Highway Safety Improvement Program

Data Driven Decisions

Indiana
Highway Safety Improvement Program
2016 Annual Report

Prepared by: IN

Disclaimer

Protection of Data from Discovery & Admission into Evidence

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

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

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Executive Summary

As required under 23 U.S.C. § 148(h), the following is the annual report to the Federal Highway Administration (FHWA) from the Indiana Department of Transportation (INDOT) for federal fiscal year (FFY) 2016. The content of this report combines information regarding the implementation status of the Highway Safety Improvement Program (HSIP) and associated sub-programs including the High Risk Rural Roads Program (HRRRP). This combined HSIP report, does not include the annual rail-highway crossing safety report as required under 23 U.S.C. § 130(g). INDOT is exercising the option provided to the states by 23 U.S.C. § 148 guidance, of preparing and submitting to FHWA separate reports.

The format of the annual HSIP report is in accordance with the FHWA online reporting tool. The focus of the report centers on development and implementation of the core federal aid safety program and associated safety spending in Indiana for FFY 2016, beginning October 1, 2015 and ending on September 30, 2016. In addition to the core safety programs, this report discusses the ongoing evolution of the INDOT asset management program mechanism for setting spending priorities for all projects on roads under INDOT jurisdiction.

In Calendar year (CY) 2015, the estimated vehicle miles of travel increased to 82.42 Hundred Million Vehicle Miles of Travel (HMVMT) or a 1.25% increase above the CY 2014 estimate of 81.41 HMVMT. The number of fatal injuries rose from 753 in 2014 to 823 in CY 2015, which represents an increase of 9.3%. As a result, the Fatality Rate increased from 0.92 fatalities per HMVMT in CY 2014 to 1.00 in CY 2015. It should be noted that the rise in fatality rate for CY 2015 mirrors to a certain extent similar increases in the number of fatal crashes recorded in surrounding states of the Midwest region. The 5-year rolling average rate of fatalities stayed consistent at 0.98 HMVMT in CY 2015 as compared the rate in CY 2014. Note that the historically low fatal casualties recorded in 2009 are no longer a factor in the calculation of 5 year casualty averages.

While this report also indicates an increase in serious injury crashes, an actual comparison to prior years is inaccurate and is complicated by the implementation by Indiana of a new injury classification methodology that's described below and in more detail in the response to question 26. A new uniform method has been developed for

declaring an injury to be “Incapacitating”; the definition used by Indiana to classify injury severity as an “A” severity on the KABCO scale, for crash events and casualties.

The new classification method was developed in response to agreement among members of the Indiana Traffic Records Coordinating Committee (TRCC); that the use of officer’s judgment in regard to determination of incapacitating injuries in past years had been inconsistently applied. Inconsistency in classifying serious injuries was noticed both between officers, and regionally, among certain police agencies that were either instructing officers or developing informal approaches to marking injury severity that was different from other peer agencies.

The revised electronic reporting tool now classifies a crash participant as having an incapacitating injury if that person has been transported from the scene for medical treatment at an emergency room or trauma center. This change removes the subjective element from the determination of class “A” injury severity.

The Indiana TRCC made the decision to change the methodology in order to achieve more consistent, reliable data over the long term. The TRCC accepts the fact that over the next few years, the frequency and rate of serious injury data would appear to be distorted when compared to the data from past years.

INDOT along with the Indiana TRCC will continue to monitor and assess the effect of the change in the method of injury severity classification. To date, the apparent effect of this change has been a significant rise in the number of crash casualties that are classified as class “A” (incapacitating) injuries. It is expected that this trend will continue as full data for calendar 2016 is added to the records system. Also expected is a continuing effect on calculation of 5 year average data for serious injury (level A) crash frequency, casualty counts and resulting rate (per HMVMT). Offsetting reductions are expected in crash events and injury casualties classified at lower severity. We ask that FHWA consider this change in reporting methodology as part of any review of Indiana Crash data.

In FFY 2016, the total expected obligation of federal program funds for safety, from all programs (excluding the annual rail-highway crossing safety program) will be about $45.3 million dollars. All projects approved for funding in HSIP or HRRRP programs are

required to address at least one of the emphasis areas defined in the Indiana Strategic Highway Safety Plan (SHSP).

The selection and prioritization of all safety projects on roads under INDOT jurisdiction, including those funded with HSIP and HRRRP funds utilize the INDOT asset management process. The submission of the documents that describe INDOT's countermeasure selection methodology originally took place in September of 2008 with the submission of the FFY 2008 HSIP/HRRRP report. For roads under INDOT jurisdiction, regardless of funding program, the established selection process for safety projects prioritizes locations of highest need in terms of reducing the severity and frequency of crashes. The goal for all safety projects is to select the most appropriate and cost effective countermeasures available. The INDOT Office of Traffic Safety (OTS) ensures that each candidate safety project has a cost effective choice of proposed solution(s), the eligibility for federal safety program funding is determined and the relative priority of the candidate project's needs is established. All safety program projects address one or more of the emphasis areas enumerated in the Indiana SHSP.

Guiding the selection of projects on local jurisdiction roads, the document titled "Highway Safety Improvement Program Local Project Selection Guidance," issued on December 1, 2010 and "Special Rules for Eligibility of Highway Safety Improvement Projects," issued August 1, 2013, described the selection methodology for local HSIP projects. In FFY 2016 INDOT has revised the Indiana's SHSP and will subsequently revise the HSIP Local Project Selection Guidance.

INDOT fiscal policy is to make one-third of its total FHWA apportionment from HSIP available to local public agencies for safety projects on local system roads. Individual Metropolitan Planning Organizations (MPO), receive annual apportionments of obligation authority, while predetermined amounts of obligation authority are set-aside for the use of rural public highway agencies. The "Highway Safety Improvement Program Local Project Selection Guidance," provides local agencies guidance on the structure and content of applications for HSIP and HRRRP project funding. INDOT maintains a web-based information source on the various state and local safety programs, which is accessible at, http://www.in.gov/indot/2357.htm.

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.

In the State of Indiana, Local Public Agencies (LPAs) operate and maintain all local public roads. INDOT policy is to make one third of its total annual apportionment of HSIP funding available to local public agencies for safety projects on local system roads. An annual apportionment of obligation authority is assigned to each Metropolitan Planning Organization (MPO) serving Group 1 and Group 2 urban areas. A standardized population formula is used to determine the assigned funding made available to individual MPOs. For public agencies in rural (non MPO areas) Group 3 (incorporated cities and towns) and rural Group 4 (counties and un-incorporated towns), a predetermined amount of HSIP funds are made available for funding eligible projects. The aforementioned population formula is also used to determine the total amount of the HSIP allotted for projects located in rural areas.

Rules have been established allowing LPAs to apply to INDOT for determination of project eligibility to utilize HSIP funds. These rules are contained in the INDOT guidance document titled, *Highway Safety Improvement Program Local Project Selection Guidance*. The latest INDOT version of this guidance document was approved by INDOT's Highway Safety Advisory Committee on December 10, 2010. In 2014 a supplement document titled FY 2014 Special Rules for HSIP Eligibility was published, principally to expand the choices of Systemic Safety improvement types available to local agencies. Both documents are on file at the FHWA Indiana Division Office. The document are also posted on the INDOT web site at: http://www.in.gov/indot/files/LocalHSIPProjectSelectionGuidance.pdf

Guidance and outreach efforts are routinely made by INDOT and the Local Technical

Assistance Program (LTAP), in regard to selection of HSIP and HRRRP projects. INDOT's guidance to LPAs advocates the value of low cost systemic safety improvements to proactively address the risk of severe crashes on their entire roadway system, along with the treatment of locations with high risk of frequent severe crashes involving fatality or incapacitating (Class A) injury. Systemic projects are gaining increasing acceptance by LPAs. Notably, many applications have been submitted by LPAs to assist them in funding systemic projects to upgrade the retro-reflectivity of local regulatory and warning signs.

In urban areas, the MPOs that serve Group 1 and 2 urban areas are tasked to perform initial screening of proposed safety improvements and select candidate projects subject to INDOT determination of HSIP eligibility. To provide a similar level of planning support to rural public agencies, INDOT has collaborated with the Indiana Local Technical Assistance Program (LTAP). INDOT sponsors an ongoing program with LTAP called the *Hazard Elimination Project for Local Roads and Streets* (HELPERS) Program. The HELPERS Program coordinates with rural planning organizations (RPOs) as well as rural counties, cities and towns to assist them in identifying, analyzing and prioritizing their safety improvement needs in regard to reducing the occurrence and risk of severe crashes.

The HELPERS Program advises LPAs regarding management of safety risks and assists rural area LPAs in submitting project level funding proposals to INDOT for determination of HSIP project eligibility. The INDOT Office of Traffic Safety makes a determination of eligibility for all applications to utilize HSIP or HRRRP funding.

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

Design
Planning
Operations
Other-Local Agency Assistance Divison and Budget & Project Accounting Division
Other-Capital Asset Management

Briefly describe coordination with internal partners.

The INDOT Office of Traffic Safety (OTS) leads INDOT's coordinated efforts to identify locations with safety needs, plan improvements, prioritize and program traffic safety improvement projects on the Indiana State system of highways. OTS works with each of INDOT's district offices, as well as the divisions of Design, Planning, Traffic Engineering, LPA & Grant Administration, Capital Asset Management Office and Budget Divisions.

In order to identify potential safety improvement projects, OTS gathers input from various internal and external groups. The principal internal partners are the district Maintenance and Technical Services Divisions and Traffic engineering offices that provide key input in the conduct of road safety assessments.

In the areas of finance, budget and project prioritization/programming, the Manager of the OTS acts as the chair to the INDOT Traffic Safety Asset Management Team to prioritize all proposed

safety projects located on the INDOT system of highways. The six INDOT district traffic engineering offices act as voting members of the team and the INDOT Office of Capital Project Funds Management provides coordination with INDOTs other asset teams and upper management. The Traffic Safety Asset Management Team acts to deliberate the relative need and priority of proposed traffic safety projects on INDOT managed roadways. The overall budgeting of obligation authority for safety projects on both the state and local road systems is coordinated with the Division of Budget and Project Accounting.

For approved safety projects on the state highway system, the relevant INDOT district office is responsible for project programming and entry of the project into the State Transportation Improvement Plan (STIP) and any relevant local Transportation Improvement Plan (TIP). They also manage design and construction projects in coordination with INDOT Design and Construction Divisions, via a project manager assigned to the project to coordinate all project development tasks.

Regarding internal coordination of local safety projects, the OTS performs review of all proposed projects for compliance with eligibility requirements as defined in Indiana's Strategic Highway Safety Plan. Eligible projects are recommended to the INDOT Division of LPA & Grant Administration for funding approval and inclusion in the STIP and relevant TIP document. The LPA & Grants Division also develops an interagency agreement with the LPA to guide project development. The relevant INDOT district then assigns a project manager to coordinate development of the construction project.

In addition, OTS consults with Design and Maintenance Divisions regarding new safety improvement design practices and the Office of Traffic Administration, regarding new Standards and Specifications. OTS also coordinates with the Research Division regarding the approval of safety related research efforts under the Joint Transportation Research Project (JTRP) and to plan implementation of successful research products.

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

Metropolitan Planning Organizations
Governors Highway Safety Office
Other-Local Technical Assistance Program

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

Other-Project administration and funding approval resides with Division of Local Public Agencies and Grants Administration.

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

In response to the increased HSIP apportionments under MAP-21 and FAST Act, INDOT has engaged in new strategies to increase the obligation of funds to construct worthy safety improvement projects. The number of systemic improvement types has been expanded along with expanded selection of hot spot safety improvement projects. One third of the total percentage of HSIP funds is made available to local agencies, resulting in more opportunity to combat severe crash risk in both urban and rural areas.

Regarding the process used by INDOT to conduct HSIP eligibility review for proposed local safety projects; urban LPAs must first submit to their local Metropolitan Planning Organizations (MPOs) for preliminary project selection and funding prioritization. Rural group 3 and group 4 LPAs first submit their proposed projects to the LTAP HELPERS Program for compliance review, prior to INDOT determination of eligibility for HSIP or HRRRP funding.
INDOT determines eligibility in accordance with the Indiana Strategic Highway Safety Plan delineated emphasis areas and project work types defined in the HSIP Local Project Selection Guidance documents. If a proposed local project is found to be eligible for HSIP or HRRRP funding, the Division of LPA and Grant Administration provides oversight of project agreements between INDOT and the LPA to govern project development. The LPA and Grant Administration Division also supports the programming of safety projects by administering inclusion of projects on Local and State Transportation Improvement Plans and authorizing funding obligation fiscal year, scheduling of plan development and construction contract letting.
Once a project is programmed in Active status on the INDOT scheduling system, the INDOT district office assigns a project manager to coordinate the design and environmental documentation with the project sponsor agency, designer, and various INDOT Divisions and offices as well as monitor progress in order to bring the project to a scheduled construction contract letting.

Program Methodology

Select the programs that are administered under the HSIP.

Median Barrier	Intersection	Horizontal Curve
Bicycle Safety	Rural State Highways	Crash Data
Roadway Departure	Sign Replacement And Improvement	Local Safety
Pedestrian Safety	Other-Centerline and Edgeline Rumble Stripes	Other-Traffic Signal Visibility Improvement

Program: **Median Barrier**
Date of Program Methodology: **10/1/2010**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
Fatal and serious injury crashes only	Volume	Median width Functional classification

What project identification methodology was used for this program?
Crash frequency
Relative severity index
Excess proportions of specific crash types

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

How are highway safety improvement projects advanced for implementation?
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).
Relative Weight in Scoring

Cost Effectiveness	50
Weighted ranking factors including safety need, roadway geometry and cost effectivness	50

Program: **Intersection**
Date of Program Methodology: **10/1/2010**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
Fatal and serious injury crashes only	Volume	Other-roadway conditions and sight distance

What project identification methodology was used for this program?

Crash frequency
Relative severity index
Probability of specific crash types
Excess proportions of specific crash types

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).
Relative Weight in Scoring

Cost Effectiveness	50
Weighted factors addressing safety need, intersection geometry and cost effectivness	50

Program: **Horizontal Curve**
Date of Program Methodology: **10/1/2013**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
Fatal and serious injury crashes only	Volume	Horizontal curvature Roadside features

What project identification methodology was used for this program?
Crash frequency
Relative severity index
Probability of specific crash types
Excess proportions of specific crash types

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).
Relative Weight in Scoring

Cost Effectiveness	50
Weighted Factors including safety need, roadway geometry and cost effectivness	50

Program: **Bicycle Safety**
Date of Program Methodology: **10/1/2015**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
Fatal and serious injury crashes only	Traffic Volume	Other-roadway width and geometric features

What project identification methodology was used for this program?
Crash frequency
Relative severity index
Probability of specific crash types
Excess proportions of specific crash types

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).
Relative Weight in Scoring

Cost Effectiveness	100

Program: **Rural State Highways**
Date of Program Methodology: **10/1/2010**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
Fatal and serious injury crashes only	Volume	Horizontal curvature Roadside features

What project identification methodology was used for this program?
Crash frequency
Relative severity index
Excess proportions of specific crash types

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

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).
Relative Weight in Scoring

Cost Effectiveness	50
Weighted factors based on safety need and cost effectivness	50

Program: **Crash Data**

Date of Program Methodology: 10/1/2010

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes		
Fatal and serious injury crashes only		

What project identification methodology was used for this program?

Crash frequency
Crash rate
Probability of specific crash types
Excess proportions of specific crash types

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

Available funding	50
Cost Effectiveness	50

Program: Roadway Departure
Date of Program Methodology: 10/1/2010

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
Fatal and serious injury crashes only		Horizontal curvature Roadside features

What project identification methodology was used for this program?

Crash frequency
Relative severity index
Probability of specific crash types

Excess proportions of specific crash types

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).
Relative Weight in Scoring

Cost Effectiveness	50
Weighted factors based on safety need and cost effectivness	50

Program: **Sign Replacement And Improvement**
Date of Program Methodology: **10/1/2010**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes		Horizontal curvature
Fatal and serious injury crashes only		Roadside features
		Other-Geometric Features

What project identification methodology was used for this program?
Crash frequency
Relative severity index
Other-Retroreflectivity of Existing Signs

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).

	Relative Weight in Scoring
Cost Effectiveness	100

Program: **Local Safety**
Date of Program Methodology: **10/1/2010**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes	Volume	Horizontal curvature
Fatal and serious injury crashes only		Roadside features
		Other-Geometric Features, marking and signs

What project identification methodology was used for this program?
Crash frequency
Relative severity index
Probability of specific crash types
Excess proportions of specific crash types

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?
No
If no, describe the methodology used to identify local road projects as part of this program.
State Roads are not addressed in this SubProgram

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).

Relative Weight in Scoring

Cost Effectiveness	50
Weighted scoring based on safety need and cost effectivness	50

Program: **Pedestrian Safety**
Date of Program Methodology: **10/1/2010**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes	Traffic	Median width
Fatal and serious injury crashes only	Volume	
		Roadside features
		Other-Geometrics features and land use

What project identification methodology was used for this program?
Crash frequency
Relative severity index
Probability of specific crash types
Excess proportions of specific crash types

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).
Relative Weight in Scoring

Cost Effectiveness	50
Weighted factors using safety need and cost effectivness	50

Program: **Other-Centerline and Edgeline Rumble Stripes**
Date of Program Methodology: **10/1/2012**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes	Traffic	Other-Paved Shoulder Width
Fatal and serious injury crashes only		

What project identification methodology was used for this program?
Crash frequency
Relative severity index
Excess proportions of specific crash types

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).
Relative Weight in Scoring

Cost Effectiveness	50
Weighted factors using safety need and cost effectivness	50

Program: **Other-Traffic Signal Visibility Improvement**
Date of Program Methodology: **10/1/2012**

What data types were used in the program methodology?

Crashes	*Exposure*	*Roadway*
All crashes	Traffic	Other-Signalized Intersections
Fatal and serious injury crashes only		

What project identification methodology was used for this program?

Crash frequency
Relative severity index
Excess proportions of specific crash types

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).

Relative Weight in Scoring

Cost Effectiveness	50
Weighted factors using safety need and cost effectivness	50

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

56%

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

Cable Median Barriers
Rumble Strips
Traffic Control Device Rehabilitation
Install/Improve Signing
Upgrade Guard Rails
Add/Upgrade/Modify/Remove Traffic Signal

What process is used to identify potential countermeasures?

Engineering Study
Road Safety Assessment

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

Other-No Changes

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

INDOT is seeking to achieve a balance between obligations of HSIP funds towards implementation of systemic improvements and supporting safety improvements at individual locations with high incidence or risk of severe crash outcomes. Project identification methods include conducting system wide analysis to identify both individual locations with high potential for severe crashes or wide spread needs for systemic improvements. Also, locations of concern may be identified, analyzed and programmed for safety improvement by other means such as public complaints filtered through one of the INDOT district offices.

Candidate locations on roads under INDOT jurisdiction are subject to an initial engineering review process analogous to a road safety assessment (RSA), in order to identify safety needs and appropriate cost effective countermeasures. The INDOT Office of Traffic Safety (OTS) conducts these reviews with support of the INDOT district offices.

The process used to program traffic safety projects on INDOT system roads requires selection and prioritization by state fiscal year. The Traffic Safety Asset Management (TSAM) Team consisting of representatives of OTS and the six INDOT District Traffic Engineers meet and deliberate candidate projects including both spot and systemic safety improvements to produce a proposed list of safety improvement projects for programming in each fiscal year. A uniform scoring procedure is utilized to provide proposed projects with weighted scores that utilize the history of crashes and their severity, traffic volume and road inventory data to a uniform set of criteria in order to assess the relative intensity of safety needs. The process also considers the cost effectiveness of the proposed solution and other factors to generate a weighted score that encompasses the relative need and effectiveness of a proposed safety improvement project. The TSAM team then reviews and deliberates the relative merits of each proposed project and assigns a priority grade for a targeted fiscal year of construction. A resulting suite of proposed

projects is then forwarded to an executive finance team called the Program Management Group that considers the set of proposed projects and then ratifies the safety program for the target construction year. A Change Management process is available for use throughout each project's design/development phase to provide consideration of any proposed changes to individual project intent, budget or construction year as needed.

In regard to candidate projects on the local road system, OTS makes all eligibility determinations for HSIP and HRRRP funding. The necessary information is provided by local public agencies and used by INDOT to determine eligibility for HSIP/HRRRP funding. A typical application for spot improvement proposals consists of a Road Safety Assessment (RSA) report, cost effectiveness analysis and a commitment to the project supplied by the relevant local officials. An exception to the full application package is the submission of eligibility information for certain approved systemic project types that may be provided via an INDOT approved form. Proposed projects located in metropolitan planning areas must first be selected by the relevant MPO prior to eligibility review by INDOT. Rural LPAs are asked to first work with the Indiana LTAP HELPERS Program that acts to advise the LPA and can pre-screen applications for compliance with federal and state regulations. The HELPERS Program also provides out-reach with valuable advice to the LPAs regarding best practices for traffic safety and facilitates the conduct of appropriate RSA procedures.

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)	$26,170,238.64	58 %	$23,574,593.00	52 %
HRRRP (SAFETEA-LU)	$1,922,810.30	4 %	$0.00	0 %
HRRR Special Rule	$1,716,073.26	4 %	$3,513,290.00	8 %
Penalty Transfer – Section 164	$0.00	0 %	$18,249,308.00	40 %
Other Federal-aid Funds (i.e. STP, NHPP)	$15,528,068.80	34 %	$0.00	0 %
Totals	$45,337,191.00	100%	$45,337,191.00	100%

Obligated program totals includes planned transfers from Advance Construction to the HSIP, HRRRP and 164-HE programs before October 1, 2016.

