



Highway Safety Improvement Program
Data Driven Decisions

Nevada
Highway Safety Improvement Program
2016 Annual Report

Prepared by: NV

Disclaimer

Protection of Data from Discovery & Admission into Evidence

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

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

Table of Contents

Disclaimer.....	ii
Executive Summary.....	1
Introduction	2
Program Structure	2
Program Administration	2
Program Methodology.....	8
Progress in Implementing Projects	14
Funds Programmed.....	14
General Listing of Projects	16
Progress in Achieving Safety Performance Targets	19
Overview of General Safety Trends	19
Application of Special Rules	32
Assessment of the Effectiveness of the Improvements (Program Evaluation)	33
SHSP Emphasis Areas	35
Groups of similar project types.....	39
Systemic Treatments.....	44
Project Evaluation	47
Glossary.....	49

Executive Summary

This annual Highway Safety Improvement Program (HSIP) report for 2016 summarizes the activities of the Nevada Department of Transportation's HSIP as required by Fixing America's Surface Transportation (FAST) Act. The FAST Act continues the HSIP to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance (FAST Act § 1113; 23 U.S.C. 148)

The FAST Act continued to allocate funds for the HSIP program in the Federal Fiscal Years 2016 - 2020. Available program funds for the purpose of this report are considered to be those funds obligated during the 2016 federal fiscal year. The activities of the Nevada Department of Transportation (NDOT) are primarily designed to develop safety improvement projects for the following areas:

- Systemic roadway improvements
 - Safety management plans
 - High crash locations (intersections and roadway segments)
 - Rural lane departure crash mitigation
 - Rural intersection low cost safety improvements
 - Urban intersection low cost safety improvements
 - Urban lane departure crash mitigation
- Pedestrian related crash mitigation
- Tribal Low Cost Safety Improvements

The crash data on all public roadways contained in this report is extracted from the Nevada Citation and Accident Tracking System (NCATS) and Brazos crash databases, and prepared for Traffic Safety Engineering's analysis as a normalized view. After the crash data is downloaded from the NCATS and Brazos databases, it is processed through our geo-location software and is linearly referenced to the statewide street centerline data. The geo-location software tools automate the cleanup of location attributes and assign a spatial location to the crash data through a series of database procedures.

The HSIP program is administered by the NDOT Traffic Safety Engineering section, a centrally located component of the NDOT. The methods used by the Traffic Safety Engineering section

to identify, select, implement, and evaluate safety improvement projects have been compiled in the NDOT's "Safety Procedural Manual," implemented in 1980, amended in 1990, 2010, and 2016. A copy of the current updated NDOT Safety Procedural Manual is located on the NDOT website.

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

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

Under the systemic roadway improvements approach, NDOT Traffic Safety Engineering evaluates local roads for safety improvements such as Slope Flattening/Shoulder Widening, Flashing Yellow Arrows, Rumble Stripes, and turn pockets with acceleration/deceleration lanes on rural highways. We also have a project that identifies and evaluates curves on local roads for mitigations such as advanced signage, chevrons, and high frictions surfaces. While evaluating rural intersections we are identifying those locations where fatalities and serious injuries can be reduced by converting to a roundabout.

During 2016 NDOT Traffic Safety Engineering developed a low-cost safety improvement project with 2 local tribal agencies; the Te-Moak Tribe Band (which includes Battle Mountain Indian Colony, Elko Indian

Colony, South Fork Indian Reservation, and the Wells Indian Colony) and the Duckwater Tribe. The safety improvements included enhanced pedestrian lighting, signage, and sidewalk improvements.

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

Design
Planning
Maintenance
Operations
Governors Highway Safety Office
Other-District Offices

Briefly describe coordination with internal partners.

NDOT Traffic Safety Engineering coordinates with:

1. The NDOT Roadway Design team at many different levels to include, recommend or request the inclusion of safety improvements from strategies identified in the Strategic Highway Safety Program (SHSP), Road Safety Assessments (RSA), Safety Management Plans (SMPs) or locations identified as safety management areas:

- Preliminary Field Design Survey – at this level the team recommends possible improvements to include into the project based on the review of field conditions.
- Pre-design – at this level the traffic safety team evaluates the design concepts for the inclusion of safety improvements and recommends possible safety improvements to include into the project.
- Intermediate design – at this level the traffic safety team evaluates the preliminary design for the inclusion of safety improvements and recommends possible safety improvements to include into the project.
- Final design – at this level the traffic safety team evaluates the final design for the inclusion of safety improvements.

Also, NDOT Traffic Safety Engineering coordinates with the Roadway Design team to educate them in the latest safety strategies and provides guidance regarding safety improvements and ideas. This includes the utilization of the strategies included in the SHSP, the HSM and the federal guidelines. To enhance this education, HSM training classes were also provided to Traffic Safety and Roadway Design staff, both in northern and southern Nevada. This HSM training included Roundabouts, Freeways and Interchanges, and the Interactive Highway Safety Design Model (IHSDM). Traffic Safety Engineering coordinates with the Roadway Design Scoping section to initiate and recommend safety improvements into projects that are currently being evaluated. This coordination with the Scoping team also includes the 3R evaluation team when they complete their field reviews for upcoming projects.

2. The NDOT Maintenance/Operations division during RSA's, SMPs and miscellaneous field reviews.

3. The NDOT Planning division at many different levels to provide guidance regarding safety improvements in the development of projects and by recommending safety improvements for inclusion

into projects that are in the early stage of development.

4. The NDOT Traffic Operations division when developing / implementing safety projects, which includes signal design, lighting design, operational analysis of roadway segments and intersections, and development and discussion of safety strategies, methodologies and guidelines. Recently, Traffic Safety and Traffic Operations are reviewing the possibility of incorporating the Intersection Control Evaluation (ICE) as part of our intersection improvement evaluations and Wrong Way Driver countermeasures.

5. The Governors Highway Safety Office (The Department of Public Safety - Office of Traffic Safety, OTS). Traffic Safety Engineering has been coordinating with the OTS since the inception of the SHSP and has funded many behavioral components of the OTS. Because of this long ongoing coordination between Traffic Safety Engineering and OTS, the safety messages continue to reach more and more road users in the state of Nevada which results in achieving our combined performance measures. Because of the importance of this behavioral component and due to the changes in FAST Act funding these programs are currently being funded with State Gas Tax funds, until other eligible funds can be identified.

6. The NDOT District offices to gain knowledge of the locations that are of concern to the district to determine if they are being identified as potential safety project locations.

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

Metropolitan Planning Organizations
Governors Highway Safety Office
Local Government Association
Other-Emergency Medical Services
Other-Tribal Agencies

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

Other-No change in our program administration practices since 2015

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

Nevada Strategic Highway Safety Plan:

In 2010, Nevada adopted the "Zero Fatalities" goal, consistent with the national Toward Zero Deaths strategy sponsored by the Federal Highway Administration (FHWA), the National Highway Traffic Safety

Administration (NHTSA), the American Association of State Highway and Transportation Officials (AASHTO), and the Governors Highway Safety Association (GHSA). To reach zero fatalities, Nevada established an interim goal of one-half of 2008 levels by 2030. At the time of the 2011-2015 SHSP update, analysis of statewide crash data indicated that the CEAs should remain the same: Impaired Driving, Intersections, Lane Departures, Pedestrians, and Seat Belts (now Occupant Protection).

In 2014, the SHSP was amended to incorporate the Special User Groups of bicyclists, pedestrians, motorcyclists, younger road users and older road users into all CEAs and add Emergency Responders and Traffic Incident Management to Emergency Medical Services. In addition, the NECTS approved the sixth CEA - Motorcycles - due to the increasing trends in motorcycle fatalities and serious injuries both in Nevada and on a national level.

The 2016 Nevada SHSP update process was kicked off in March 2015 when Nevada hosted a 2-day peer exchange in Carson City with support from FHWA. Safety professionals from Nevada as well as five other states exchanged noteworthy practices and share successes and challenges for Nevada to incorporate into the update. Shortly after the peer exchange, NDOT and Office of Traffic Safety (OTS) hosted the 2015 Nevada Traffic Safety Summit, March 24-25, in Reno, Nevada. Approximately 240 safety professionals representing the 4 "E's" gathered together to develop strategies and action steps for each CEA. Attendees were assigned to CEA breakout teams. Each breakout team reviewed the crash data for the CEA, and then small teams brainstormed the top strategies and actions.

After the Traffic Safety Summit, the CEA facilitators, chairs, and vice-chairs summarized the results of each CEA breakout session. Over the following months, CEA teams met to determine strategies and actions steps for the update. In selecting the final strategies for the plan, the CEA teams:

- Reviewed current strategies and action steps and determined if any should be carried over to the updated plan
- Reviewed results and recommendations from the 2015 Traffic Safety Summit
- Reviewed proven strategies and countermeasures from the National Cooperative Highway Research Program (NCHRP) Report 500.

The final strategies and action steps were presented to the SHSP Technical Working Group (TWG) in August, 2015.

Documented in this update are 22 strategies and accompanying actions to continue to reduce crashes, and fatal and serious injury crashes. This plan also includes measurable objectives to track the progress of each strategy and action step. The Nevada SHSP provides a summary of the emphasis areas and strategies that will guide Nevada's traffic safety efforts over the next five years.

Recurring activities for the SHSP included semi-annual meetings of the Nevada Executive Committee on Traffic Safety (NECTS), and quarterly meetings for the SHSP Technical Working Group, six SHSP Critical Emphasis Area (CEA) teams, Intersections, Impaired Driving, Occupant protection, Pedestrians, Lane departures and Motorcycle's and the new Safety Data Analysis Team.

Road Safety Assessments (RSA's)

The RSA program is continuing in Nevada and has been a typical approach by the designer and/or planner to request for an RSA on their new projects. There were 10 RSAs performed from January 2015 to June 2016. The RSAs were primarily performed on 3R preservation projects, capacity projects, corridor studies, and Safety Management Plan.

This Federal Fiscal Year 2016, the RSA program is focused on updating the RSA database. The RSA database is a compilation of all the RSA suggestions in one central file that can easily be sorted out according to the required data field for use as a design/planning reference by NDOT transportation professionals. The RSA database shall identify suggestions that were incorporated in the project or implemented by NDOT District Maintenance crews and/or by other using agencies; and also identify those suggestions that were not implemented. The compilation is being performed on 123 RSA reports that were completed statewide in a 5-year period from February 2010 to November 2014.

Furthermore, the RSA program statewide will be continuing for FFY 17–18. NDOT just negotiated and contracted through Request for Approach with two (2) Service Providers.

Systemic improvements:

Systemic improvements that were incorporated in the FY2016 HSIP program were: shoulder widening & slope flattening on rural two lane highways, median cable barrier rail installations, edge-line and centerline rumble stripes, flashing yellow arrow installations. NDOT Traffic Safety Engineering is also evaluating the following:

- Conversion of all rural state highway striping from 4" lines to 6" lines as a countermeasure for lane departure crashes.
- Incorporating the use of the Intersection Control Evaluation (ICE) methodology to determine the best intersection type based on safety and efficiency.

Safety Management Plans: a safety focused corridor study

To reduce the number of crashes on Nevada Roadways, the NDOT Traffic Safety Engineering Division identified corridors along arterials statewide to implement safety improvements. In order to identify corridors for improvement, all reported crashes between 2010 and 2015 were analyzed. For Principal Arterials, routes were identified that exceed the statewide average crashes per mile and average severe crashes per mile by functional classification when compared to the statewide averages. For Minor Arterials, routes were identified that exceed double the statewide average crashes per mile and severe crashes per mile by functional classification when compared to the statewide averages.

