Highway Safety Improvement Program

Data Driven Decisions

North Carolina
Highway Safety Improvement Program
2016 Annual Report

Prepared by: NC

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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2. Executive Summary

North Carolina recognizes traffic crashes as a significant public safety and health problem that continues to challenge the state. In 2015, there were over 270,000 reported traffic crashes that resulted in 1,386 lives lost and over 120,000 injuries on our roadways. The socioeconomic impact of these crashes is severe, resulting in a loss of over $24.2 billion to the economy of North Carolina annually. This impact translates to a crash cost to the state of over $2.7 million every hour and approximately $66 million every day and a staggering social impact as well. North Carolina has established a vision to have a multi-disciplinary, multi-agency highway safety approach to research, planning, investigation, design, construction, maintenance, operation and evaluation of transportation systems, which results in reduced fatalities, injuries and economic losses, related to crashes. In addition, there is a coordinated strategic effort to address emerging safety issues. The Executive Committee for Highway Safety recently met to reexamine their goals. The goal of the updated 2014 North Carolina Strategic Highway Safety Plan is a 50% reduction in fatalities and serious injuries by 2030 which represents an annual 3% reduction.

This “HSIP Report” summarizes North Carolina DOT’s implementation and effectiveness of its Highway Safety Improvement Program. These reports satisfy the requirements under Title 23 of the Code of Federal Regulations, Part 924 (23 CFR 924). The NCDOT Rail Division is developing the “Railway-Highway Crossing Report” as a separate report submission. North Carolina DOT has opted to use the 2015 Calendar Year as the reporting period for the “HSIP Report”; however, some of our 2016 plans, goals, measures, and methods are included in this report.

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

3. How are Highway Safety Improvement Program funds administered in the State?

Central

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

In North Carolina, the local county governments are not responsible for the maintenance of rural highways. The NCDOT highway network covers nearly 80,000 roadway centerline miles which includes rural roadways classified as local; municipal governments maintain some downtown streets, residential streets and subdivision roads.

Several Pilot Communities including several Planning Organization staff have been formally trained in identifying low cost countermeasures with the ultimate goal of reducing fatalities and serious injuries in their cities. Technical training included understanding crash data, identifying potential treatment locations, preparing collision diagrams, selecting countermeasures, and evaluating those countermeasures. Quarterly conference calls are being held to allow city representatives to brainstorm ideas and offer feedback on the program. A process was established to federally fund some of these projects through the Local Programs Management Office (LPMO). By training these municipalities to analyze, identify treatments, and set up and evaluate projects, the municipalities should see reductions in the severity and number of crashes on their roadways.

NCDOT receives crash data from the Department of Motor Vehicles and has the capability to identify potentially hazardous locations on all publicly traveled North Carolina roadways.

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

Design
Planning
Operations
Governors Highway Safety Office
Other-Transportation Mobility and Safety Divison

6. Briefly describe coordination with internal partners.

The design, planning, and operations units within NCDOT play a significant role within the Strategic Highway Safety Plan. These units utilize safety data during their planning phase in many ways. NCDOT's Policy to Projects process uses data regarding pavement condition, traffic congestion and road safety, as well as input from local government and NCDOT staff to determine transportation priorities. MPO's and RPO's utilize traffic crash data to develop and prioritize transportation plans. Many resurfacing projects are utilizing safety edge treatments to reduce the potential for overcorrection-type crashes. The Governor's Highways Safety Program oversees a variety of important safety campaigns, including "Booze It and Lose It" and "Click It or Ticket It."

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

Metropolitan Planning Organizations
Governors Highway Safety Office
Local Government Association
Other-NC State Highway Patrol
Other-Rail Division and Bike/Ped Division
Other-Rural Planning Organizations

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

Multi-disciplinary HSIP steering committee

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

An update of the Strategic Highway Safety Plan (SHSP) for the State of North Carolina was launched in 2015. This SHSP (also referenced herein as the Plan) is an important component of North Carolina's Highway Safety Improvement Program (HSIP). The need for a SHSP was established by the federal transportation funding legislation, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and strengthened by the passage of the Moving Ahead for Progress in the 21st Century Act (MAP-21) in July 2012. MAP-21 specifies that the SHSP must be developed based on safety data on all public roads, be developed in consultation with stakeholders, employ a multidisciplinary approach, describe a program of safety strategies, and consider other highway safety plans and processes.

This updated SHSP was developed through the collaborative efforts of diverse safety stakeholders representing the users of the North Carolina highway system and encompassing the 4 E's of highway safety—education, enforcement, engineering, and emergency services. These safety stakeholders include State, regional, local, and tribal agencies, as well as other public and private partners. This Plan presents a statewide, comprehensive, and collaborative approach for reducing fatalities and serious injuries on North Carolina's roadways. Serious injuries are those obviously serious enough to prevent the injured person from performing his or her normal activities for at least one day beyond the day of the crash. These are also called Type A injuries.

The North Carolina SHSP was first developed in 2004 by the North Carolina Executive Committee for Highway Safety (ECHS) in support of the American Association of State Highway and Transportation Officials (AASHTO) Strategic Highway Safety Plan. The ECHS adopted AASHTO's goal to reduce the statewide fatality rate to 1.0 fatalities per 100 million vehicle miles traveled (MVMT). The revised plan of 2006 identified 14 emphasis areas. Significant progress was made toward the Plan's overall goal, resulting in a dramatic decrease in the number of fatalities per 100 million vehicle miles traveled (MVMT) over the eight-year period from 2006 to 2013. The 2015 fatality rate is above 1.2 fatalities per 100 MVMT. Nationally, the fatality rate has also declined during the same period, although not as sharply as in North Carolina. Evaluations of North Carolina's engineering safety programs have demonstrated that the collaborative and focused statewide efforts of the SHSP in recent years have contributed to the reductions in fatalities and serious injuries. Many other factors may also have contributed to this decline, such as vehicle enhancements and economic influences.

Although the safety stakeholders implementing the Plan have made significant progress in achieving the statewide goal since 2006, there is still work to be done. In 2015, 1,386 people died on North Carolina's roadways, and another 2,423 people were seriously injured. Additionally, the downward trend in fatalities and serious injuries has flattened over the last few years. The update of the original State SHSP—presents refined goals and objectives, new safety emphasis areas, and additional strategies and actions to build on past success and to continue to reduce fatalities and serious injuries on North Carolina's roadways. This document can be found on the web at http://ncshsp.org/.

The goals of the Plan will be achieved through the implementation of strategies and actions in nine safety emphasis areas. These emphasis areas represent the greatest opportunity for the safety stakeholders to focus their efforts to achieve the goals of this Plan. The safety stakeholders selected these emphasis areas cooperatively through a data-driven approach, noting that many individual crashes can be attributed to more than one emphasis area. For example, a crash may involve speeding, intersection safety, and occupant protection. Therefore, the following nine emphasis areas provide an opportunity to address crashes from multiple perspectives.

-Demographic Considerations
-Driving While Impaired
-Emerging Issues and Data
-Intersection Safety
-Keeping Drivers Alert
-Lane Departure
-Occupant Protection/Motorcycles
-Pedestrians and Bicyclists
-Speed

To achieve the Plan's goals to reduce fatalities and serious injuries by half and to move North Carolina closer to Vision Zero, significant reductions are needed in each emphasis area.

In general, the goal for each emphasis area is to reduce fatalities and injuries by half. Some emphasis areas present a greater opportunity to reduce fatalities and serious injuries than others. Factors such as trends in exposure rates and the availability of effective strategies are different for each emphasis area and affect the opportunity to reduce fatalities and serious injuries. For example, several lane departure strategies are known to be effective at reducing crashes on North Carolina's roads; their increased implementation presents an opportunity to greatly reduce fatalities and serious injuries. Conversely, because motorcycle ridership is increasing in North Carolina, crash reductions from effective strategies must outpace the growth in crashes that is attributed to the increased ridership (e.g., exposure).

Overall, the strategies in the emphasis areas work collectively toward the Plan goal, with some emphasis areas expected to contribute more reductions in fatalities and serious injuries than others.

In 2016, Governor Pat McCrory announced that $50 million would be dedicated to improving highway safety and reducing the number of traffic accidents throughout North Carolina. Improvements supported by the funds included high friction surface treatments, turn lanes, guardrails and traffic signals. The $50 million are state funds advanced to the projects that NCDOT will request reimbursement payments through the federal HSIP.

In the fall of 2015, FHWA conducted a national HSIP scan tour. The tour team visited North Carolina, because the state was identified as a high-performing state. The scan tour report noted several noteworthy practices in North Carolina including:

-Documentation of HSIP Processes

-Coordination with Internal and External Partners

-Understanding the Relationship between the SHSP and HSIP

-Making Data-Driven Safety Decisions

-Addressing Local Road Needs

-Considering All "4E's"

-Identifying Opportunites to Streamline Project Delivery

-Evaluating the Success of the Program

Program Methodology

10. Select the programs that are administered under HSIP.

Median Barrier	Intersection	Horizontal Curve
Bicycle Safety	Roadway Departure	Pedestrian Safety

11. Program: Median Barrier

Date of Program Methodology: 8/31/2016

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
		Median width
		Other-Freeway

What project identification methodology was used for this program?
Other-Median Width

Are local roads (non-state owned and operated) included or addressed in this program?
No

How are highway safety improvement projects advanced for implementation?
Other-By NCDOT roadway design standards, divided freeways with a median width below specified standards are required to have median barrier.

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).

11. Program: Intersection

Date of Program Methodology: 8/31/2016

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes		

What project identification methodology was used for this program?
Crash frequency
Relative severity index
Other-Frontal Impact Crashes
Other-Percent Frontal Impact Crashes
Other-Frequency of Crashes during Dark Conditions

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?
Competitive application process
selection committee

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
Regional Priority	2
Division Priority	2
Severity Index	4
Potential Hazardous Listing or RSA Location	5

11. Program: Horizontal Curve

Date of Program Methodology: 8/31/2016

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes	Volume	

What project identification methodology was used for this program?

Excess proportions of specific crash types
Other-Road Departure Crashes in a Curve
Other-Proportion of night crashes
Other-Proportion of wet road condition crashes

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

No

How are highway safety improvement projects advanced for implementation?

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

Rank of Priority Consideration

Ranking based on B/C	1
Regional Priority	2
Division Priority	2
Severity Index	4
Program Listing or RSA Location	5

11. Program: Bicycle Safety

Date of Program Methodology: 8/31/2016

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes		
Other-Bicycle Crashes		

What project identification methodology was used for this program?

Other-Bicycle Crashes

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?

Competitive application process

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
Regional Priority	2
Division Priority	2
Severity Index	4
Potentially Hazardous Listing	5

11. Program: Roadway Departure

Date of Program Methodology: 8/31/2016

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes		
Other-Roadway Departure Crashes		

What project identification methodology was used for this program?

Crash frequency
Other-Percent Roadway Departure Crashes
Other-Percent Night Crashes
Other-Percent Wet Condition Crashes

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?

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
Regional Priority	2
Division Priority	2
Severity Index	4
Potentially Hazardous Listing or RSA Location	5

11. Program: Pedestrian Safety

Date of Program Methodology: 8/31/2016

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes		
Other-Pedestrian Crashes		

What project identification methodology was used for this program?
Other-Pedestrian Crashes

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?
Competitive application process

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
Regional Priority	2

Division Priority	2
Severity Index	4
Potentially Hazardous Listing or RSA	5

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

7%

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

Install/Improve Pavement Marking and/or Delineation
Upgrade Guard Rails

13. What process is used to identify potential countermeasures?

Engineering Study
Road Safety Assessment

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

Highway Safety Manual
Systemic Approach
Other-Improvements in Crash Modification Factors
Other-Value of a Statistical Life for Crash Costs

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

NCDOT is continuing to develop safety performance functions and will utilize the Interactive Highway Safety Design Model (IHSDM) application on future STIP projects. NCDOT is actively working on new systemic programs to implement wide edge lines, enhanced curve warning signs and safety edge treatments.

Highway Safety Improvement Program (HSIP) provides a continuous and systematic transportation network screening process that identifies, analyzes, investigates, diagnoses and treats specific traffic safety concerns throughout the state. The goal of the federally required HSIP is to reduce the number of traffic crashes, injuries, and fatalities by reducing the potential and the severity of public roadway collisions. The collaboration between HSIP Project Group Analysts and the Regional Traffic Engineers that research, investigate, recommend treatments, and develop realistic cost effective safety projects has yielded highly effective safety performance even during a time of continued growth in North Carolina.

The emphasis of the state-funded Spot Safety and federally-funded Highway Safety Improvement Programs is to identify and treat high crash and/or high severity locations with relatively low cost solutions in order to address safety concerns along NC roadways. These programs are a vital tool in improving safety at intersections and segments of roadway where safety needs have been identified by citizens, government officials, internal staff, or through one of NCDOT's safety initiatives. With these programs, Regional Traffic Engineers collaborate with designers and project managers on project scope and prioritization in order to develop realistic, time-sensitive, and cost effective projects that address safety issues.
The projects developed and constructed under these safety programs are inspected upon completion to ensure the identified safety issues have been mitigated and the project was constructed according to the plans. Management of this program by the State Traffic Engineer and his staff provide statewide consistency in treating areas in a systematic, evidence driven and needs based approach. These vital safety funding program efforts have shown an average return on investment of 14:1.