How much funding is programmed to local (non-state owned and operated) safety projects?
$12,591,064.00
How much funding is obligated to local safety projects?
$12,591,064.00

How much funding is programmed to non-infrastructure safety projects?
$219,600.00
How much funding is obligated to non-infrastructure safety projects?
$219,600.00

How much funding was transferred in to the HSIP from other core program areas during the reporting period?
0 %
How much funding was transferred out of the HSIP to other core program areas during the reporting period?
50 %

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

MAP-21 and FAST Act makes it clear that cost effectiveness and severe crash risk are to be considered in project selection decisions; however, guidance is currently unclear as to how the risk of future crashes for several systemic improvement types can be accommodated under current cost effectiveness methodologies. The determination of project eligibility to utilize HSIP

funds in a cost effective manner is typically based on past history of crashes. However, under changing traffic demand and operational conditions crash history is not always the most useful indicator of future crash risk. In addition, the predictive functions contained in the Highway Safety Manual while helpful in this regard, are still limited in the range of specific situations that may be predicted. As a result proposed safety improvement projects that are seemingly promising candidates for HSIP funding are sometimes rejected due to an inability to meet cost effectiveness criteria. The lack of guidance regarding the application of risk factors relative to cost effectiveness has also had the effect of stifling innovation in regard to trying new types of crash countermeasures. Improved guidance by FHWA in regard to assessment of future traffic safety risk would be a welcome feature in assessing changing conditions such as land use and travel demand.

NHTSA, the Governors Highway Safety Association (GHSA), FHWA), and FMCSA, are in the process of reviewing the Guidelines for the Model Minimum Uniform Crash Criteria (MMUCC) Fourth Edition. NHTSA and GHSA anticipate issuing draft changes to the Guidelines by fall 2017.

Indiana commented on data element P5 Injury Status, as it has great significance to how we collect and report serious injury data used by FHWA to determine if the state has met traffic safety performance targets.

The Indiana Traffic Records Coordinating Committee (TRCC) created a working group of key TRCC members to prepare comments to the new MMUCC requirements that become effective April 15, 2019

In 2014, the Indiana State Police (ISP), Indiana Department of Transportation (INDOT), Indiana Criminal Justice Institute (ICJI) and other members of the TRCC working on the Electronic Indiana Crash Report agreed to define an “incapacitating injury” as any injury that requires immediate transport from the scene for medical treatment. This was determined to both reduce time on the scene for reporting officers, and allowed their focus to be on protecting and clearing the crash scene. It also provided a non-subjective “yes or no” condition to indicate the seriousness of injury rather than a subjective evaluation of injury.

The new MMUCC guidelines will require the term “suspected serious injury” for the “A” (KABCO) classification starting April 15, 2019. The new guidelines will also require officers to determine a level of trauma to the victim from a list of possible injuries. Not only is this difficult for most officers who are not medically trained, it is also much more time consuming and is inherently inconsistent from one officer to the next, and even from one injury to the next by the same officer.

Based on the success of Indiana’s current, and ongoing system for the determination of an “incapacitating injury” (suspected serious injury) by officers at crash scenes, the TRCC Working Group made the following recommendations to the MMUCC review committee:

1. Either replace “suspected serious injury” with “incapacitating injury”, or consider allowing the terms “suspected serious injury” and “incapacitating injury” to be synonymous.

2. Allow the definition for the “A” listing in the KABCO injury scale to either be, or include, “non-fatally injured person transported from the crash scene for medical treatment”.

3. If “suspected serious injury” remains the term for the A classification in KABCO classification for reporting, allow the definition of that classification to include “non-fatally injured person transported from crash scene for medical treatment”.

The Indiana TRCC Working Group will continue to meet and discuss methods of complying with the MMUCC guidelines while maintaining the overall goal of making the officers’ job at a crash scene as easy, quick, accurate and consistent as possible.

The rural fatal crash rate rule governing the High Risk Rural Roads Program should end. The HRRR Program has proven ineffective as a means of addressing rural road safety primarily due to constraint on functional class. Rural LPAs are far more likely to apply for HSIP funds to make safety improvements on rural local roads. The requirement that ties safety improvement funds to roadway functional class is not an element that rural LPAs typically consider when developing or prioritizing proposed safety improvements; therefore projects submitted for eligibility by LPAs often do not qualify for HRRRP eligibility. Analysis of current severe crash trends has not indicated a difference that can be directly attributed to functional class. In addition, many local roads lack adequate volume or inventory data, making an accurate comparison of crash rate averages a difficult task. Further the current best practice of comparing substantive to nominal crash risk has proven to be a better predictor or crash risk. Improved response to risk factors for severe crashes on rural local roads could be achieved by encouraging states to dedicate a percentage of their HSIP apportionments to the construction safety improvements on rural medium to low volume roads found to have a higher than nominal severe crash frequency or rate regardless of their functional class.

If the HRRR Program special rule is to continue, at a minimum state DOT’s should be permitted to conduct the calculation of all current special rule requirements under processes approved by FHWA. State DOTs are more familiar with current status of roadway conditions, function and changing urban/rural boundaries. The current calculation conducted by NHTSA is dependent on data from the FARS system that has an inherent time lag while Fast FARS lacks adequate accuracy for timely calculations. Also, NHTSAs functional class definitions do not match FHWA potentially adding misperception of the actual conditions.

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

In March of 2016 the Governor of Indiana signed a revised Strategic Highway Safety Plan for Indiana. This new SHSP will assist efforts to implement the HSIP over the next 5 years. During the development of the revised SHSP, extensive discussions were held with partnering federal and state agencies. In the revised SHSP reliance on language calling for specific countermeasures is generally avoided, in favor of broad national “Toward Zero Deaths” strategies. Indiana feels that making the SHSP as flexible as possible will provide an advantage in terms of addressing emerging issues and countermeasures, methodologies or technologies in the coming years.

INDOT administers an Asset Management program to budget and program all of INDOT’s infrastructure capital investments. The Asset Management system provides a means to budget for needed safety improvement actions and to prioritize potential

safety improvement projects and actions that improves INDOT's ability to select and produce high value safety projects. Candidate safety projects undergo weighted scoring that emphasizes the need to address high severity crash locations with the construction of cost effective crash countermeasures. Spot improvement projects are prioritized and programmed up to 5 years in the future. Also, annual reservations of a budget allocation for systemic safety improvements to be constructed in the same future years are prioritized. The needs analysis conducted by the traffic safety asset management team for both spot and systemic safety project proposals serves to validate increased awareness of and priority for increased investment in traffic safety.

The primary program goal for the Traffic Safety Asset Class is the reduction in the frequency of severe (fatal and incapacitating injury) crashes either by reducing the occurrence of these crashes or their relative severity. Current available analysis tools are designed to consider all injury crashes to be serious so fatal and injury crashes are used for prioritization of countermeasure proposals. For most crash studies conducted at specific locations (sites) property damage data is also used to reveal a complete picture of prevailing crash patterns. For sites on the INDOT system and in most local urban areas, traffic volume data is available to establish nominal and substantive crash rates. Unfortunately, most rural local roads lack recent volume data so a crash loss index was developed under a joint transportation research project with Purdue University. Socioeconomic data and road characteristics are used to develop a local expected road crash loss and crash loss density that is compared to existing crash history to determine relative safety need at a site or road segment. Prior to project programming a site investigation is performed for all crash studies using Road Safety Assessment (RSA) principles to determine if or how the road’s design and maintenance characteristics influence crashes. The RSA also acts as an effective means to guide the selection of appropriate and effective crash countermeasures.

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
1005498	Intersection traffic control Modify traffic signal - modernization/replacement	3 Numbers	410943.8	410943.8	HRRR Special Rule	Urban Minor Arterial	14500	45	State Highway Agency	Intersections	Increase traffic signal visibility
1296850	Roadway signs and traffic control Roadway signs (including post) - new or updated	1 Numbers	100184.39	100184.39	HRRR Special Rule	Rural Principal Arterial - Other	5500	55	State Highway Agency	Intersections	Increase sign, signal and marking visibility
1296910	Intersection traffic control Modify traffic signal - modernization/replacement	3 Numbers	391424.5	422490.23	HRRR Special Rule	Rural Principal Arterial - Other	8500	55	State Highway Agency	Intersections	Increase traffic signal visibility
1296960	Intersection traffic control Systemic improvements - signal-controlled	38 Numbers	578451.26	597757.14	HRRR Special Rule	Rural Principal Arterial - Other	10000	55	State Highway Agency	Intersections	Increase sign, signal and marking visibility
1296967	Intersection traffic control Systemic improvements - stop-controlled	60 Numbers	130848.01	130848.01	HRRR Special Rule	Rural Principal Arterial - Other	10000	55	State Highway Agency	Intersections	Increase sign, signal and marking visibility

1297755	Roadway signs and traffic control Roadway signs (including post) - new or updated	1350 Numbers	219822.59	244247.32	HRRR Special Rule	Urban Principal Arterial - Other	10000	35	City of Municipal Highway Agency	Improved warning and regulatory signs	Increase sign visibility
1298660	Intersection traffic control Modify traffic signal - modernization/replacement	1 Numbers	91145.75	150462.42	HRRR Special Rule	Rural Major Collector	8000	60	State Highway Agency	Intersections	Increase traffic signal visibility
1400931	Roadway signs and traffic control Roadway signs (including post) - new or updated	1700 Numbers	1564454	1574342.89	HRRR Special Rule	Urban Principal Arterial - Other	8500	50	County Highway Agency	Intersections	Increase sign visibility
1401157	Roadway Rumble strips - center	22.4 Miles	46454.17	46454.17	HRRR Special Rule	Rural Minor Arterial	10000	55	State Highway Agency	Lane Departure	Install centerline rumble stripes
1401209	Intersection traffic control Systemic improvements - stop-controlled	23 Numbers	105165.09	105165.09	HRRR Special Rule	Rural Minor Arterial	10000	55	State Highway Agency	Intersections	Increase sign and marking visibility
1006046	Roadway Roadway narrowing (road diet, roadway reconfiguration)	0.832 Miles	856169.82	954655.72	HSIP (Section 148)	Urban Principal Arterial - Other	15000	35	City of Municipal Highway Agency	Bicyclists	Road Diet to provide turn lanes and bicycle lane
1006333	Roadway signs and traffic control Roadway signs (including post) - new or updated	7000 Numbers	1360766.28	1511962.53	HSIP (Section 148)	Urban Principal Arterial - Other	12000	35	City of Municipal Highway Agency	Intersections	Increase sign visibility
11723	Roadway signs and traffic	5375	101463.	112737.	HSIP	Urban	2100	45	City of	Intersecti	Increase

94	control Roadway signs (including post) - new or updated	Numbers	88	64	(Section 148)	Principal Arterial - Other	0		Municipal Highway Agency	ons	sign visibility
1173121	Roadway signs and traffic control Roadway signs (including post) - new or updated	3070 Numbers	1084869	1090469	Penalty Transfer – Section 164	Urban Principal Arterial - Other	18500	45	City of Municipal Highway Agency	Intersections	Increase sign visibility
1173187	Roadway signs and traffic control Roadway signs (including post) - new or updated	950 Numbers	388757.1	431952.34	HSIP (Section 148)	Urban Principal Arterial - Other	22500	45	City of Municipal Highway Agency	Intersections	Increase sign visibility
1173188	Roadway signs and traffic control Roadway signs (including post) - new or updated	2700 Numbers	379800.77	422000.86	HSIP (Section 148)	Urban Principal Arterial - Other	20500	45	City of Municipal Highway Agency	Intersections	Increase sign visibility
1173210	Intersection traffic control Modify traffic signal - modernization/replacement	7 Numbers	497700	518962.3	HSIP (Section 148)	Urban Minor Arterial	25000	45	City of Municipal Highway Agency	Intersections	Enhance Pedestrian Crosswalks and Install Active F
1382820	Roadway signs and traffic control Roadway signs (including post) - new or updated	3075 Numbers	90000	115498	HSIP (Section 148)	Urban Principal Arterial - Other	10500	45	City of Municipal Highway Agency	Intersections	Increase sign visibility
1383356	Intersection traffic control Modify traffic signal - add emergency	14 Numbers	251023.05	278914.05	HSIP (Section 148)	Urban Principal Arterial -	20500	45	City of Municipal	Intersections	Install emergency vehicle pre-

	vehicle preemption					Other			Highway Agency		emption equipment
1383471	Intersection traffic control Modify traffic signal - add emergency vehicle preemption	30 Numbers	453150	492922	HSIP (Section 148)	Urban Principal Arterial - Other	22600	45	City of Municipal Highway Agency	Intersections	Install emergency vehicle pre-emption equipment
1383612	Intersection traffic control Modify traffic signal - add emergency vehicle preemption	27 Numbers	377351.1	419279	HSIP (Section 148)	Urban Principal Arterial - Other	28000	45	City of Municipal Highway Agency	Intersections	Install emergency vehicle pre-emption equipment
1400969	Intersection traffic control Modify traffic signal - add wireless system	91 Numbers	268409.7	298233	HSIP (Section 148)	Urban Minor Arterial	27000	45	City of Municipal Highway Agency	Intersections	Install wireless interconnect system equipment for
1401043	Roadway signs and traffic control Roadway signs (including post) - new or updated	813 Numbers	90607.52	93617.8	Penalty Transfer – Section 164	Urban Principal Arterial - Other	24000	45	City of Municipal Highway Agency	Intersections	Increase sign visibility
1401348	Roadway signs and traffic control Roadway signs (including post) - new or updated	573 Numbers	132055.3	132055.3	Penalty Transfer – Section 164	Urban Minor Arterial	10000	55	County Highway Agency	Intersections	Increase sign visibility
1500247	Roadway signs and traffic control Roadway signs (including post) - new or	1002 Numbers	212761.61	212761.61	Penalty Transf	Urban Principal Arterial -	3000	35	City of Municipal	Intersections	Increase sign visibility

	updated				er – Section 164	Other			Highway Agency		
1500273	Roadside Barrier end treatments (crash cushions, terminals)	21 Numbers	278634.52	279634.52	HSIP (Section 148)	Urban Major Collector	15000	55	County Highway Agency	Roadway Departure	Installing guardrail safety end treatments
1500397	Intersection traffic control Modify traffic signal - add backplates with retroreflective borders	7 Numbers	31458.6	34953.6	HSIP (Section 148)	Urban Minor Arterial	15500	45	City of Municipal Highway Agency	Intersections	Install reflecorized signal backplates
1500571	Roadway signs and traffic control Roadway signs (including post) - new or updated	760 Numbers	142302.98	181470.02	HSIP (Section 148)	Urban Minor Arterial	12000	45	Town or Township Highway Agency	Intersections	Increase sign visibility
1592247	Roadway signs and traffic control Roadway signs (including post) - new or updated	1877 Numbers	432519.5	432519.5	Penalty Transfer – Section 164	Urban Minor Arterial	10000	55	County Highway Agency	Intersections	Increase sign visibility
0014750	Intersection geometry Intersection geometry - other	0.21 Miles	1031231.34	1110951.34	Penalty Transfer – Section 164	Rural Major Collector	8700	55	State Highway Agency	Intersections	Convert a rural signalized intersection into a rou
0201324	Intersection geometry Auxiliary lanes - add left-turn lane	0.28 Miles	165102.54	165102.54	Penalty Transfer –	Rural Principal Arterial - Other	8500	55	State Highway Agency	Intersections	Construct opposing left turn lanes and

					Section 164						update the
1006196	Intersection geometry Auxiliary lanes - add left-turn lane	0.074 Miles	350113.84	397782.38	HSIP (Section 148)	Urban Principal Arterial - Other	8220	30	State Highway Agency	Intersections	Construct EB left turn lane
1006199	Intersection geometry Auxiliary lanes - add left-turn lane	0.184 Miles	3100399.54	4347178.74	Penalty Transfer – Section 164	Urban Principal Arterial - Other	23160	30	State Highway Agency	Intersections	Construct opposing left turn lanes and update the
1006220	Roadway delineation Raised pavement markers	43853 Numbers	426716.2	426716.2	Penalty Transfer – Section 164	Urban Principal Arterial - Interstate	52000	70	State Highway Agency	Lane Departure	Installing RPMs for better guidance
1006438	Intersection traffic control Pavement markings - refresh existing pavement markings	0.38 Miles	98043.16	327708.13	Penalty Transfer – Section 164	Rural Principal Arterial - Other	6800	55	State Highway Agency	Intersections	Refreshing Pavement Markings, installing larger wa
1172194	Roadway delineation Raised pavement markers	16290 Numbers	139789.17	139789.17	Penalty Transfer – Section 164	Rural Minor Arterial	8500	55	State Highway Agency	Lane Departure	Refurbishment of RPMs
1173438	Intersection traffic control Modify traffic signal -	9 Numbers	848988.21	851188.21	Penalty Transf	Urban Principal Arterial -	15000	45	State Highway Agency	Intersections	Increase traffic signal visibility

	modernization/replacement				er – Section 164	Other					
1173463	Intersection traffic control Modify traffic signal - modernization/replacement	7 Numbers	832040.41	832040.41	HSIP (Section 148)	Urban Principal Arterial - Other	17300	55	State Highway Agency	Intersections	Increase traffic signal visibility
1173620	Roadway Pavement surface - miscellaneous	2.05 Miles	1329444.8	1480260.89	HSIP (Section 148)	Urban Principal Arterial - Other	18600	35	City of Municipal Highway Agency	Bicyclists	Road diet to create space for bike lanes
1296258	Intersection traffic control Systemic improvements - signal-controlled	33 Numbers	781734.52	784234.52	Penalty Transfer – Section 164	Urban Principal Arterial - Other	36350	50	State Highway Agency	Intersections	Increase traffic signal visibility
1296262	Roadside Barrier end treatments (crash cushions, terminals)	60 Numbers	1706073	1706073	Penalty Transfer – Section 164	Rural Principal Arterial - Interstate	41500	70	State Highway Agency	Roadway Departure	Installing guardrail safety end treatments
1296498	Roadway Pavement surface - miscellaneous	9.97 Miles	546460.44	547357.75	HSIP (Section 148)	Urban Principal Arterial - Other	9520	55	State Highway Agency	Roadway Departure	Installing a new HMA surface to inprove friction
1296883	Roadway Pavement surface - miscellaneous	7.95 Miles	900232.88	902001.51	Penalty Transf	Rural Major Collector	6000	50	State Highway Agency	Roadway Departure	Installing centerline and

					er – Section 164						edgeline Rumble Stripes
1296908	Roadway Rumble strips - unspecified or other	38.07 Miles	634627.21	634627.21	Penalty Transfer – Section 164	Rural Major Collector	4000	55	State Highway Agency	Roadway Departure	Installing centerline and edgeline Rumble Stripes
1296928	Roadway Rumble strips - unspecified or other	8.53 Miles	202994.58	202994.58	Penalty Transfer – Section 164	Rural Minor Arterial	8100	55	State Highway Agency	Roadway Departure	Installing centerline and edgeline Rumble Stripes
1296963	Intersection traffic control Systemic improvements - signal-controlled	5 Numbers	188261.85	188261.85	Penalty Transfer – Section 164	Urban Minor Arterial	30900	55	State Highway Agency	Intersections	Increase traffic signal visibility
1296964	Intersection traffic control Systemic improvements - signal-controlled	6 Numbers	222415.7	222415.7	Penalty Transfer – Section 164	Urban Minor Arterial	30900	55	State Highway Agency	Intersections	Increase traffic signal visibility
1383369	Roadway signs and traffic control Roadway signs (including post) - new or updated	1724 Numbers	340495.65	350125.65	HSIP (Section 148)	Urban Minor Arterial	10000	35	City of Municipal Highway Agency	Intersections	Increase sign visibility
13836	Roadway signs and traffic	1575	510601.	567334.	HSIP	Rural	2000	50	County	Intersecti	Increase

43	control Roadway signs (including post) - new or updated	Numbers	21	68	(Section 148)	Minor Collector			Highway Agency	ons	sign visibility
1400066	Intersection traffic control Modify traffic signal - modernization/replacement	1 Numbers	9841.59	176062.44	Penalty Transfer – Section 164	Urban Minor Arterial	12000	55	State Highway Agency	Intersections	Install traffic signal
1401153	Roadside Barrier - cable	3.8 Miles	300150.68	300150.68	Penalty Transfer – Section 164	Urban Principal Arterial - Interstate	31870	65	State Highway Agency	Roadway Departure	Install cable barrier in median
1401180	Intersection traffic control Systemic improvements - signal-controlled	3 Numbers	300199.19	300199.19	Penalty Transfer – Section 164	Urban Principal Arterial - Other	35000	45	State Highway Agency	Intersections	Increase traffic signal visibility
1401373	Roadway delineation Raised pavement markers	10000 Numbers	480159.62	480159.62	Penalty Transfer – Section 164	Urban Principal Arterial - Interstate	128700	55	State Highway Agency	Lane Departure	Refurbish and install RPMs
1500349	Intersection traffic control Modify traffic signal - miscellaneous/other/unspecified	0.16 Miles	98147.87	98147.87	Penalty Transfer – Section 164	Rural Major Collector	5600	45	State Highway Agency	Intersections	Install traffic signal