Three SMP's were completed at the following locations:

- Craig Rd in North Las Vegas (Decatur to 5th)
- Eastern Ave/Civic Center in Las Vegas (Cope to US 95)
- Second St and Arlington Ave in Reno (Keystone to I580 and Court to 6th)

These SMP's evaluated the needs of all modes of transportation and make recommendations for future projects. The purpose of a Safety Management Plan (SMP) was to conduct a safety focused corridor study aimed at all road users and to include collaboration with stakeholders and the public. A SMP includes the development of short and long range transportation safety improvement projects that incorporate relevant studies, access management principles, public and stakeholder input, crash and capacity analyses, benefit/cost analysis, and other impacts to all road users. A Technical Advisory Committee (TAC) and a Stakeholder Working Group (SWG) were created to help with the development of the SMP and to ensure that the plan was consistent with the needs of the many different

stakeholders along the project corridor. The SMP process is consistent with the Nevada Strategic Highway Safety Plan's goals of reducing the number of fatalities and serious injuries on Nevada's roadways.

NDOT Complete Streets Policy

At the direction of NDOT's Assistant Director of Planning and the Assistant Director of Engineering, a Complete Streets Policy was developed by Traffic Safety Engineering Staff for NDOT. The purpose of the NDOT Complete Streets policy is to provide guidance for the implementation of complete streets on NDOT right-of-way throughout the state. The NDOT Complete Street Policy was developed using the guidance from Smart Growth America and in collaboration with local jurisdictions, the Regional Transportation Commission's, (both Washoe and Southern Nevada), and NDOT staff.

Traffic Safety Engineering Design Services (TSEDs):

The TSEDs were used to design safety improvements identified in RSAs and SMPs. The following list of projects were design in 2016 utilizing SEDs:

- SR 28 Pedestrian Safety Improvements in Incline Village, NV*
- Sun Valley Blvd Pedestrian Safety Improvements*
- Lake Mead Blvd Complete Street Design*
- Charleston Blvd Pedestrian Safety Improvements*
- Boulder Hwy at Sun Valley Drive Pedestrian Safety Improvements*
- Te-Moak Tribe Band and Duckwater Tribe Low Cost Safety Improvements

*The design of these projects was completed using HSIP funds, but the construction will be utilizing State Gas Tax funds.

Other miscellaneous projects & activities:

NDOT Traffic Safety Engineering is participating in the funding of a Truck Escape Ramp on SR 431/Mt Rose Highway in Washoe County where run-away truck fatalities have occurred. This project is designed to reduce truck lane departure crashes. Traffic Safety Engineering is also focusing on work zone safety and is evaluating the use of portable/temporary rumble strips in advance of work zones on high speed highways.

Highway Safety Manual Implementation:

The NDOT Traffic Safety Engineering section has been continuing their strategic deployment of the HSM. During fiscal year 2016, the following is a summary of the main accomplishments:

- Participated in Highway Safety Manual (HSM) Peer Exchange Program, and the HSIP National Scan Tour.
- Completed the Project Report for Highway Safety Capacity Building, which provided additional safety resources to NDOT safety programs, facilitated in safety training for transportation staff throughout Nevada, and increased the effectiveness of support to NDOT from University of Nevada Reno Center for Advanced Transportation Education and Research (CATER).
- Continued the agreement with the University of Nevada Reno Center for Advanced Transportation Education and Research (CATER) to support HSM Implementation in Nevada.

Tasks in FY2016 included Animal Crossing Data Collection at wildlife crossings, and Horizontal Curve Analysis. CATER is also coordinating with NDOT Traffic Safety Engineering on an NDOT Research Project that is developing a statewide database for Safety Analyst Software.

Program Methodology

Select the programs that are administered under the HSIP.

Intersection
Pedestrian Safety

Rural State Highways
Segments

Crash Data

Program: Intersection

Date of Program Methodology: 3/9/1997

What data types were used in the program methodology?

Crashes

All crashes

Exposure

Volume

Roadway

Functional classification

What project identification methodology was used for this program?

Crash frequency

Equivalent property damage only (EPDO Crash frequency)

Crash rate

Excess expected crash frequency using SPFs

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

Yes

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

Yes

How are highway safety improvement projects advanced for implementation?

Other-Priority Ranking

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

Rank of Priority Consideration

Ranking based on B/C	1
Available funding	2
combining with other projects with our traffic safety partners	3

Program: Rural State Highways
Date of Program Methodology: 10/22/2012

What data types were used in the program methodology?

<i>Crashes</i>	<i>Exposure</i>	<i>Roadway</i>
All crashes	Volume	Functional classification

What project identification methodology was used for this program?

Crash frequency
 Equivalent property damage only (EPDO Crash frequency)
 Crash rate
 Excess expected crash frequency using SPFs

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

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

How are highway safety improvement projects advanced for implementation?

Other-Priority Ranking

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

Rank of Priority Consideration

Ranking based on B/C	1
Available funding	2
Combining with other projects being done by our traffic safety partners	3

Program: Crash Data

Date of Program Methodology: 3/9/1997

What data types were used in the program methodology?

<i>Crashes</i>	<i>Exposure</i>	<i>Roadway</i>
All crashes	Other-Crash Data	Median width
		Horizontal curvature
		Roadside features

What project identification methodology was used for this program?

Crash frequency
Crash rate

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

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

How are highway safety improvement projects advanced for implementation?

Other-We use crash data in highway safety improvement project advancements

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).

NDOT Traffic Safety uses crash data to prioritize projects for implementation

Program: Pedestrian Safety

Date of Program Methodology: 3/15/2015

What data types were used in the program methodology?

<i>Crashes</i>	<i>Exposure</i>	<i>Roadway</i>
All crashes	Volume	Functional classification
	Other-Land Use Generators	

What project identification methodology was used for this program?

Crash frequency
 EPDO crash frequency with EB adjustment
 Crash rate
 Excess expected crash frequency using SPFs

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

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

How are highway safety improvement projects advanced for implementation?

Other-Priority Ranking

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

Rank of Priority Consideration

Ranking based on B/C	1
Available funding	2
Combining with other projects being done by our traffic safety partners	3

Program: Segments
Date of Program Methodology: 9/15/2015

What data types were used in the program methodology?

<i>Crashes</i>	<i>Exposure</i>	<i>Roadway</i>
All crashes	Volume	Functional classification

What project identification methodology was used for this program?

Crash frequency
 Equivalent property damage only (EPDO Crash frequency)
 Crash rate
 Excess expected crash frequency using SPFs

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

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

How are highway safety improvement projects advanced for implementation?

Other-Priority Ranking

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

Rank of Priority Consideration

Ranking based on B/C	1
Available funding	2
Combining with other projects being done by our traffic safety partners	3

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

80%

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

Cable Median Barriers
Rumble Strips
Pavement/Shoulder Widening
Install/Improve Lighting
Add/Upgrade/Modify/Remove Traffic Signal
Other-Safety Management Plans

What process is used to identify potential countermeasures?

Engineering Study
Road Safety Assessment
Other-Safety Management Plans

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

Other-none

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

In a Memorandum dated July 29, 2015, from Tony Furst, Associate Administrator for Safety - FHWA, Nevada was identified as a 2015 Focus State for Intersections. Because of this designation, we have continued to incorporate into our program systemic and spot treatments at intersections such as Retroreflective Back Plates and Flashing Yellow Arrows. NDOT is currently updating their access management manual. As recommended in this draft access management manual update, Traffic Safety Engineering is incorporating into their projects medians that will provide better access management.

In July 2016, staff from NDOT Traffic Safety Engineering and Traffic Operations, attended a Peer-to-Peer workshop on Intersection Control Evaluation (ICE) in Chicago, IL. Nevada is continuing to pursue this methodology to evaluate intersection safety mitigation, as well as promoting roundabouts wherever possible. Nevada is currently working with the FHWA to hold a peer-to-peer exchange on ICE with western states in early 2017.

Also in 2016, NDOT created a draft "NDOT Complete Streets Policy" which is awaiting approval. The purpose of this policy is to include enhanced accommodation for people riding bicycles, walking, using transit, and other users, in addition to the traditional accommodation for vehicles. Provisions for all users will be integrated into the planning, design, construction, maintenance and operation of new and retrofit transportation facilities through the development of appropriate design features. NDOT will implement the Complete Street elements as appropriate. This will enable safe access and mobility of all users including pedestrians, bicyclists, and transit users of all ages and abilities.

In June, 2016 NDOT Traffic Safety Engineering Division (TSE) completed an update to their Highway Safety Improvement Program (HSIP) Manual. The purpose of this manual is to:

- Define the parameters of the HSIP.
- Define the roles of different parties involved with this program.
- Define and describe HSIP processes.
- Provide a solid understanding of how the HSIP is managed within the state of Nevada by NDOT.

The manual discusses the process by which HSIP infrastructure projects are conceived, selected, and implemented. This process is the same for Intersection Safety projects, Pedestrian/Bicycle Safety projects, and Corridors and/or Extended Roadway Safety projects. The process outlines the selection process to select projects and then move them through to construction. Each of the intermediate processes from planning to evaluation is discussed in the subsequent sections.

NDOT received approval from FHWA to experiment with red rapid rectangular flashing beacons (RRFB) to be used with wrong way driver countermeasures on freeway off-ramps. NDOT has identified a number of freeway off-ramps in the Reno and Las Vegas areas where the wrong driver countermeasures

will be included in a number of freeway projects. The countermeasure package will include Wrong Way signs, red RRFB, vehicle detection, cameras and a communications unit that can communicate a wrong way movement to the local traffic control center and the Nevada Highway Patrol dispatch.

Progress in Implementing Projects

Funds Programmed

Reporting period for Highway Safety Improvement Program funding.

Federal Fiscal Year

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

Funding Category	Programmed*		Obligated	
HSIP (Section 148)	\$19,348,258.00	78 %	\$19,771,848.00	75 %
State and Local Funds	\$5,514,624.00	22 %	\$6,637,097.00	25 %
Totals	\$24,862,882.00	100%	\$26,408,945.00	100%

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

\$2,411,738.00

How much funding is obligated to local safety projects?

\$2,411,738.00

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

\$1,406,000.00

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

\$1,406,000.00

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

\$0.00

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

\$0.00

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

NDOT Traffic Safety Engineering did not experience any impediments to obligating our Highway Safety Improvement Program funds.

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

After the FAST Act was implemented, the behavior programs (non-infrastructure safety projects) that we had obligated funds to, were no longer eligible for HSIP funds. NDOT Traffic Safety Engineering was able to utilize other funds to keep this program going, (mainly state gas tax funds) and continue our program obligations.