The Alternative Analysis Initiative quantifies the safety performance of different transportation project alternatives selected for study during the National Environmental Policy Act (NEPA) process. Using Highway Safety Manual (HSM) predictive methodologies, we compare the expected safety performance of different alternatives based on the specific design elements associated with each alternative (curve radius, lane widths, shoulder widths, number of driveways, grades, intersection features, etc.). The predicted crash numbers give some scale of the number of crashes to expect, but the percentages give a really good comparison regarding the effects of the specific design elements on each alternative that are expected to have on safety.

Progress in Implementing Projects

Funds Programmed

16. Reporting period for Highway Safety Improvement Program funding.

State Fiscal Year

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

Funding Category	Programmed*		Obligated	
	Amount	Percentage	Amount	Percentage
HSIP (Section 148)	$89,655,148.00	87 %	$77,828,885.00	82 %
HRRRP (SAFETEA-LU)	$0.00	0 %	$3,208,381.00	3 %
Penalty Transfer – Section 164	$0.00	0 %	$321,064.00	0 %
State and Local Funds	$13,812,200.00	13 %	$13,812,200.00	15 %
Totals	$103,467,348.00	100%	$95,170,530.00	100%

18. How much funding is programmed to local (non-state owned and operated) safety projects?
$43,000.00
How much funding is obligated to local safety projects?
$0.00

19. How much funding is programmed to non-infrastructure safety projects?
$0.00
How much funding is obligated to non-infrastructure safety projects?
$0.00

20. 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

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

NCDOT is responsible for the safety of nearly 80,000 miles of rural and urban highways. Cities, towns, other state agencies and federal agencies are responsible for over 26,000 miles of streets; most of this mileage is downtown and residential streets. While NCDOT administers HSIP funds, most municipalities are hesitant to participate due to the federal guidelines, restrictions and limitations on funding. Local governments are unwilling to administer the competitive bidding process. The complex federal safety program process and lack of flexibility discourages many opportunities to utilize the HSIP for low-cost safety projects. In some cases administrative costs may be higher than the project costs.

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

In an attempt to assess the safety of our roads, the Safety Evaluation Group of the Traffic Safety Systems Management Section has evaluated hundreds of countermeasure projects and safety treatments. The methodologies used in these evaluations offer various philosophies and ideas, in an effort to provide objective countermeasure crash reduction results. This information is provided so the benefit or lack of benefit for this type of project can be recognized and utilized for future projects. As the Safety Evaluation Group completes additional reviews for these types of countermeasures, we will be able to provide objective and definite information regarding actual crash reduction factors. These evaluations can be found on our website at: https://connect.ncdot.gov/resources/safety/Pages/Safety-Evaluation.aspx.

General Listing of Projects

23. List the projects obligated using HSIP funds for 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
B-4491	Roadway Roadway - other	1 Numbers	2880000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
SF-4908J	Intersection geometry Intersection geometry - other	1 Numbers	2410	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
SF-4911D	Intersection geometry Auxiliary lanes - add left-turn lane	2 Numbers	88000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
SS-PE1	Miscellaneous	150 Numbers	1292631	0	HSIP (Section 148)		0	0	State Highway Agency	Investigations	
SS-PE2	Miscellaneous	2 Numbers	32381	0	HRRRP (SAFETEA-LU)		0	0	State Highway Agency	Investigations	
SS-PE3	Miscellaneous	9 Numbers	20207	0	Penalty Transfer – Section 164		0	0	State Highway Agency	Investigations	
U-4905	Shoulder treatments Widen shoulder - paved or other	1 Numbers	85861	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	

U-5112	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	325000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
U-5538C	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	90000	0	HSIP (Section 148)	Urban Minor Arterial	10000	45	State Highway Agency	Intersections	
W-4712	Intersection geometry Auxiliary lanes - add left-turn lane	2 Numbers	17375	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5011	Intersection traffic control Modify control - two-way stop to all-way stop	1 Numbers	16007	0	Penalty Transfer – Section 164	Rural Major Collector	2500	55	State Highway Agency	Intersections	
W-5103	Access management Median crossover - directional crossover	3 Numbers	4896900	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5132	Intersection geometry Auxiliary lanes - add right-turn lane	1 Numbers	25	0	HSIP (Section 148)	Urban Principal Arterial - Other	25000	40	State Highway Agency	Intersections	
W-5137	Roadway Superelevation / cross slope	1 Numbers	12540	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5145	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	261000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5201B	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	26691	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5203AA	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	1084500	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	

W-5203J	Intersection traffic control Intersection traffic control - other	1 Numbers	810000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5203X	Access management Median crossover - directional crossover	2 Numbers	95400	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5203Y	Roadway Rumble strips - edge or shoulder	1 Numbers	117900	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5204B	Roadway Superelevation / cross slope	1 Numbers	585000	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5204C	Roadway Pavement surface - high friction surface	1 Numbers	139881	0	HSIP (Section 148)	Rural Major Collector	6000	55	State Highway Agency	Lane Departure	
W-5204D	Roadway Superelevation / cross slope	1 Numbers	58500	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5204F	Intersection geometry Auxiliary lanes - add two-way left-turn lane	1 Numbers	301500	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5205E	Roadside Barrier- metal	1 Numbers	850500	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5205K	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	3176000	0	HRRRP (SAFETEA-LU)		0	0	State Highway Agency	Intersections	
W-5205Q	Roadway Pavement surface - high friction surface	0.1 Miles	472500	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5205U	Roadway Roadway widening - curve	0.19 Miles	274500	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	

W-5206AB	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	105311	0	HSIP (Section 148)	Urban Minor Arterial	8000	45	State Highway Agency	Intersections	
W-5206AD	Roadway Superelevation / cross slope	1 Numbers	504900	0	HSIP (Section 148)	Urban Minor Arterial	11000	45	State Highway Agency	Lane Departure	
W-5206AE	Intersection geometry Auxiliary lanes - add two-way left-turn lane	1 Numbers	573300	0	HSIP (Section 148)	Urban Minor Arterial	10000	45	State Highway Agency	Intersections	
W-5206AF	Intersection geometry Auxiliary lanes - add auxiliary through lane	1 Numbers	436500	0	HSIP (Section 148)	Urban Minor Arterial	19000	45	State Highway Agency	Intersections	
W-5206AG	Pedestrians and bicyclists Pedestrian bridge	1 Numbers	578773	0	HSIP (Section 148)		0	0	State Highway Agency	Pedestrians	
W-5206AH	Access management Raised island - install new	1 Numbers	1620000	0	HSIP (Section 148)	Urban Minor Arterial	37000	45	State Highway Agency	Intersections	
W-5206AL	Roadside Barrier- metal	1 Numbers	600300	0	HSIP (Section 148)	Rural Minor Collector	1800	55	State Highway Agency	Lane Departure	
W-5206AM	Access management Median crossover - directional crossover	2 Numbers	3647090	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5206AN	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	505800	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5206L	Alignment Horizontal curve realignment	1 Numbers	6195	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5208K	Roadside Barrier - cable	4.2 Miles	21628	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	

W-5208M	Interchange design Convert at-grade intersection to interchange	1 Numbers	230400	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5210H	Access management Raised island - install new	5 Numbers	128	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5210J	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	207519	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5210L	Access management Median crossover - directional crossover	2 Numbers	1447200	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5210N	Intersection traffic control Intersection traffic control - other	1 Numbers	427500	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5210O	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	550000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5211B	Intersection geometry Intersection geometry - other	1 Numbers	31500	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5212F	Access management Median crossover - directional crossover	1 Numbers	6384	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5212M	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	162000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5214F	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	9066	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5214N	Roadside Barrier - cable	2.5 Miles	1604	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	

W-5214P	Roadside Barrier - cable	6.02 Miles	2367	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5316	Intersection geometry Auxiliary lanes - add left-turn lane	0.16 Miles	100000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5319	Miscellaneous	4 Numbers	940500	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5325	Alignment Horizontal curve realignment	1.1 Miles	28503	0	HSIP (Section 148)	Rural Major Collector	3100	55	State Highway Agency	Lane Departure	
W-5327	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	162730	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5500	Alignment Horizontal curve realignment	1 Numbers	1284768	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5503	Roadway delineation Longitudinal pavement markings - remarking	3 Numbers	675000	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5510	Access management Raised island - install new	0.31 Miles	315000	0	HSIP (Section 148)	Urban Minor Arterial	32000	35	State Highway Agency	Intersections	
W-5512	Alignment Horizontal curve realignment	1 Numbers	1217034	0	HSIP (Section 148)	Urban Major Collector	2400	55	State Highway Agency	Lane Departure	
W-5514	Access management Raised island - install new	1 Numbers	1036483	0	HSIP (Section 148)	Urban Principal Arterial - Other	36000	45	State Highway Agency	Pedestrians	
W-5516	Alignment Horizontal and vertical alignment	2.95 Miles	10557461	0	HSIP (Section	Urban Local Road	0	55	State Highway	Lane Departure	

					148)	or Street			Agency		
W-5518	Interchange design Convert at-grade intersection to interchange	1 Numbers	3753504	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5519	Access management Median crossover - directional crossover	1 Numbers	8482903	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5520	Access management Median crossover - directional crossover	1 Numbers	580500	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5601AB	Intersection traffic control Intersection traffic control - other	1 Numbers	190800	0	HSIP (Section 148)	Urban Minor Arterial	6500	55	State Highway Agency	Intersections	
W-5601AC	Intersection traffic control Modify control - two-way stop to roundabout	1 Numbers	58500	0	HSIP (Section 148)	Rural Minor Arterial	5200	55	State Highway Agency	Intersections	
W-5601AD	Intersection geometry Splitter island - install on one or more approaches	2 Numbers	477000	0	HSIP (Section 148)	Urban Major Collector	16000	35	State Highway Agency	Intersections	
W-5601AE	Shoulder treatments Widen shoulder - paved or other	1 Numbers	18000	0	HSIP (Section 148)	Rural Major Collector	2000	55	State Highway Agency	Lane Departure	
W-5601AF	Roadway Superelevation / cross slope	3 Numbers	45000	0	HSIP (Section 148)	Urban Minor Collector	4100	45	State Highway Agency	Lane Departure	
W-5601AG	Pedestrians and bicyclists Medians and pedestrian refuge areas	1 Numbers	112500	0	HSIP (Section 148)	Rural Major Collector	13000	45	State Highway Agency	Pedestrians	
W-5601AJ	Roadway delineation Longitudinal pavement markings - remarking	3.1 Miles	119700	0	HSIP (Section 148)	Urban Principal Arterial - Interstate	39000	65	State Highway Agency	Lane Departure	

W-5601AM	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	270000	0	HSIP (Section 148)	Urban Local Road or Street	5500	50	State Highway Agency	Intersections	
W-5601AN	Miscellaneous	2 Numbers	121950	0	HSIP (Section 148)	Urban Local Road or Street	0	45	State Highway Agency	Intersections	
W-5601AO	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	54000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5601AP	Shoulder treatments Pave existing shoulders	1 Numbers	357965	0	HSIP (Section 148)	Urban Local Road or Street	0	55	State Highway Agency	Lane Departure	
W-5601AQ	Pedestrians and bicyclists Install new crosswalk	1 Numbers	18000	0	HSIP (Section 148)	Urban Principal Arterial - Other	31000	50	State Highway Agency	Pedestrians	
W-5601AS	Roadway Roadway widening - travel lanes	1 Numbers	697950	0	HSIP (Section 148)	Rural Local Road or Street	1600	55	State Highway Agency	Lane Departure	
W-5601AT	Roadway Superelevation / cross slope	1 Numbers	18000	0	HSIP (Section 148)	Rural Minor Arterial	3400	55	State Highway Agency	Lane Departure	
W-5601AU	Intersection traffic control Intersection traffic control - other	5 Numbers	103500	0	HSIP (Section 148)	Urban Minor Arterial	15000	45	State Highway Agency	Intersections	
W-5601AW	Intersection traffic control Intersection flashers - add "when flashing" warning sign-mounted	1 Numbers	39096	0	HSIP (Section 148)	Rural Principal Arterial - Other	7600	55	State Highway Agency	Intersections	
W-5601AX	Intersection traffic control Intersection traffic control - other	1 Numbers	126000	0	HSIP (Section 148)	Urban Minor Arterial	21000	35	State Highway Agency	Intersections	

W-5601AY	Roadside Barrier- metal	2.65 Miles	225000	0	HSIP (Section 148)	Urban Principal Arterial - Other	16000	55	State Highway Agency	Lane Departure	
W-5601B	Access management Median crossover - directional crossover	2 Numbers	1138500	0	HSIP (Section 148)	Rural Principal Arterial - Other	19000	55	State Highway Agency	Intersections	
W-5601BC	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	45000	0	HSIP (Section 148)	Urban Minor Arterial	8800	55	State Highway Agency	Intersections	
W-5601BD	Access management Median crossover - directional crossover	1 Numbers	45000	0	HSIP (Section 148)	Urban Principal Arterial - Other Freeways and Expressways	20000	45	State Highway Agency	Intersections	
W-5601BF	Intersection traffic control Modify traffic signal - add flashing yellow arrow	4 Numbers	180000	0	HSIP (Section 148)	Urban Minor Arterial	14000	35	State Highway Agency	Intersections	
W-5601BG	Intersection geometry Splitter island - install on one or more approaches	1 Numbers	126000	0	HSIP (Section 148)	Urban Principal Arterial - Other	20000	55	State Highway Agency	Intersections	
W-5601BH	Intersection traffic control Modify control - two-way stop to roundabout	1 Numbers	90000	0	HSIP (Section 148)	Urban Major Collector	4900	45	State Highway Agency	Intersections	
W-5601BL	Access management Median crossover - directional crossover	1 Numbers	441000	0	HSIP (Section 148)	Rural Principal Arterial - Other	13000	60	State Highway Agency	Intersections	