1500355	Intersection traffic control Intersection traffic control - other	2 Numbers	210615.56	222477.34	Penalty Transfer – Section 164	Rural Major Collector	9500	55	State Highway Agency	Intersections	Install traffic signal
1500356	Intersection traffic control Intersection traffic control - other	2 Numbers	89936.21	89936.21	Penalty Transfer – Section 164	Urban Principal Arterial - Other	31500	40	State Highway Agency	Intersections	Install traffic signal
1500436	Intersection traffic control Intersection traffic control - other	1 Numbers	139907.06	139907.06	Penalty Transfer – Section 164	Urban Major Collector	11100	55	State Highway Agency	Intersections	Install traffic signal
1592271	Pedestrians and bicyclists Pedestrian signal - Pedestrian Hybrid Beacon	2 Numbers	110897.1	123219	HSIP (Section 148)	Rural Local Road or Street	2500	35	County Highway Agency	Pedestrians	Install HAWK Pedestrian Signals
1600480	Non-infrastructure Transportation safety planning	1 Numbers	15000	15000	Penalty Transfer – Section 164	Agency wide therefore it includes local, collector and arterial	5000	35	Other Local Agency	Study to identify safety deficiencies	Safety Study RFP
1592405	Non-infrastructure Transportation safety planning	1 Numbers	33696	33696	HSIP (Section 148)	Agency wide therefore it includes	5000	35	Other Local Agency	Study to identify safety deficienci	Safety Study

						local, collector and arterial				es	
1592270	Intersection traffic control Modify traffic signal timing - signal coordination	82 Numbers	202500	225000	HSIP (Section 148)	Urban Local Road or Street	10000	35	City of Municipal Highway Agency	Intersections	Interconnection and coordination of traffic signal
1592290	Non-infrastructure Transportation safety planning	1 Numbers	90350	100350	HSIP (Section 148)	Agency wide therefore it includes local, collector and arterial	5000	35	Other Local Agency	Study to identify safety deficiencies	Safety Study
1296958	Roadside Barrier - cable	5 Miles	446124.67	476124.67	Penalty Transfer – Section 164	Rural Principal Arterial - Interstate	26500	70	State Highway Agency	Roadway Departure	Install cable barrier in median
1383183	Non-infrastructure Non-infrastructure - other	1 Numbers	251250	251250	Penalty Transfer – Section 164	Typically Urban Principal Arterial - Interstate	138500	55	State Highway Agency	Clearing shoulder areas from incidents thereby making the roadway environment more	Hoosier Helpers Incident Response

										safe	
1297112	Roadway delineation Raised pavement markers	5283 Numbers	229677.24	229677.24	Penalty Transfer – Section 164	Rural Major Collector	5500	55	State Highway Agency	Lane Departure	Refurbish and install RPMs
1500580	Intersection traffic control Intersection traffic control - other	1 Numbers	186092.66	186092.66	Penalty Transfer – Section 164	Rural Minor Arterial	14300	60	State Highway Agency	Intersections	Increase traffic signal visibility
1044963	Alignment Vertical alignment or elevation change	0.89 Miles	604407.72	671407.72	HSIP (Section 148)	Urban Minor Arterial	10450	35	City of Municipal Highway Agency	Intersections	create a grade separated rail/highway crossing
1401649	Roadway signs and traffic control Sign sheeting - upgrade or replacement	298 Numbers	139593.82	155104.25	HSIP (Section 148)	Urban Major Collector	5000	35	Town or Township Highway Agency	Intersections	increase sign visability
1296958	Roadside Barrier - cable	5 Miles	446124.67	476124.67	Penalty Transfer – Section 164	Rural Principal Arterial - Interstate	27120	70	State Highway Agency	Roadway Departure	Install cable barrier in median

Project	Improvement Category	Output	HSIP Cost	Total Cost	Funding Category	Functional Classification	AADT	Speed	Roadway Ownership	Relationship to SHSP	
										Emphasis Area	Strategy
1005498	Intersection traffic control Modify traffic signal - modernization/replacement	3 Numbers	410943.8	410943.8	HRRR Special Rule	Urban Minor Arterial	14500	45	State Highway Agency	Intersections	Increase traffic signal visibility
1296850	Roadway signs and traffic control Roadway signs (including post) - new or updated	1 Numbers	100184.39	100184.39	HRRR Special Rule	Rural Principal Arterial - Other	5500	55	State Highway Agency	Intersections	Increase sign, signal and marking visibility
1296910	Intersection traffic control Modify traffic signal - modernization/replacement	3 Numbers	391424.5	422490.23	HRRR Special Rule	Rural Principal Arterial - Other	8500	55	State Highway Agency	Intersections	Increase traffic signal visibility
1296960	Intersection traffic control Systemic improvements - signal-controlled	38 Numbers	578451.26	597757.14	HRRR Special Rule	Rural Principal Arterial - Other	10000	55	State Highway Agency	Intersections	Increase sign, signal and marking visibility
1296967	Intersection traffic control Systemic improvements - stop-controlled	60 Numbers	130848.01	130848.01	HRRR Special Rule	Rural Principal Arterial - Other	10000	55	State Highway Agency	Intersections	Increase sign, signal and marking visibility
1297755	Roadway signs and traffic control Roadway signs (including post) - new or updated	1350 Numbers	219822.59	244247.32	HRRR Special Rule	Urban Principal Arterial - Other	10000	35	City of Municipal Highway	Improved warning and regulator	Increase sign visibility

									Agency	y signs	
1298660	Intersection traffic control Modify traffic signal - modernization/replacement	1 Numbers	91145.75	150462.42	HRRR Special Rule	Rural Major Collector	8000	60	State Highway Agency	Intersections	Increase traffic signal visibility
1400931	Roadway signs and traffic control Roadway signs (including post) - new or updated	1700 Numbers	1564454	1574342.89	HRRR Special Rule	Urban Principal Arterial - Other	8500	50	County Highway Agency	Intersections	Increase sign visibility
1401157	Roadway Rumble strips - center	22.4 Miles	46454.17	46454.17	HRRR Special Rule	Rural Minor Arterial	10000	55	State Highway Agency	Lane Departure	Install centerline rumble stripes
1401209	Intersection traffic control Systemic improvements - stop-controlled	23 Numbers	105165.09	105165.09	HRRR Special Rule	Rural Minor Arterial	10000	55	State Highway Agency	Intersections	Increase sign and marking visibility
1006046	Roadway Roadway narrowing (road diet, roadway reconfiguration)	0.832 Miles	856169.82	954655.72	HSIP (Section 148)	Urban Principal Arterial - Other	15000	35	City of Municipal Highway Agency	Bicyclists	Road Diet to provide turn lanes and bicycle lane
1006333	Roadway signs and traffic control Roadway signs (including post) - new or updated	7000 Numbers	1360766.28	1511962.53	HSIP (Section 148)	Urban Principal Arterial - Other	12000	35	City of Municipal Highway Agency	Intersections	Increase sign visibility
1172394	Roadway signs and traffic control Roadway signs (including post) - new or updated	5375 Numbers	101463.88	112737.64	HSIP (Section 148)	Urban Principal Arterial - Other	21000	45	City of Municipal Highway Agency	Intersections	Increase sign visibility

1173121	Roadway signs and traffic control Roadway signs (including post) - new or updated	3070 Numbers	1084869	1090469	Penalty Transfer – Section 164	Urban Principal Arterial - Other	18500	45	City of Municipal Highway Agency	Intersections	Increase sign visibility
1173187	Roadway signs and traffic control Roadway signs (including post) - new or updated	950 Numbers	388757.1	431952.34	HSIP (Section 148)	Urban Principal Arterial - Other	22500	45	City of Municipal Highway Agency	Intersections	Increase sign visibility
1173188	Roadway signs and traffic control Roadway signs (including post) - new or updated	2700 Numbers	379800.77	422000.86	HSIP (Section 148)	Urban Principal Arterial - Other	20500	45	City of Municipal Highway Agency	Intersections	Increase sign visibility
1173210	Intersection traffic control Modify traffic signal - modernization/replacement	7 Numbers	497700	518962.3	HSIP (Section 148)	Urban Minor Arterial	25000	45	City of Municipal Highway Agency	Intersections	Enhance Pedestrian Crosswalks and Install Active Flashing Beacons
1382820	Roadway signs and traffic control Roadway signs (including post) - new or updated	3075 Numbers	90000	115498	HSIP (Section 148)	Urban Principal Arterial - Other	10500	45	City of Municipal Highway Agency	Intersections	Increase sign visibility
1383356	Intersection traffic control Modify traffic signal - add emergency vehicle preemption	14 Numbers	251023.05	278914.05	HSIP (Section 148)	Urban Principal Arterial - Other	20500	45	City of Municipal Highway Agency	Intersections	Install emergency vehicle pre-emption equipment

1383471	Intersection traffic control Modify traffic signal - add emergency vehicle preemption	30 Numbers	453150	492922	HSIP (Section 148)	Urban Principal Arterial - Other	22600	45	City of Municipal Highway Agency	Intersections	Install emergency vehicle pre-emption equipment
1383612	Intersection traffic control Modify traffic signal - add emergency vehicle preemption	27 Numbers	377351.1	419279	HSIP (Section 148)	Urban Principal Arterial - Other	28000	45	City of Municipal Highway Agency	Intersections	Install emergency vehicle pre-emption equipment
1400969	Intersection traffic control Modify traffic signal - add wireless system	91 Numbers	268409.7	298233	HSIP (Section 148)	Urban Minor Arterial	27000	45	City of Municipal Highway Agency	Intersections	Install wireless interconnect system equipment for better coordination
1401043	Roadway signs and traffic control Roadway signs (including post) - new or updated	813 Numbers	90607.52	93617.8	Penalty Transfer – Section 164	Urban Principal Arterial - Other	24000	45	City of Municipal Highway Agency	Intersections	Increase sign visibility
1401348	Roadway signs and traffic control Roadway signs (including post) - new or updated	573 Numbers	132055.3	132055.3	Penalty Transfer – Section 164	Urban Minor Arterial	10000	55	County Highway Agency	Intersections	Increase sign visibility
1500247	Roadway signs and traffic control Roadway signs (including post) - new or updated	1002 Numbers	212761.61	212761.61	Penalty Transfer –	Urban Principal Arterial - Other	3000	35	City of Municipal Highway	Intersections	Increase sign visibility

					Section 164				Agency		
1500273	Roadside Barrier end treatments (crash cushions, terminals)	21 Numbers	278634.52	279634.52	HSIP (Section 148)	Urban Major Collector	15000	55	County Highway Agency	Roadway Departure	Installing guardrail safety end treatments
1500397	Intersection traffic control Modify traffic signal - add backplates with retroreflective borders	7 Numbers	31458.6	34953.6	HSIP (Section 148)	Urban Minor Arterial	15500	45	City of Municipal Highway Agency	Intersections	Install reflecorized signal backplates
1500571	Roadway signs and traffic control Roadway signs (including post) - new or updated	760 Numbers	142302.98	181470.02	HSIP (Section 148)	Urban Minor Arterial	12000	45	Town or Township Highway Agency	Intersections	Increase sign visibility
1592247	Roadway signs and traffic control Roadway signs (including post) - new or updated	1877 Numbers	432519.5	432519.5	Penalty Transfer – Section 164	Urban Minor Arterial	10000	55	County Highway Agency	Intersections	Increase sign visibility
NaN	Intersection geometry Intersection geometry - other	0.21 Miles	1031231.34	1110951.34	Penalty Transfer – Section 164	Rural Major Collector	8700	55	State Highway Agency	Intersections	Convert a rural signalized intersection into a roundabout
NaN	Intersection geometry Auxiliary lanes - add left-turn lane	0.284 Miles	165102.54	165102.54	Penalty Transfer – Sectio	Rural Principal Arterial - Other	8500	55	State Highway Agency	Intersections	Construct opposing left turn lanes and update the

					n 164						traffic signal installation
1006196	Intersection geometry Auxiliary lanes - add left-turn lane	0.074 Miles	350113.84	397782.38	HSIP (Section 148)	Urban Principal Arterial - Other	8220	30	State Highway Agency	Intersections	Construct EB left turn lane
1006199	Intersection geometry Auxiliary lanes - add left-turn lane	0.184 Miles	3100399.54	4347178.74	Penalty Transfer – Section 164	Urban Principal Arterial - Other	23160	30	State Highway Agency	Intersections	Construct opposing left turn lanes and update the traffic signal installation
1006220	Roadway delineation Raised pavement markers	43853 Numbers	426716.2	426716.2	Penalty Transfer – Section 164	Urban Principal Arterial - Interstate	52000	70	State Highway Agency	Lane Departure	Installing RPMs for better guidance
1006438	Intersection traffic control Pavement markings - refresh existing pavement markings	0.38 Miles	98043.16	327708.13	Penalty Transfer – Section 164	Rural Principal Arterial - Other	6800	55	State Highway Agency	Intersections	Refreshing Pavement Markings, installing larger warning signs, Installing transverse rumble strips
1172194	Roadway delineation Raised pavement markers	16290 Numbers	139789.17	139789.17	Penalty Transfer –	Rural Minor Arterial	8500	55	State Highway Agency	Lane Departure	Refurbishment of RPMs

					Section 164						
1173438	Intersection traffic control Modify traffic signal - modernization/replacement	9 Numbers	848988.21	851188.21	Penalty Transfer – Section 164	Urban Principal Arterial - Other	15000	45	State Highway Agency	Intersections	Increase traffic signal visibility
1173463	Intersection traffic control Modify traffic signal - modernization/replacement	7 Numbers	832040.41	832040.41	HSIP (Section 148)	Urban Principal Arterial - Other	17300	55	State Highway Agency	Intersections	Increase traffic signal visibility
1173620	Roadway Pavement surface - miscellaneous	2.05 Miles	1329444.8	1480260.89	HSIP (Section 148)	Urban Principal Arterial - Other	18600	35	City of Municipal Highway Agency	Bicyclists	Road diet to create space for bike lanes
1296258	Intersection traffic control Systemic improvements - signal-controlled	33 Numbers	781734.52	784234.52	Penalty Transfer – Section 164	Urban Principal Arterial - Other	36350	50	State Highway Agency	Intersections	Increase traffic signal visibility
1296262	Roadside Barrier - cable	60 Numbers	1706073	1706073	Penalty Transfer – Section 164	Rural Principal Arterial - Interstate	41500	70	State Highway Agency	Roadway Departure	Installing guardrail safety end treatments
1296498	Roadway Pavement surface - miscellaneous	9.97 Miles	546460.44	547357.75	HSIP (Section 148)	Urban Principal Arterial -	9520	55	State Highway Agency	Roadway Departure	Installing a new HMA surface to

						Other					inprove friction
1296883	Roadway Pavement surface - miscellaneous	7.95 Miles	900232.88	902001.51	Penalty Transfer – Section 164	Rural Major Collector	6000	50	State Highway Agency	Roadway Departure	Installing centerline and edgeline Rumble Stripes
1296908	Roadway Rumble strips - unspecified or other	38.07 Miles	634627.21	634627.21	Penalty Transfer – Section 164	Rural Major Collector	4000	55	State Highway Agency	Roadway Departure	Installing centerline and edgeline Rumble Stripes
1296928	Roadway Rumble strips - unspecified or other	8.53 Miles	202994.58	202994.58	Penalty Transfer – Section 164	Rural Minor Arterial	8100	55	State Highway Agency	Roadway Departure	Installing centerline and edgeline Rumble Stripes
1296963	Intersection traffic control Systemic improvements - signal-controlled	5 Numbers	188261.85	188261.85	Penalty Transfer – Section 164	Urban Minor Arterial	30900	55	State Highway Agency	Intersections	Increase traffic signal visibility
1296964	Intersection traffic control Systemic improvements - signal-controlled	6 Numbers	222415.7	222415.7	Penalty Transfer – Section 164	Urban Minor Arterial	30900	55	State Highway Agency	Intersections	Increase traffic signal visibility
13833	Roadway signs and traffic	1724	340495.	350125.	HSIP	Urban	1000	35	City of	Intersecti	Increase

69	control Roadway signs (including post) - new or updated	Numbers	65	65	(Section 148)	Minor Arterial	0		Municipal Highway Agency	ons	sign visibility
1383643	Roadway signs and traffic control Roadway signs (including post) - new or updated	1575 Numbers	510601.21	567334.68	HSIP (Section 148)	Rural Minor Collector	2000	50	County Highway Agency	Intersections	Increase sign visibility
1400066	Intersection traffic control Modify traffic signal - modernization/replacement	1 Numbers	9841.59	176062.44	Penalty Transfer – Section 164	Urban Minor Arterial	12000	55	State Highway Agency	Intersections	Install traffic signal
1401153	Roadside Barrier - cable	3.8 Miles	300150.68	300150.68	Penalty Transfer – Section 164	Urban Principal Arterial - Interstate	31870	65	State Highway Agency	Roadway Departure	Install cable barrier in median
1401180	Intersection traffic control Systemic improvements - signal-controlled	3 Numbers	300199.19	300199.19	Penalty Transfer – Section 164	Urban Principal Arterial - Other	35000	45	State Highway Agency	Intersections	Increase traffic signal visibility
1401373	Roadway delineation Raised pavement markers	10000 Numbers	480159.62	480159.62	Penalty Transfer – Section 164	Urban Principal Arterial - Interstate	128700	55	State Highway Agency	Lane Departure	Refurbish and install RPMs
15003	Intersection traffic	0.16	98147.8	98147.8	Penalt	Rural	5600	45	State	Intersecti	Install

49	control Modify traffic signal - miscellaneous/other/unspecified	Miles	7	7	y Transfer – Section 164	Major Collector			Highway Agency	ons	traffic signal
1500355	Intersection traffic control Intersection traffic control - other	2 Numbers	210615.56	222477.34	Penalty Transfer – Section 164	Rural Major Collector	9500	55	State Highway Agency	Intersections	Install traffic signal
1500356	Intersection traffic control Intersection traffic control - other	2 Numbers	89936.21	89936.21	Penalty Transfer – Section 164	Urban Principal Arterial - Other	31500	40	State Highway Agency	Intersections	Install traffic signal
1500436	Intersection traffic control Intersection traffic control - other	1 Numbers	139907.06	139907.06	Penalty Transfer – Section 164	Urban Major Collector	11100	55	State Highway Agency	Intersections	Install traffic signal
1592271	Pedestrians and bicyclists Pedestrian signal - Pedestrian Hybrid Beacon	2 Numbers	110897.1	123219	HSIP (Section 148)	Rural Local Road or Street	2500	35	County Highway Agency	Pedestrians	Install HAWK Pedestrian Signals
1600480	Non-infrastructure Transportation safety planning	1 Numbers	15000	15000	Penalty Transfer – Section 164	Agency wide coverage. Includes local streets, collectors	5000	35	Other Local Agency	Study to identify safety deficiencies	Safety Study RFP

						and arterials					
159240 5	Non-infrastructure Transportation safety planning	1 Numbers	33696	33696	HSIP (Section 148)	Agency wide therefore it covers local streets, collectors and arterials	5000	35	Other Local Agency	Study to identify safety deficiencies	Safety Study
159227 0	Intersection traffic control Modify traffic signal timing - signal coordination	82 Numbers	202500	225000	HSIP (Section 148)	Urban Local Road or Street	10000	35	City of Municipal Highway Agency	Intersections	Interconnection and coordination of traffic signals
159229 0	Non-infrastructure Transportation safety planning	1 Numbers	90350	100350	HSIP (Section 148)	Agency wide coverage therefore it includes local roads, collectors and arterials	5000	35	Other Local Agency	Studies to determine safety deficiencies	Safety Study
129695 8	Roadside Barrier - cable	5 Miles	446124.67	476124.67	Penalty Transfer – Section 164	Rural Principal Arterial - Interstate	26500	70	State Highway Agency	Roadway Departure	Install cable barrier in median
138318 3	Non-infrastructure Non-infrastructure - other	1 Numb	251250	251250	Penalty	Typically it is Urban	138500	55	State Highway	Removing incidents	Hoosier Helpers

		ers			Transfer – Section 164	Pricipal Arterial, Interstate but they may be used on Urban Principal Arterials, Other			Agency	from the roadside to make the shoulder area clear and more safe	Incident Response
1297112	Roadway delineation Raised pavement markers	5283 Numbers	229677.24	229677.24	Penalty Transfer – Section 164	Rural Major Collector	5500	55	State Highway Agency	Lane Departure	Refurbish and install RPMs
1500580	Intersection traffic control Intersection traffic control - other	1 Numbers	186092.66	186092.66	Penalty Transfer – Section 164	Rural Minor Arterial	14300	60	State Highway Agency	Intersections	Increase traffic signal visibility