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
US6 Shoulder Widening and Slope flattening	Shoulder treatments Widen shoulder - paved or other	25.1 Miles	5779608	6083798	HSIP (Section 148)	Rural Principal Arterial - Other	1700	70	State Highway Agency	Roadway Departure	Reduce fatalities and serious injuries
Roundabout Pahump Valley Blvd	Intersection traffic control Modify control - two-way stop to roundabout	1 Numbers	2146311	2760527	HSIP (Section 148)	Urban Minor Arterial	11000	35	State Highway Agency	Intersections	Reduce fatalities and serious injuries
Roundabout Blagg Rd	Intersection traffic control Modify control - two-way stop to roundabout	1 Numbers	2125524	2724111	HSIP (Section 148)	Urban Minor Arterial	11000	45	State Highway Agency	Intersections	Reduce fatalities and serious injuries
Multiple Intersections - Signal System Modification	Intersection traffic control Modify traffic signal - add flashing yellow arrow		458273	482393	HSIP (Section 148)	Multiple	0	0	Various	Intersections	Reduce fatalities and serious injuries

Summerlin Pkwy, Las Vegas	Roadside Barrier - cable		1250000	2360270	HSIP (Section 148)	Urban Local Road or Street	30500	65	City of Municipal Highway Agency	Roadway Departure	Reduce fatalities and serious injuries
Carson City Signal Modifications and ADA improvements	Intersection traffic control Modify traffic signal - add flashing yellow arrow		474338	499303	HSIP (Section 148)	Multiple	0	0	Various	Intersections	Reduce fatalities and serious injuries
SR431/Mount Rose Highway - Construct Truck Escape	Miscellaneous	1 Number	4912947	5502893	HSIP (Section 148)	Rural Minor Arterial	4700	45	State Highway Agency	Roadway Departure	Reduce fatalities and serious injuries
Te-Moak Low Cost Safety Improvements	Pedestrians and bicyclists Miscellaneous pedestrians and bicyclists		694768	731335	HSIP (Section 148)	Rural Local Road or Street	0	0	Indian Tribe Nation	Pedestrians	Reduce crash frequency
Safety Engineering Design Services	Non-infrastructure Transportation safety planning		912000	960000	HSIP (Section 148)		0	0		All critical emphasis areas	Reduce fatalities and serious injuries
Road Safety audits - Consultant Services	Non-infrastructure Road safety audits		399000	420000	HSIP (Section 148)		0	0		All critical emphasis areas	Reduce fatalities and serious injuries

Progress in Achieving Safety Performance Targets

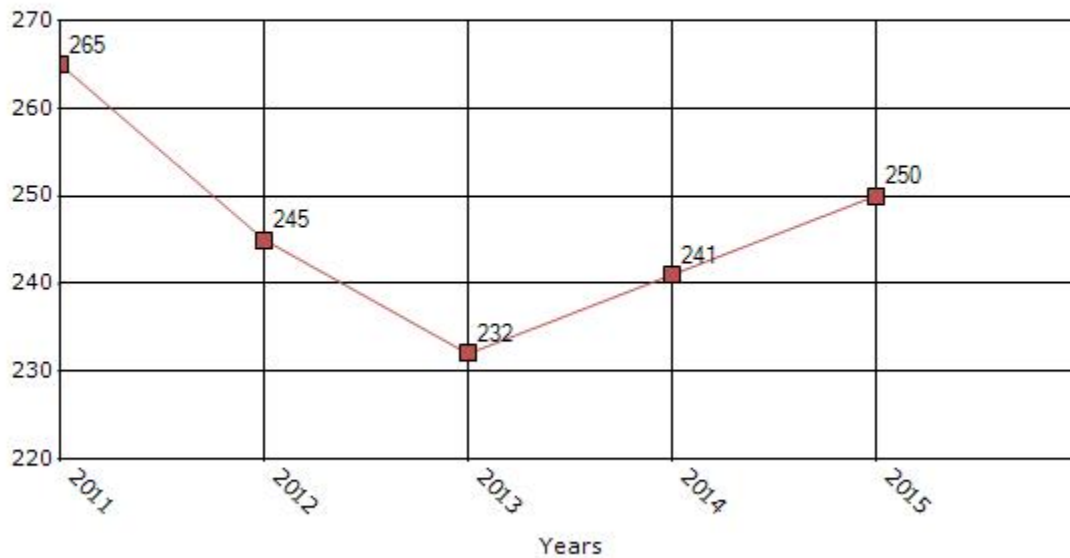
Overview of General Safety Trends

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

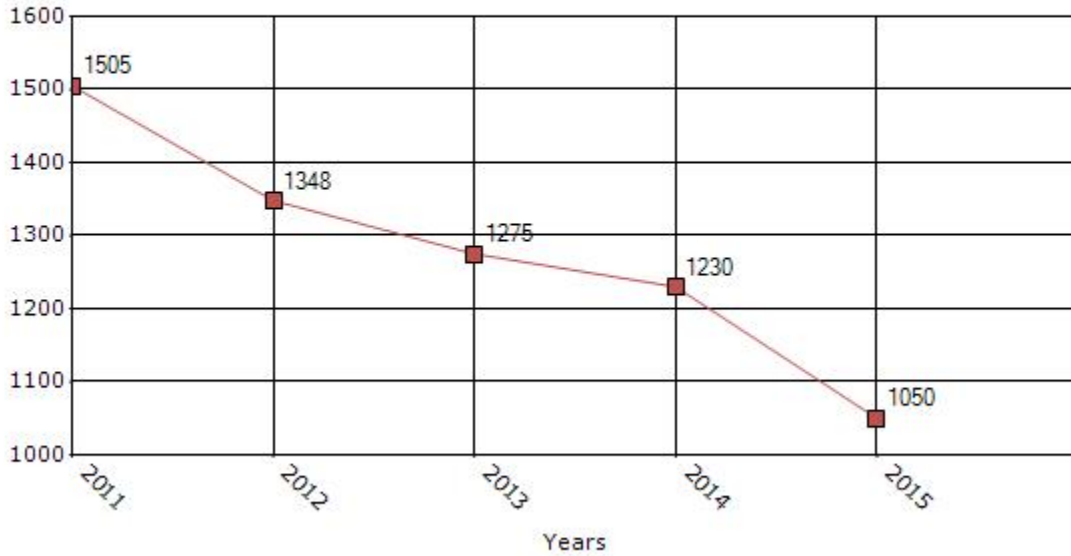
Performance Measures*	2011	2012	2013	2014	2015
Number of fatalities	265	245	232	241	250
Number of serious injuries	1505	1348	1275	1230	1050
Fatality rate (per HMVMT)	1.33	1.22	1.14	1.14	1.16
Serious injury rate (per HMVMT)	7.05	6.41	6.07	5.85	5.61

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

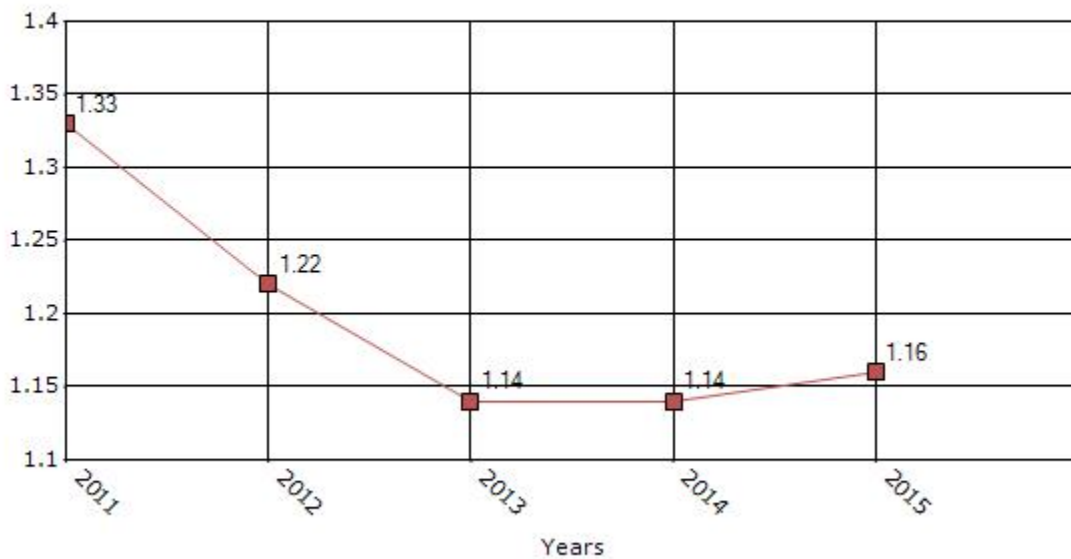
Number of Fatalities for the Last Five Years
5-yr Average Measure Data



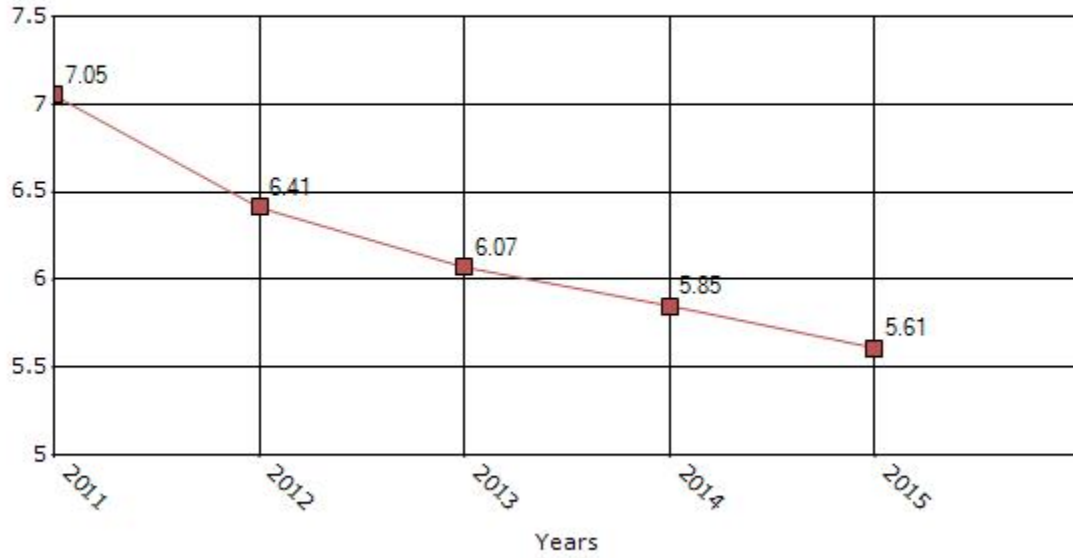
Number of Serious Injuries for the Last Five Years 5-yr Average Measure Data



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



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



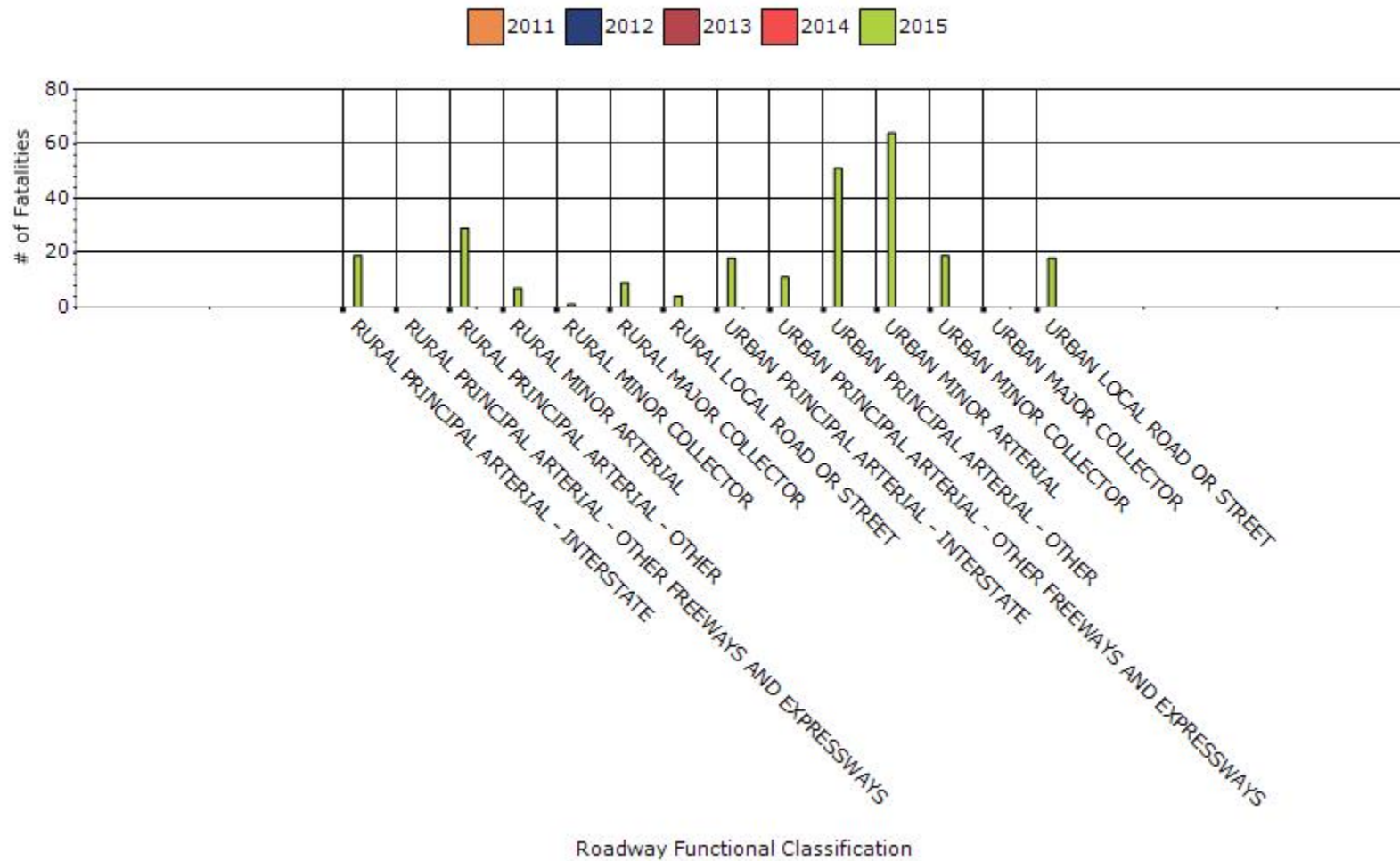
To the maximum extent possible, present performance measure* data by functional classification and ownership.

