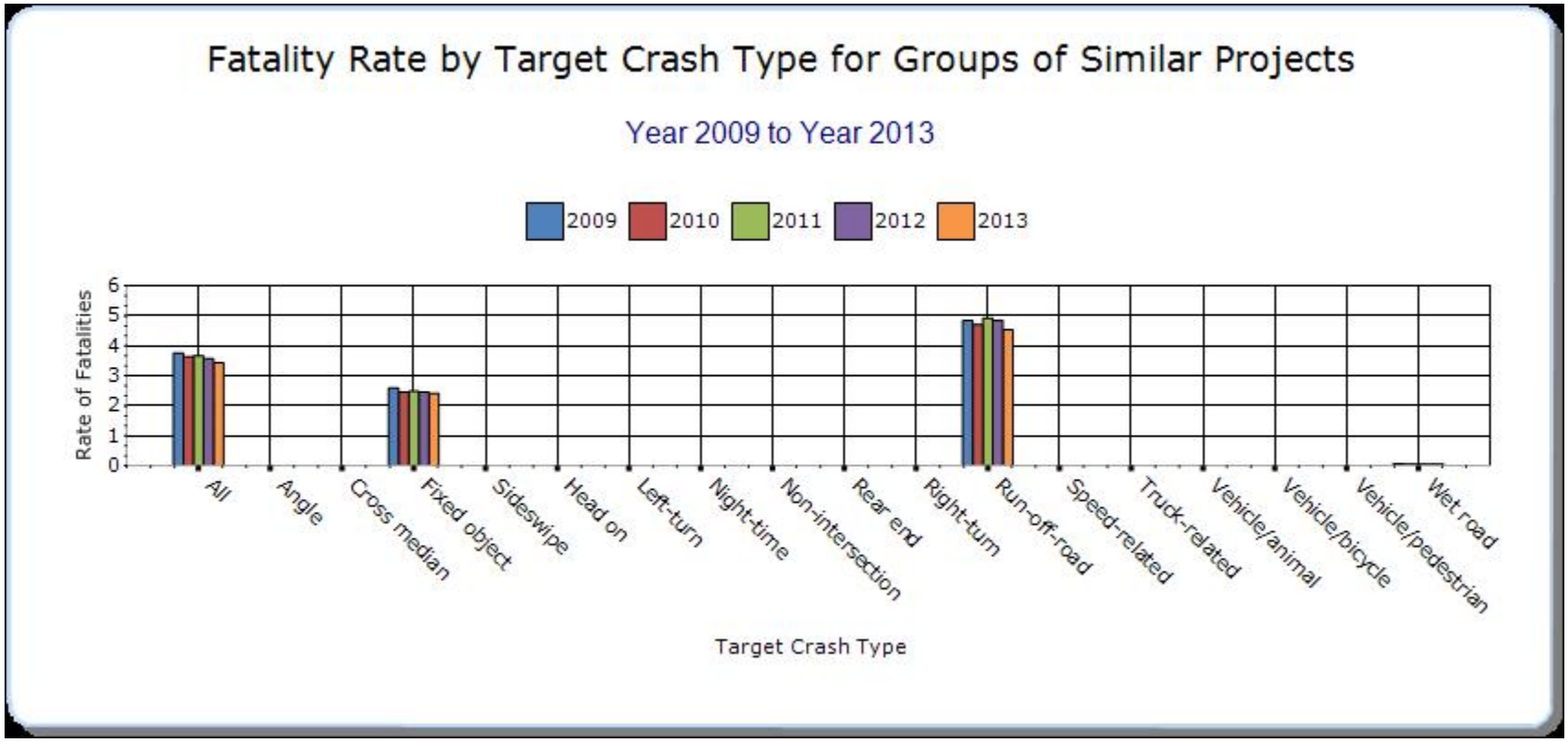
### Year - 2013

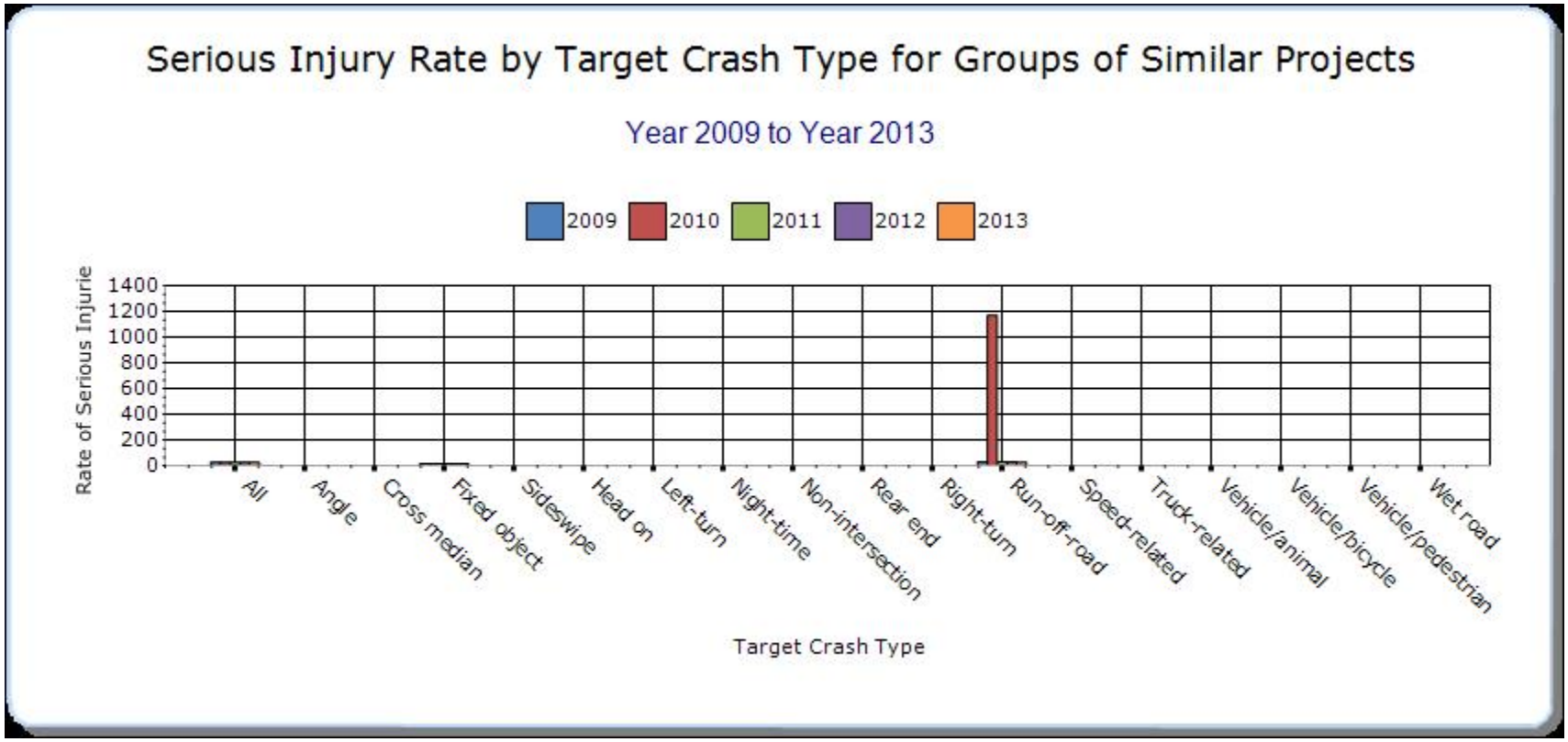
| HSIP Sub-program Types | Target Crash Type | Number of fatalities | Number of serious injuries | Fatality rate (per HMVMT) | Serious injury rate (per HMVMT) | Other-1 | Other-2 | Other-3 |
|---|---|---|---|---|---|---|---|---|
| **Other-ODOT Systematic - Median Barrier** | Freeway | 135 | 1135 | 0.14 | 1.11 | 13691 | 0 | 0 |
| **Other-State High Risk Rural Road** | Serious Rural Crashes | 348 | 2481 | 2.15 | 15.28 | 15295 | 0 | 0 |