Progress in Achieving Safety Performance Targets

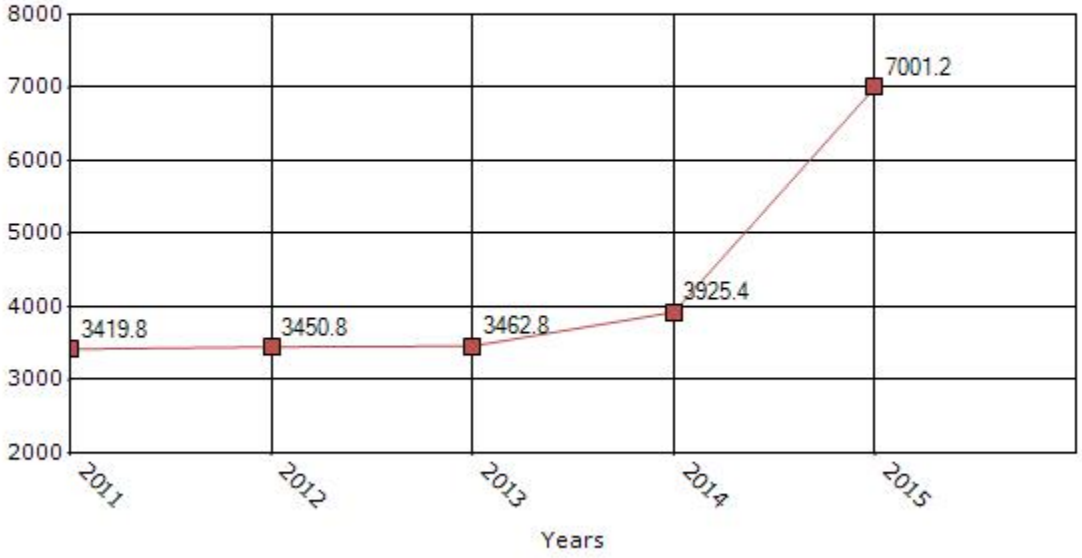
Overview of General Safety Trends

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

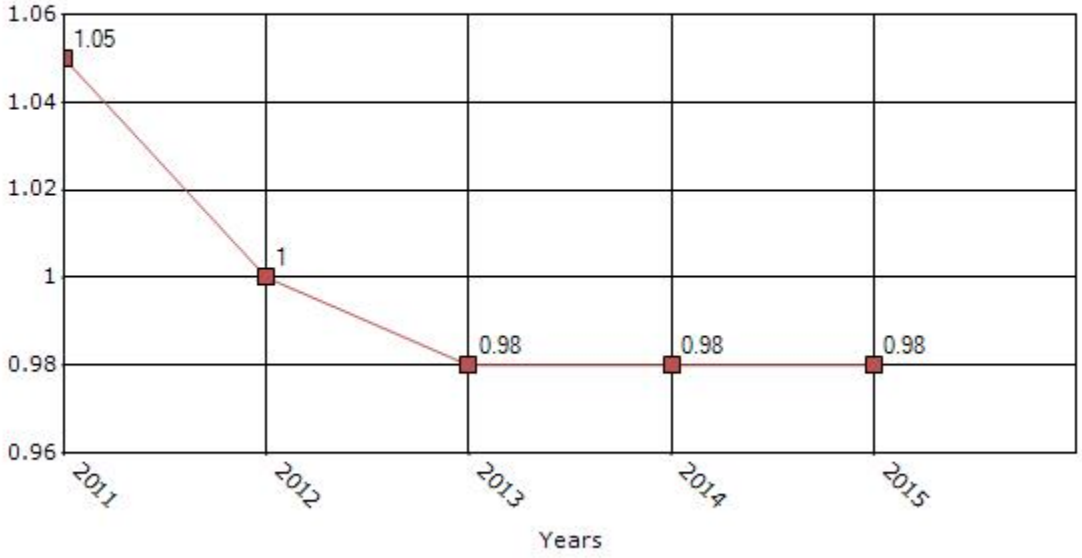
Performance Measures*	2011	2012	2013	2014	2015
Number of fatalities	789	764.4	757	766	779.2
Number of serious injuries	3419.8	3450.8	3462.8	3925.4	7001.2
Fatality rate (per HMVMT)	1.05	1	0.98	0.98	0.98
Serious injury rate (per HMVMT)	4.56	4.51	4.47	4.99	8.65

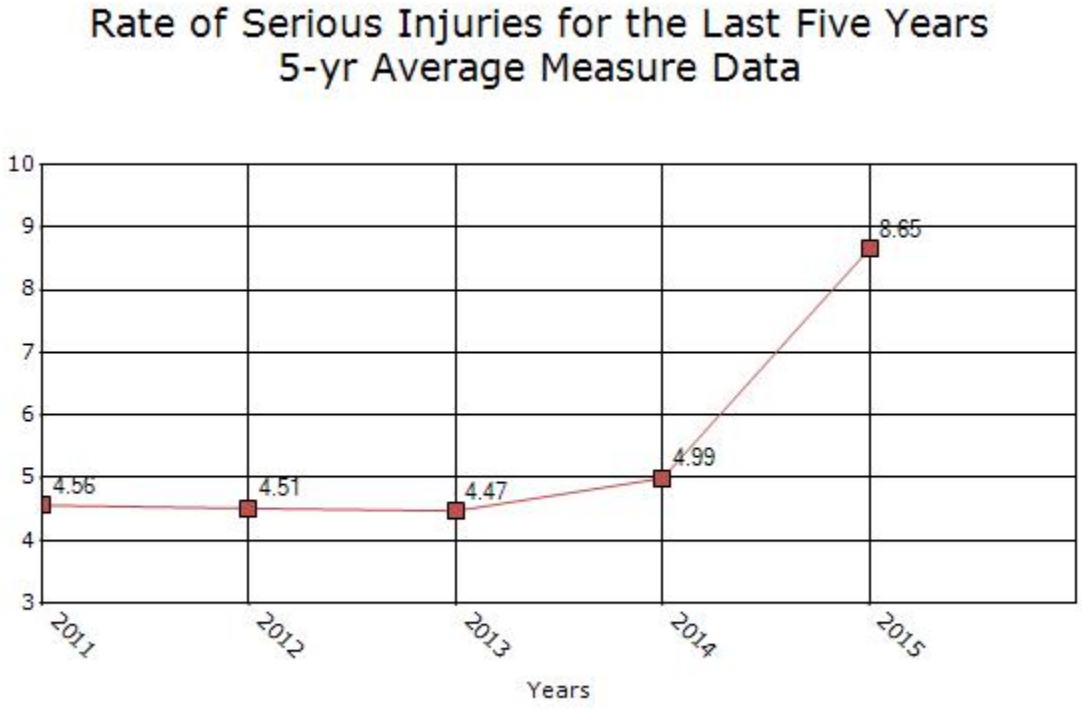
*Performance measure data is presented using a five-year rolling average.

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





In 2016 INDOT has undertaken an effort with the vendor that manages the AIRES crash data portal to improve crash data reliability for all records by inspecting data transfer and query processes for possible errors. As a result, a small increase in the number of crash records in each severity classification has occurred in each year with reported data.

In October of 2014 a new version of the Electronic Crash Reporting Tool used by officers was deployed to law enforcement agencies across the State of Indiana. The new version of the crash reporting tool changed the parameters for determination of injuries as class “A” severity on the KABCO scale. A new uniform method has been developed for declaring an injury to be “Incapacitating”; the definition used by Indiana to classify injury severity “A” for crash events and casualties. The new classification method was developed in response to agreement among members of the Indiana Traffic Records Coordinating Committee (TRCC); that the use of officer’s judgment in regard to determination of incapacitating injuries had been inconsistently applied. Inconsistency was noticed both between officers, and regionally, among certain police agencies that were either instructing officers or developing informal approaches to marking injury severity that was different from other peer agencies.

Previously, officers were asked to use subjective judgment to decide if injuries would be classified as incapacitating. The revised electronic reporting tool now classifies a crash participant as having an incapacitating injury if that person has been transported from

the scene for medical treatment at an emergency room or trauma center. This change removes the subjective element from the determination of class “A” injury severity.

The Indiana TRCC made the change in order to achieve more consistent, reliable data over the long term. The TRCC accepts the fact that over the next few years, the frequency and rate of serious injury data would appear to be distorted when compared to the data from past years.

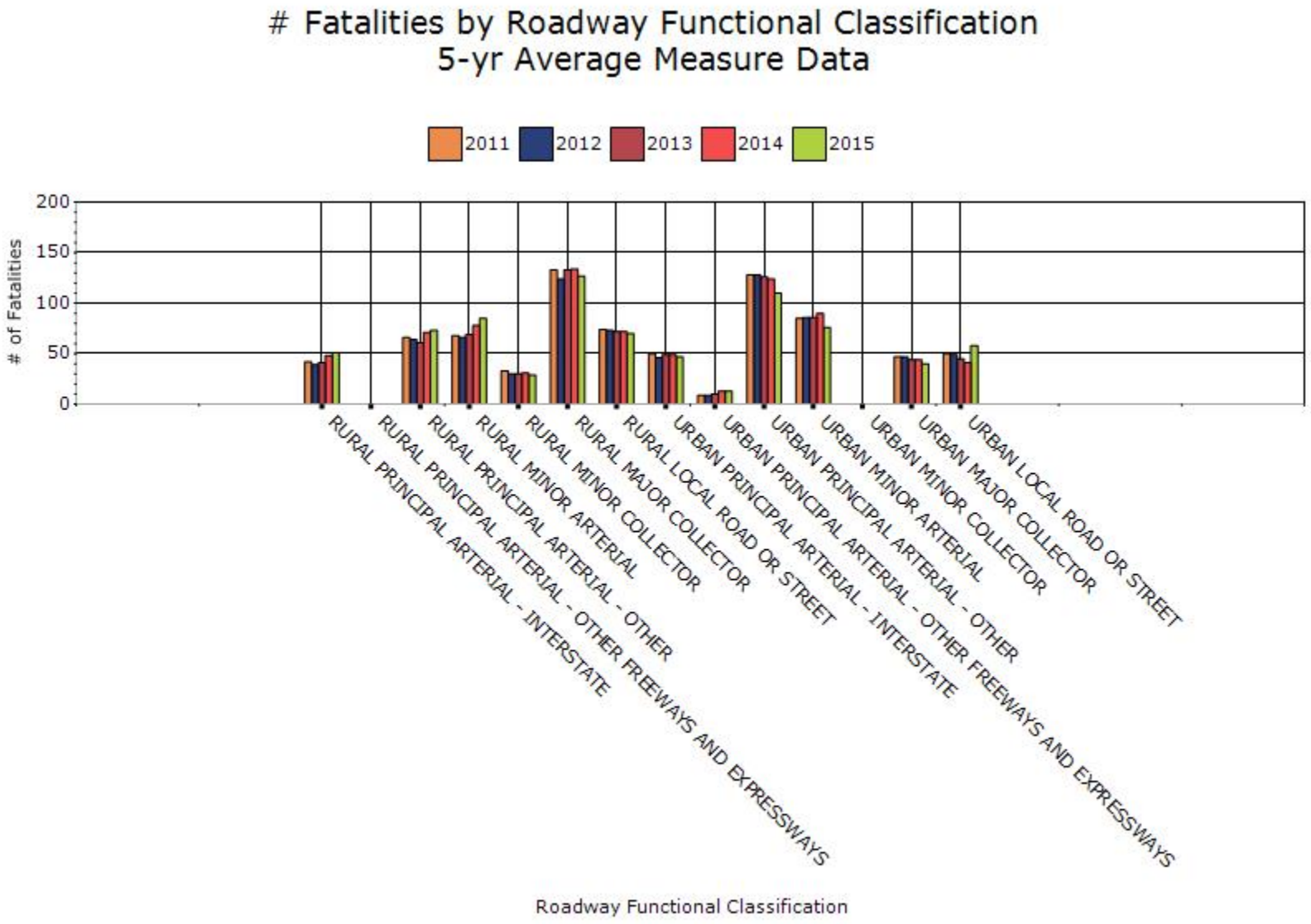
INDOT along with the Indiana TRCC will continue to monitor and assess the effect of the change in the method of injury severity classification. To date, the apparent effect of this change has been a significant rise in the number of crash casualties that are classified as class “A” (incapacitating) injuries. It is expected that a continuing effect will ensue on calculation of 5 year average data for serious injury (level A) crash frequency, casualty counts and resulting rate (per HMVMT). Offsetting reductions are expected in injury crash events and casualties classified at lower severity. We ask that FHWA consider this change in reporting methodology as part of any review of Indiana Crash data.

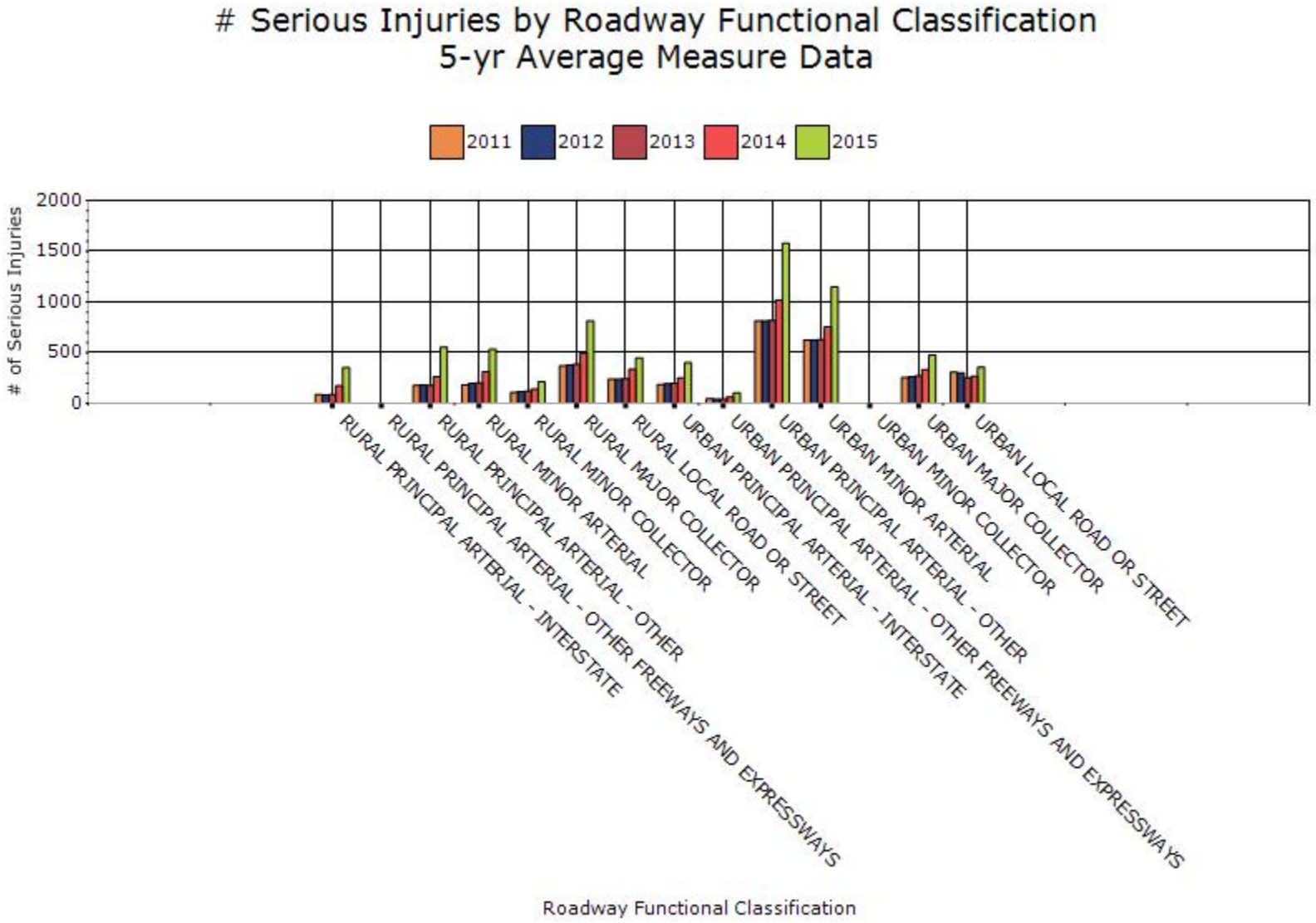
To the maximum extent possible, present performance measure* data by functional classification and ownership.

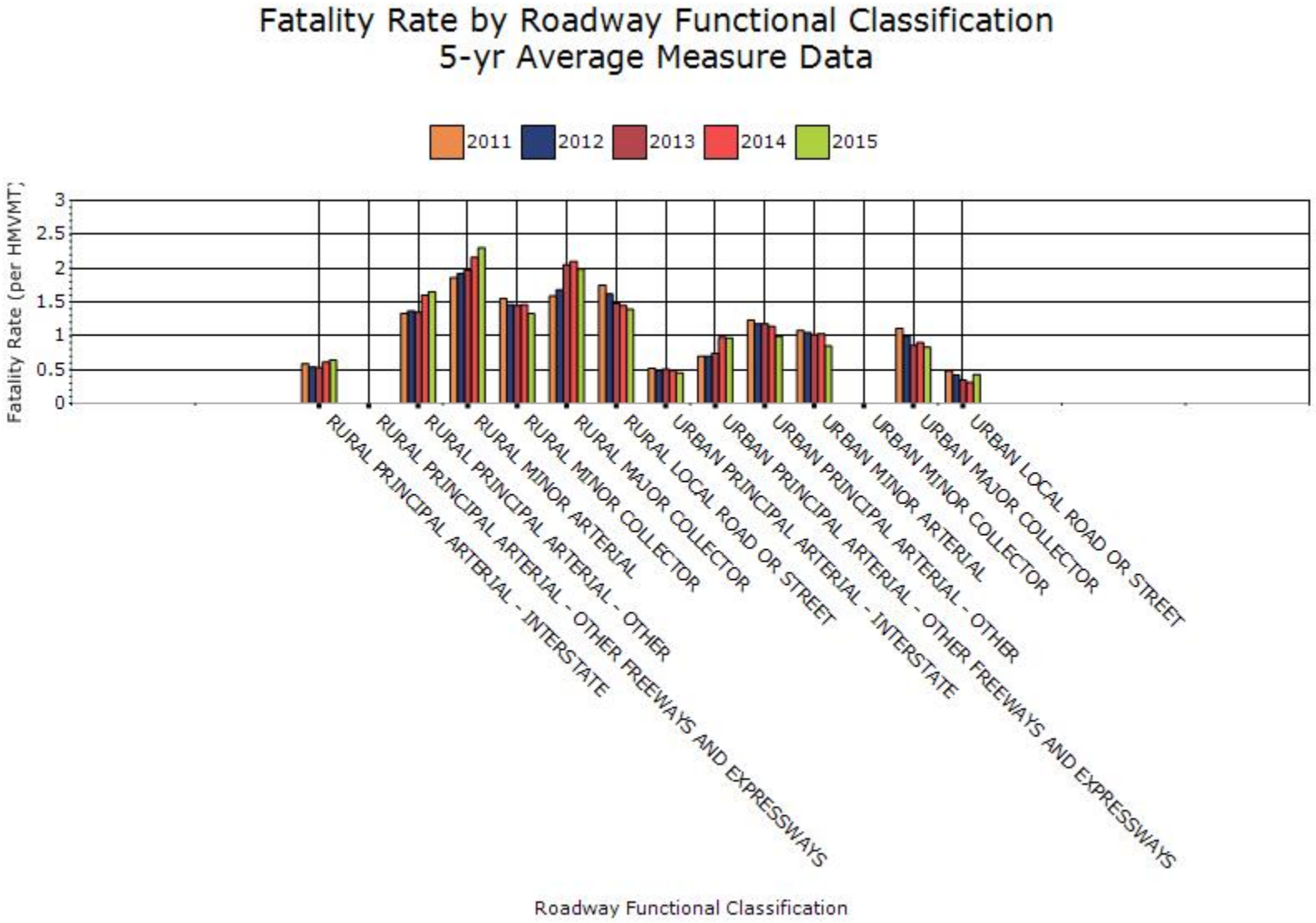
Year - 2015

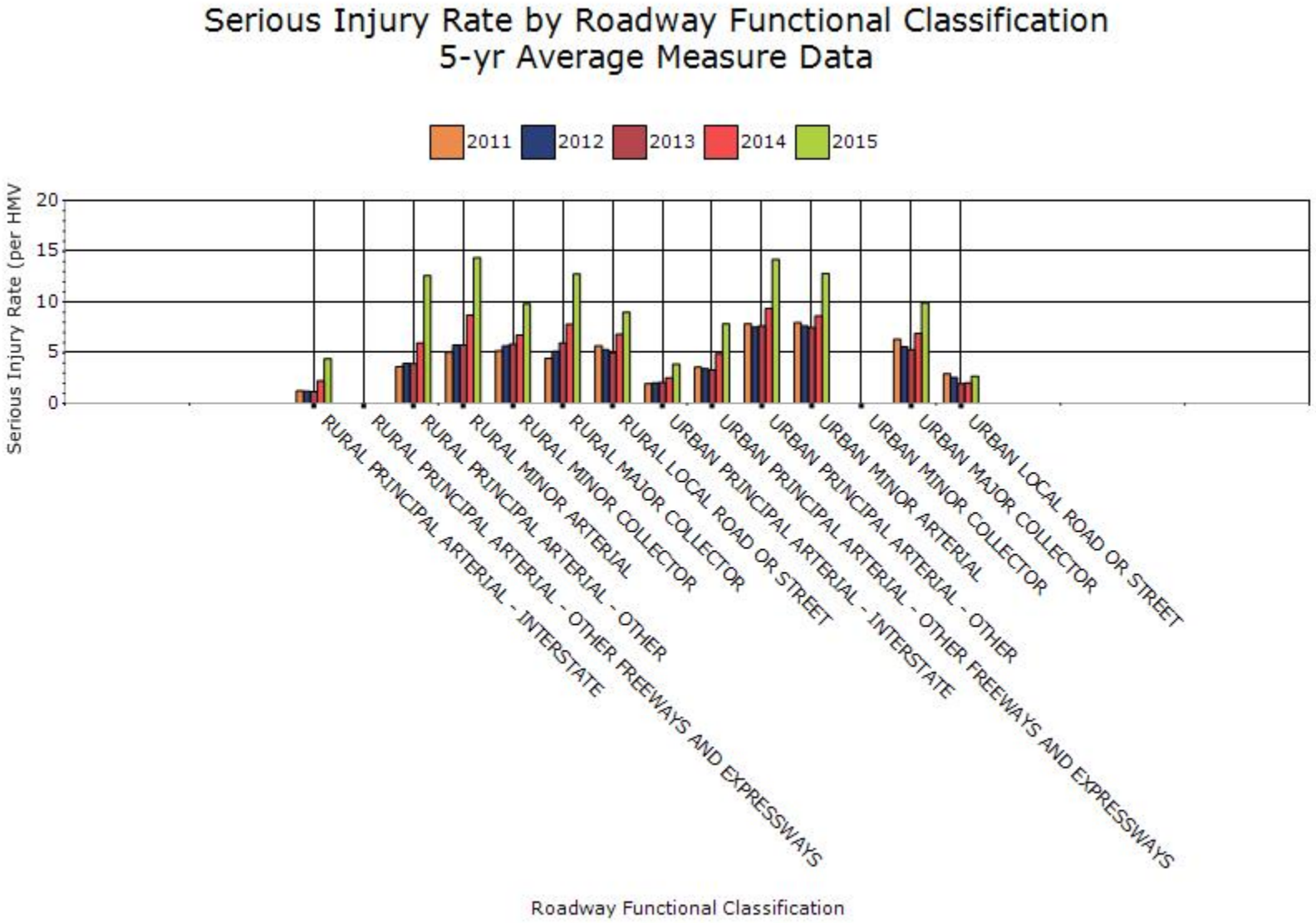
Function Classification	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
RURAL PRINCIPAL ARTERIAL - INTERSTATE	51	353	0.64	4.42
RURAL PRINCIPAL ARTERIAL - OTHER	73	557	1.65	12.61
RURAL MINOR ARTERIAL	85	534	2.3	14.38
RURAL MINOR COLLECTOR	29	214	1.33	9.82
RURAL MAJOR COLLECTOR	127	813	1.99	12.75
RURAL LOCAL ROAD OR STREET	70	448	1.39	8.98
URBAN PRINCIPAL ARTERIAL - INTERSTATE	47	402	0.45	3.88
URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS	13	105	0.97	7.84