W-5601BM	Roadway Superelevation / cross slope	1 Numbers	162560	0	HSIP (Section 148)	Rural Principal Arterial - Other Freeways and Expressways	16000	70	State Highway Agency	Lane Departure	
W-5601BN	Roadway delineation Longitudinal pavement markings - remarking	1 Numbers	1800000	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5601BO	Roadway delineation Longitudinal pavement markings - remarking	1 Numbers	2239200	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5601BP	Roadway Rumble strips - edge or shoulder	18.8 Miles	220500	0	HSIP (Section 148)	Rural Major Collector	1300	55	State Highway Agency	Lane Departure	
W-5601BQ	Roadside Barrier- metal	0.37 Miles	63000	0	HSIP (Section 148)	Rural Local Road or Street	930	45	State Highway Agency	Lane Departure	
W-5601BR	Roadside Barrier- metal	1.62 Miles	243000	0	HSIP (Section 148)	Rural Local Road or Street	770	55	State Highway Agency	Lane Departure	
W-5601BS	Intersection geometry Intersection geometrics - modify skew angle	1 Numbers	40500	0	HSIP (Section 148)	Rural Minor Arterial	4200	55	State Highway Agency	Intersections	
W-5601BT	Roadside Barrier- metal	0.42 Miles	220500	0	HSIP (Section 148)	Urban Principal Arterial - Other	13000	35	State Highway Agency	Lane Departure	
W-5601BU	Shoulder treatments Pave existing shoulders	6.03 Miles	2700	0	HSIP (Section 148)	Rural Local Road or Street	510	55	State Highway Agency	Lane Departure	

W-5601BV	Intersection traffic control Modify control - two-way stop to roundabout	1 Numbers	112500	0	HSIP (Section 148)	Rural Minor Arterial	2900	55	State Highway Agency	Intersections	
W-5601BW	Intersection geometry Auxiliary lanes - add right-turn lane	1 Numbers	5400	0	HSIP (Section 148)	Urban Major Collector	9000	55	State Highway Agency	Intersections	
W-5601BX	Intersection geometry Intersection geometrics - modify skew angle	2 Numbers	123300	0	HSIP (Section 148)	Rural Minor Arterial	4600	45	State Highway Agency	Intersections	
W-5601BY	Roadway Roadway widening - curve	0.13 Miles	33750	0	HSIP (Section 148)	Rural Major Collector	1700	55	State Highway Agency	Lane Departure	
W-5601BZ	Roadway Superelevation / cross slope	1 Numbers	22500	0	HSIP (Section 148)	Rural Local Road or Street	0	55	State Highway Agency	Lane Departure	
W-5601C	Access management Median crossover - directional crossover	1 Numbers	517500	0	HSIP (Section 148)	Rural Principal Arterial - Other	8100	55	State Highway Agency	Intersections	
W-5601CA	Advanced technology and ITS Dynamic message signs	1 Numbers	27000	0	HSIP (Section 148)	Urban Principal Arterial - Other	17000	55	State Highway Agency	Intersections	
W-5601CB	Roadside Barrier- metal	1 Numbers	130500	0	HSIP (Section 148)	Rural Major Collector	2900	55	State Highway Agency	Lane Departure	
W-5601CC	Roadway Superelevation / cross slope	1 Numbers	54000	0	HSIP (Section 148)	Rural Local Road or Street	0	55	State Highway Agency	Lane Departure	
W-5601CD	Pedestrians and bicyclists Medians and pedestrian refuge areas	1 Numbers	85500	0	HSIP (Section 148)	Urban Principal Arterial - Other	19000	55	State Highway Agency	Pedestrians	

W-5601CE	Access management Median crossover - directional crossover	1 Numbers	40500	0	HSIP (Section 148)	Urban Principal Arterial - Other	23000	55	State Highway Agency	Intersections	
W-5601CF	Access management Median crossover - directional crossover	3 Numbers	126000	0	HSIP (Section 148)	Rural Principal Arterial - Other Freeways and Expressways	14000	55	State Highway Agency	Intersections	
W-5601CG	Access management Median crossover - directional crossover	1 Numbers	12600	0	HSIP (Section 148)	Urban Minor Arterial	21000	35	State Highway Agency	Intersections	
W-5601CH	Intersection traffic control Intersection traffic control - other	1 Numbers	4500	0	HSIP (Section 148)	Urban Local Road or Street	0	45	State Highway Agency	Intersections	
W-5601CJ	Roadway Superelevation / cross slope	2 Numbers	72000	0	HSIP (Section 148)	Rural Major Collector	5200	55	State Highway Agency	Lane Departure	
W-5601CK	Pedestrians and bicyclists Miscellaneous pedestrians and bicyclists	1 Numbers	180360	0	HSIP (Section 148)	Urban Principal Arterial - Other	21000	35	State Highway Agency	Pedestrians	
W-5601CL	Access management Median crossover - directional crossover	1 Numbers	117000	0	HSIP (Section 148)	Rural Principal Arterial - Other	13000	55	State Highway Agency	Intersections	
W-5601CM	Intersection traffic control Modify traffic signal - add flashing yellow arrow	1 Numbers	10800	0	HSIP (Section 148)	Urban Minor Arterial	13000	45	State Highway Agency	Intersections	
W-	Roadside Barrier end	38	127710	0	HSIP		0	0	State	Lane	

5601CN	treatments (crash cushions, terminals)	Numbers			(Section 148)				Highway Agency	Departure	
W-5601CO	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	58500	0	HSIP (Section 148)	Urban Major Collector	14000	35	State Highway Agency	Intersections	
W-5601CP	Roadside Barrier end treatments (crash cushions, terminals)	0.11 Miles	130500	0	HSIP (Section 148)	Urban Principal Arterial - Interstate	142000	65	State Highway Agency	Lane Departure	
W-5601CQ	Roadway delineation Roadway delineation - other	1 Numbers	900	0	HSIP (Section 148)	Urban Minor Arterial	16000	40	State Highway Agency	Intersections	
W-5601CR	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	85500	0	HSIP (Section 148)	Urban Principal Arterial - Other	35000	55	State Highway Agency	Intersections	
W-5601CS	Alignment Horizontal and vertical alignment	2 Numbers	153000	0	HSIP (Section 148)	Rural Major Collector	6500	45	State Highway Agency	Lane Departure	
W-5601CT	Intersection geometry Intersection geometry - other	1 Numbers	135000	0	HSIP (Section 148)	Rural Principal Arterial - Other	27000	55	State Highway Agency	Intersections	
W-5601CU	Roadside Barrier- metal	0.04 Miles	16200	0	HSIP (Section 148)	Rural Major Collector	6500	55	State Highway Agency	Lane Departure	
W-5601CV	Roadside Barrier- metal	1.14 Miles	140400	0	HSIP (Section 148)	Rural Minor Collector	170	40	State Highway Agency	Lane Departure	
W-5601CW	Access management Median crossover - directional crossover	1 Numbers	45000	0	HSIP (Section 148)	Urban Principal Arterial - Other	20000	55	State Highway Agency	Intersections	

W-5601CX	Roadway Superelevation / cross slope	3 Numbers	63000	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5601CY	Intersection traffic control Intersection traffic control - other	1 Numbers	54000	0	HSIP (Section 148)	Urban Principal Arterial - Other	18000	50	State Highway Agency	Intersections	
W-5601CZ	Intersection traffic control Modify traffic signal - add additional signal heads	1 Numbers	25290	0	HSIP (Section 148)	Urban Principal Arterial - Other	29000	55	State Highway Agency	Intersections	
W-5601DA	Access management Median crossover - directional crossover	1 Numbers	175500	0	HSIP (Section 148)	Urban Principal Arterial - Other	24000	60	State Highway Agency	Intersections	
W-5601DB	Intersection geometry Auxiliary lanes - modify left-turn lane offset	1 Numbers	453600	0	HSIP (Section 148)	Urban Minor Arterial	38000	45	State Highway Agency	Intersections	
W-5601DC	Intersection traffic control Modify control - modifications to roundabout	1 Numbers	157500	0	HSIP (Section 148)	Urban Local Road or Street	0	55	State Highway Agency	Intersections	
W-5601DD	Alignment Horizontal curve realignment	2 Numbers	99000	0	HSIP (Section 148)	Urban Minor Arterial	6500	55	State Highway Agency	Lane Departure	
W-5601DE	Pedestrians and bicyclists Install new crosswalk	1 Numbers	27000	0	HSIP (Section 148)	Urban Minor Arterial	26000	45	State Highway Agency	Pedestrians	
W-5601DF	Shoulder treatments Widen shoulder - paved or other	1 Numbers	99000	0	HSIP (Section 148)	Rural Minor Collector	4300	35	State Highway Agency	Lane Departure	
W-5601D	Access management Median crossover - close	3 Numbe	625500	0	HSIP (Section		0	0	State Highway	Lane Departure	

G	crossover	rs			148)				Agency		
W-5601DH	Pedestrians and bicyclists Install new crosswalk	1 Numbers	18000	0	HSIP (Section 148)	Urban Principal Arterial - Other	15000	35	State Highway Agency	Pedestrians	
W-5601DI	Alignment Horizontal curve realignment	1 Numbers	472500	0	HSIP (Section 148)	Urban Minor Arterial	13000	45	State Highway Agency	Lane Departure	
W-5601DJ	Roadside Barrier end treatments (crash cushions, terminals)	51 Numbers	160200	0	HSIP (Section 148)	Urban Principal Arterial - Interstate	88000	65	State Highway Agency	Lane Departure	
W-5601DK	Intersection geometry Intersection geometry - other	2 Numbers	90000	0	HSIP (Section 148)	Urban Major Collector	11000	55	State Highway Agency	Intersections	
W-5601DL	Roadside Barrier end treatments (crash cushions, terminals)	5 Numbers	234000	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5601DM	Intersection geometry Intersection geometry - other	1 Numbers	18000	0	HSIP (Section 148)	Rural Minor Collector	1700	55	State Highway Agency	Intersections	
W-5601DN	Roadway Superelevation / cross slope	2 Numbers	76500	0	HSIP (Section 148)	Rural Major Collector	3900	55	State Highway Agency	Lane Departure	
W-5601DO	Intersection traffic control Modify traffic signal - add closed loop system	10 Numbers	76500	0	HSIP (Section 148)	Urban Minor Arterial	15000	35	State Highway Agency	Intersections	
W-5601DP	Shoulder treatments Pave existing shoulders	3.7 Miles	18000	0	HSIP (Section 148)	Urban Minor Arterial	7300	35	State Highway Agency	Lane Departure	
W-5601D	Access management Median crossover -	2 Numbe	72000	0	HSIP (Section	Rural Minor	15000	45	State Highway	Intersections	

Q	directional crossover	rs			148)	Arterial			Agency		
W-5601DR	Intersection geometry Auxiliary lanes - add left-turn lane	0.26 Miles	58500	0	HSIP (Section 148)	Urban Major Collector	0	45	State Highway Agency	Intersections	
W-5601DS	Intersection geometry Intersection geometrics - realignment to align offset cross streets	1 Numbers	67500	0	HSIP (Section 148)	Urban Major Collector	8400	45	State Highway Agency	Intersections	
W-5601DT	Roadside Barrier end treatments (crash cushions, terminals)	1 Numbers	225000	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5601DU	Roadside Barrier- metal	2.54 Miles	45000	0	HSIP (Section 148)	Rural Minor Arterial	880	55	State Highway Agency	Lane Departure	
W-5601DV	Roadside Barrier end treatments (crash cushions, terminals)	1 Numbers	9000	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5601DW	Roadside Barrier end treatments (crash cushions, terminals)	1 Numbers	243000	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5601DX	Roadway Pavement surface - high friction surface	1 Numbers	360000	0	HSIP (Section 148)	Urban Principal Arterial - Interstate	28000	70	State Highway Agency	Lane Departure	
W-5601DY	Intersection geometry Intersection geometrics - modify skew angle	1 Numbers	90000	0	HSIP (Section 148)	Rural Major Collector	3300	55	State Highway Agency	Intersections	
W-5601DZ	Access management Median crossover - directional crossover	1 Numbers	90000	0	HSIP (Section 148)	Urban Principal Arterial - Other	14000	45	State Highway Agency	Intersections	
W-	Intersection traffic control	1	3600	0	HSIP	Urban	26000	35	State	Intersectio	