Year - 2015

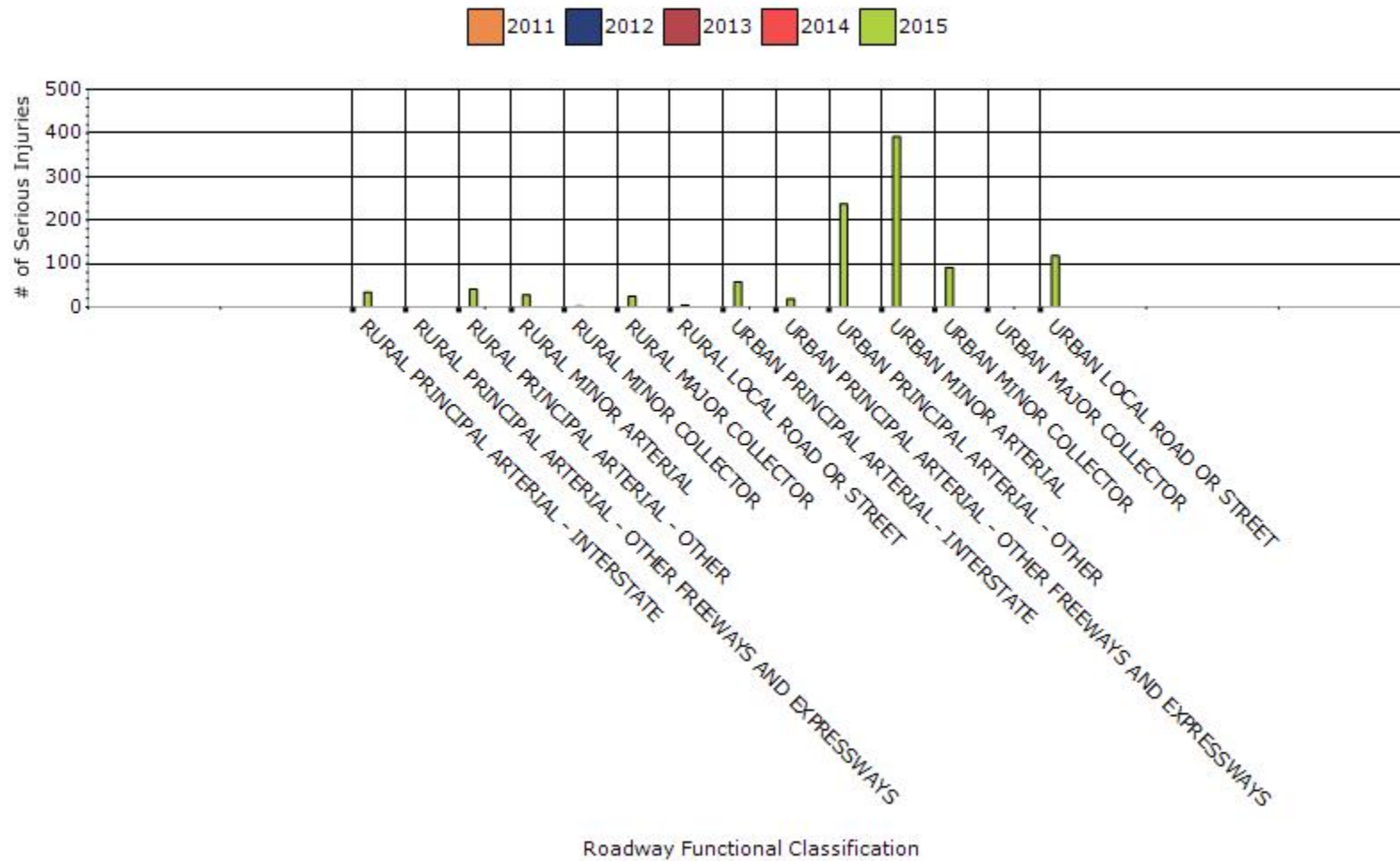
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	19	34	0.96	1.7
RURAL PRINCIPAL ARTERIAL - OTHER	29	41	1.97	2.85
RURAL MINOR ARTERIAL	7	28	1.83	7.03
RURAL MINOR COLLECTOR	1	2	0.8	0.91
RURAL MAJOR COLLECTOR	9	25	2.37	6.36
RURAL LOCAL ROAD OR STREET	4	5	0.95	1.03
URBAN PRINCIPAL ARTERIAL - INTERSTATE	18	58	0.49	1.54
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	11	19	0.67	1.16

URBAN PRINCIPAL ARTERIAL - OTHER	51	237	1.72	8.05
URBAN MINOR ARTERIAL	64	392	1.43	8.81
URBAN MINOR COLLECTOR	19	91	0.97	4.56
URBAN LOCAL ROAD OR STREET	18	118	0.43	2.27

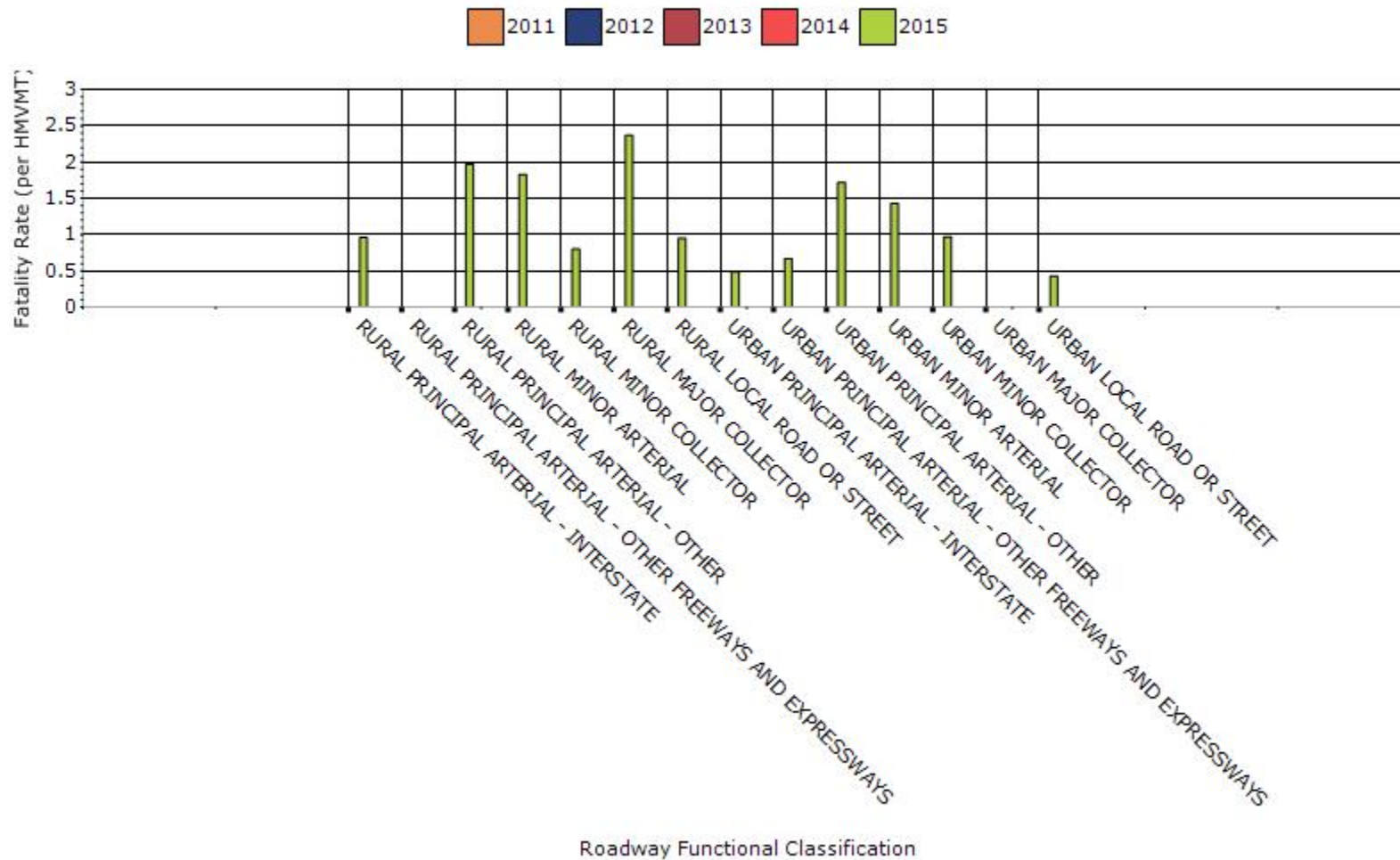
Fatalities by Roadway Functional Classification 5-yr Average Measure Data