| **Other-CEAO Systematic - Curve Signage** | Curve Related | 49 | 303 | 0.85 | 5.28 | 1772 | 0 | 0 |
| **Other-State HSIP Program** | All | 1047 | 9727 | 0.94 | 8.68 | 105985 | 0 | 0 |
| **Other-CEAO Systematic - RPMs** | Run-off-road | 102 | 640 | 1.77 | 11.14 | 3649 | 0 | 0 |
| **Other-ODOT Systematic - Intersection Signage** | Unsignalized Intersection | 88 | 822 | 0.34 | 3.15 | 6377 | 0 | 0 |
| **Other-ODOT Systematic - Roadway Departure** | Run-off-road | 260 | 1572 | 1 | 6.02 | 10115 | 0 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Other-ODOT Systematic - Guardrail** | Fixed object | 199 | 1310 | 0.77 | 5.01 | 8075 | 0 | 0 |
| **Other-CEAO HSIP Program** | All | 144 | 1020 | 2.5 | 17.75 | 6200 | 0 | 0 |
| **Other-CEAO Systematic - Pavement Markings** | Run-off-road | 102 | 640 | 1.77 | 11.14 | 3649 | 0 | 0 |
| **Other-CEAO Systematic - Guardrail** | Fixed object | 94 | 630 | 1.64 | 10.97 | 3627 | 0 | 0 |
| **Other-ODOT Systematic - Wet Pavement** | Wet road | 55 | 506 | 0.06 | 0.46 | 4537 | 0 | 0 |
| **Other-ODOT Systematic - Signal Upgrade** | Signalized Intersections | 77 | 1513 | 0.07 | 1.35 | 25023 | 0 | 0 |
| | | | | | | | | |