5601E	Modify traffic signal - miscellaneous/other/unspecified	Numbers			(Section 148)	Minor Arterial			Highway Agency	ns	
W-5601EA	Alignment Horizontal curve realignment	1 Numbers	22500	0	HSIP (Section 148)	Rural Major Collector	3100	55	State Highway Agency	Lane Departure	
W-5601EB	Access management Median crossover - directional crossover	1 Numbers	135000	0	HSIP (Section 148)	Urban Principal Arterial - Other	20000	55	State Highway Agency	Intersections	
W-5601EC	Intersection traffic control Modify control - two-way stop to roundabout	3 Numbers	90000	0	HSIP (Section 148)	Urban Major Collector	5900	45	State Highway Agency	Intersections	
W-5601EC	Intersection traffic control Modify control - two-way stop to roundabout	3 Numbers	45000	0	Penalty Transfer – Section 164	Urban Major Collector	5900	45	State Highway Agency	Intersections	
W-5601ED	Intersection traffic control Intersection traffic control - other	1 Numbers	4500	0	HSIP (Section 148)	Rural Major Collector	6100	55	State Highway Agency	Intersections	
W-5601EE	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	54000	0	HSIP (Section 148)	Urban Minor Arterial	11000	55	State Highway Agency	Intersections	
W-5601EF	Access management Change in access - close or restrict existing access	1 Numbers	18000	0	HSIP (Section 148)	Urban Minor Arterial	27000	45	State Highway Agency	Intersections	
W-5601EG	Intersection geometry Auxiliary lanes - extend existing left-turn lane	1 Numbers	51300	0	HSIP (Section 148)	Urban Minor Arterial	17000	45	State Highway Agency	Intersections	
W-5601EH	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	90000	0	HSIP (Section 148)	Urban Principal Arterial -	17000	45	State Highway Agency	Intersections	

						Other					
W-5601EI	Intersection geometry Intersection geometrics - modify skew angle	1 Numbers	5400	0	HSIP (Section 148)	Urban Major Collector	5000	45	State Highway Agency	Intersections	
W-5601EJ	Access management Median crossover - directional crossover	0.28 Miles	81000	0	HSIP (Section 148)	Urban Major Collector	25000	55	State Highway Agency	Intersections	
W-5601EK	Roadway Roadway widening - add lane(s) along segment	0.38 Miles	27000	0	HSIP (Section 148)	Urban Principal Arterial - Other	8900	45	State Highway Agency	Lane Departure	
W-5601EL	Intersection traffic control Modify traffic signal - add backplates with retroreflective borders	1 Numbers	30600	0	HSIP (Section 148)	Urban Principal Arterial - Other	35000	45	State Highway Agency	Intersections	
W-5601EM	Intersection traffic control Modify traffic signal - add flashing yellow arrow	2 Numbers	4500	0	HSIP (Section 148)	Urban Minor Arterial	15000	35	State Highway Agency	Intersections	
W-5601EN	Intersection traffic control Modify traffic signal - add flashing yellow arrow	1 Numbers	2700	0	HSIP (Section 148)	Urban Principal Arterial - Other	13000	55	State Highway Agency	Intersections	
W-5601EO	Pedestrians and bicyclists Install new crosswalk	4 Numbers	31500	0	HSIP (Section 148)	Urban Principal Arterial - Other	30000	50	State Highway Agency	Pedestrians	
W-5601EP	Roadway Roadway narrowing (road diet, roadway reconfiguration)	1 Numbers	13500	0	HSIP (Section 148)	Rural Principal Arterial - Other	12000	35	State Highway Agency	Intersections	
W-5601E	Intersection traffic control Modify traffic signal - add	1 Numbe	4500	0	HSIP (Section	Urban Minor	27000	45	State Highway	Intersections	

Q	additional signal heads	rs			148)	Arterial			Agency		
W-5601ER	Intersection traffic control Intersection flashers - add "when flashing" warning sign-mounted	1 Numbers	4500	0	Penalty Transfer – Section 164	Rural Major Collector	2600	55	State Highway Agency	Intersections	
W-5601ES	Roadside Barrier end treatments (crash cushions, terminals)	35 Numbers	22500	0	Penalty Transfer – Section 164	Rural Major Collector	7200	55	State Highway Agency	Lane Departure	
W-5601ET	Roadside Barrier end treatments (crash cushions, terminals)	32 Numbers	22500	0	Penalty Transfer – Section 164		0	0	State Highway Agency	Lane Departure	
W-5601EU	Roadside Barrier end treatments (crash cushions, terminals)	10 Numbers	6750	0	Penalty Transfer – Section 164		0	0	State Highway Agency	Lane Departure	
W-5601EV	Access management Median crossover - directional crossover	1 Numbers	315000	0	HSIP (Section 148)	Rural Principal Arterial - Other	16000	55	State Highway Agency	Intersections	
W-5601FH	Roadway Roadway widening - add lane(s) along segment	0.28 Miles	25200	0	HSIP (Section 148)	Urban Minor Arterial	10000	55	State Highway Agency	Intersections	
W-5601FI	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	12600	0	HSIP (Section 148)	Urban Minor Arterial	10000	55	State Highway Agency	Intersections	
W-5601FJ	Intersection geometry Auxiliary lanes - add left-	1 Numbe	27000	0	Penalty Transfer	Urban Principal	21000	55	State Highway	Intersections	

	turn lane	rs			– Section 164	Arterial - Other			Agency		
W-5601FK	Intersection geometry Auxiliary lanes - add left-turn lane	2 Numbers	47700	0	HSIP (Section 148)	Urban Major Collector	12000	35	State Highway Agency	Intersections	
W-5601FL	Intersection traffic control Intersection traffic control - other	1 Numbers	16200	0	HSIP (Section 148)	Urban Principal Arterial - Interstate	151000	55	State Highway Agency	Intersections	
W-5601FM	Roadside Barrier- metal	0.74 Miles	27000	0	HSIP (Section 148)	Urban Major Collector	3200	40	State Highway Agency	Lane Departure	
W-5601FN	Intersection geometry Auxiliary lanes - add left-turn lane	1 Numbers	135000	0	HSIP (Section 148)	Urban Local Road or Street	9300	45	State Highway Agency	Intersections	
W-5601FP	Roadside Barrier end treatments (crash cushions, terminals)	1 Numbers	450	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5601FQ	Roadway delineation Longitudinal pavement markings - remarking	20 Numbers	450000	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5601FR	Roadside Removal of roadside objects (trees, poles, etc.)	1 Numbers	4500	0	HSIP (Section 148)	Rural Major Collector	2500	55	State Highway Agency	Intersections	
W-5601FT	Intersection traffic control Modify traffic signal - add flashing yellow arrow	1 Numbers	4500	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5601FZ	Roadside Barrier- metal	0.9 Miles	9000	0	HSIP (Section 148)	Urban Local Road or Street	870	55	State Highway Agency	Lane Departure	
W-5601G	Intersection geometry Auxiliary lanes - add left-	1 Numbe	261000	0	HSIP (Section	Urban Minor	20000	45	State Highway	Intersections	

	turn lane	rs			148)	Arterial			Agency		
W-5601GC	Alignment Vertical alignment or elevation change	1 Numbers	67500	0	HSIP (Section 148)	Urban Minor Arterial	3400	55	State Highway Agency	Intersections	
W-5601GD	Intersection traffic control Modify traffic signal - add additional signal heads	1 Numbers	2250	0	HSIP (Section 148)	Urban Principal Arterial - Other	3800	35	State Highway Agency	Intersections	
W-5601GG	Pedestrians and bicyclists Miscellaneous pedestrians and bicyclists	3 Numbers	7200	0	HSIP (Section 148)	Urban Principal Arterial - Other	9500	35	State Highway Agency	Pedestrians	
W-5601GH	Roadway signs and traffic control Roadway signs (including post) - new or updated	1 Numbers	13500	0	HSIP (Section 148)	Urban Principal Arterial - Interstate	34000	55	State Highway Agency	Lane Departure	
W-5601GI	Intersection traffic control Systemic improvements - signal-controlled	1 Numbers	13500	0	HSIP (Section 148)	Urban Minor Arterial	22000	45	State Highway Agency	Intersections	
W-5601GJ	Roadside Barrier - other	1.61 Miles	45000	0	HSIP (Section 148)	Urban Principal Arterial - Other	1500	55	State Highway Agency	Lane Departure	
W-5601GP	Roadside Roadside grading	1 Numbers	13500	0	HSIP (Section 148)	Urban Local Road or Street	0	40	State Highway Agency	Lane Departure	
W-5601GQ	Roadway delineation Longitudinal pavement markings - remarking	1 Numbers	900	0	HSIP (Section 148)		0	0	State Highway Agency	Lane Departure	
W-5601GR	Intersection traffic control Intersection flashers - add stop sign-mounted	1 Numbers	9000	0	HSIP (Section 148)	Urban Major Collector	4200	35	State Highway Agency	Intersections	

W-5601GS	Intersection traffic control Intersection flashers - add overhead (actuated)	1 Numbers	4500	0	HSIP (Section 148)	Urban Major Collector	5500	40	State Highway Agency	Intersections	
W-5601HK	Intersection traffic control Intersection flashers - add "when flashing" warning sign-mounted	1 Numbers	4500	0	Penalty Transfer – Section 164	Rural Major Collector	1200	55	State Highway Agency	Intersections	
W-5601HL	Intersection traffic control Intersection flashers - add "when flashing" warning sign-mounted	1 Numbers	4500	0	Penalty Transfer – Section 164	Rural Minor Arterial	3700	55	State Highway Agency	Intersections	
W-5601HM	Intersection traffic control Intersection flashers - add "when flashing" warning sign-mounted	1 Numbers	4500	0	Penalty Transfer – Section 164	Rural Major Collector	3300	55	State Highway Agency	Intersections	
W-5601HN	Roadside Barrier- metal	1 Numbers	9000	0	Penalty Transfer – Section 164	Rural Principal Arterial - Interstate	36000	70	State Highway Agency	Lane Departure	
W-5601HO	Intersection geometry Auxiliary lanes - add two-way left-turn lane	3 Numbers	49500	0	Penalty Transfer – Section 164	Urban Minor Arterial	3700	55	State Highway Agency	Intersections	
W-5601HP	Intersection geometry Intersection geometrics - realignment to align offset cross streets	2 Numbers	66600	0	Penalty Transfer – Section 164	Urban Major Collector	9400	45	State Highway Agency	Intersections	

W-5601HQ	Intersection geometry Auxiliary lanes - add right-turn lane	1 Numbers	18000	0	Penalty Transfer – Section 164	Rural Major Collector	11000	55	State Highway Agency	Intersections	
W-5601O	Intersection geometry Intersection geometry - other	1 Numbers	382500	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
W-5601W	Intersection geometry Intersection geometrics - realignment to increase cross street offset	2 Numbers	450000	0	HSIP (Section 148)	Rural Minor Arterial	4300	55	State Highway Agency	Intersections	
Y-4805F	Railroad grade crossings Railroad grade crossings - other	1 Numbers	44797	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400AF	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	356000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400DG	Railroad grade crossings Railroad grade crossings - other	1 Numbers	25200	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400ED	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	60000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400EE	Railroad grade crossings Railroad grade crossing gates	1 Numbers	517500	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400FA	Railroad grade crossings Railroad grade crossing gates	1 Numbers	60000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400FB	Railroad grade crossings Railroad grade crossing gates	1 Numbers	62	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	

Z-5400FT	Railroad grade crossings Railroad grade crossing gates	1 Numbers	77400	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400FZ	Railroad grade crossings Railroad grade crossing gates	1 Numbers	52200	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400GE	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	144000	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400GJ	Railroad grade crossings Railroad grade crossing gates	1 Numbers	79200	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400GO	Intersection traffic control Modify traffic signal - add railroad preemption	1 Numbers	229280	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400GP	Railroad grade crossings Railroad grade crossing gates	1 Numbers	40500	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400GR	Railroad grade crossings Railroad grade crossing gates	1 Numbers	46800	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400GS	Railroad grade crossings Railroad grade crossings - other	1 Numbers	157050	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400II	Railroad grade crossings Railroad grade crossing gates	1 Numbers	56700	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400IJ	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	36900	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400JN	Railroad grade crossings Railroad grade crossing gates	1 Numbers	46800	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	

Z-5400LD	Railroad grade crossings Railroad grade crossing gates	1 Numbers	303300	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	
Z-5400LF	Railroad grade crossings Upgrade railroad crossing signal	1 Numbers	47700	0	HSIP (Section 148)		0	0	State Highway Agency	Intersections	

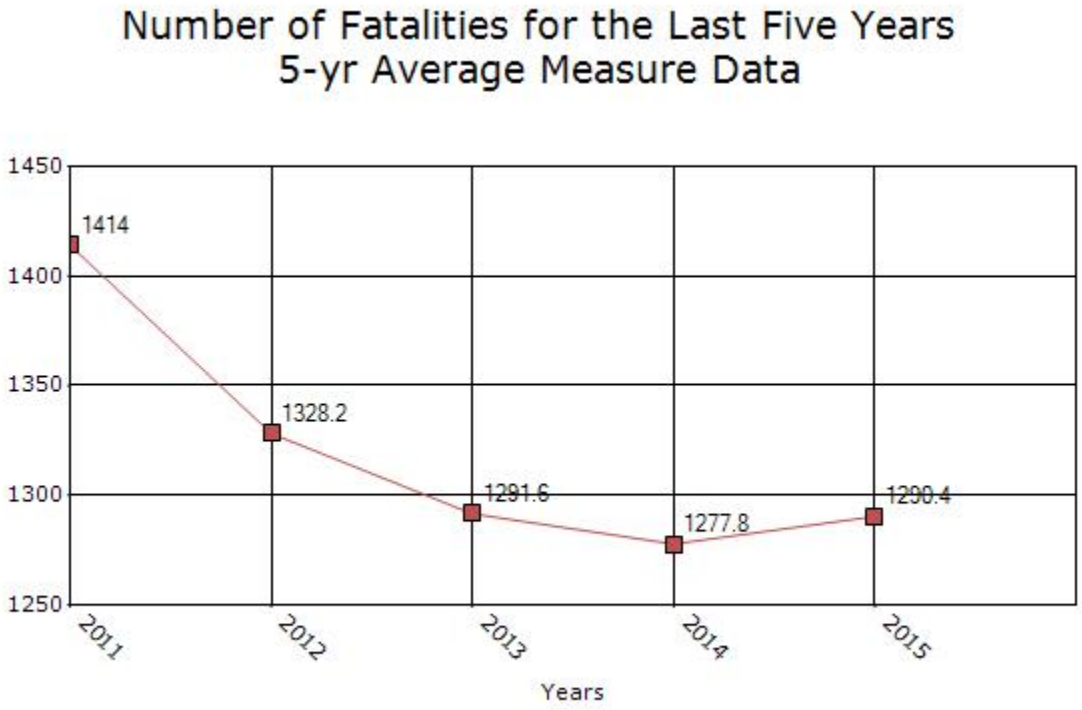
Progress in Achieving Safety Performance Targets