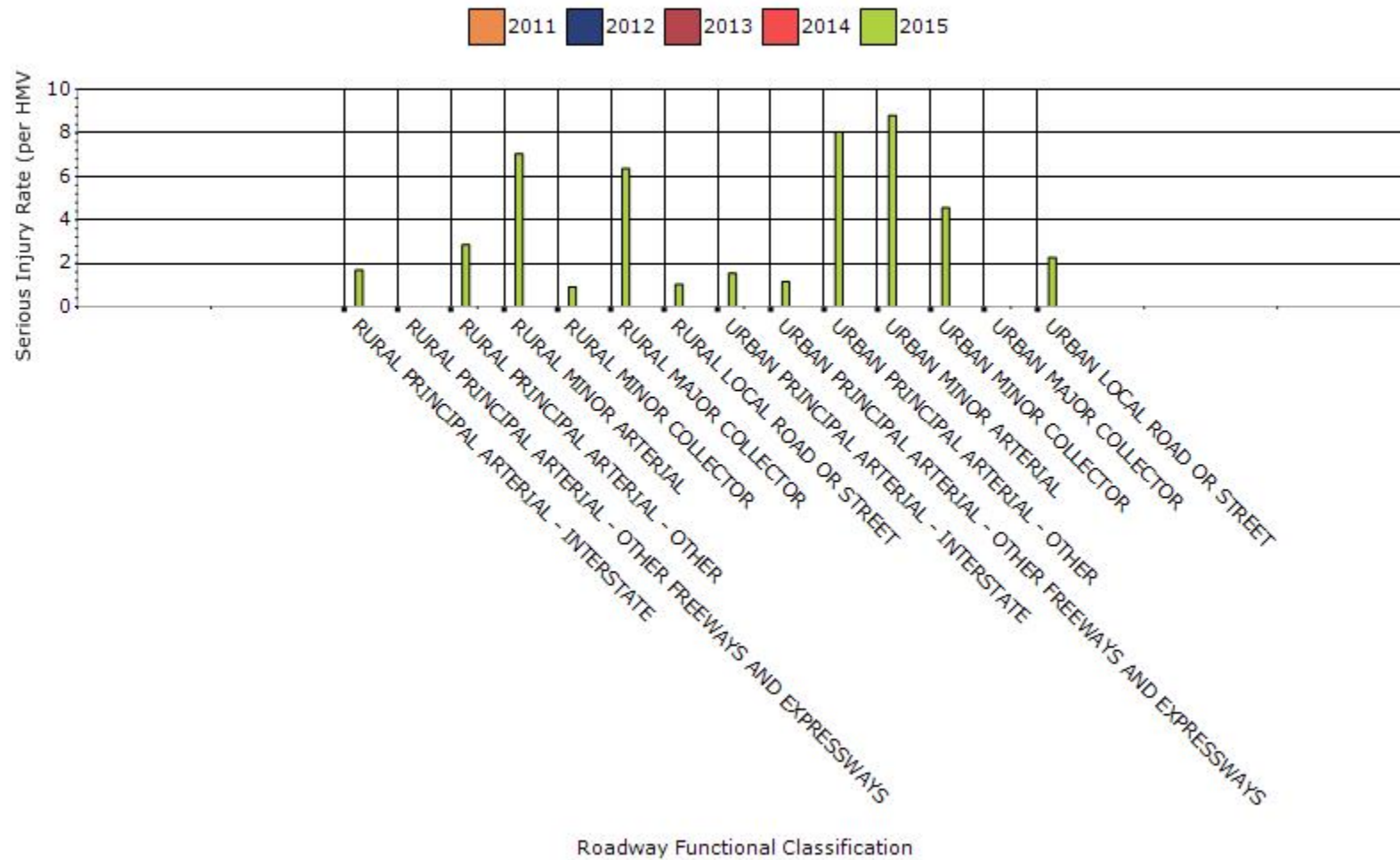
Serious Injuries by Roadway Functional Classification 5-yr Average Measure Data



Fatality Rate by Roadway Functional Classification 5-yr Average Measure Data



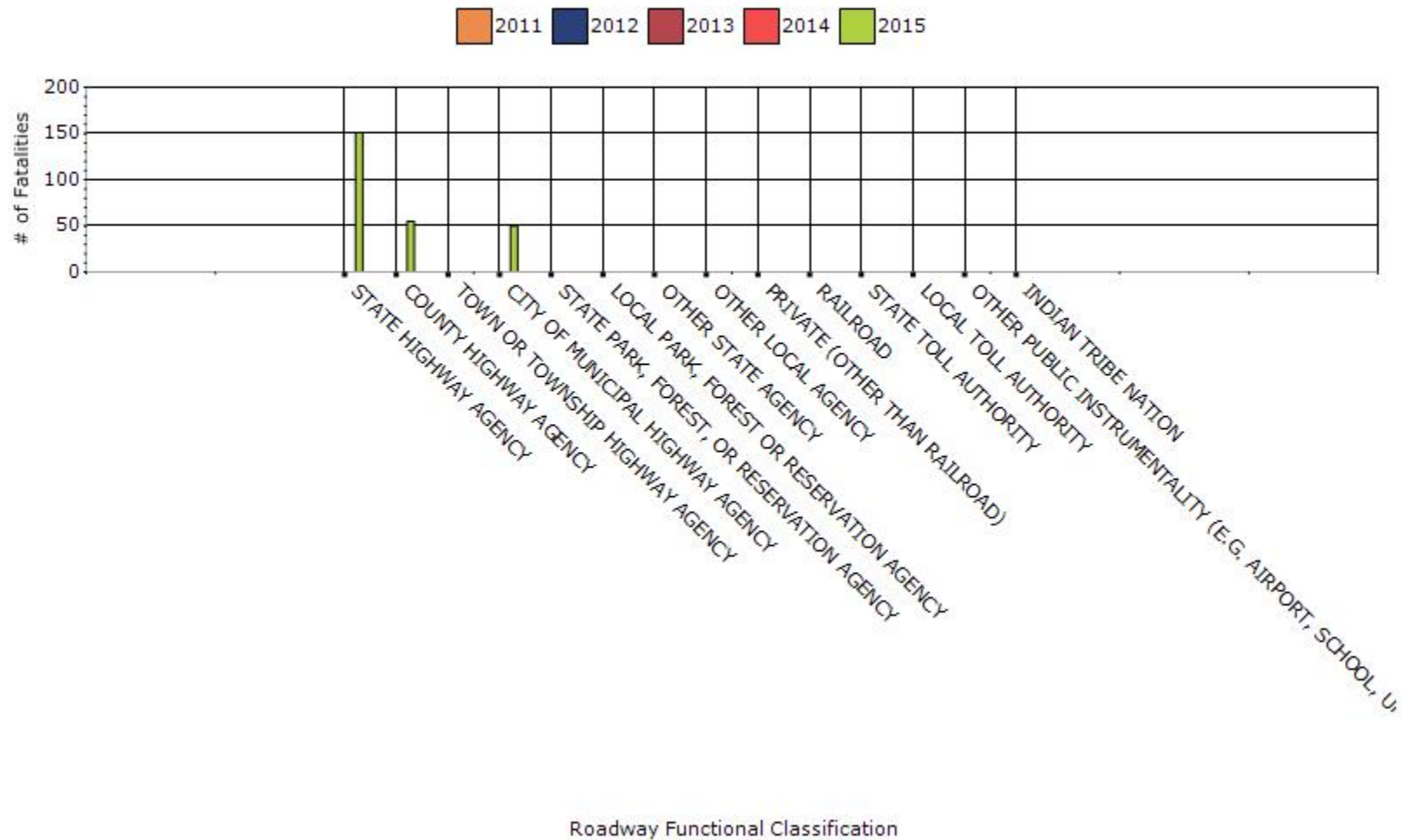
Serious Injury Rate by Roadway Functional Classification 5-yr Average Measure Data



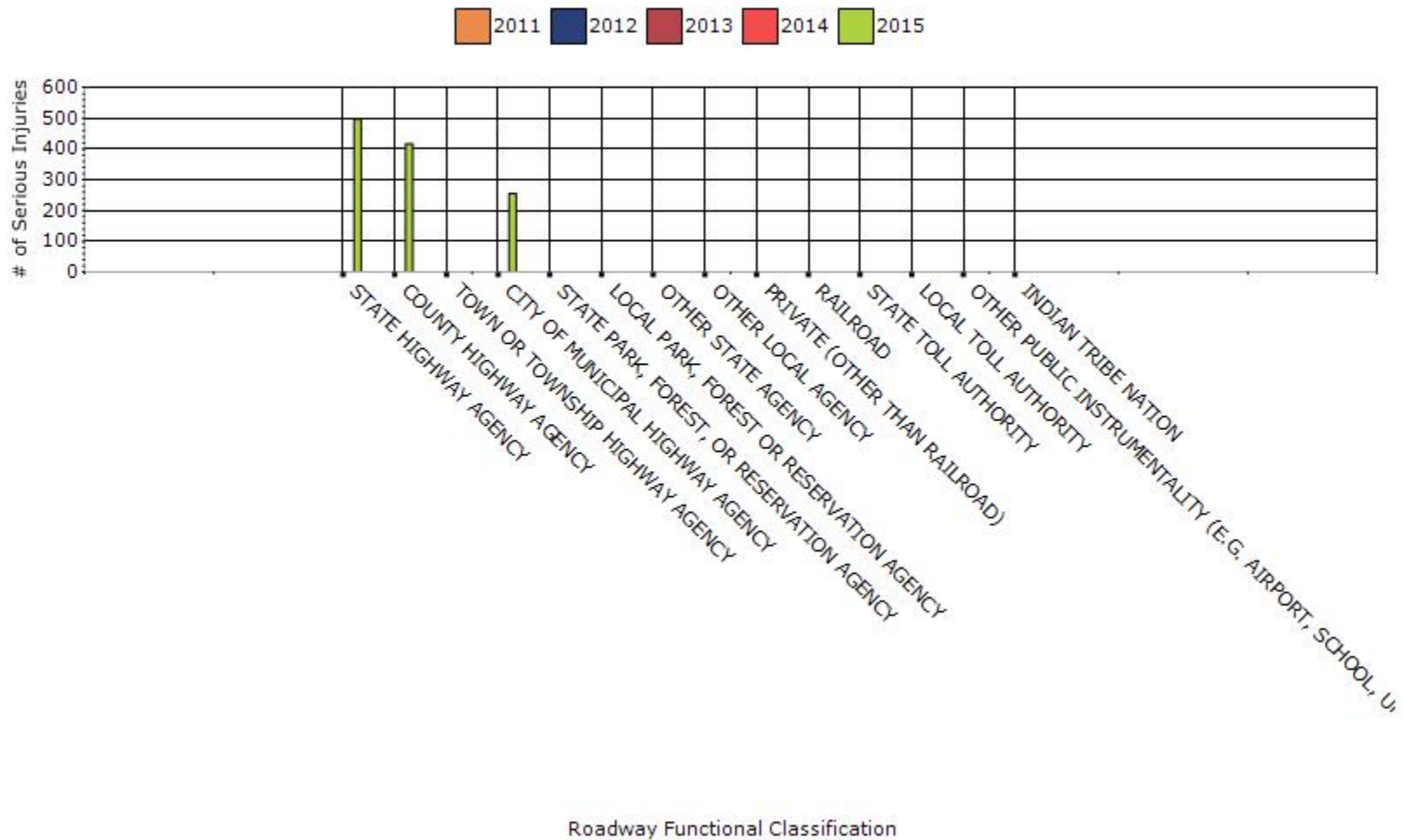
Year - 2015

Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	151	497		
COUNTY HIGHWAY AGENCY	55	417		
CITY OF MUNICIPAL HIGHWAY AGENCY	50	256		

Number of Fatalities by Roadway Ownership 5-yr Average Measure Data



Number of Serious Injuries by Roadway Ownership 5-yr Average Measure Data



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

We were not able to calculate the Fatality and Serious Injury Rates (per HMVMT) on the Roadway Ownership section because we could not obtain volumes for the roadway categories as requested.