URBAN PRINCIPAL ARTERIAL - OTHER	110	1581	0.99	14.19
URBAN MINOR ARTERIAL	76	1149	0.85	12.8
URBAN MAJOR COLLECTOR	40	479	0.83	9.93
URBAN LOCAL ROAD OR STREET	58	358	0.43	2.69


Fatalities by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
200
150
100
50
0
# of Fatalities
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
Roadway Functional Classification

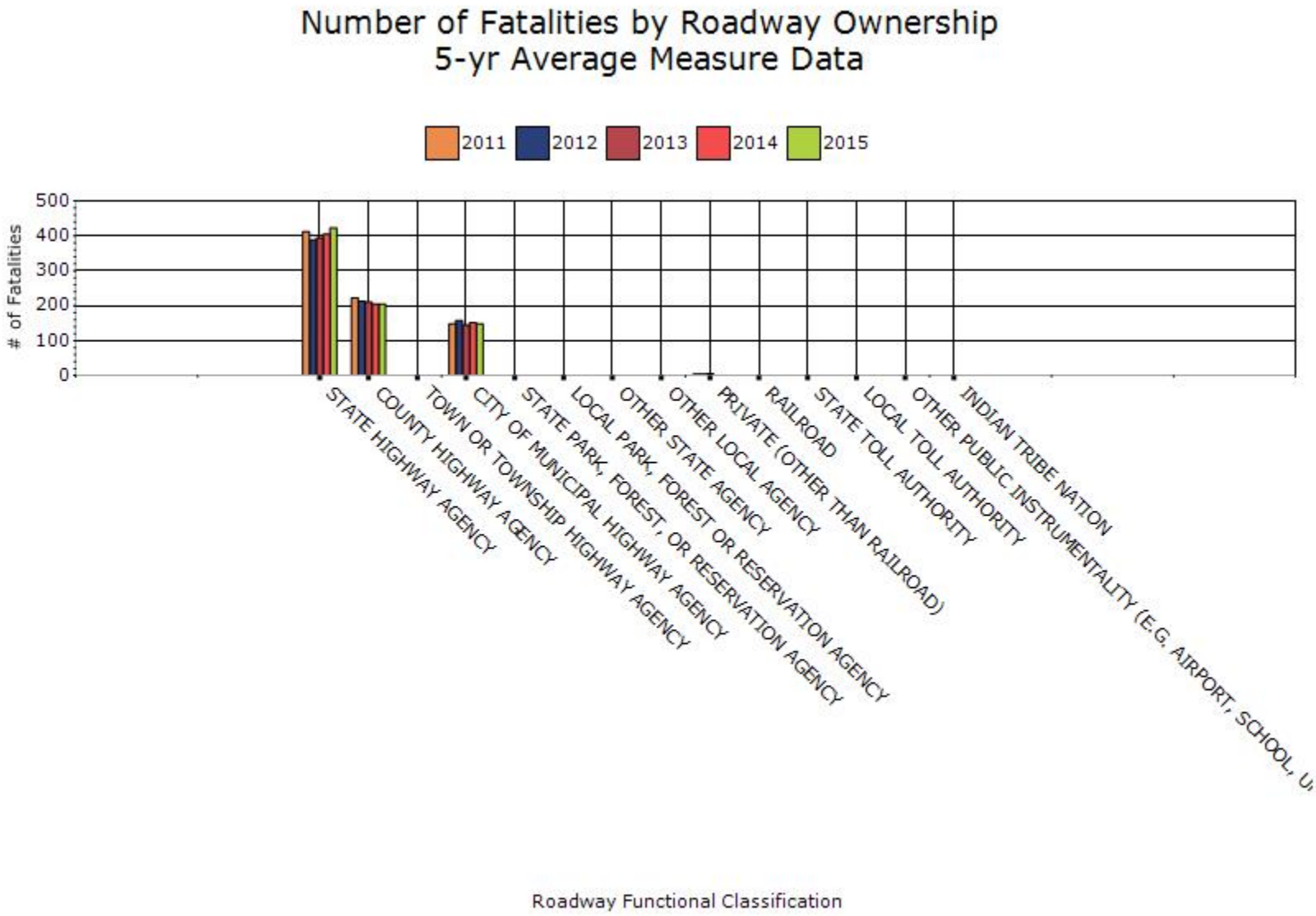

Serious Injuries by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Serious Injuries
2000
1500
1000
500
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL 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
Roadway Functional Classification

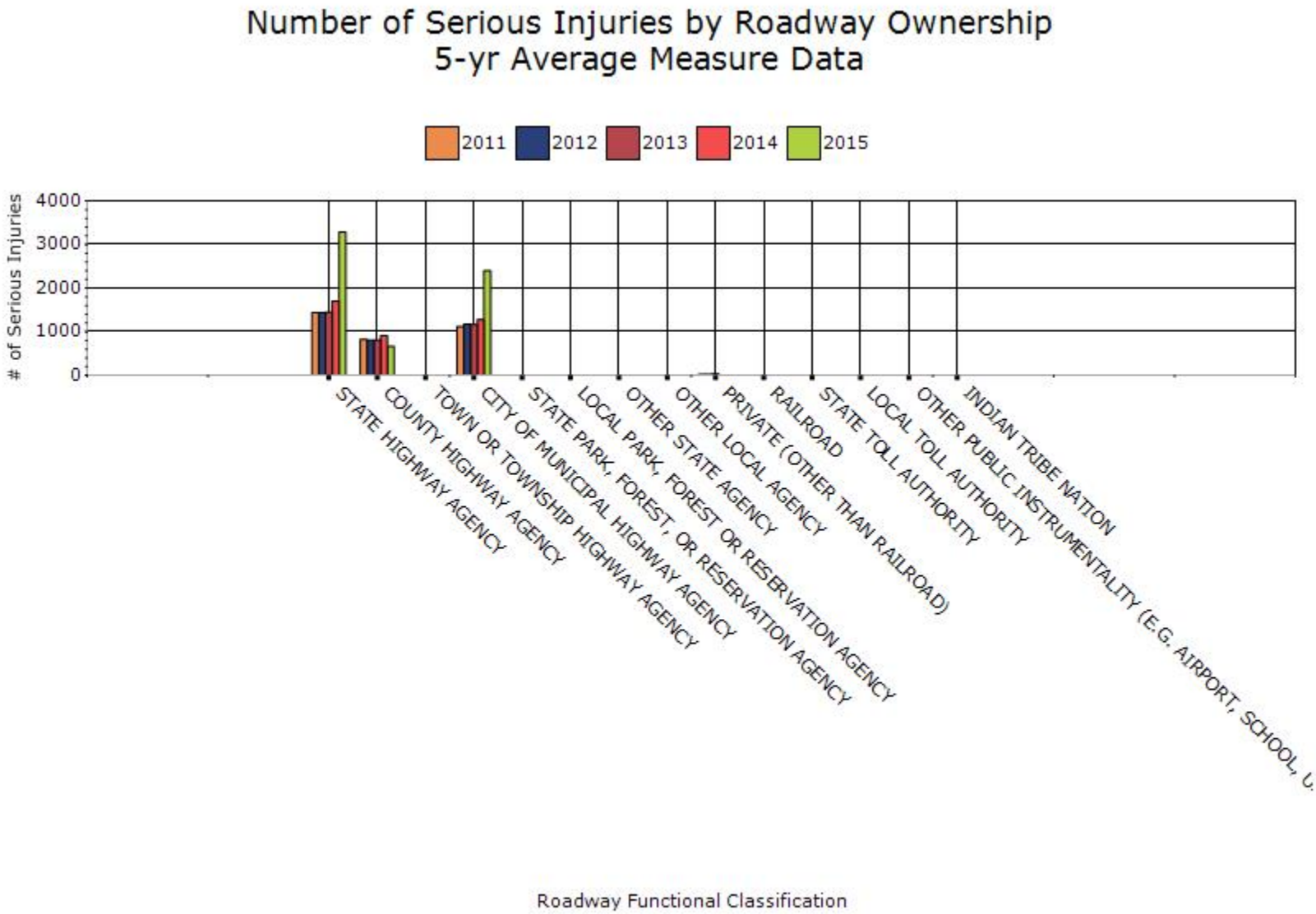

Fatality Rate by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
Fatality Rate (per HMVMT)
3
2.5
2
1.5
1
0.5
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL 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
Roadway Functional Classification

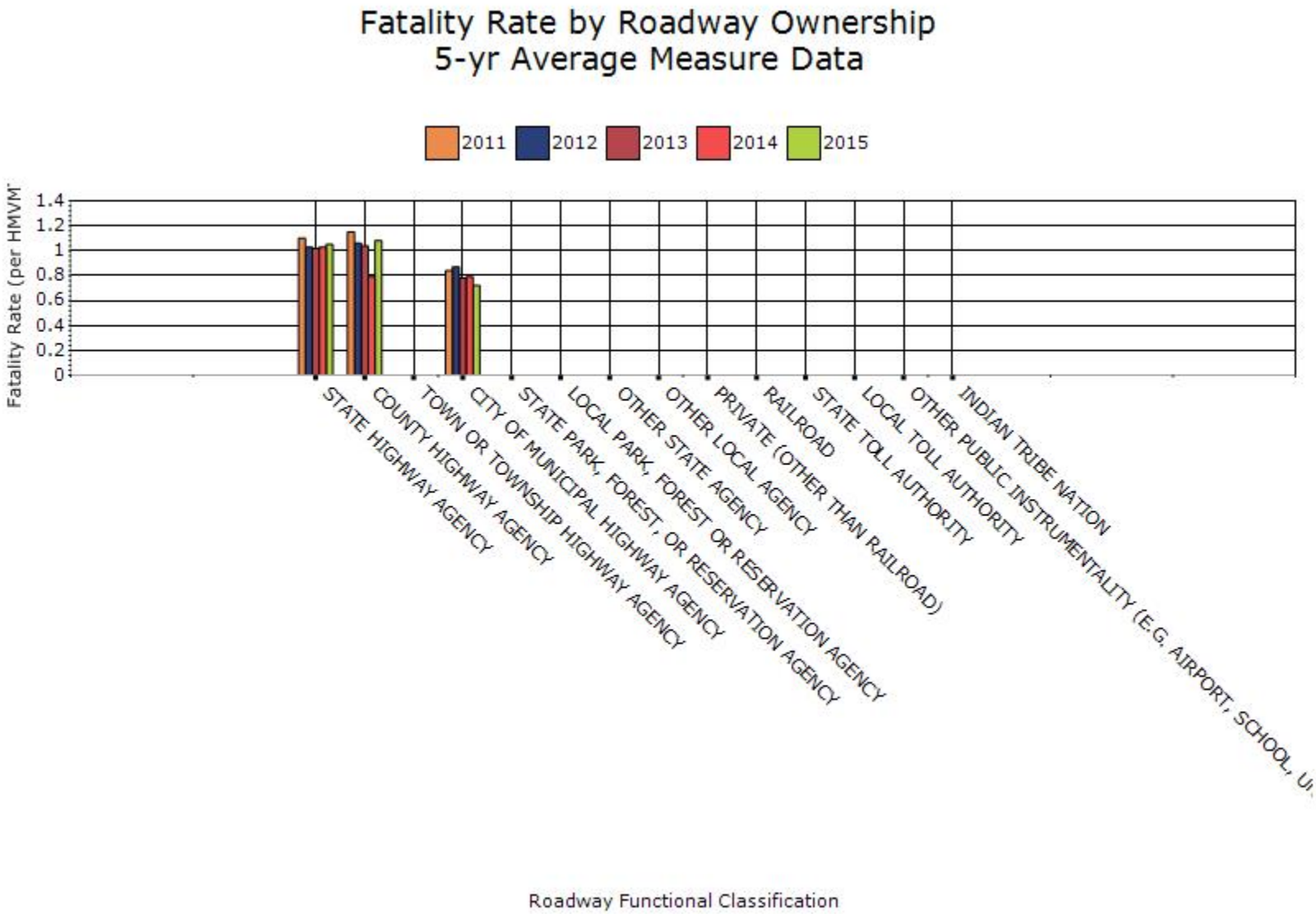

Serious Injury Rate by Roadway Functional Classification
5-yr Average Measure Data
2011
2012
2013
2014
2015
Serious Injury Rate (per HMV
20
15
10
5
0
RURAL PRINCIPAL ARTERIAL - INTERSTATE
RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS
RURAL PRINCIPAL ARTERIAL - OTHER
RURAL MINOR ARTERIAL
RURAL 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
Roadway Functional Classification

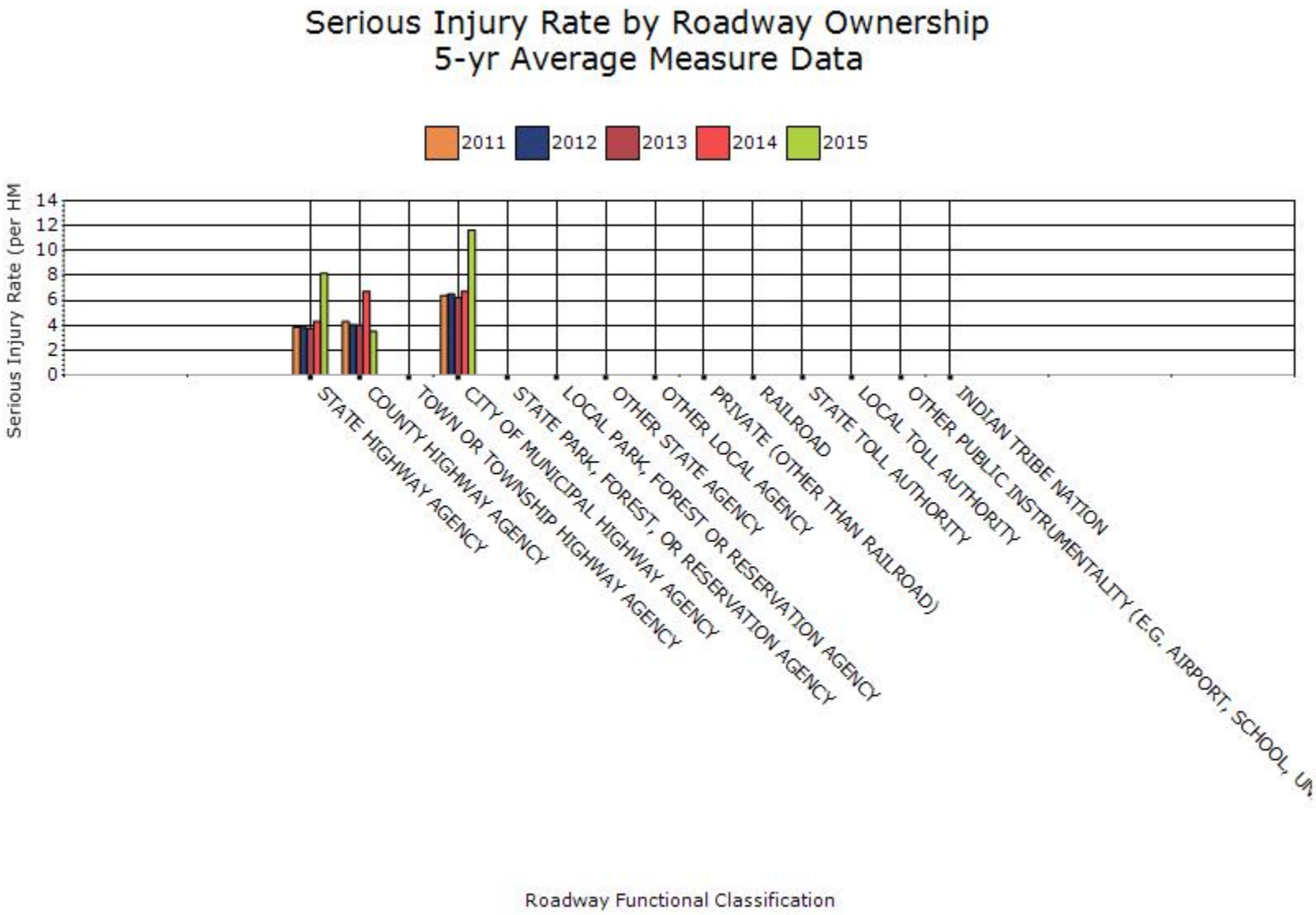
Year - 2015

Roadway Ownership	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
STATE HIGHWAY AGENCY	423	3287	1.05	8.18
COUNTY HIGHWAY AGENCY	205	666	1.08	3.51
CITY OF MUNICIPAL HIGHWAY AGENCY	148	2401	0.72	11.65


Number of Fatalities by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Fatalities
500
400
300
200
100
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
Roadway Functional Classification


Number of Serious Injuries by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
# of Serious Injuries
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
Roadway Functional Classification


Fatality Rate by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
Fatality Rate (per HMVM
1.4
1.2
1
0.8
0.6
0.4
0.2
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
Roadway Functional Classification


Serious Injury Rate by Roadway Ownership
5-yr Average Measure Data
2011
2012
2013
2014
2015
Serious Injury Rate (per HM
14
12
10
8
6
4
2
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, UN
INDIAN TRIBE NATION
Roadway Functional Classification

In October of 2014 a new version of the Electronic Crash Reporting Tool used by officers was deployed to law enforcement agencies across the State of Indiana. The new version of the crash reporting tool changed the parameters for determination of injuries as class “A” severity on the KABCO scale. A new uniform method has been developed for declaring an injury to be “Incapacitating”; the definition used by Indiana to classify injury severity “A” for crash events and casualties. The new classification method was developed in response to agreement among members of the Indiana Traffic Records Coordinating Committee (TRCC); that the use of officer’s judgment in regard to determination of incapacitating injuries had been inconsistently applied. Inconsistency was noticed both between officers, and regionally, among certain police agencies that were either instructing officers or developing informal approaches to marking injury severity that was different from other peer agencies.

Previously, officers were asked to use subjective judgment to decide if injuries would be classified as incapacitating. The revised electronic reporting tool now classifies a crash participant as having an incapacitating injury if that person has been transported from the scene for medical treatment at an emergency room or trauma center. This change removes the subjective element from the determination of class “A” injury severity.

The Indiana TRCC made the change in order to achieve more consistent, reliable data over the long term. The TRCC accepts the fact that over the next few years, the frequency and rate of serious injury data would appear to be distorted when compared to the data from past years. To date, the apparent effect of this change has been a significant rise in the number of crash casualties that are classified as class “A” (incapacitating) injuries. It is expected that a continuing effect will ensue on calculation of 5 year average data for serious injury (level A) crash frequency, casualty counts and resulting rate (per HMVMT). Offsetting reductions are expected in injury crash events and casualties classified at lower severity. We ask that FHWA consider this change in reporting methodology as part of any review of Indiana Crash data.

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

In 2015, the early estimate of vehicle miles of travel increased by 12.5% above 2014. The number of police reported fatalities increased by 8.27%. All injury crashes decreased by 2.88%. Reported severe (incapacitating) injury crashes appear to show a very large increase, however this is primarily the result of a change in the method used to classify the severity of casualties as Class "A" (incapacitating) injury intended to provide greater uniformity in officer reporting methods. The new injury classification methodology is described below.

In October of 2014 a new version of the Electronic Crash Reporting Tool used by officers was deployed to law enforcement agencies across the State of Indiana. The new version of the crash reporting tool changed the parameters for determination of injuries as class "A" severity on the KABCO scale. A change was made to a more uniform method for declaring an injury to be "Incapacitating"; the definition used by Indiana to classify injury severity "A" for crash events and casualties. The new classification method was developed in response to agreement among members of the Indiana Traffic Records Coordinating Committee (TRCC); that the use of officer's subjective judgment in regard to determination of incapacitating injuries had been inconsistently applied. Inconsistency was noticed both between officers, and regionally, among certain police agencies that were either instructing officers or developing informal approaches toward the decision in marking injury severity that was different from other peer agencies.

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INDOT along with the Indiana TRCC will continue to monitor and assess the effect of the change in the method of injury severity classification. To date, the apparent effect of this change has been a significant rise in the number of crash casualties that are classified as class "A" (incapacitating) injuries. It is expected that this trend will continue as full data for calendar 2015 is added to the records system. Also expected is a continuing effect on calculation of 5 year average data for serious injury (level A) crash frequency, casualty counts and resulting rate (per HMVMT). Offsetting reductions are expected in crash events and casualties classified at lower severity. We ask that FHWA consider this change in reporting methodology as part of any review of Indiana Crash data.

Also, in 2016 INDOT has undertaken an effort with the vendor that manages the AIRES crash data portal to improve crash data reliability for all records by inspecting data transfer and query processes for possible errors. As a result, a small increase in the number of crash records in each severity classification has occurred in each year with reported data.

Statewide 2015 crash data shows that Indiana did not exceed the performance goals outlined in the Indiana SHSP for 5 year rolling averages of Fatalities, Severe (Incapacitating) Injuries, Fatality Rate and Severe Injury Rate. However in 2015, Indiana was part of a national trend of increased numbers of severe crash events resulting in severe and fatal injuries.