# Fatalities by Target Crash Type for Groups of Similar Projects
Year 2009 to Year 2013
2009
2010
2011
2012
2013
# of Fatalities
2000
1500
1000
500
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


#Serious Injuries by Target Crash Type for Groups of Similar Projects
Year 2009 to Year 2013
2009
2010
2011
2012
2013
# of Serious Injuries
14000
12000
10000
8000
6000
4000
2000
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type


Fatality Rate by Target Crash Type for Groups of Similar Projects
Year 2009 to Year 2013
2009
2010
2011
2012
2013
Rate of Fatalities
0
1
2
3
4
5
6
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

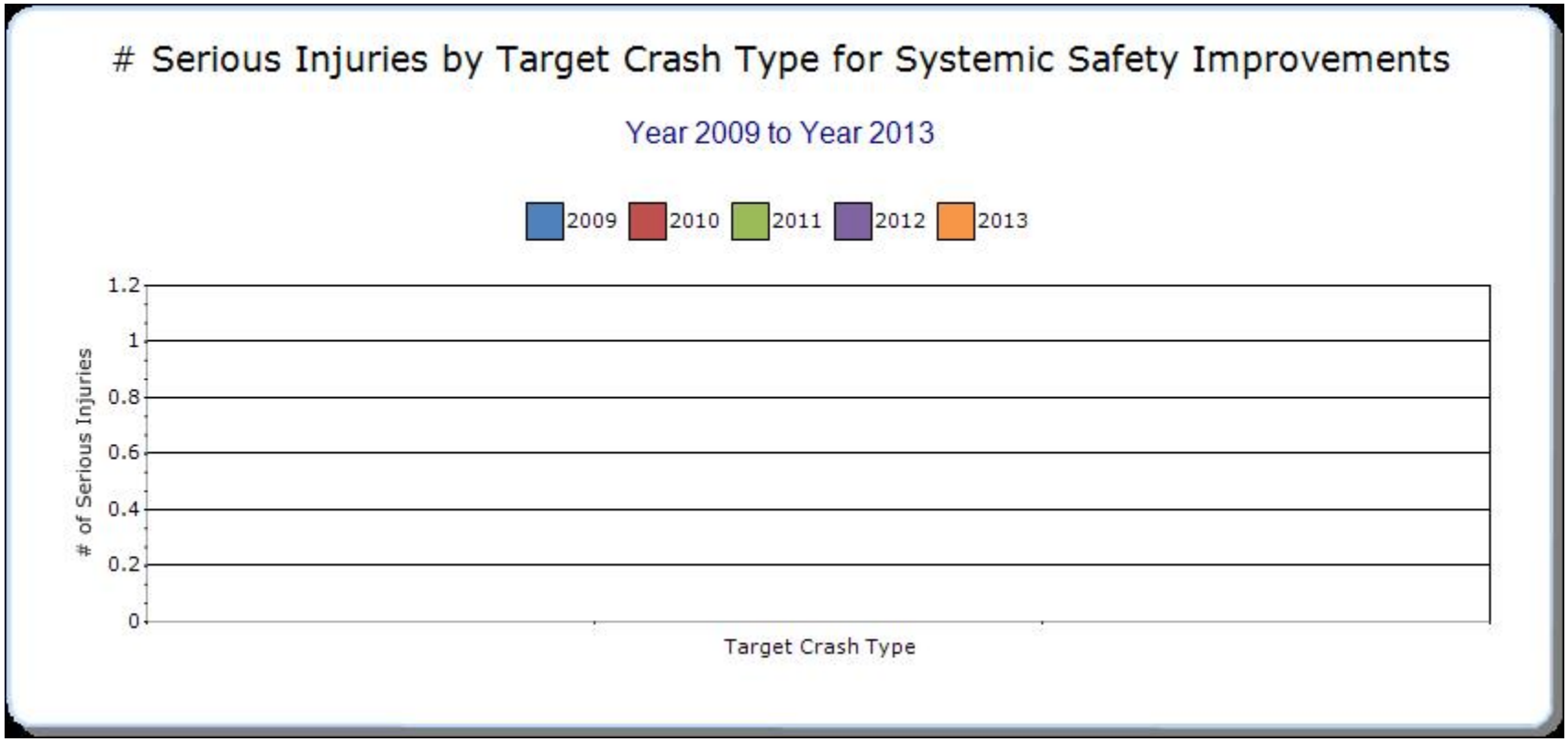

Serious Injury Rate by Target Crash Type for Groups of Similar Projects
Year 2009 to Year 2013
2009
2010
2011
2012
2013
Rate of Serious Injurie
1400
1200
1000
800
600
400
200
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Target Crash Type