Application of Special Rules

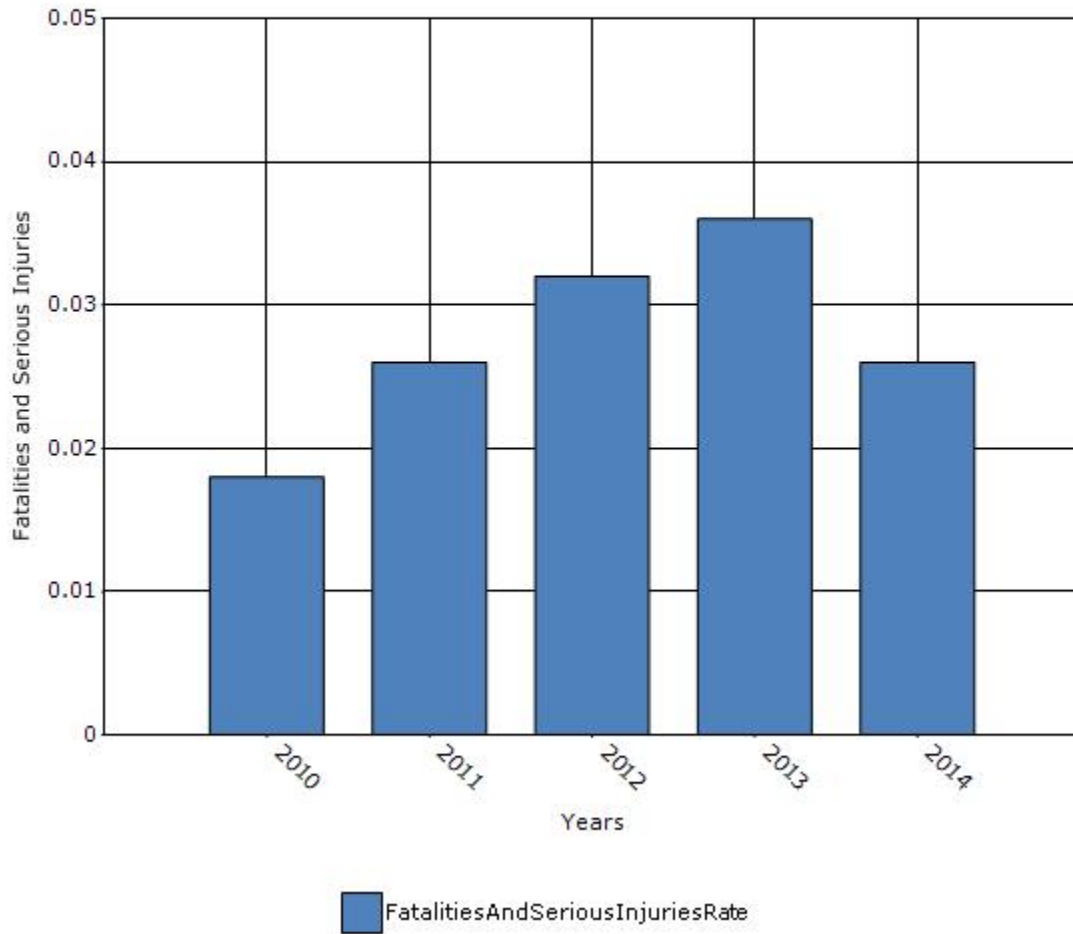
Present the rate of traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65.

Older Driver	2010	2011	2012	2013	2014
Performance Measures					
Fatality rate (per capita)	0.004	0.006	0.008	0.01	0.008
Serious injury rate (per capita)	0.014	0.02	0.024	0.028	0.02
Fatality and serious injury rate (per capita)	0.018	0.026	0.032	0.036	0.026

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

Fatalities and serious injuries were divided by the number of people 65 years of age and older. Nevada Projections from 2013 to 2032 were released October 2013. Individual years were entered into the table.

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



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?