Crashes resulting from vehicle departure from the travel lanes (including roadway departure, head-on and opposite direction sideswipe) continue to be the most numerous harmful events in 2015. The 5 year average of fatalities resulting from single vehicle lane departures in 2015 accounted for 47.4% of all Indiana motor vehicle fatalities, compared to the 5 year average of 46.1% calculated in 2014. As a result, INDOT has developed several systemic improvement types aimed at reducing the incidence and consequences of lane departure crashes.

Fatalities as a result of intersection crashes make up the second worst type of harmful event. In 2015 the 5 year average of intersection fatalities contributed 24.0% of total traffic fatalities, similar to the 24.1% average from 2014. INDOT is advancing systemic improvements to increase the visibility of both signalized and unsignalized intersections. INDOT is also engaged in a changing out older 5 section "permitted/protected" left turn traffic signal heads for the MUTCD approved 4-section heads using a flashing yellow arrow for permissive left turns. INDOT is also placing increased emphasis on timely modernization of traffic signals, along with increased use of innovative intersection types to reduce traffic conflicts; such as Roundabouts, J Turns and Michigan Left Turn designs. In 2014, INDOT produced a guideline document to assist traffic designers in the task of making preliminary determination of feasibility of various alternative intersection types on the basis of location and traffic data for site conditions.

Indiana is also concerned with the incidence of fatalities involving vulnerable road users such as pedestrians, bicycle and motorcycle riders, and is working with our partners on education efforts. In 2015 the 5 year rolling average rate of pedestrian fatalities made up 9.5% of all traffic fatalities. This is an increase from the 8.1% 5 year average recorded in 2014. The 5 year average percentage of fatalities that involve bicyclists was 1.62% compared to the 5 year average in 2014 of 1.85%. It should be kept in mind that larger numbers of bicycle users on Indiana roadways. The number of motorcycle and moped crashes was slightly lower in 2015 compared to 2014, but it should be noted that motorcycle/moped crashes are generally rising in numbers. On the basis of the 5 year rolling averages motorcycle and moped fatalities accounted for 15.9% in 2015 which is the same as the 15.9% for 2014.

Application of Special Rules

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

Older Driver Performance Measures	2010	2011	2012	2013	2014
Fatality rate (per capita)	0.12	0.12	0.11	0.12	0.12
Serious injury rate (per capita)	0.288	0.29	0.292	0.288	0.33
Fatality and serious injury rate (per capita)	0.406	0.408	0.406	0.406	0.446

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

(A) Fatality rate per year = Number of persons age 65 and Older Fatalities (FARS data) for State of Indiana in a given year / FHWA Supplied Number of persons age 65 and Older (per 1,000 total population) for State of Indiana in the same year.

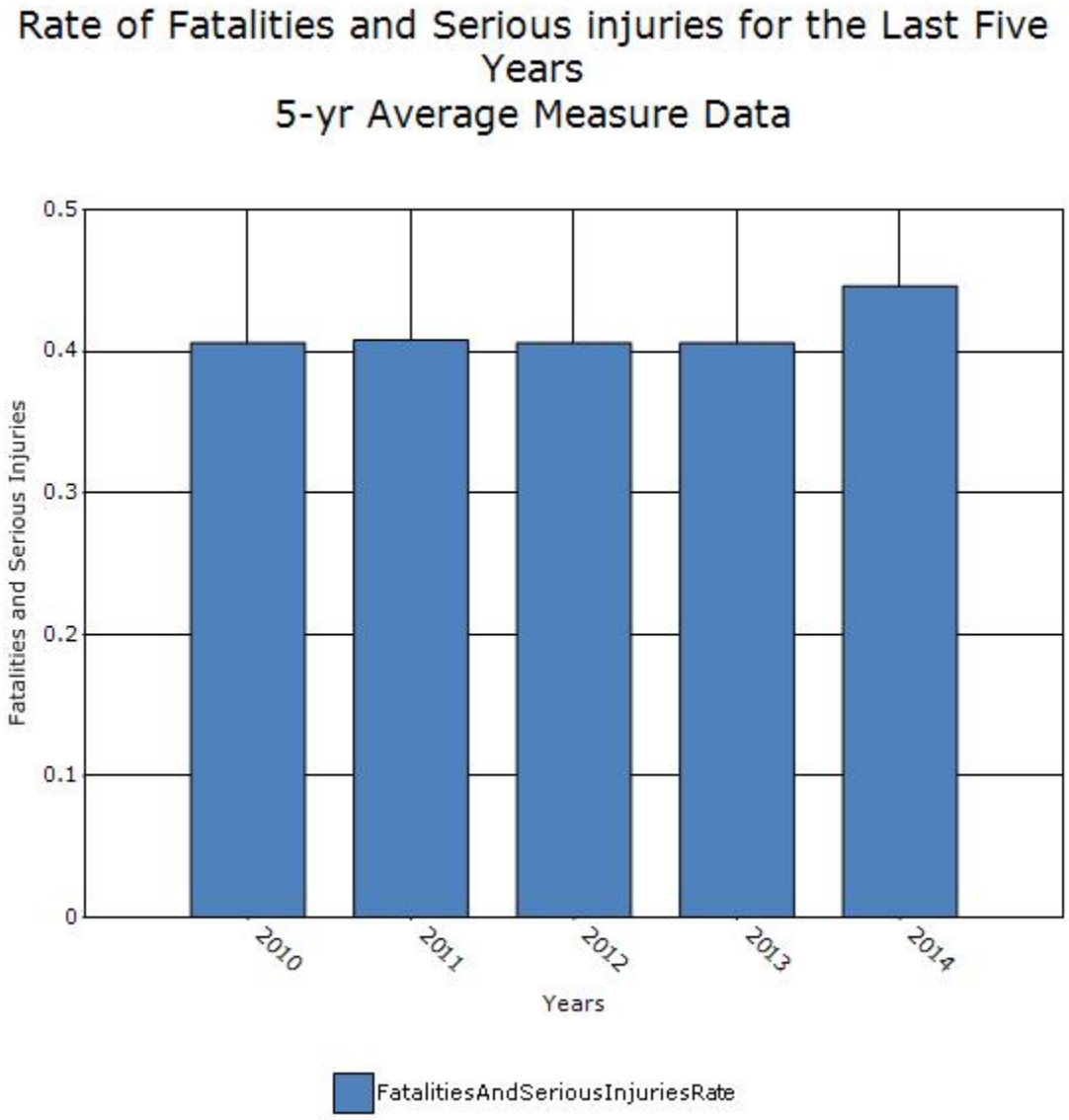
(B) Serious injury rate per year = Number of persons age 65 and Older Serious injuries (Indiana ARIES System) for a given year / FHWA Supplied Number of persons age 65 and Older (per 1,000 total population) for State of Indiana in the same year.

(C) Fatality and Serious injury rate per year = Fatalities of persons age 65 and over + Serious injuries of persons age 65 and over for State of Indiana a given year / FHWA Supplied Number of persons age 65 and Older (per 1,000 total population) for State of Indiana in the same year.

(2012) Calculation of 5 year rolling average for Fatality and Serious Injuries rate = (2012C + 2011C + 2010C + 2009C + 2008C) / 5 = $(0.41 + 0.43 + 0.42 + 0.38 + 0.39) / 5 = 0.406$ ~ rounded = 0.41

(2013) Calculation of 5 year rolling average for Fatalities and Serious Injuries rate = (2014C + 2013C + 2012C +2011C + 2010C) / 5 = $(0.58 + 0.39 + 0.41 + 0.43 + 0.42) / 5 = 0.446$ ~ rounded = 0.45

See Optional Description.



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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?

Policy change

if 'policy change', list the policy changes made.

A revised SHSP has been enacted by the Indiana Governor resulting in an increased number of emphasis areas.

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.

INDOT has recently completed the process in cooperation with its partner agencies and local groups of rewriting the Indiana Strategic Highway Safety Plan (SHSP). In the new SHSP was signed by Governor Pence on March 1, 2016. Reliance on language calling for specific countermeasures is generally avoided, in favor of broad national "Toward Zero Deaths" strategies. Indiana feels that making the SHSP as flexible as possible will provide an advantage in terms of addressing emerging issues and countermeasures, methodologies or technologies in the coming years.

In the 2016 Indiana SHSP, more emphasis has been asked of metropolitan planning organizations to ensure that appropriate choices are made in selecting proposed safety improvement projects for HSIP funding. As a result INDOT has requested each of the Indiana MPOs to submit a document describing the data driven process that will be used by each MPO to select candidate safety improvement projects. The submitted procedures are reviewed for approval by the multi-agency Highway Safety Advisory Committee (HSAC). These individual MPO developed process documents will give the local agencies a clear set of criteria to prioritize candidate safety improvements prior to applying for HSIP funding, at the same time allow for LPA input into the project selection process, and improve the ability of INDOT or FHWA to conduct future process reviews.

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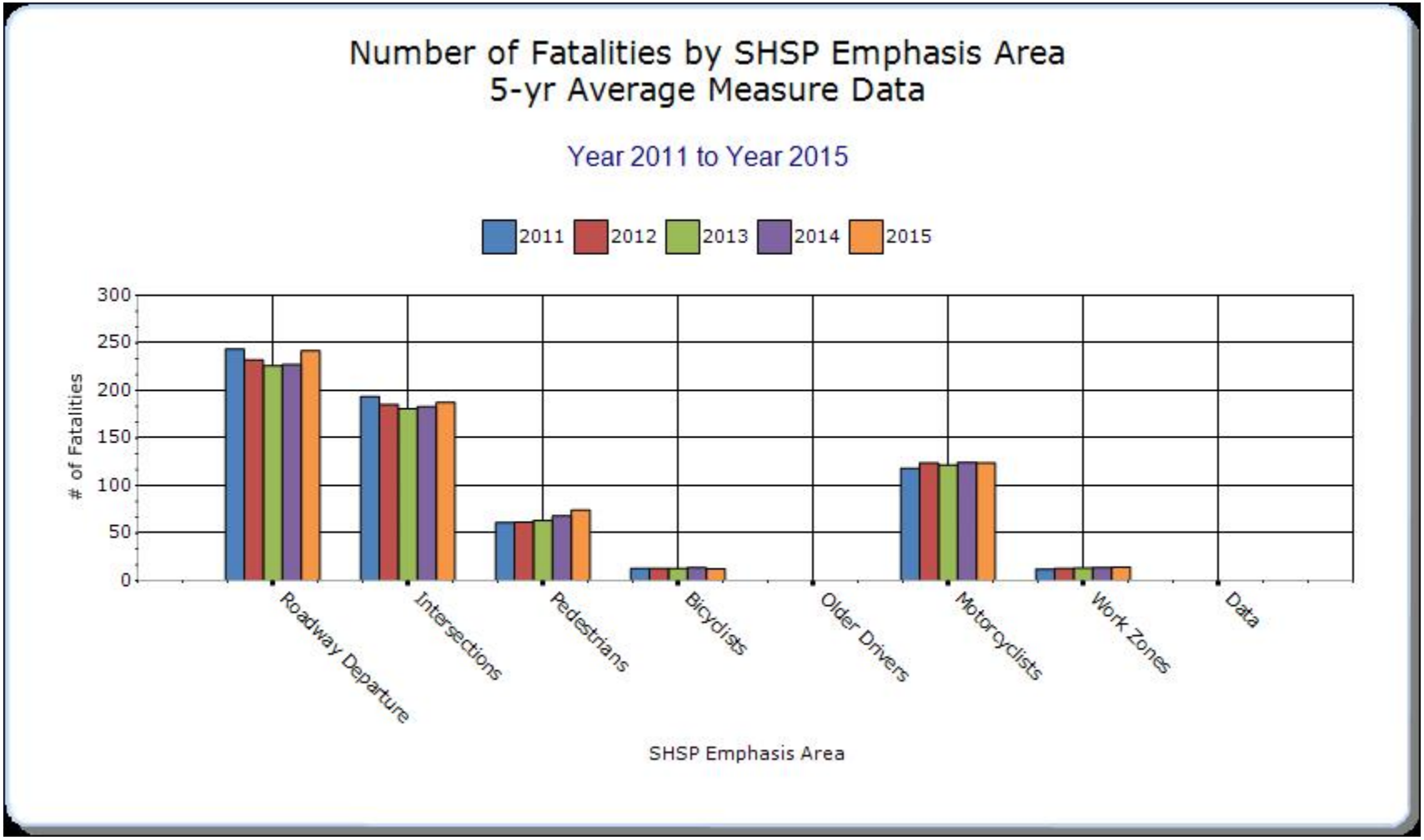
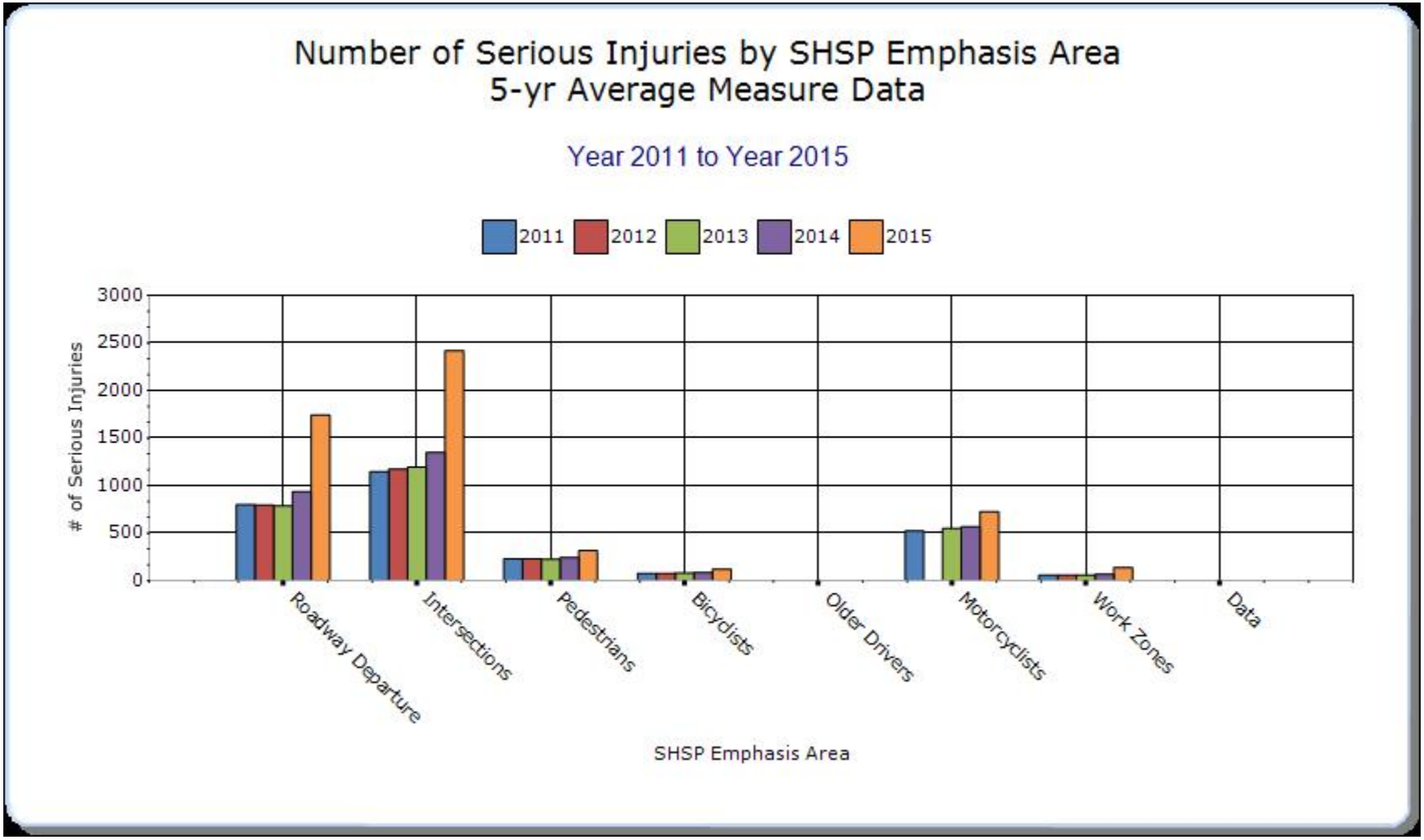
SHSP Emphasis Areas

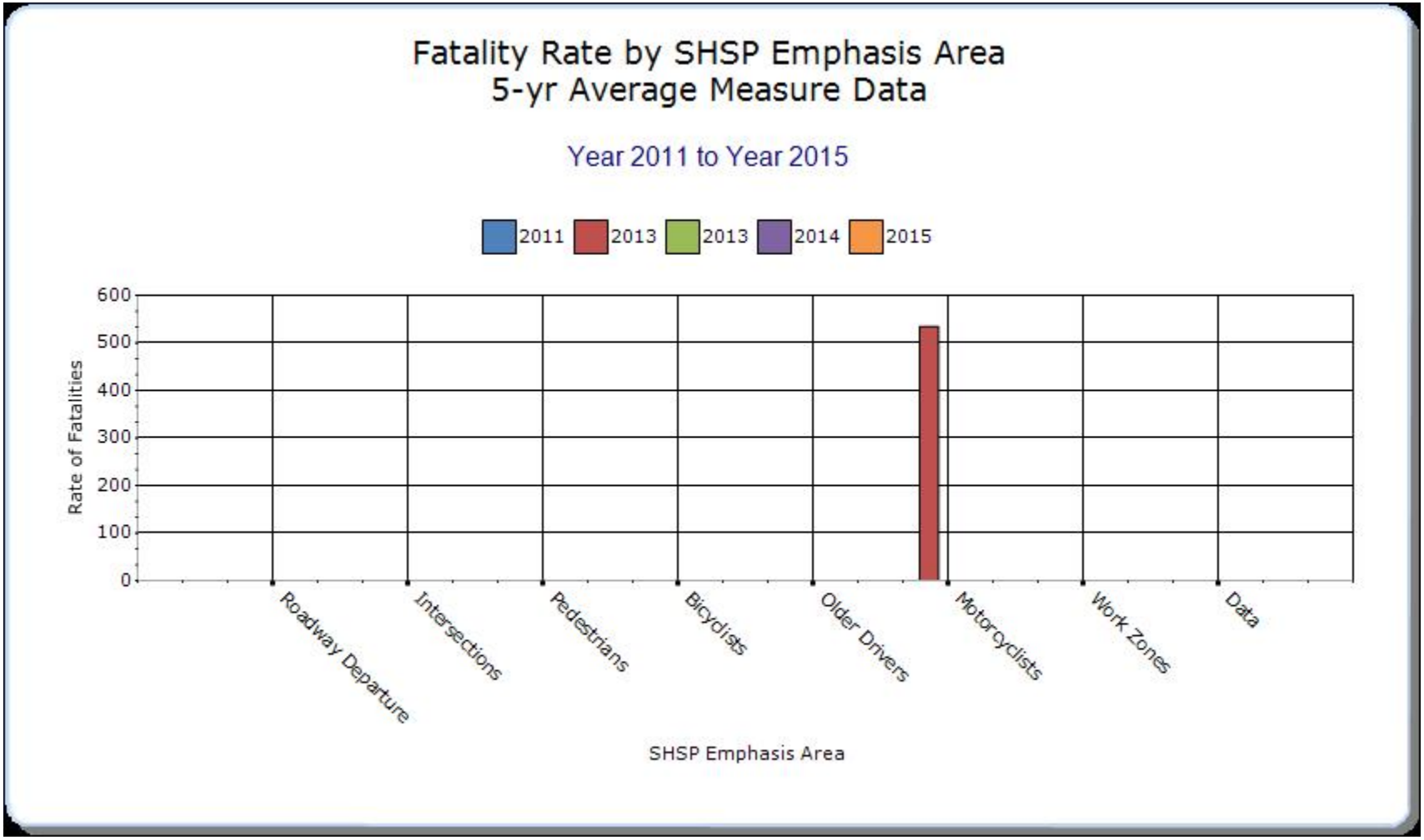
For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures.