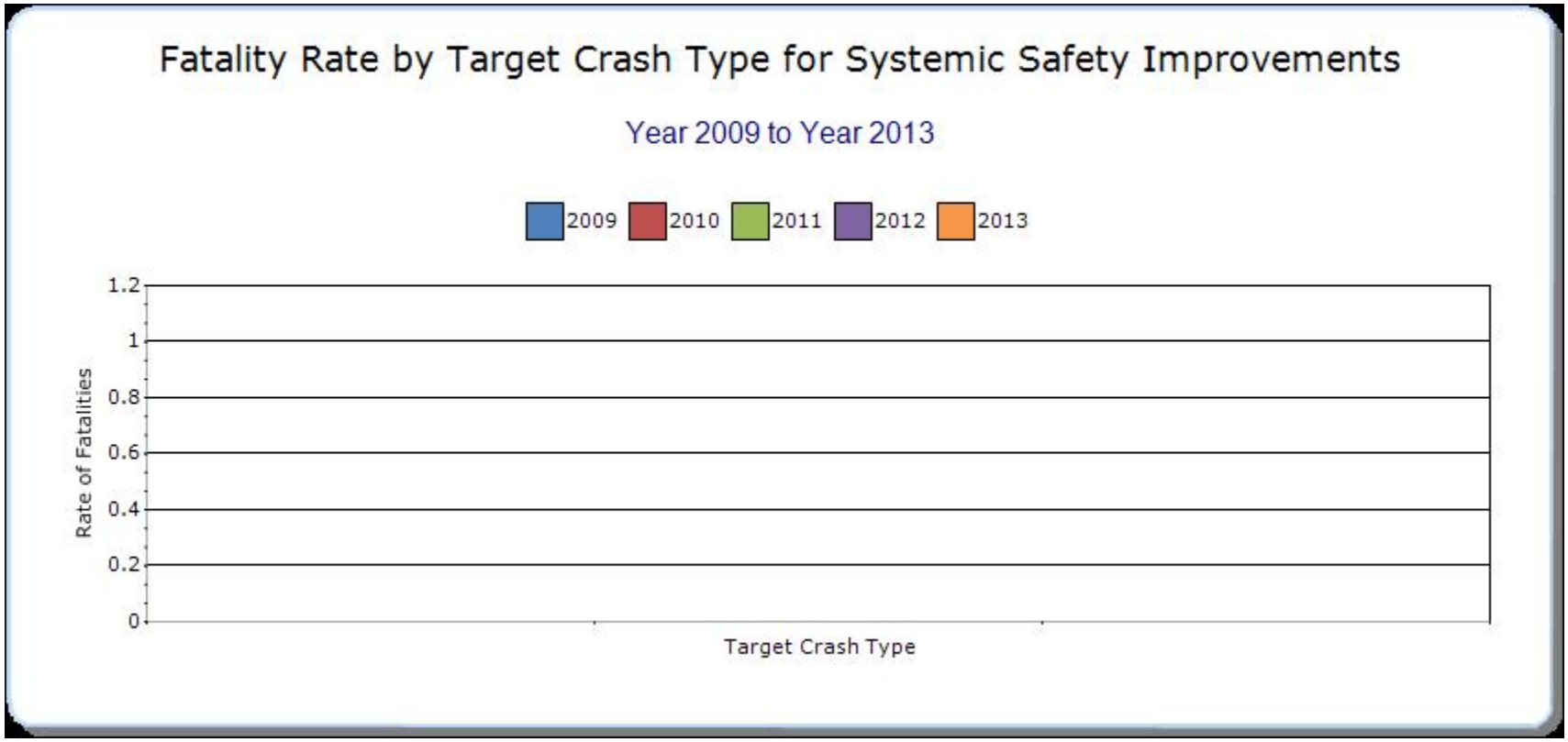
## Systemic Treatments

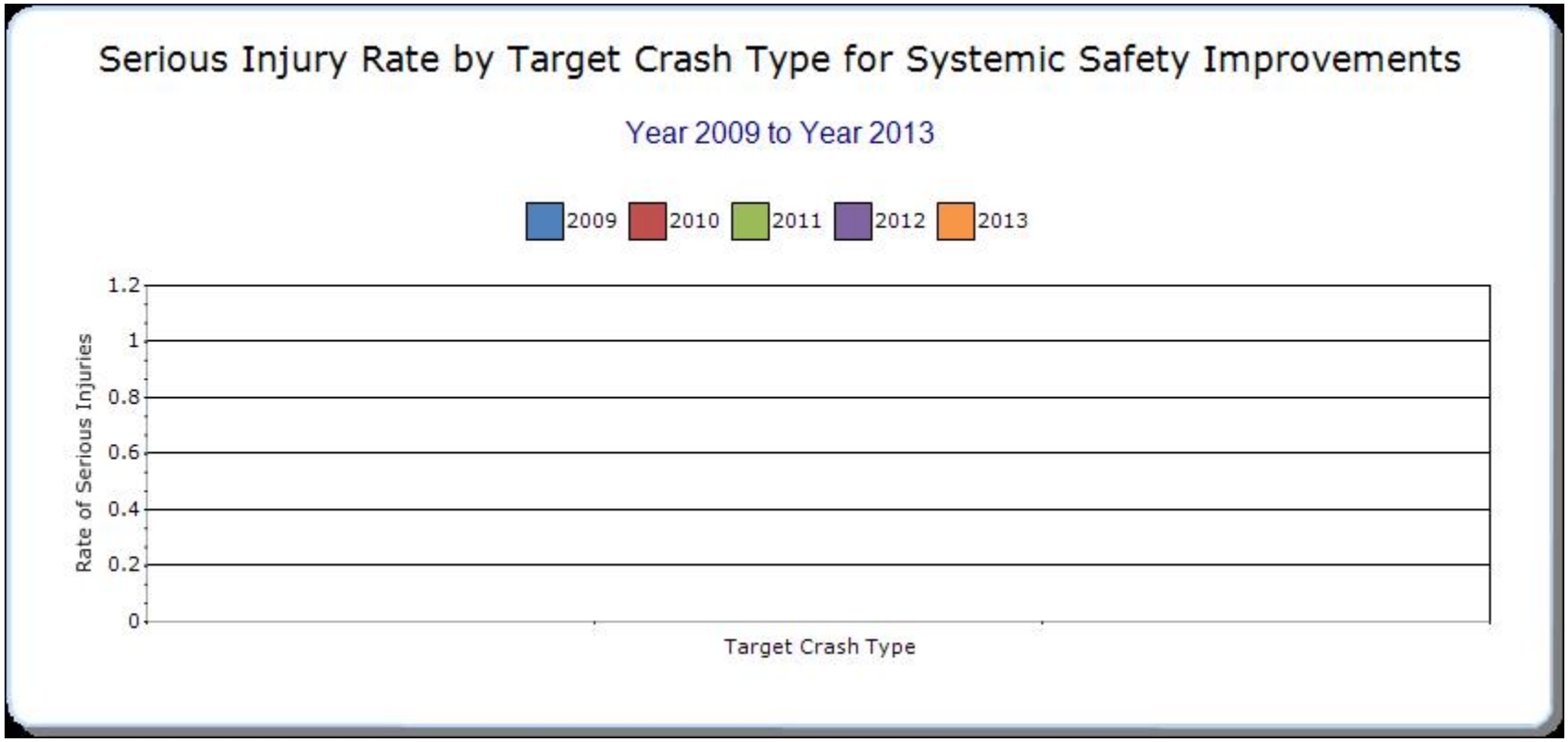
**Present the overall effectiveness of systemic treatments.**

| 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 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |


# Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2009 to Year 2013
2009
2010
2011
2012
2013
1.2
1
0.8
0.6
0.4
0.2
0
# of Fatalities
Target Crash Type


# Serious Injuries by Target Crash Type for Systemic Safety Improvements
Year 2009 to Year 2013
2009
2010
2011
2012
2013
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 Systemic Safety Improvements
Year 2009 to Year 2013
2009
2010
2011
2012
2013
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 Systemic Safety Improvements
Year 2009 to Year 2013
2009
2010
2011
2012
2013
1.2
1
0.8
0.6
0.4
0.2
0
Rate of Serious Injuries
Target Crash Type

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

Cable Barrier
Since 2003 - 350 miles installed

Edge Line Rumble Stripes
2010 - Installed 1,380 miles of edgeline rumble stripes

Curve and Intersection Upgrade
2010 - Upgraded 904 intersections with LED signal heads, backplates, and battery backups were applicable
2011 - 576 curves investigated and signing improvements programmed
2012 - 800 stop controlled intersection signing layout to be investigated
2013 - 840 curves to be investigated for signing and other improvement needs

Wet Pavement Locations
2012 - 177 projects implemented to reduce wet pavement related crashes
2013/2014 - 20 sites identified and improvements programmed

Pedestrian Corridors
2014 - 19 one mile corridors have been identified for investigation

Intersection Enhancements
2014 - 14 coordinated signal corridors have been identified to upgrade the signal coordination with a combination of technology, equipment and timings

**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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Not Completed** | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

# Optional Attachments

| Sections | Files Attached |
| --- | --- |

# Glossary

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

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

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

**HMVMT** means hundred million vehicle miles traveled.

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

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

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

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

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

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

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

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