Other-Decrease in Fatal and Serious injury crashes over the last several years

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

None

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

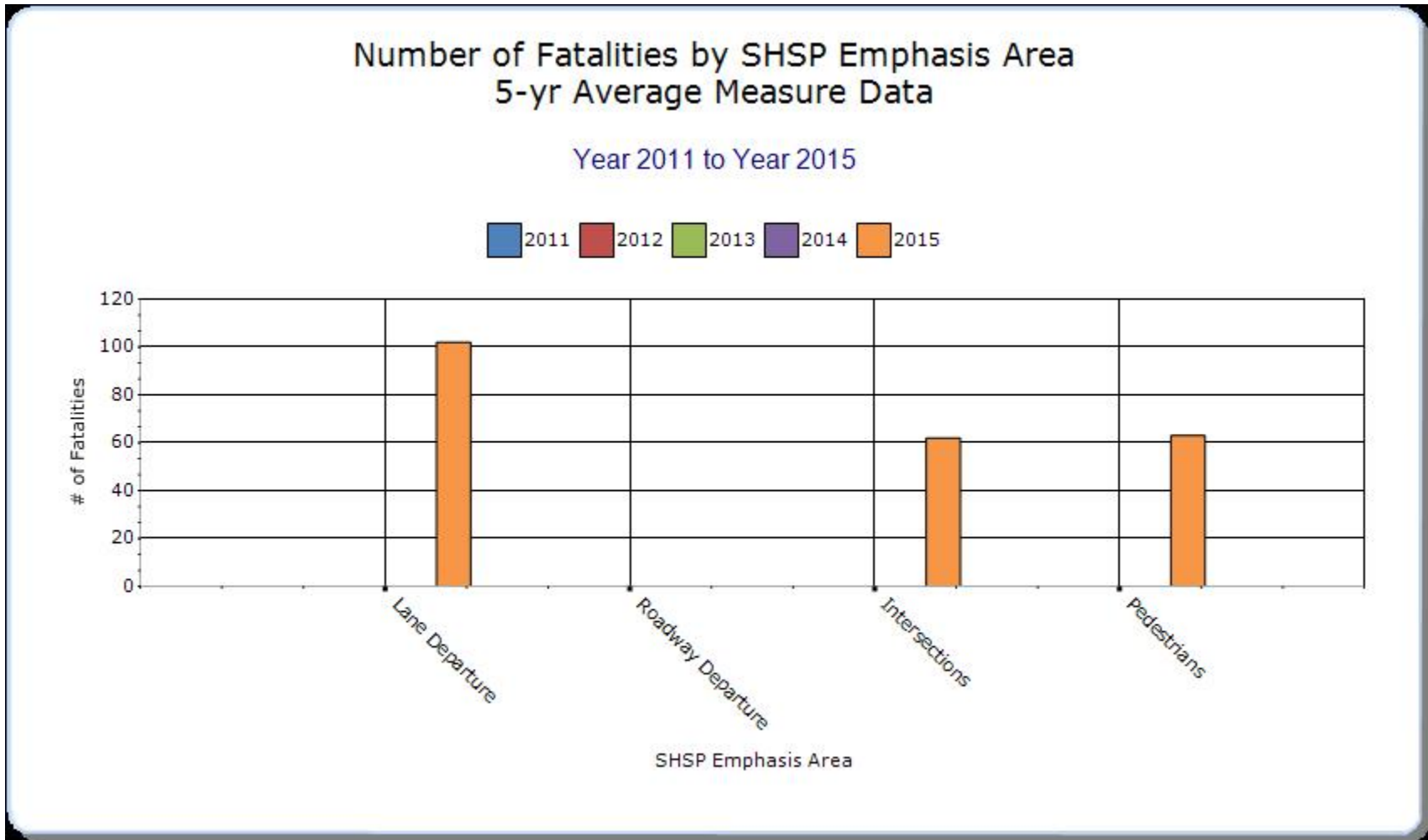
None

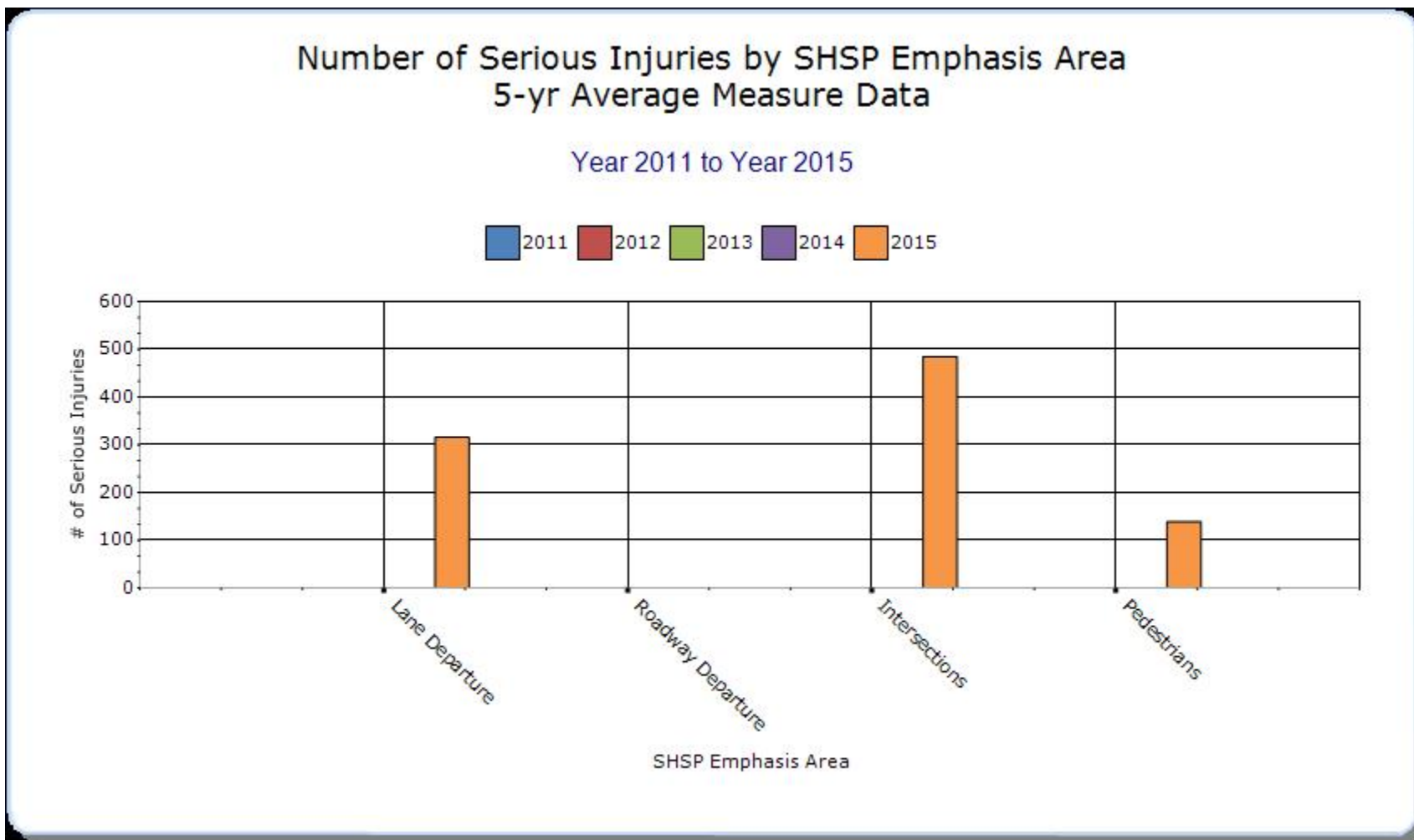
SHSP Emphasis Areas

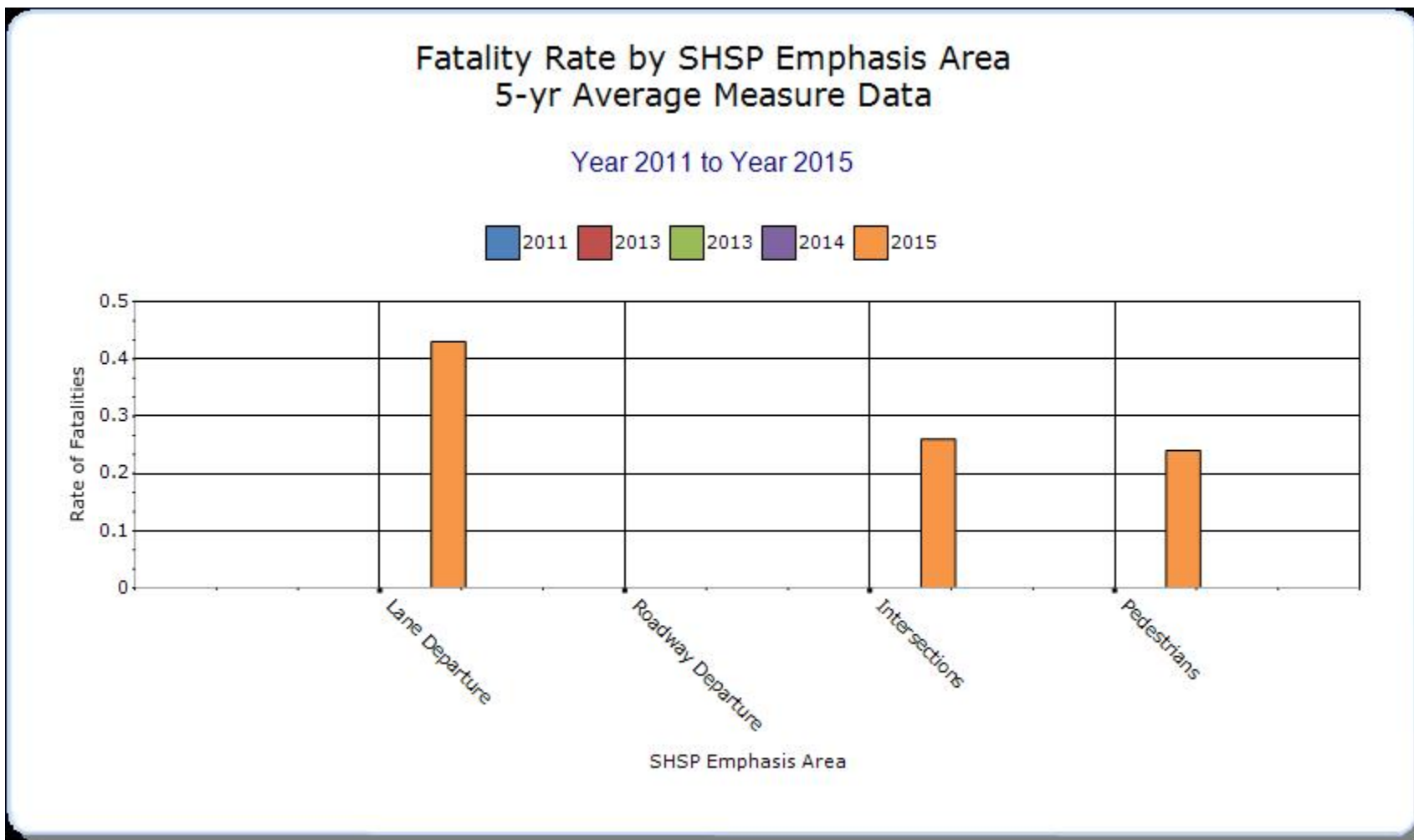
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

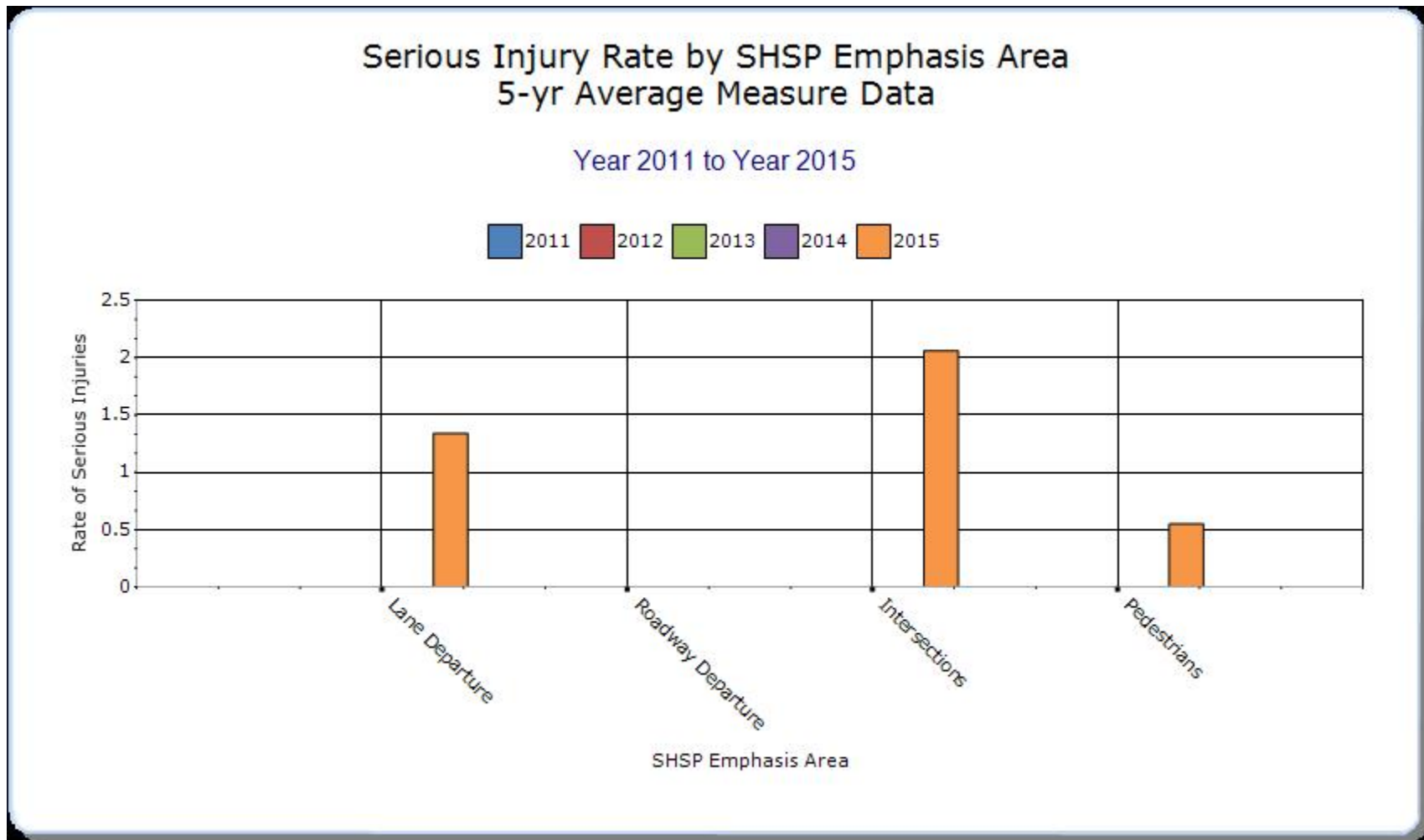
Year - 2015

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
Lane Departure	All	102	316	0.43	1.34			
Intersections	All	62	485	0.26	2.06			
Pedestrians	All	63	139	0.24	0.55			