Overview of General Safety Trends

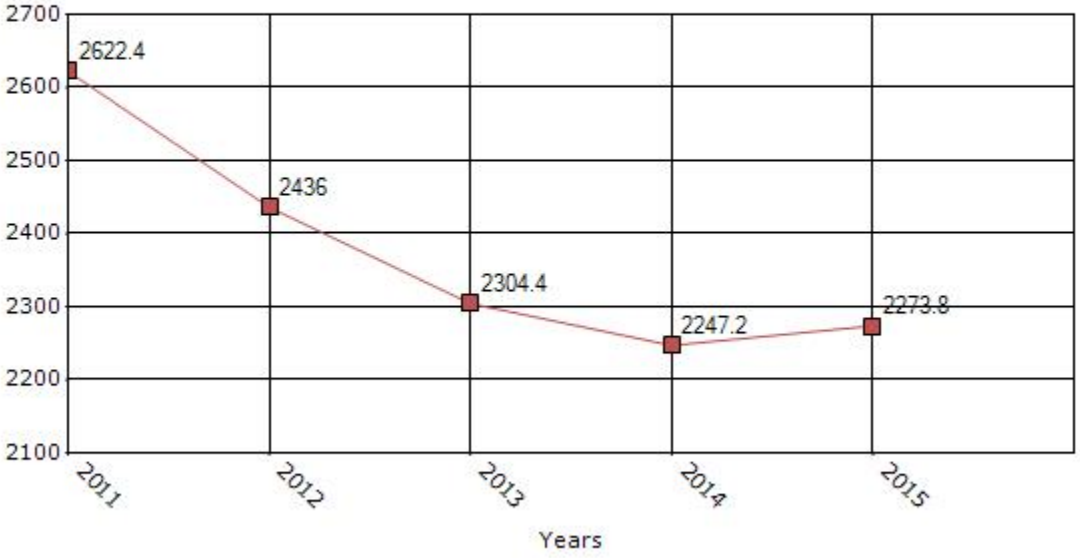
24. Present data showing the general highway safety trends in the state for the past five years.

Performance Measures*	2011 (5-yr avg)	2012 (5-yr avg)	2013 (5-yr avg)	2014 (5-yr avg)	2015 (5-yr avg)
Number of fatalities	1414	1328.2	1291.6	1277.8	1290.4
Number of serious injuries	2622.4	2436	2304.4	2247.2	2273.8
Fatality rate (per HMVMT)	1.38	1.29	1.25	1.22	1.21
Serious injury rate (per HMVMT)	2.55	2.37	2.22	2.15	2.13

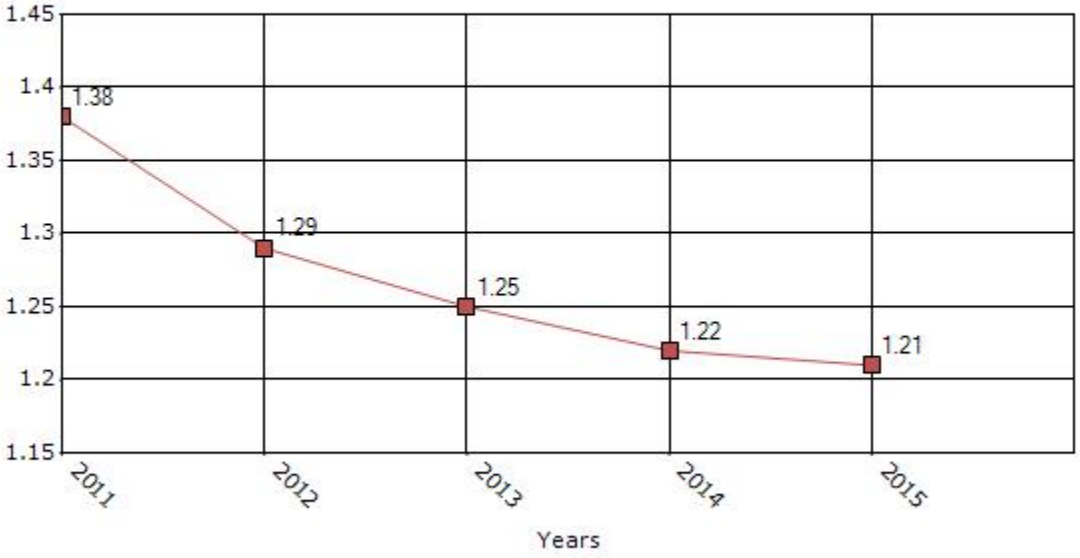
*Performance measure data is presented using a five-year rolling average.



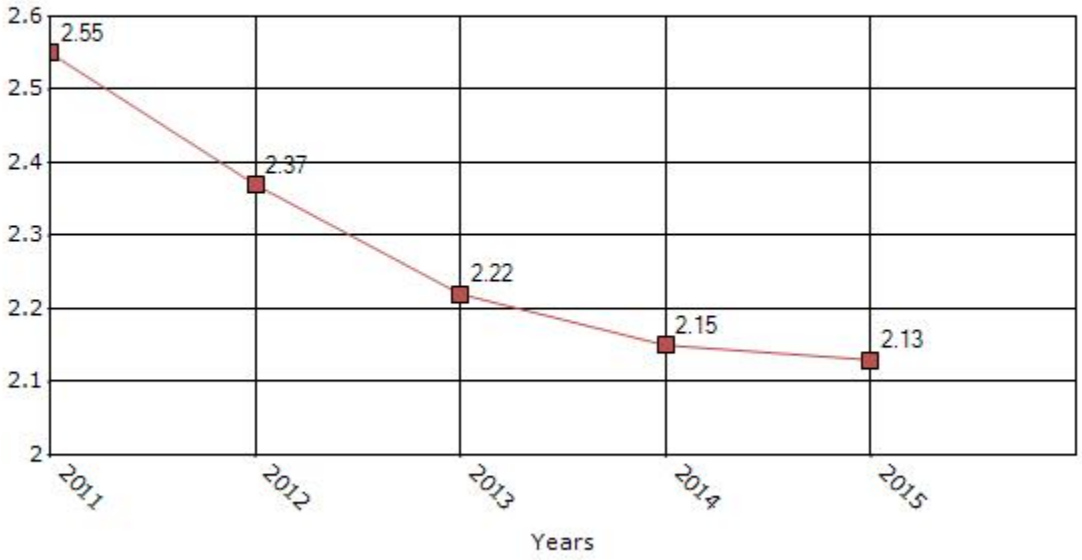
Number of Serious Injuries for the Last Five Years
5-yr Average Measure Data



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

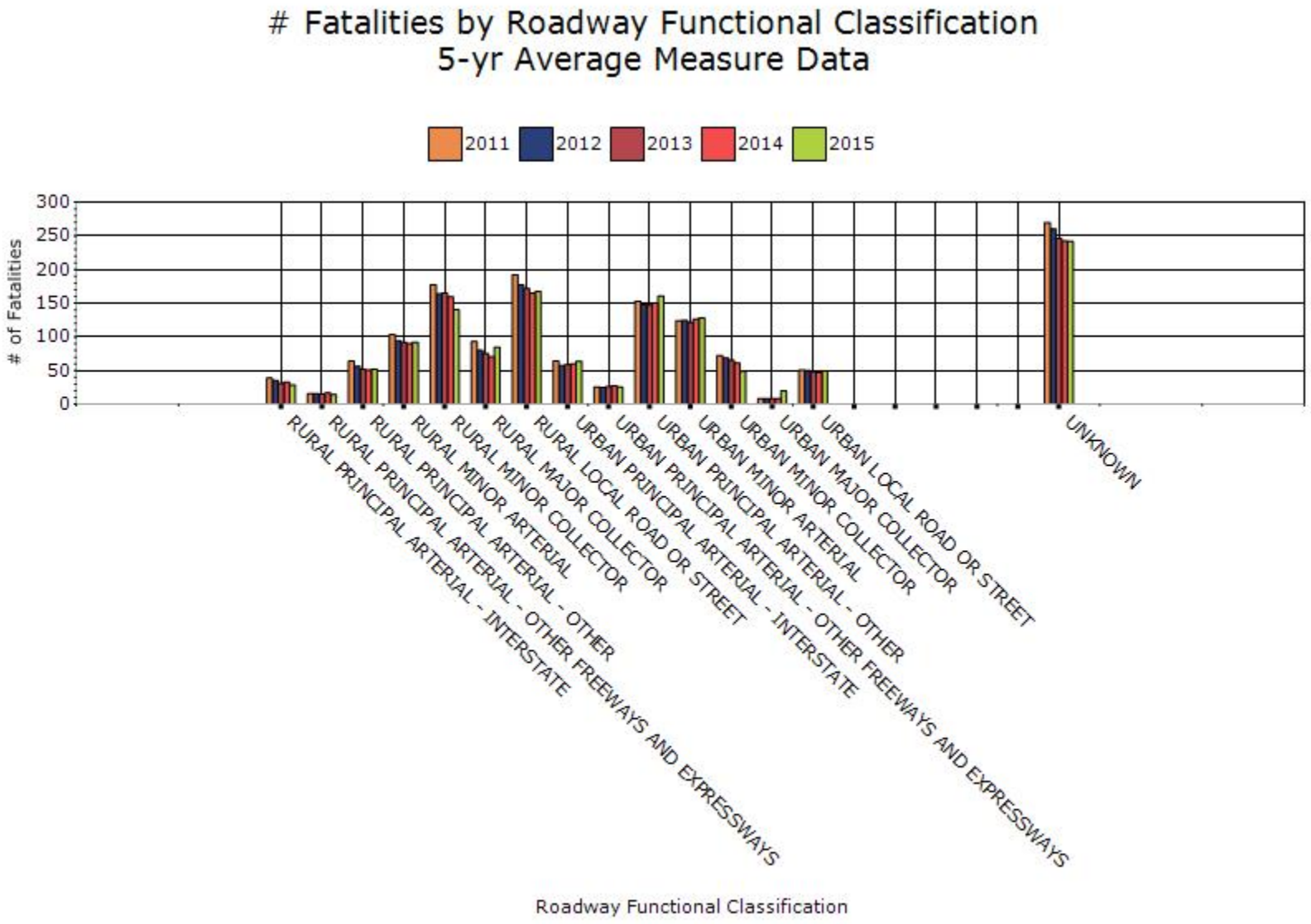


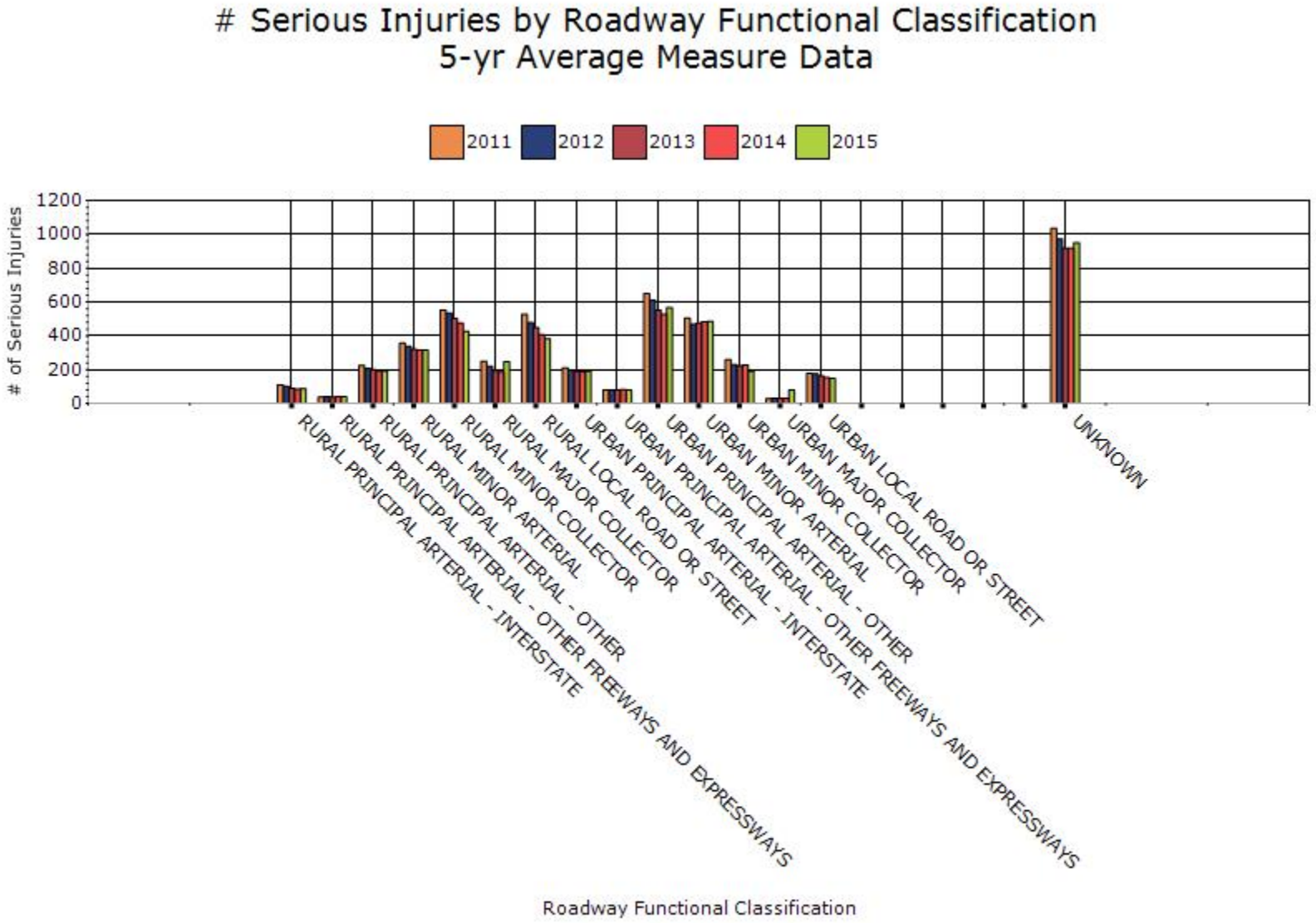
25. To the maximum extent possible, present performance measure data by functional classification and ownership.