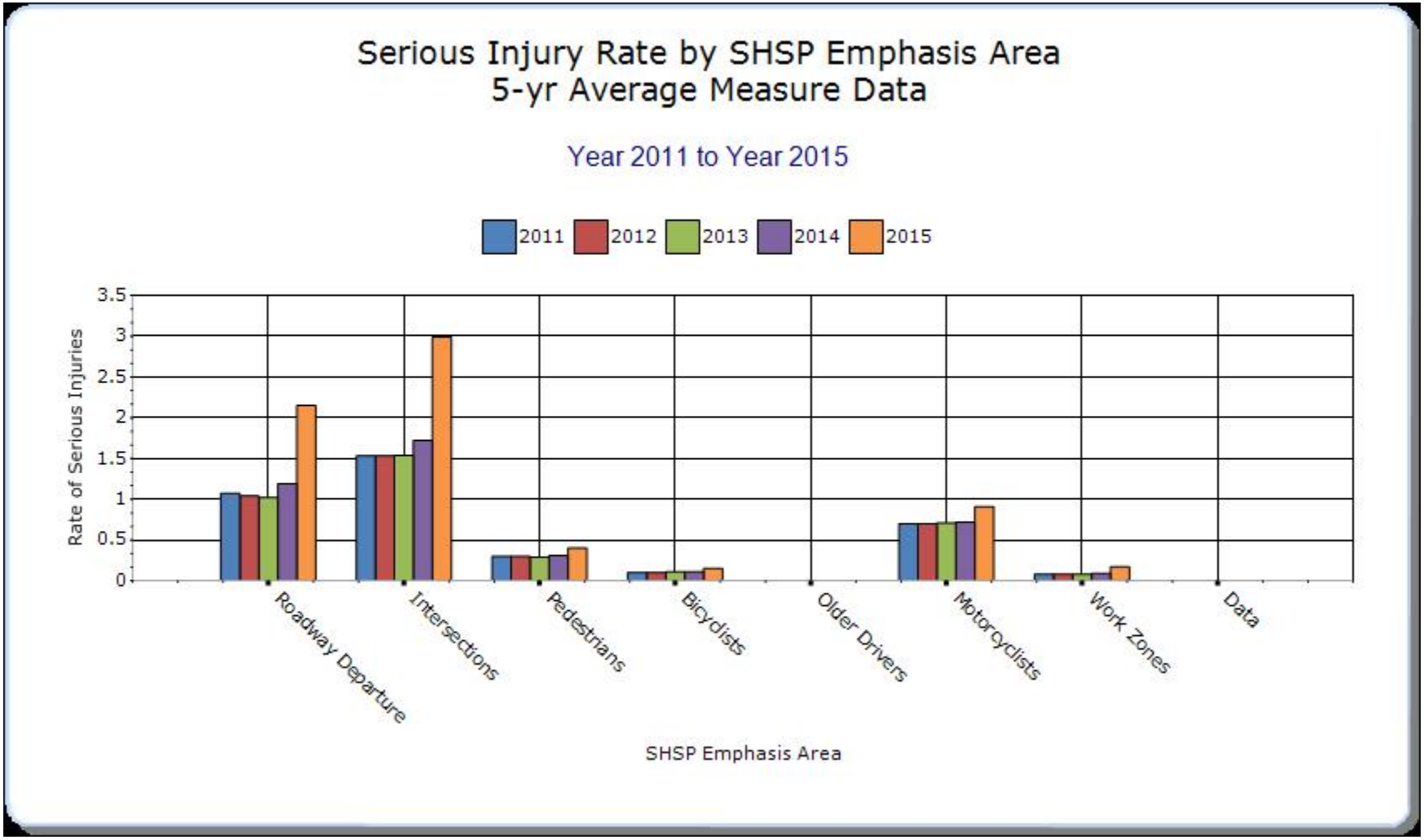
Year - 2015

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
Roadway Departure	Run-off-road	241.8	1741.6	0.3	2.15			
Intersections	Intersections	187.4	2419.4	0.23	2.99			
Pedestrians	Vehicle/pedestrian	74.2	318	0.09	0.4			
Bicyclists	Vehicle/bicycle	12.6	122	0.02	0.15			
Motorcyclists	Motorcycle & Moped	123.8	727.4	0.16	0.91			
Work Zones	Work Zones	14.4	139.2	0.02	0.17			


Number of Fatalities by SHSP Emphasis Area
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
300
250
200
150
100
50
0
# of Fatalities
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Number of Serious Injuries by SHSP Emphasis Area
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Serious Injuries
3000
2500
2000
1500
1000
500
0
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area


Fatality Rate by SHSP Emphasis Area
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2013
2013
2014
2015
600
500
400
300
200
100
0
Rate of Fatalities
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
Data
SHSP Emphasis Area



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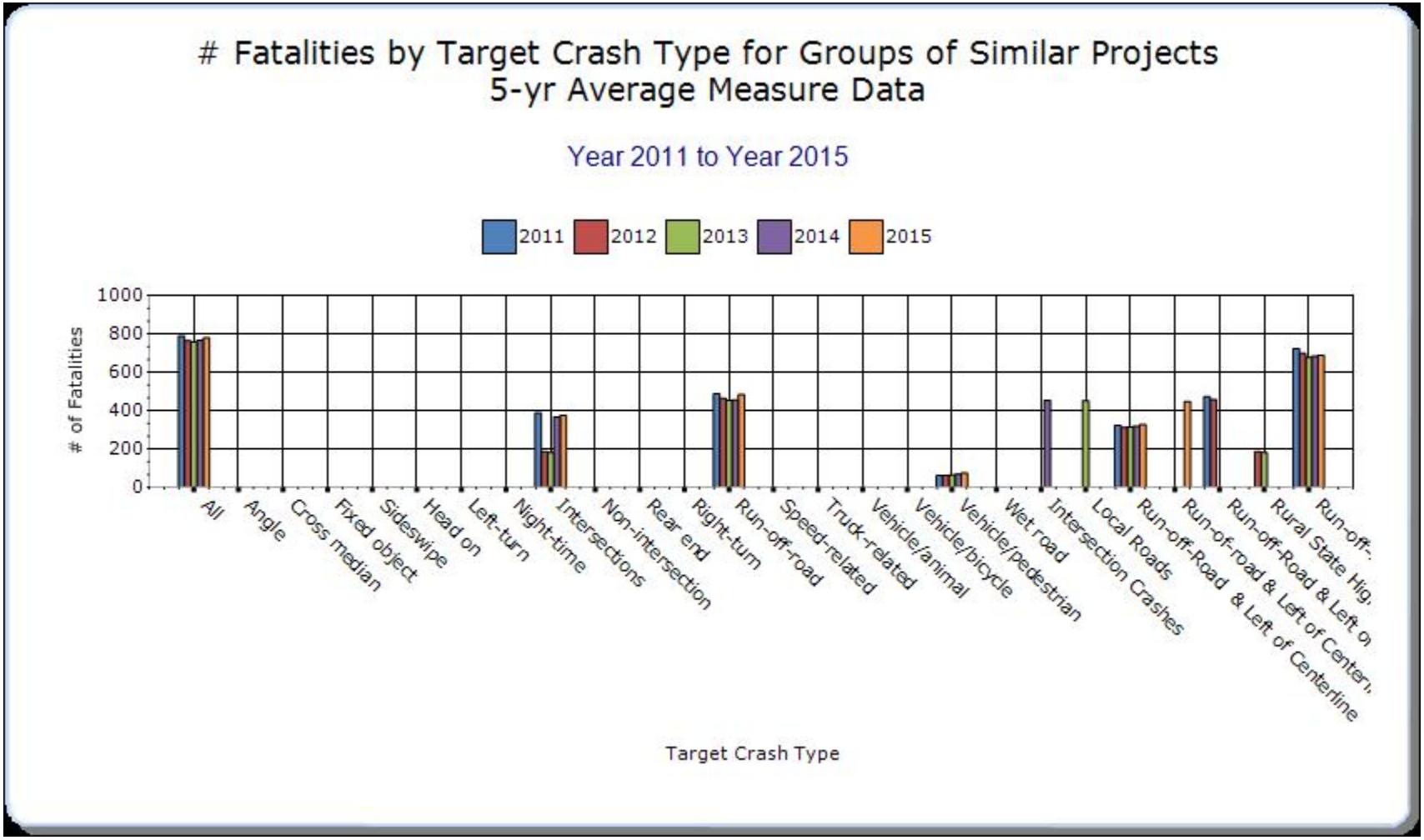
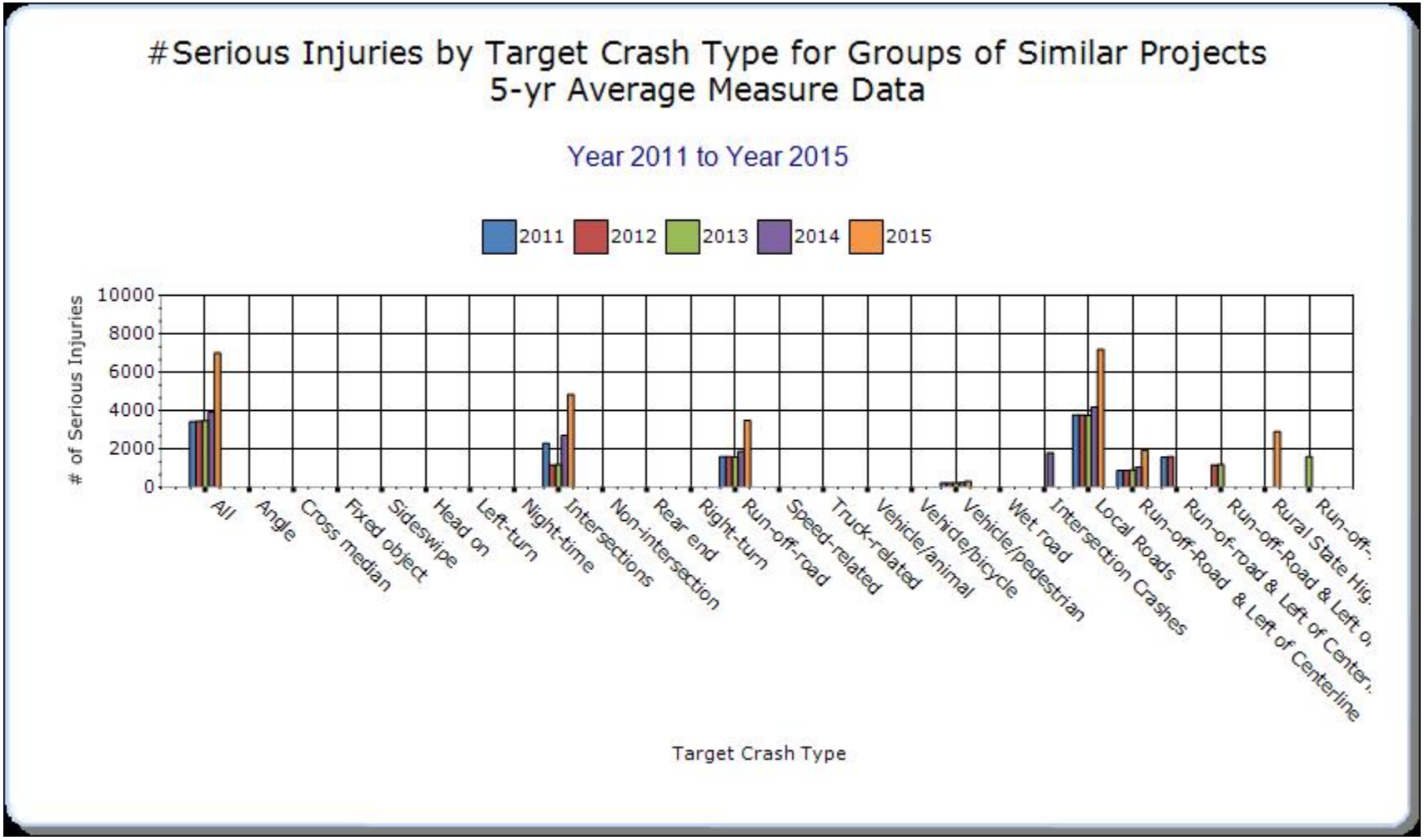
Groups of similar project types

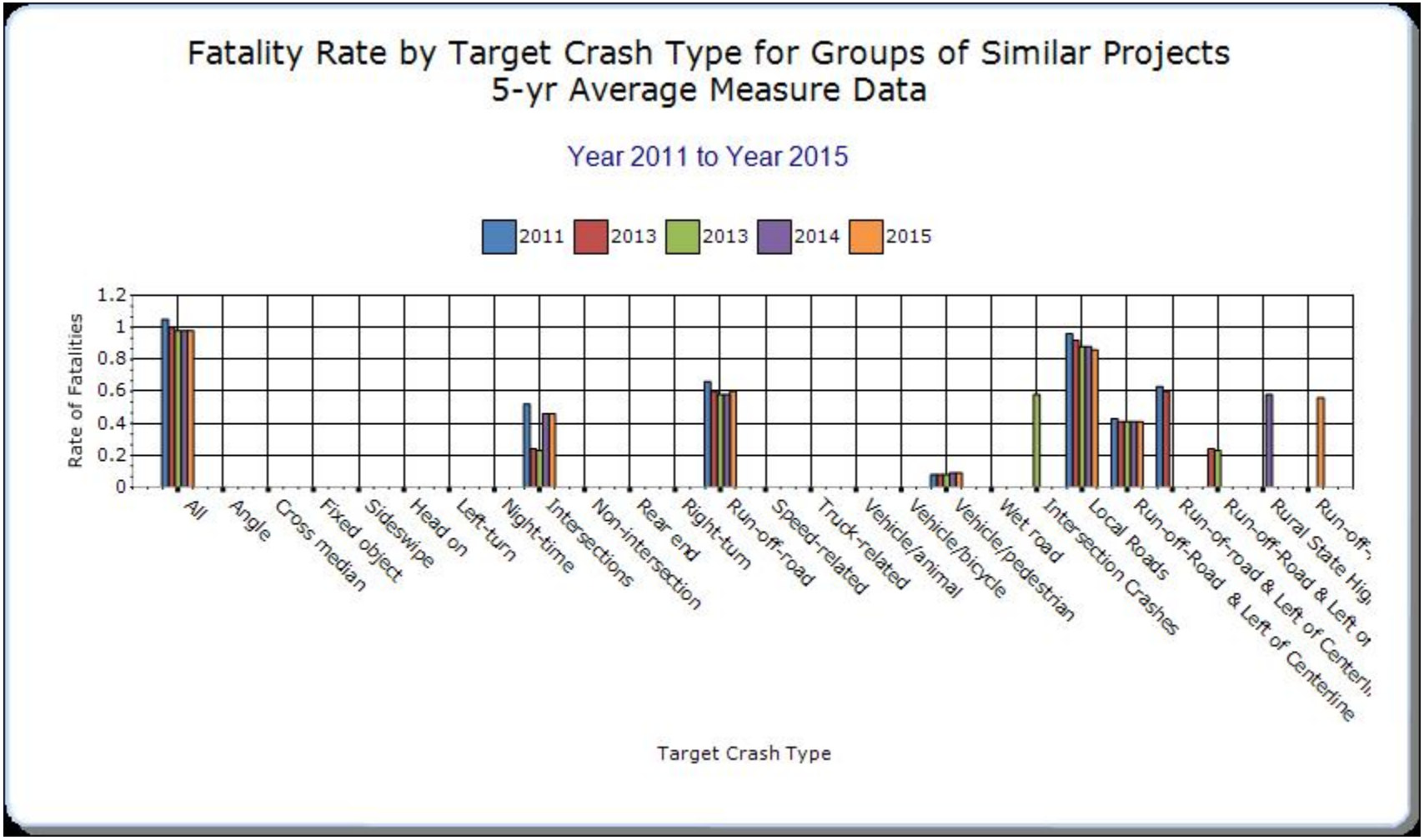
Present the overall effectiveness of groups of similar types of projects.

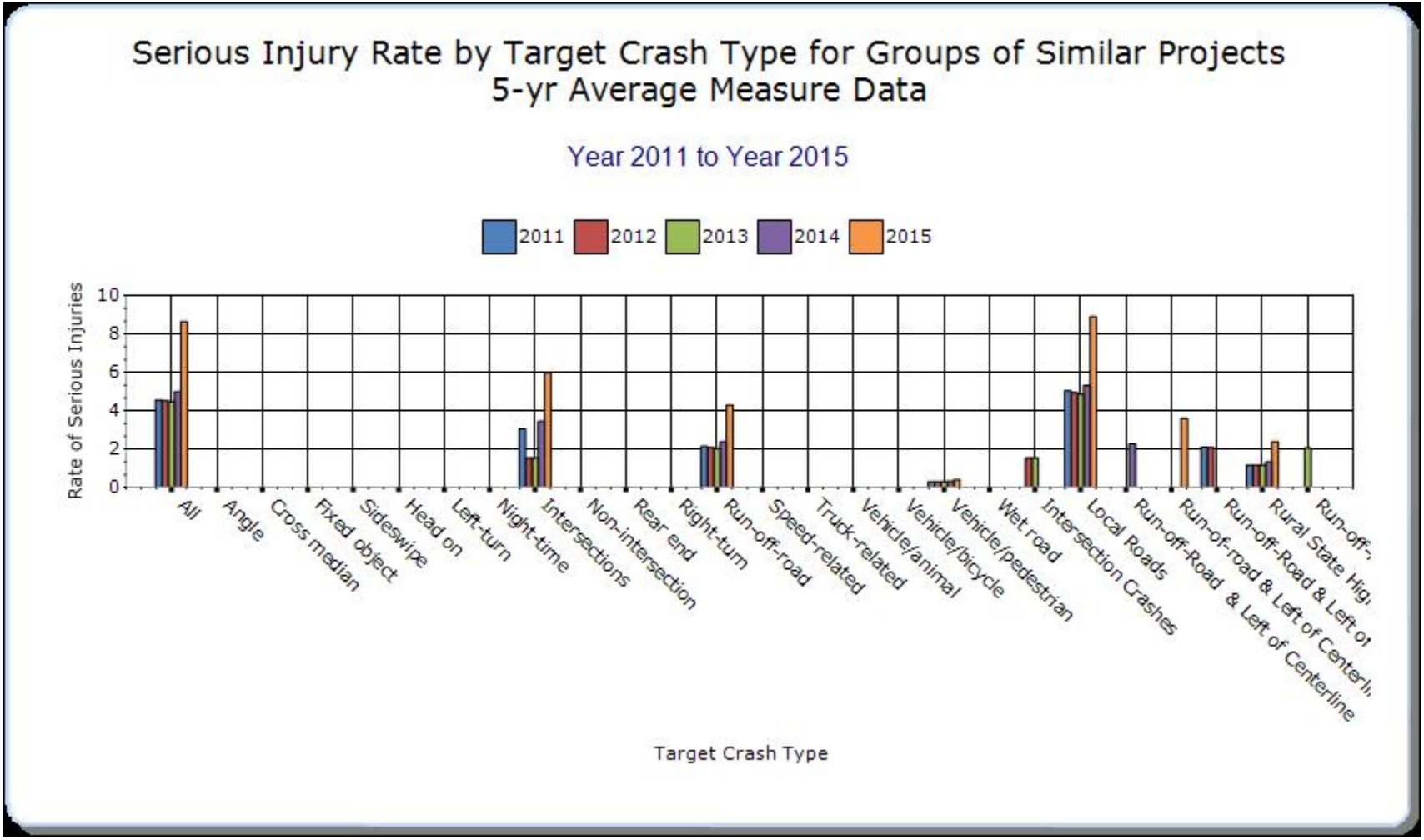
Year - 2015

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
Rural State Highways	Rural State Highways	326.8	1937.2	0.41	2.39			
Pedestrian Safety	Vehicle/pedestrian	74.2	318	0.09	0.4			
Other-Centerline and Edgeline Rumble Stripes	Run-of-road & Left of Centerline	447	2907.8	0.56	3.6			
Other-Traffic Signal Visibility Improvement	Intersections	187.4	2419.4	0.23	2.99			
Median Barrier	Run-off-road	241.8	1741.6	0.3	2.15			
Local Safety	Local Roads	344.2	3597.2	0.43	4.45			
Roadway Departure	Run-off-road	241.8	1741.6	0.3	2.15			
Intersection	Intersections	187.4	2419.4	0.23	2.99			
Crash Data	All	779.2	7001.2	0.98	8.65			
Sign Replacement And Improvement	Local Roads	344.2	3597.2	0.43	4.45			


Fatalities by Target Crash Type for Groups of Similar Projects
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Fatalities
1000
800
600
400
200
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Intersection Crashes
Local Roads
Run-off-Road & Left of Centerline
Rural State Hig
Target Crash Type


#Serious Injuries by Target Crash Type for Groups of Similar Projects
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Serious Injuries
10000
8000
6000
4000
2000
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Intersection Crashes
Local Roads
Run-off-Road & Left of Centerline
Run-of-road & Left of Center
Run-off-Road & Left
Rural State Hig
Run-off-
Target Crash Type


Fatality Rate by Target Crash Type for Groups of Similar Projects
5-yr Average Measure Data
Year 2011 to Year 2015
2011
2013
2013
2014
2015
Rate of Fatalities
1.2
1
0.8
0.6
0.4
0.2
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Intersection Crashes
Local Roads
Run-off-Road & Left of Centerline
Run-of-road & Left of Centerli
Run-off-Road & Left or
Rural State Hig
Run-off-
Target Crash Type



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In addition, the Targeted Crash Type for the Sign Replacement and Improvement Subprogram has been changed from "All Crashes" to "Crashes on Local Roads". Since INDOT has a long standing sign management program, it is felt the Local Roads crash target category is more appropriate for this subprogram.