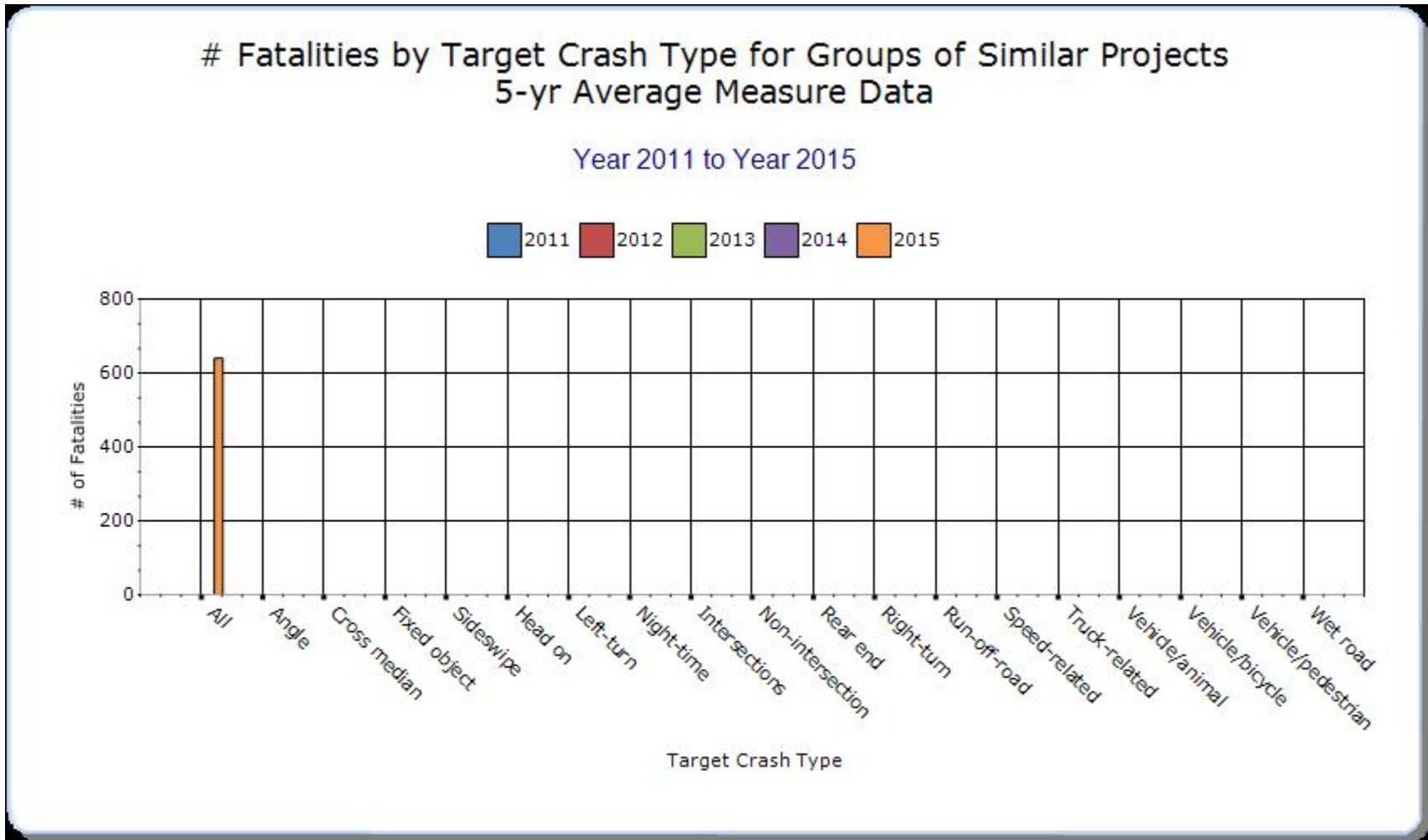


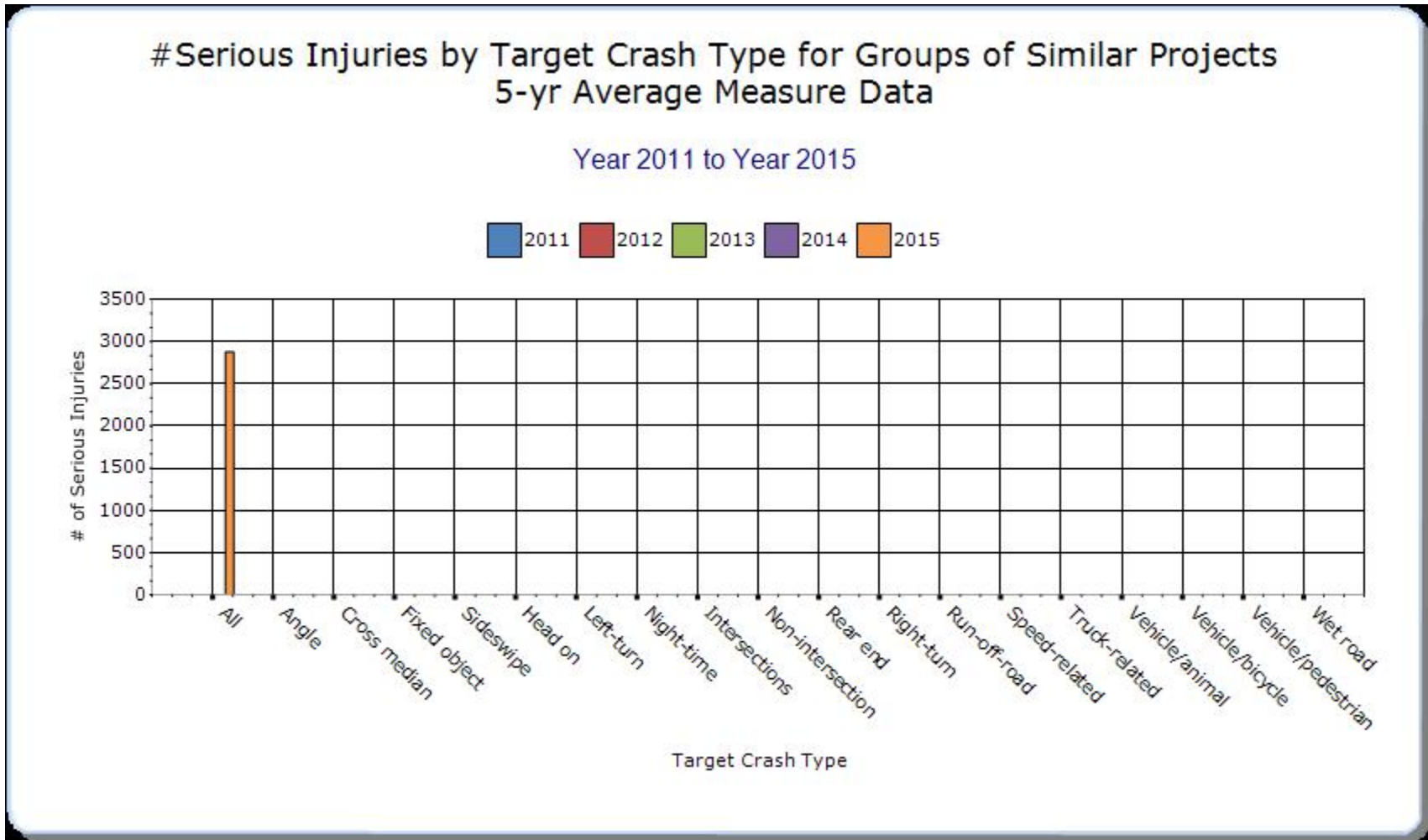
Groups of similar project types

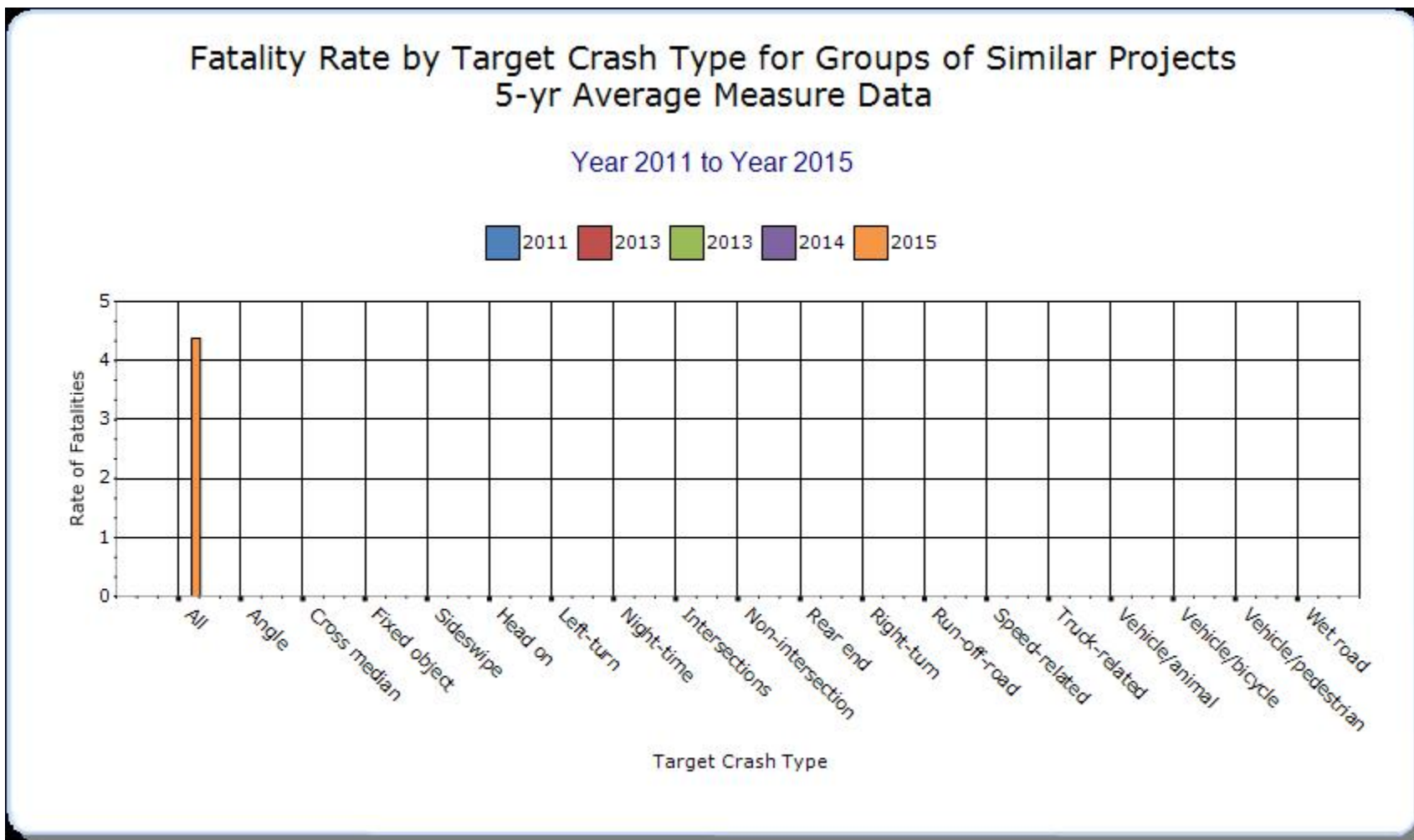
Present the overall effectiveness of groups of similar types of projects.

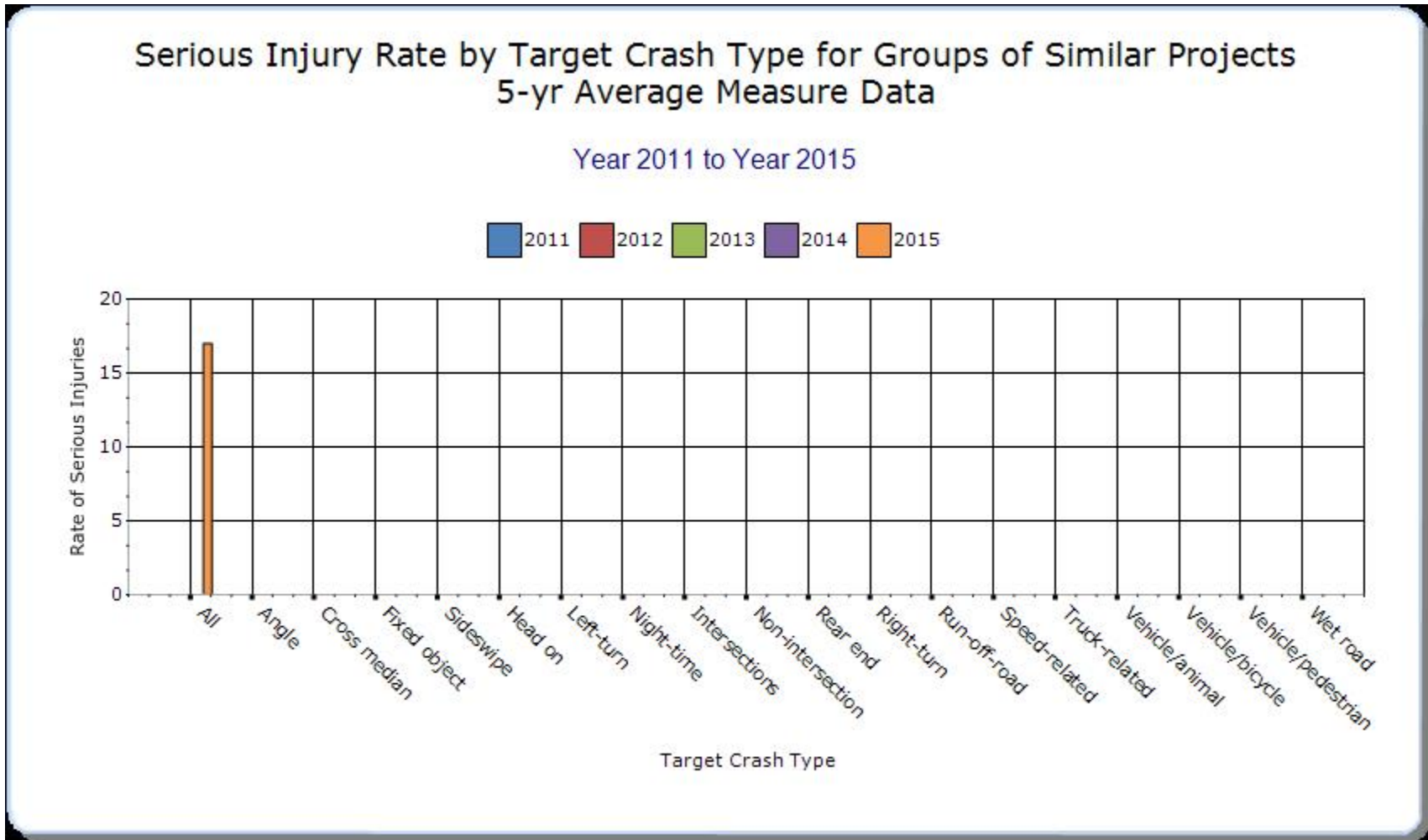
Year - 2015

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
Crash Data	All	254	1079	1.06	4.51			
Intersection	All	126	774	0.51	3.2			
Segments	All	152	758	1.64	8.19			
Pedestrian Safety	All	71	181	0.28	0.71			
Rural State Highways	All	37	82	0.89	0.4			









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
SKIP	We currently do not have a way to calculate fatalities and serious injury crashes by these mitigation types.							

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

Due to the increase in pedestrian fatalities in our state, the Transportation Board directed NDOT's Director to allocated additional funds for pedestrian safety improvements. As a result, \$10 million of state gas tax funds have been allocated for pedestrian safety improvement projects within the state.

Project Evaluation

Provide project evaluation data for completed projects (optional).

Location	Functional Class	Improvement Category	Improvement Type	Bef-Fatal	Bef-Serious Injury	Bef-All Injuries	Bef-PDO	Bef-Total	Aft-Fatal	Aft-Serious Injury	Aft-All Injuries	Aft-PDO	Aft-Total	Evaluation Results (Benefit/ Cost Ratio)
na	na													

Optional Attachments

Sections

Files Attached

Glossary

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

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

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

HMVMT means hundred million vehicle miles traveled.

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

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

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

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

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

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

Systematic refers to an approach where an agency deploys countermeasures at all locations across a system.

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

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