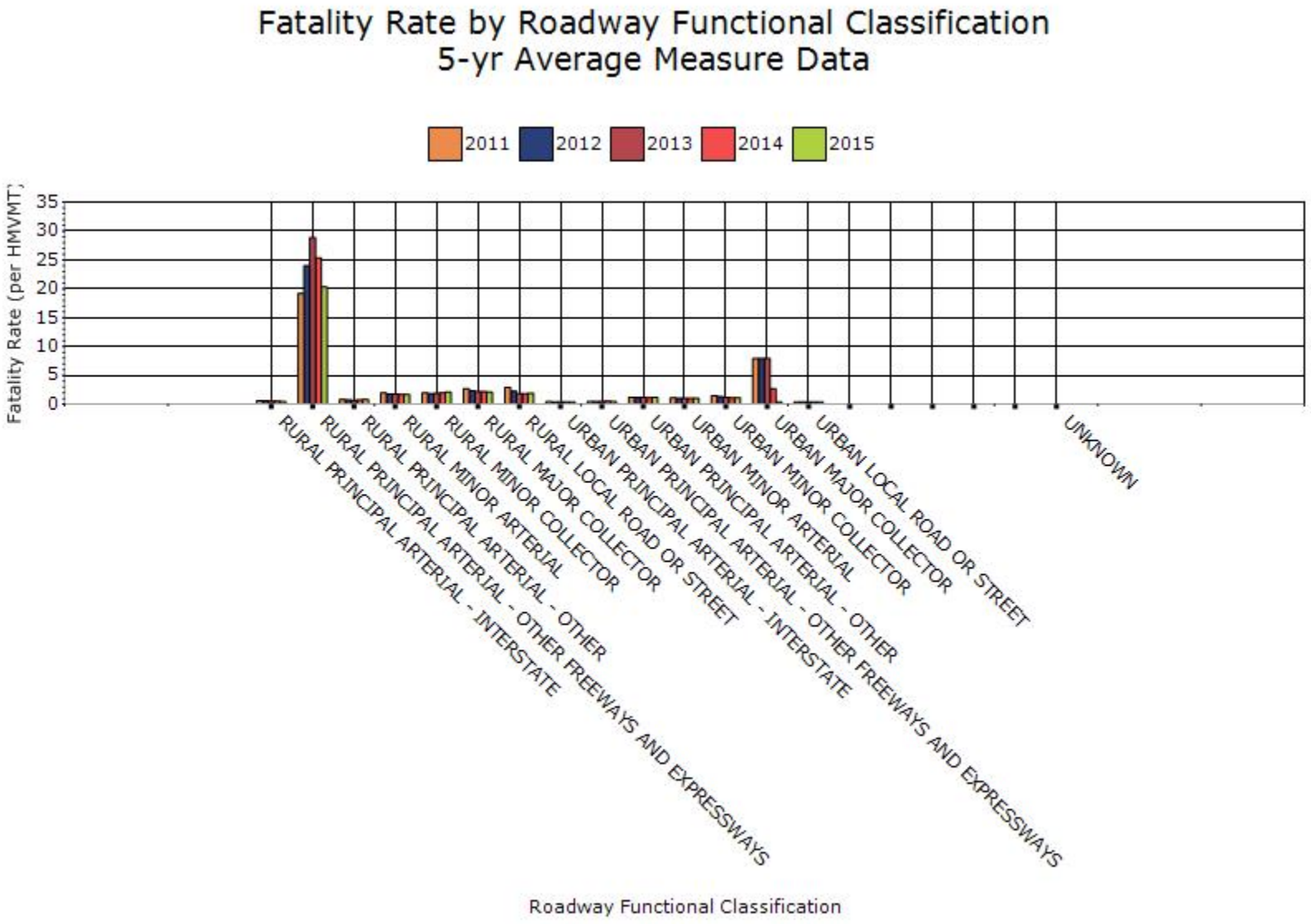
Year - 2015

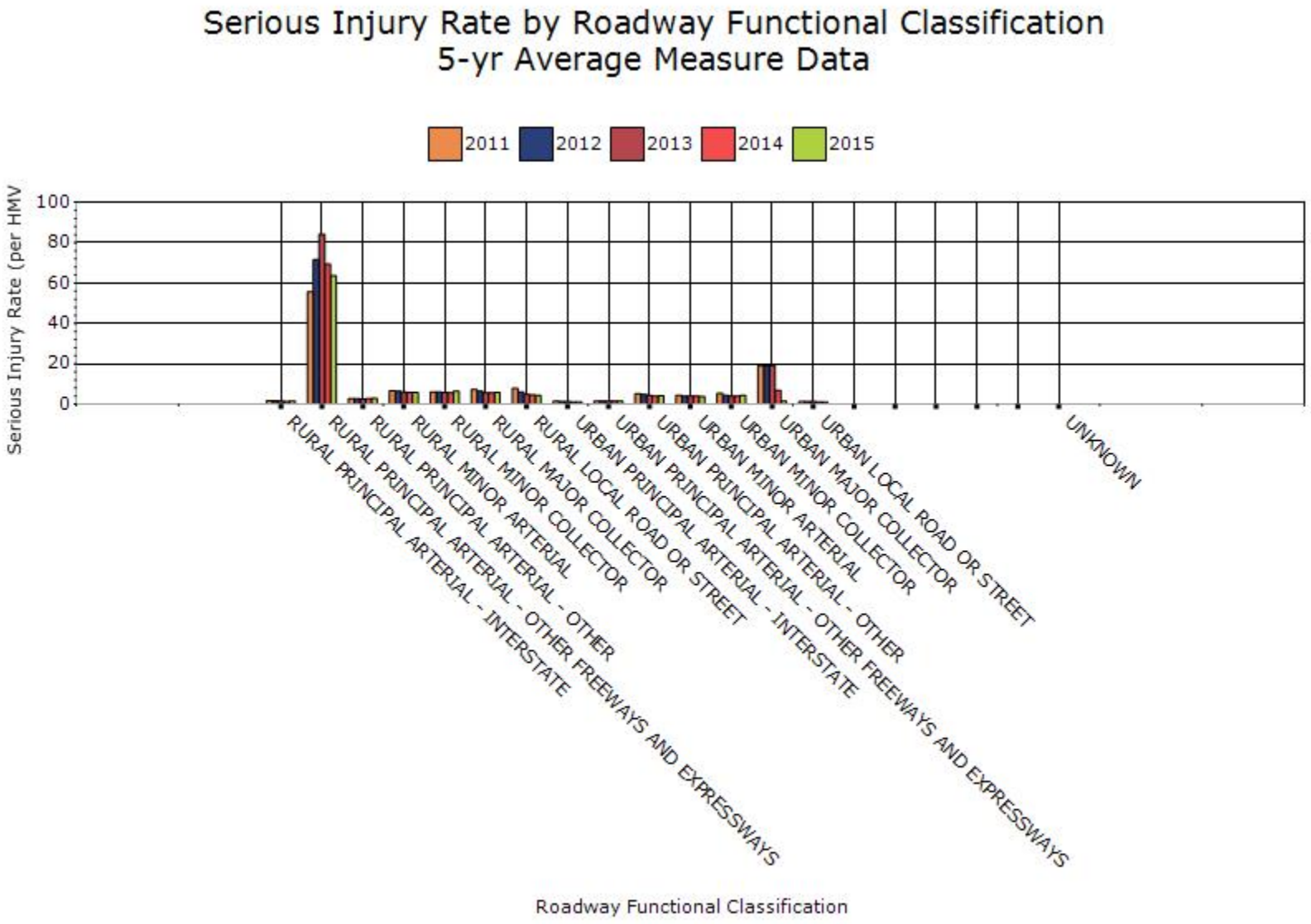
Function Classification	Number of fatalities (5-yr avg)	Number of serious injuries (5-yr avg)	Fatality rate (per HMVMT) (5-yr avg)	Serious injury rate (per HMVMT) (5-yr avg)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	28.4	87.8	0.47	1.45
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	14.6	41	20.33	63.68
RURAL PRINCIPAL ARTERIAL - OTHER	52.2	191.8	0.8	2.88
RURAL MINOR ARTERIAL	92.2	315.6	1.68	5.79
RURAL MINOR COLLECTOR	140.2	427.8	2.11	6.36
RURAL MAJOR COLLECTOR	84.8	248	2.1	5.87
RURAL LOCAL ROAD OR STREET	167.6	383.2	1.89	4.32
URBAN PRINCIPAL ARTERIAL - INTERSTATE	63.8	189.6	0.38	1.15
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	25.6	79	0.47	1.44
URBAN PRINCIPAL ARTERIAL - OTHER	160.8	566.2	1.18	4.16
URBAN MINOR ARTERIAL	128.2	484.6	1.02	3.86

URBAN MINOR COLLECTOR	49	191.2	1.11	4.35
URBAN MAJOR COLLECTOR	19.8	79.8	0.42	1.55
URBAN LOCAL ROAD OR STREET	49.6	149	0.38	1.14
UNKNOWN	242	951.2		


Fatalities by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Fatalities
300
250
200
150
100
50
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
UNKNOWN
Roadway Functional Classification

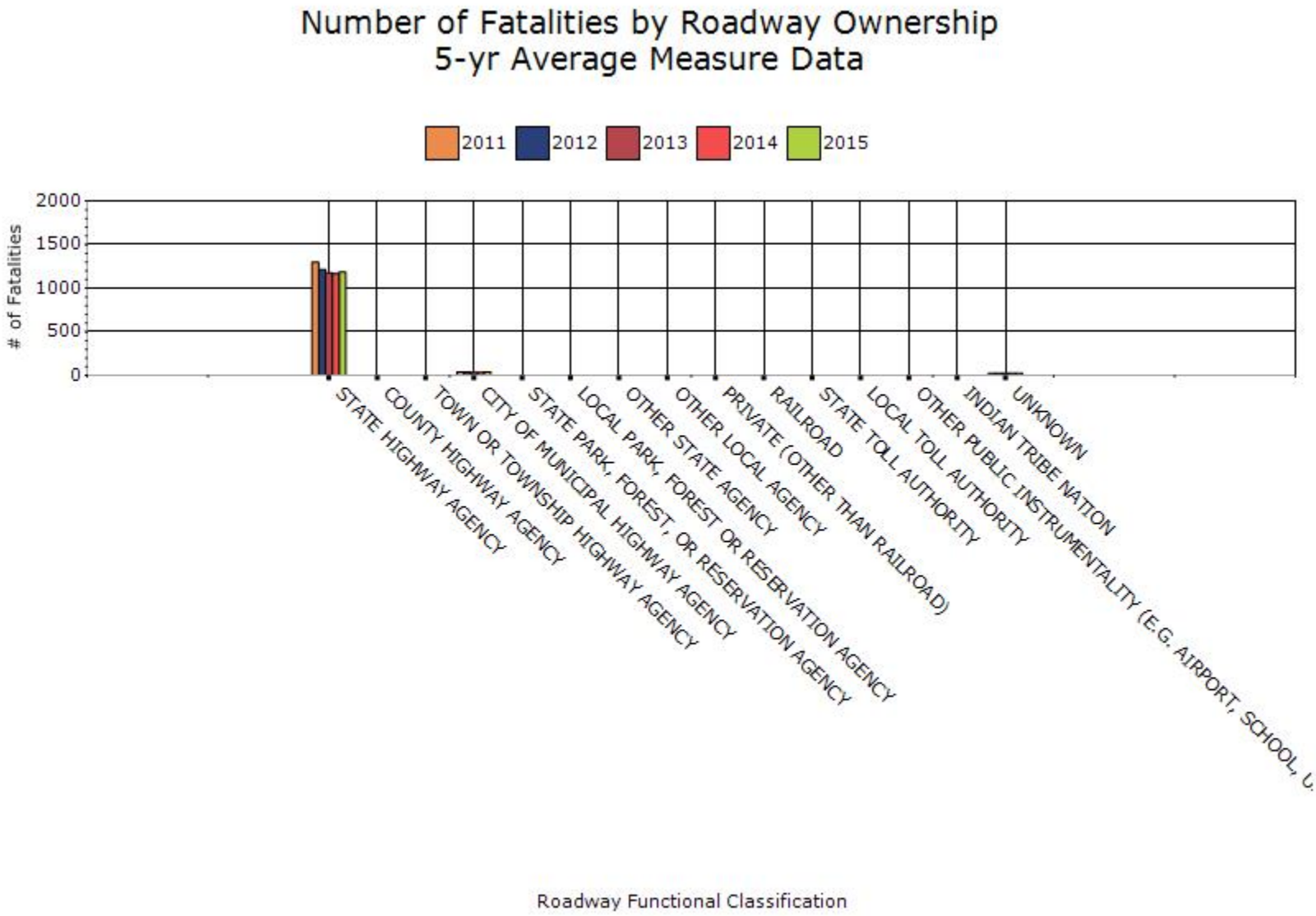

Serious Injuries by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Serious Injuries
1200
1000
800
600
400
200
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
UNKNOWN
Roadway Functional Classification

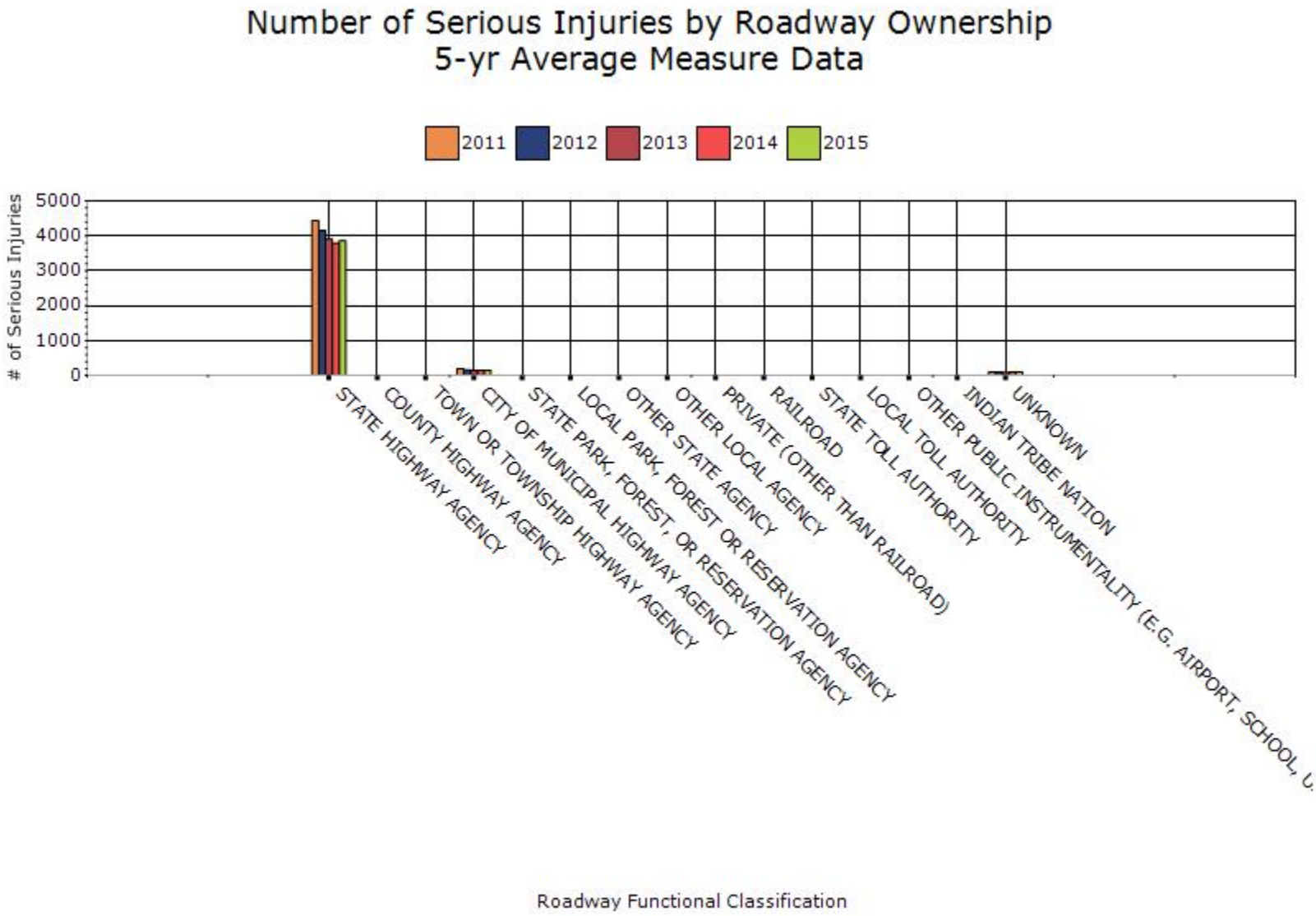

Fatality Rate by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
Fatality Rate (per HMVMT)
35
30
25
20
15
10
5
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
UNKNOWN
Roadway Functional Classification


Serious Injury Rate by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
Serious Injury Rate (per HMV
100
80
60
40
20
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL MINOR COLLECTOR
RURAL MAJOR COLLECTOR
RURAL LOCAL ROAD OR STREET
URBAN PRINCIPAL ARTERIAL - INTERSTATE
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
URBAN PRINCIPAL ARTERIAL - OTHER
URBAN MINOR ARTERIAL
URBAN MINOR COLLECTOR
URBAN MAJOR COLLECTOR
URBAN LOCAL ROAD OR STREET
UNKNOWN
Roadway Functional Classification

Year - 2015

Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	1184.4	3858.2		
CITY OF MUNICIPAL HIGHWAY AGENCY	41.4	151.4		
UNKNOWN	26.6	97.8		


Number of Fatalities by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Fatalities
2000
1500
1000
500
0
STATE HIGHWAY AGENCY
COUNTY HIGHWAY AGENCY
TOWN OR TOWNSHIP HIGHWAY AGENCY
CITY OF MUNICIPAL HIGHWAY AGENCY
STATE PARK, FOREST, OR RESERVATION AGENCY
LOCAL PARK, FOREST OR RESERVATION AGENCY
OTHER STATE AGENCY
OTHER LOCAL AGENCY
PRIVATE (OTHER THAN RAILROAD)
RAILROAD
STATE TOLL AUTHORITY
LOCAL TOLL AUTHORITY
OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, U
INDIAN TRIBE NATION
UNKNOWN
Roadway Functional Classification


Number of Serious Injuries by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Serious Injuries
5000
4000
3000
2000
1000
0
STATE HIGHWAY AGENCY
COUNTY HIGHWAY AGENCY
TOWN OR TOWNSHIP HIGHWAY AGENCY
CITY OF MUNICIPAL HIGHWAY AGENCY
STATE PARK, FOREST, OR RESERVATION AGENCY
LOCAL PARK, FOREST OR RESERVATION AGENCY
OTHER STATE AGENCY
OTHER LOCAL AGENCY
PRIVATE (OTHER THAN RAILROAD)
RAILROAD
STATE TOLL AUTHORITY
LOCAL TOLL AUTHORITY
OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, U
INDIAN TRIBE NATION
UNKNOWN
Roadway Functional Classification

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

The N.C. Department of Transportation is committed to measuring and improving performance. The department's Organizational Performance Dashboard, which is featured on NCDOT's web page, serves as an indicator of how well we are meeting our mission and goals. One major NCDOT goal is "Making our transportation network safer". This is defined as the total number of statewide fatalities on NC roads per 100 million vehicle miles traveled for the calendar year to date. The fatality rate gauge shown on our Performance Dashboard is accompanied by a trend chart of the total number of fatalities, crashes and injuries by year. The Performance Dashboard can be found at https://apps.dot.state.nc.us/dot/dashboard/

Many staff members within NCDOT have a work performance metric for highway safety included in their year-end appraisal.

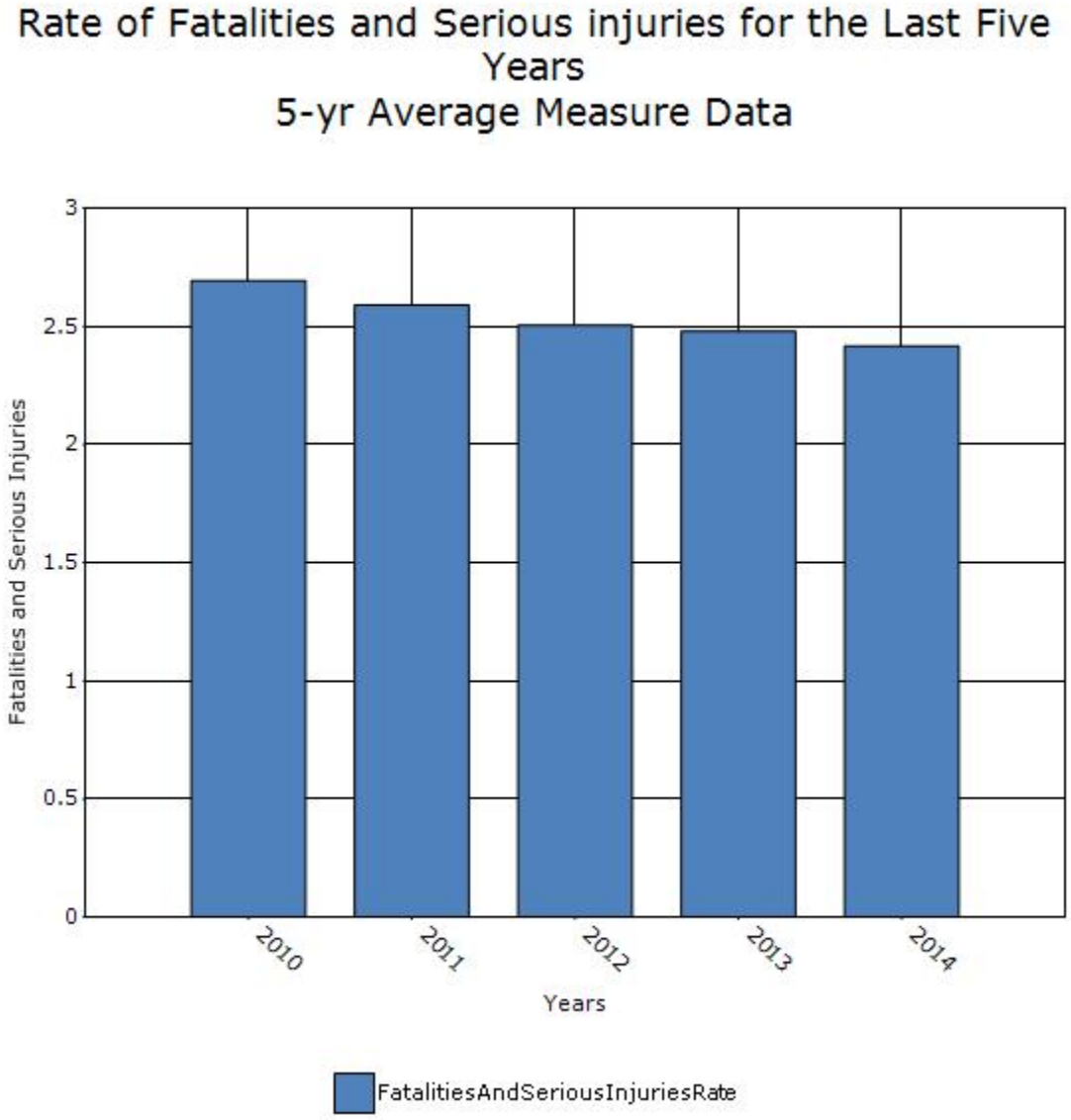
Application of Special Rules

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

Older Driver Performance Measures	2010 (5-yr avg)	2011 (5-yr avg)	2012 (5-yr avg)	2013 (5-yr avg)	2014 (5-yr avg)
Fatality rate (per capita)	1.438	1.352	1.286	1.292	1.264
Serious injury rate (per capita)	1.258	1.238	1.22	1.19	1.152
Fatality and serious injury rate (per capita)	2.694	2.59	2.504	2.48	2.416

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

For each year: Fatal rate = (Number of fatalities for drivers and pedestrians over the age of 65) / (Population Figure shown in "Section 148: Older Drivers and Pedestrians Special Rule Interim Guidance") The numbers are presented as the 5-year rolling average.



28. Does the older driver special rule apply to your state?

No

Assessment of the Effectiveness of the Improvements (Program Evaluation)

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

Other-Other - Decline in Fatal Rates

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

Other-Many supervisors and managers in NCDOT have a performance metric for crash rates listed in their year-end appraisal.
Other-NCDOT engineers will review 1000 miles of secondary roadway with stautory speed limits each year. Appropriate speed limits will be determined and posted.

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

The use of safety edge is being accepted by highway operations staff as not simply a safety enhancement but also a maintenance enhancement. Safety edge will be required on all contract resurfacing that is let by the Central and Division offices. NCDOT has initiated a project to study the impacts of wide edge markings on two-lane rural roads. 60% of all highway fatalities in North Carolina are a result of roadway departure crashes.

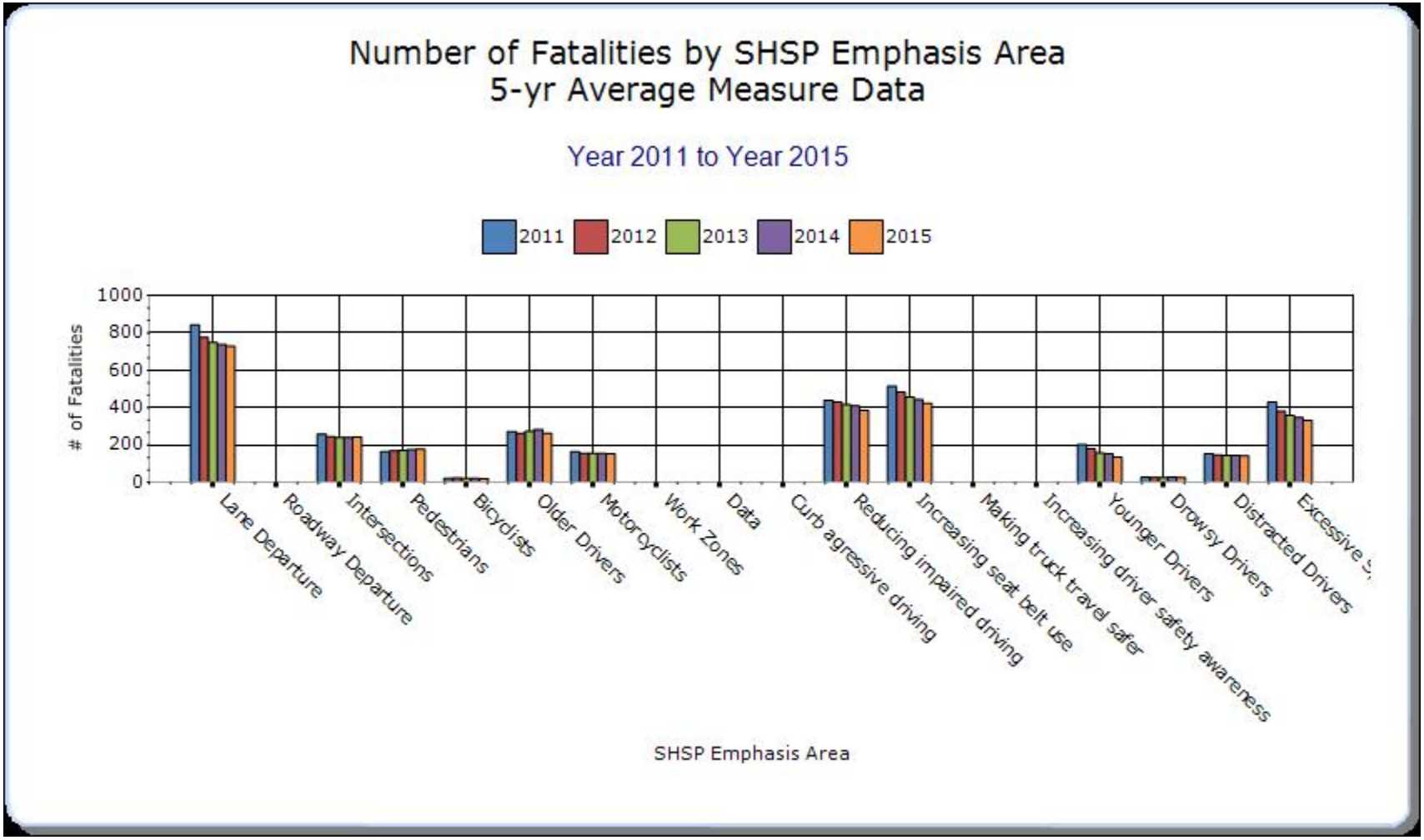
NCDOT has invested in several systemic programs including upgrading guardrail end units, installing long life pavement markings for positive guidance, and funding of vulnerable user projects.

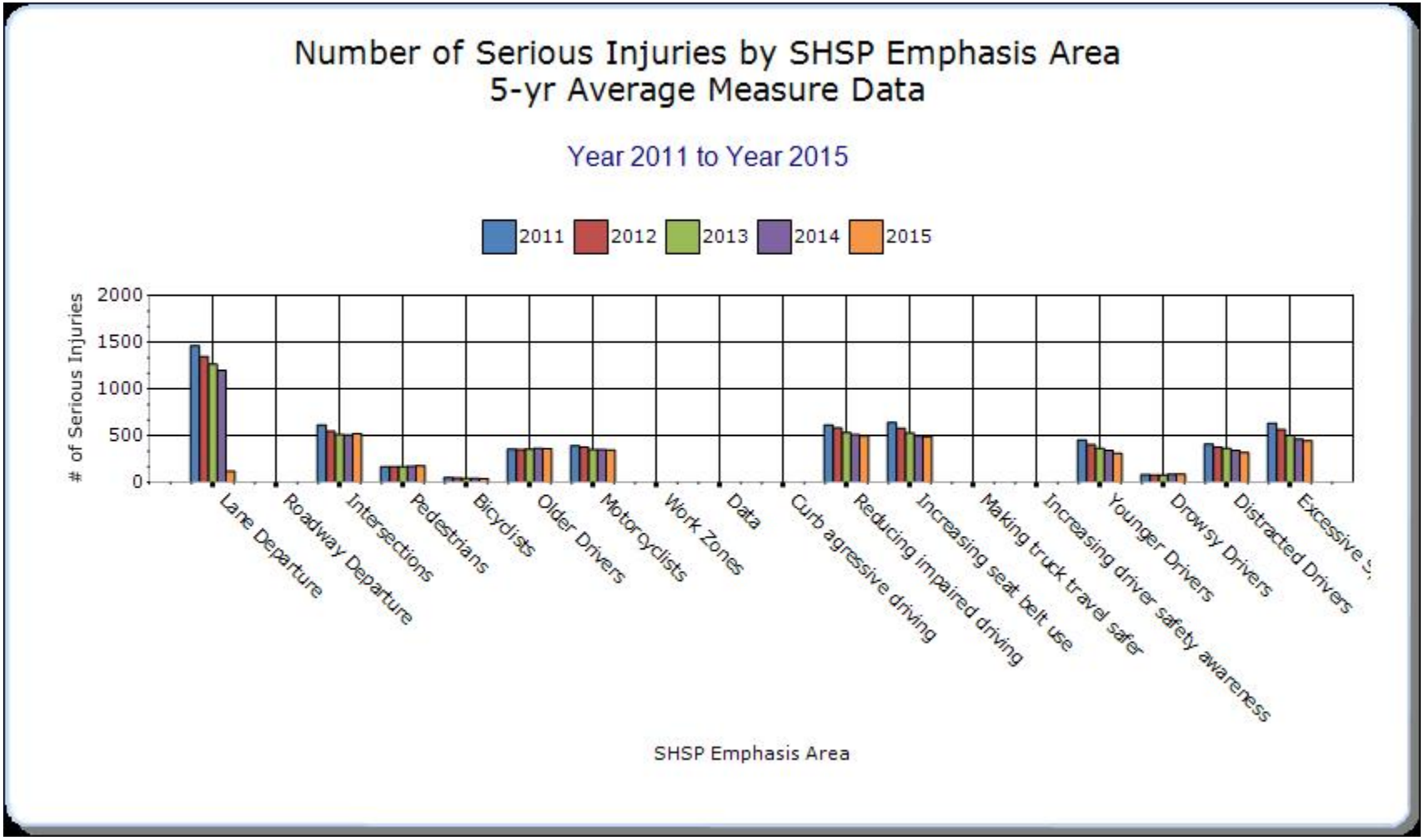
SHSP Emphasis Areas

32. Present and describe trends in SHSP emphasis area performance measures.

Year - 2015

HSIP-related SHSP Emphasis Areas	Target Crash Type	Number of fatalities (5-yr avg)	Number of serious injuries (5-yr avg)	Fatality rate (per HMVMT) (5-yr avg)	Serious injury rate (per HMVMT) (5-yr avg)	Other-1 (5-yr avg)	Other-2 (5-yr avg)	Other-3 (5-yr avg)
Lane Departure		728	119.4					
Intersections		242.8	518					
Pedestrians		177	178.2					
Bicyclists		19.4	36.8					
Older Drivers		262.4	358.8					
Motorcyclists		153.8	345.6					
Reducing impaired driving		386	497.8					
Increasing seat belt use		422.4	490.8					
Younger Drivers		134.4	310.4					
Drowsy Drivers		25.2	87.2					
Distracted Drivers		142.2	320.8					
Excessive Speed		331.2	445.8					


Number of Fatalities by SHSP Emphasis Area
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Fatalities
1000
800
600
400
200
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
Curb agressive driving
Reducing impaired driving
Increasing seat belt use
Making truck travel safer
Increasing driver safety awareness
Younger Drivers
Drowsy Drivers
Distracted Drivers
SHSP Emphasis Area



Groups of similar project types

33. Present the overall effectiveness of HSIP subprograms.

HSIP Sub-program Types	Target Crash Type	Number of fatalities (5-yr avg)	Number of serious injuries (5-yr avg)	Fatality rate (per HMVMT) (5-yr avg)	Serious injury rate (per HMVMT) (5-yr avg)	Other-1 (5-yr avg)	Other-2 (5-yr avg)	Other-3 (5-yr avg)
SKIP	The Safety Evaluation Group (SEG) evaluates projects in an attempt to assess the safety of our roads in North Carolina. This information is provided so the benefit or lack of benefit for a particular type of project can be recognized and utilized for future projects. There are currently over 1,000 project evaluations on the web page from 45 topic areas. For more information on our completed projects, use the following link: https://connect.ncdot.gov/resources/safety/Pages/Safety-Evaluation.aspx Safety Program Evaluations A majority of the reports the SEG has completed evaluate the safety aspects of a location-specific spot safety project or a hazard elimination project. These are projects that have been funded to address a particular documented safety issue or potential safety issue. An overall evaluation of the NCDOT spot safety program with projects completed through 2007 shows a benefit-cost ratio of 14:1 using 2005 dollars. Topic Oriented Safety Evaluations The SEG also conducts large scale studies using data from locations across the State. As we complete multiple evaluations for a particular type of countermeasure, we are able to provide objective and definite information regarding actual crash reduction factors. Some of the topic areas include: All-Way Stops, Roundabouts, Overhead Flashing Beacons, Flashing Yellow Arrow, Vehicle Entering When Flashing Signs, Flashers in School Zones, Speed Enforcement Programs, and Paved Shoulders. The methodologies used in the evaluations offer various philosophies and ideas. When possible and appropriate, we attempt to use statistical analysis to account for potential study biases. Numerous topic-oriented safety studies completed by the SEG have been published in peer-reviewed journals.							

Systemic Treatments

34. Present the overall effectiveness of systemic treatments.

Year - 2015

Systemic improvement	Target Crash Type	Number of fatalities (5-yr avg)	Number of serious injuries (5-yr avg)	Fatality rate (per HMVMT) (5-yr avg)	Serious injury rate (per HMVMT) (5-yr avg)	Other-1 (5-yr avg)	Other-2 (5-yr avg)	Other-3 (5-yr avg)

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

The North Carolina Highway Safety Improvement Program (HSIP) is an organized and systematic safety process developed to identify, analyze, investigate and improve potentially hazardous locations with concentrations and patterns of correctable crashes. The program is able to determine locations that exceed minimum warranting criteria that are based on multiple factors that, in most cases, include severity, frequency, and crash type. The program is presently structured into six distinct phases:

I. Development of warranting criteria
II. Identification of potentially hazardous locations meeting minimum warrant criteria
III. Detailed crash analysis of program locations
IV. Engineering field investigation of program locations and evaluation of potential recommendations (where appropriate)
V. Project development
VI. Implement countermeasures
VII. Evaluation of countermeasures implemented with HSIP funds

The warrants developed by the Traffic Safety Systems Section (TSSS) have consistently shown the ability to identify intersections, sections, and bicycle/pedestrian intersections with severe injuries and chronic crash patterns. The Regional Traffic Engineers utilize thorough investigations, traffic operations and safety expertise and proven tools such as signal warrant studies, sight distance measurements, Crash Reduction Factors and Benefit to Cost analysis to ensure that effective projects are developed. Projects are selected through a competitive Benefit to Cost based program. Evaluations completed by the Traffic Safety Systems Section have shown that the average project yields a 14 to one return.

Project Evaluation

36. 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)
			See comments below											

In an attempt to assess the safety of our roads, the Safety Evaluation Group of the Traffic Safety Systems Management Section has evaluated hundreds of projects. The methodologies used in NCDOT's evaluations offer various philosophies and ideas, in an effort to provide objective countermeasure crash reduction results. This information is gathered so the benefit or lack of benefit for this type of project can be recognized and utilized for future projects. As the Safety Evaluation Group completes additional reviews for various types of countermeasures, we will be able to provide objective and definite information regarding actual crash reduction factors.

Completed project evaluations can be found at the link below:

https://connect.ncdot.gov/resources/safety/Pages/Safety-Evaluation.aspx

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.