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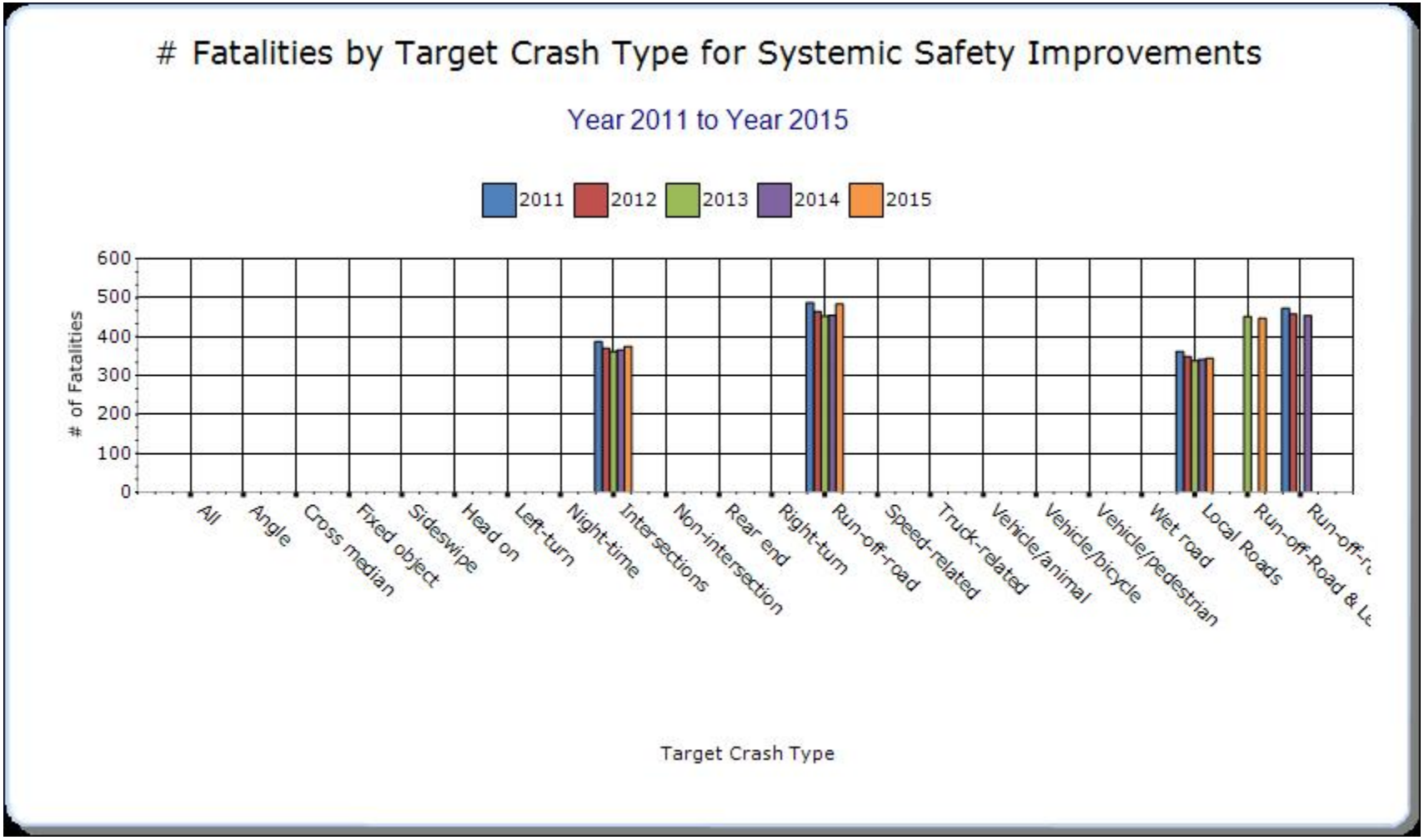
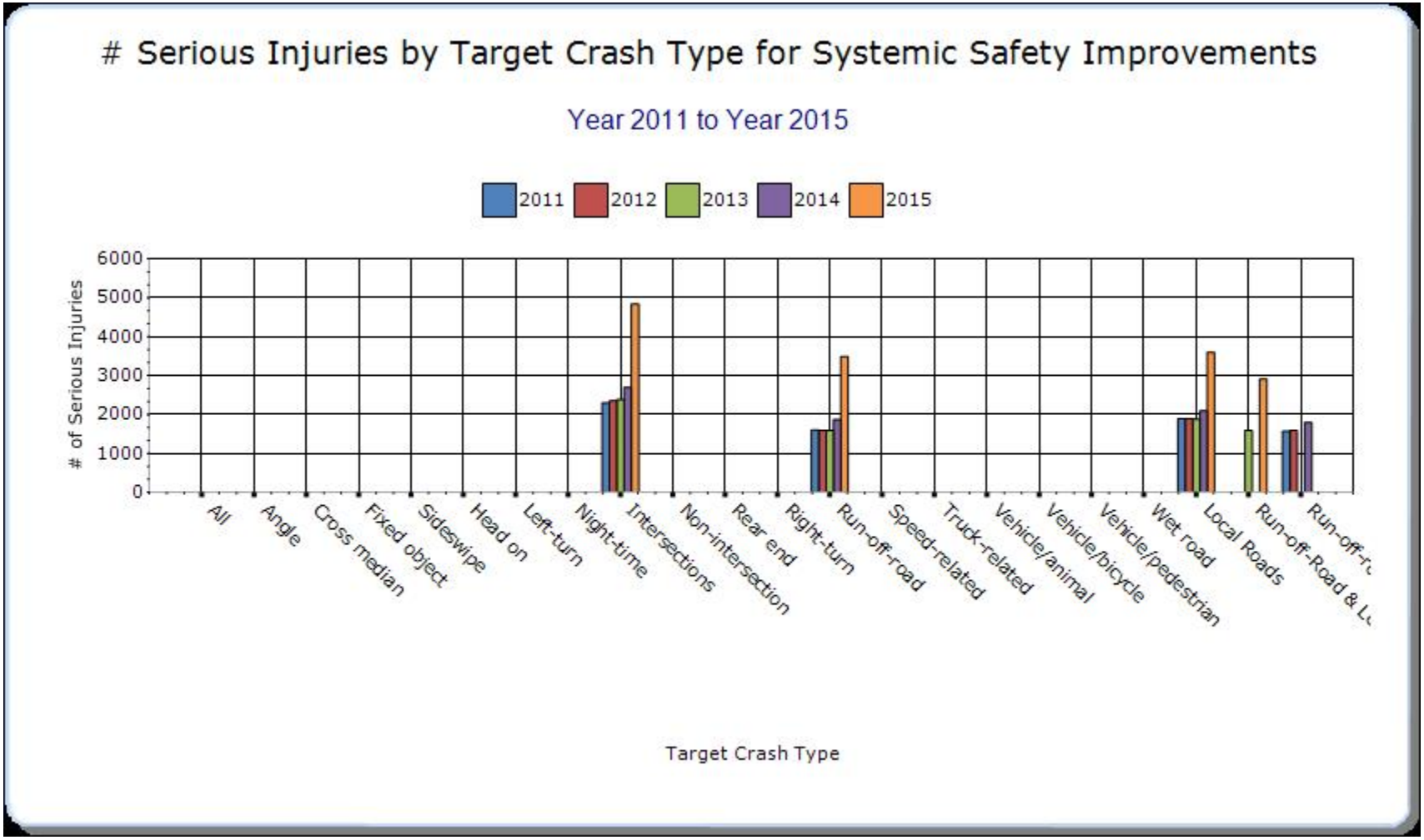
Systemic Treatments

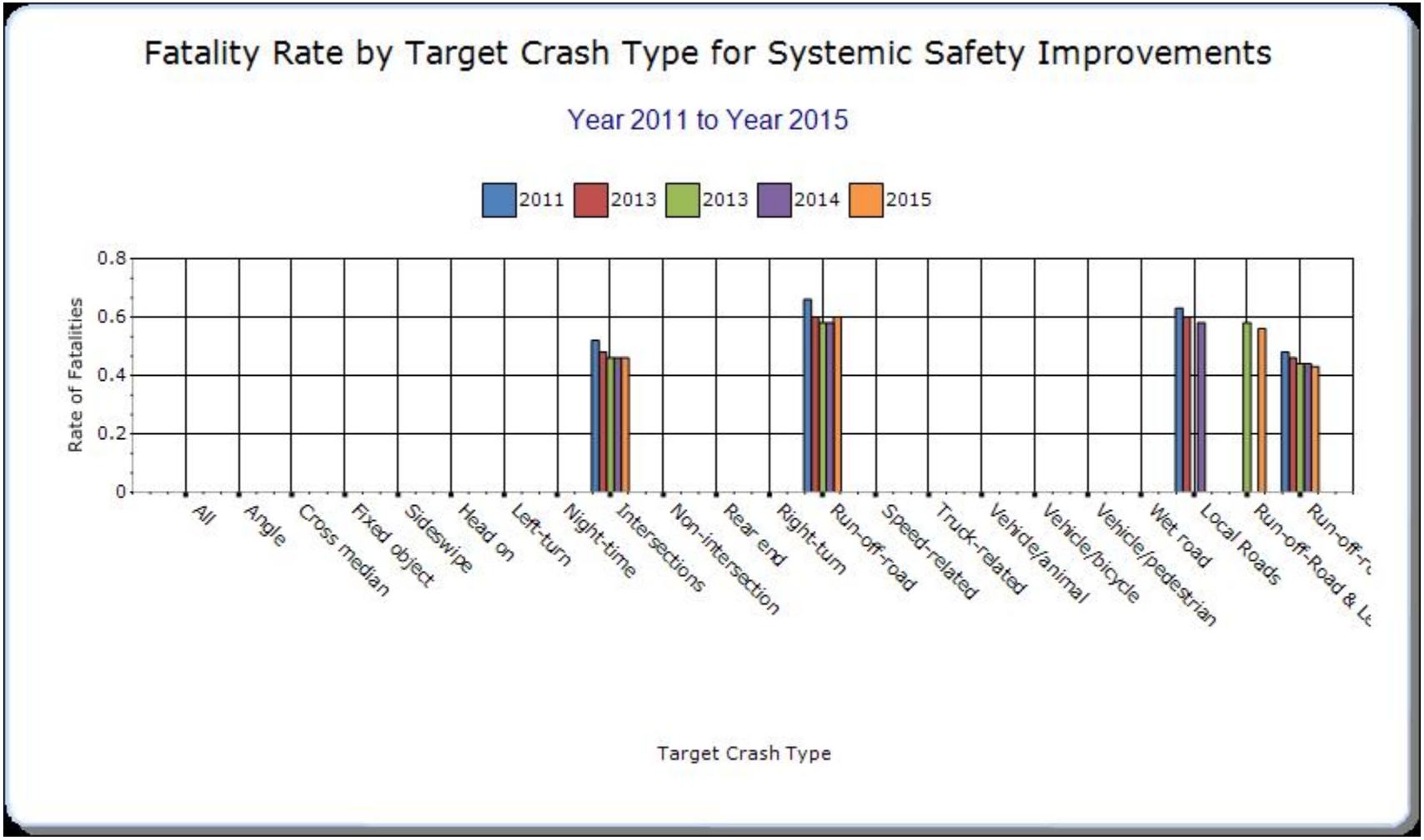
Present the overall effectiveness of systemic treatments.

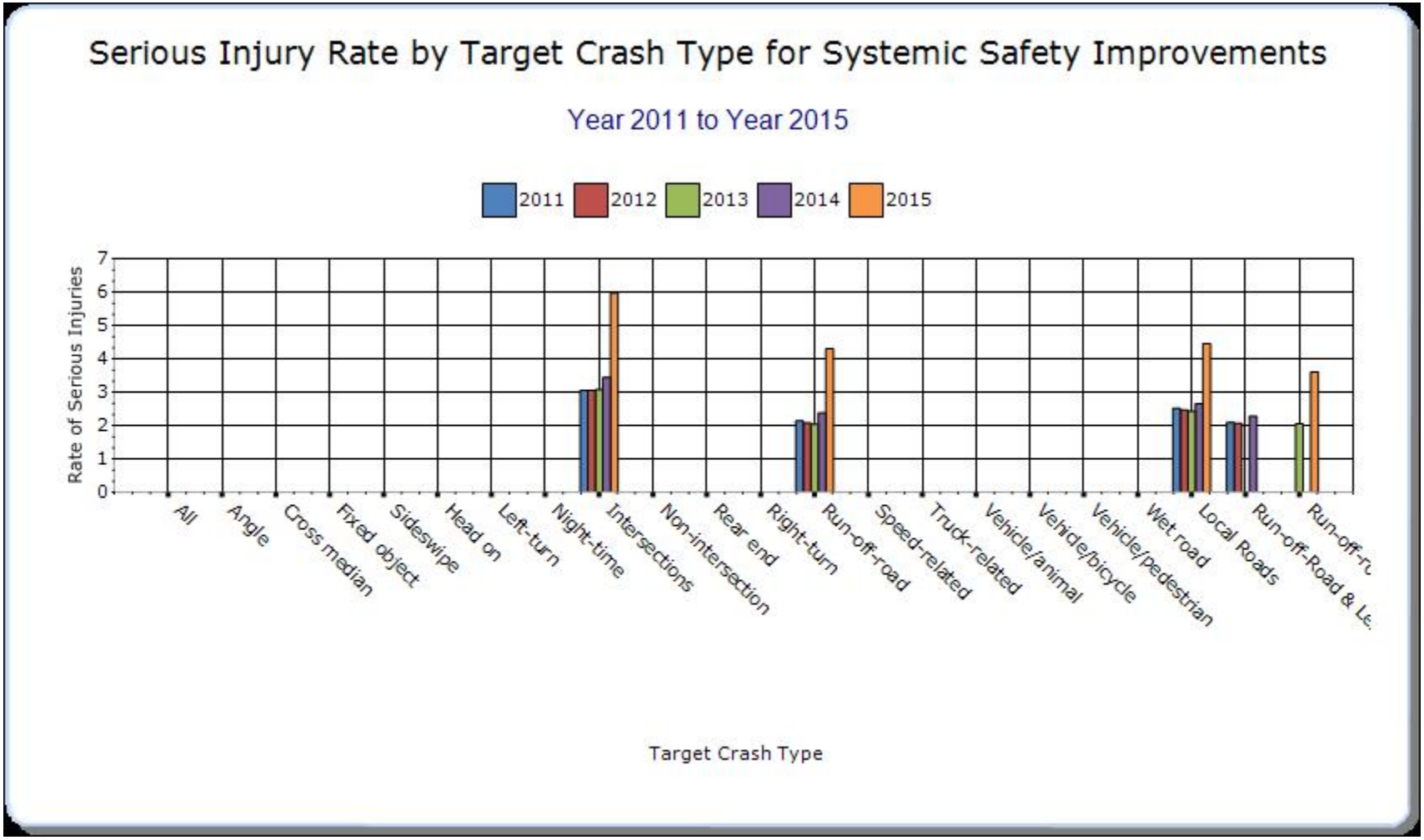
Year - 2015

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
Upgrade Guard Rails	Run-off-road	241.8	1741.6	0.3	2.15			
Rumble Strips	Run-off-road & Left of Centerline	447	2907.8	0.56	3.6			
Install/Improve Signing	Local Roads	344.2	3597.2	0.43	4.45			
Traffic Control Device Rehabilitation	Intersections	187.4	2419.4	0.23	2.99			
Cable Median Barriers	Run-off-road	241.8	1741.6	0.3	2.15			
Add/Upgrade/Modify/Remove Traffic Signal	Intersections	187.4	2419.4	0.23	2.99			


Fatalities by Target Crash Type for Systemic Safety Improvements
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Fatalities
600
500
400
300
200
100
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Local Roads
Run-off-Road &
Target Crash Type


Serious Injuries by Target Crash Type for Systemic Safety Improvements
Year 2011 to Year 2015
2011
2012
2013
2014
2015
# of Serious Injuries
6000
5000
4000
3000
2000
1000
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Local Roads
Run-off-Road &
Target Crash Type


Fatality Rate by Target Crash Type for Systemic Safety Improvements
Year 2011 to Year 2015
2011
2013
2013
2014
2015
Rate of Fatalities
0.8
0.6
0.4
0.2
0
All
Angle
Cross median
Fixed object
Sideswipe
Head on
Left-turn
Night-time
Intersections
Non-intersection
Rear end
Right-turn
Run-off-road
Speed-related
Truck-related
Vehicle/animal
Vehicle/bicycle
Vehicle/pedestrian
Wet road
Local Roads
Run-off-Road &
Target Crash Type



In 2016 INDOT has undertaken an effort with the vendor that manages the AIRES crash data portal to improve crash data reliability for all records by inspecting data transfer and query processes for possible errors. As a result, a small increase in the number of crash records in each severity classification has occurred in each year with reported data.

In addition, the Targeted Crash Type for the systemic type Install/Improve Signing has been changed from “All Crashes” to “Crashes on Local Roads”. Since INDOT has a long standing sign management program, it is felt the Local Roads crash target category is more appropriate for this subprogram.

In October of 2014 a new version of the Electronic Crash Reporting Tool used by officers was deployed to law enforcement agencies across the State of Indiana. The new version of the crash reporting tool changed the parameters for determination of injuries as class “A” severity on the KABCO scale. A new uniform method has been developed for declaring an injury to be “Incapacitating”; the definition used by Indiana to classify injury severity “A” for crash events and casualties. The new classification method was developed in response to agreement among members of the Indiana Traffic Records Coordinating Committee (TRCC); that the use of officer’s judgment in regard to determination of incapacitating injuries had been inconsistently applied. Inconsistency was noticed both between officers, and regionally, among certain police agencies that were either instructing officers or developing informal approaches to marking injury severity that was different from other peer agencies.

Previously, officers were asked to use subjective judgment to decide if injuries would be classified as incapacitating. The revised electronic reporting tool now classifies a crash participant as having an incapacitating injury if that person has been transported from the scene for medical treatment at an emergency room or trauma center. This change removes the subjective element from the determination of class “A” injury severity.

The Indiana TRCC made the change in order to achieve more consistent, reliable data over the long term. The TRCC accepts the fact that over the next few years, the frequency and rate of serious injury data would appear to be distorted when compared to the data from past years.

INDOT along with the Indiana TRCC will continue to monitor and assess the effect of the change in the method of injury severity classification. To date, the apparent effect of this change has been a significant rise in the number of crash casualties that are classified as class “A” (incapacitating) injuries. It is expected that a continuing effect will ensue on calculation of 5 year average data for serious injury (level A) crash frequency, casualty counts and resulting rate (per HMVMT). Offsetting reductions are expected in injury crash events and casualties classified at lower severity. We ask that FHWA consider this change in reporting methodology as part of any review of Indiana Crash data.

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

The combined efforts of Indiana's engineering, education, law enforcement, and emergency medical communities all contribute to an overall decline in serious crash outcomes. A trend of fewer severe crashes and increasing percentage of property damage crashes has occurred since the beginning of the HSIP. The extent of contribution by HSIP projects to improved safety is difficult to quantify with current data sources and analysis capabilities, but it's clear that safety programs are a factor influencing the downward trend in severe crash outcomes. Fatal and injury crash trends experienced a somewhat consistent rate between the start of SAFETEA-LU in 2005 through 2007 then experienced a larger downward trend in 2008 and 2009, at the same time as VMT estimates declined. From year 2010 through 2015, the estimated VMT has resumed and exceeded its previous growth trends. The incidence of severe injury crashes in most of the monitored emphasis areas increased in calendar years 2014 and 2015, however the recent change in classification of serious injury crashes was a significant factor in the reported Class "A" injury increase.

When comparing 2015 to 2014, the estimated vehicle miles of travel increased by 1.25%. Over the same period, the rate of crashes with fatality per million vehicle miles of travel increased by 6.94%, while the rate of serious crashes involving fatal plus class A & B injury outcomes decreased by 4.08%. In response to these trends INDOT will seek to increase the number and variety of systemic safety programs applicable to both state and local roads.

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)
0401138 - US 41	Rural Minor Arterial	Roadside	Barrier end treatments (crash cushions, terminals)			3	7	10			2	1	3	2.81
0710146 I-65	Rural Principal Arterial - Interstate	Roadside	Barrier - cable	4	6	42	179	231	3	5	29	169	206	1.72

0710149 - I-65	Rural Principal Arterial - Interstate	Roadside	Barrier - cable	10	4	121	746	881	4	4	86	743	837	1.56
0500956 - SR 44	Rural Minor Arterial	Roadside	Barrier end treatments (crash cushions, terminals)		4	42	152	198	1	4	41	206	252	0.71
0600792 - Local	Rural Local Road or Street	Pedestrians and bicyclists	Install new crosswalk			4	11	15			8	8	16	0.81
0501216 - Local	Rural Major Collector	Intersection traffic control	Systemic improvements - signal-controlled	9	16	191	846	1062	5	43	128	823	999	1.00

0401140 - SR 63	Rural Minor Arterial	Roadside	Barrier end treatments (crash cushions, terminals)		2	17	74	93		1	9	26	36	3.15
0300287 - SR 15	Rural Minor Arterial	Intersection traffic control	Intersection flashers - add overhead (actuated)		1	4	24	29			1	18	19	2.69
9901040 - SR 15	Urban Minor Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane		1	5	24	30			1	18	19	2.70
0501102 - US 30	Urban Principal Arterial - Other	Intersection traffic control	Modify traffic signal - add closed loop system		4	97	361	462		3	88	353	444	1.12

1005798 - Local	Urban Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement			4	21	25			5	33	38	0.69
1005800 - Local	Urban Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement			9	57	66			16	78	94	0.68
1006060 - Local	Urban Minor Arterial	Intersection traffic control	Modify traffic signal - add emergency vehicle preemption	2	6	94	358	460		16	22	445	483	1.13
1006113 - Local	Urban Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	7	35	176	978	1196	6	65	137	711	919	1.20

1006044 - Local	Urban Local Road or Street	Intersection traffic control	Systemic improvements - signal-controlled	2	37	281	812	1132	4	21	207	659	891	1.29
1006058 - Local	Rural Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	21	101	1010	5556	6688	21	148	1116	6394	7679	0.90
1006540 - Local	Urban Minor Arterial	Intersection traffic control	Systemic improvements - signal-controlled	6	150	812	3860	4828	3	148	761	4403	5315	1.98
1006542 - Local	Urban Local Road or Street	Pedestrians and bicyclists	Pedestrian signal - modify existing	1	7	5	11	24		1	1	5	7	4.15

0800443 - Local	Urban Principal Arterial - Other	Intersection geometry	Auxiliary lanes - add left-turn lane			8	23	31			3	16	19	1.05
0810293 - Local	Rural Minor Arterial	Intersection geometry	Intersection geometrics - realignment to align offset cross streets		4	18	25	47		1	12	35	48	1.17
1005765-Local	Urban Minor Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane			9	22	31		1	4	17	22	1.49
0710474 - Local	Rural Major Collector	Intersection geometry	Auxiliary lanes - add two-way left-turn lane				3	3			3	9	12	0.21

0810302 - Local	Urban Minor Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane			3	31	34				10	10	3.93
1005802 - Local	Urban Minor Arterial	Roadway	Roadway widening - add lane(s) along segment		2	40	108	150		3	20	74	97	1.39
1006056 - Local	Urban Local Road or Street	Alignment	Horizontal curve realignment			5	17	22			3	11	14	1.67
1172320 - Local	Urban Major Collector	Intersection traffic control	Modify traffic signal - modernization/replacement				10	10		1	1	5	7	0.58

1173107 - Local	Urban Major Collector	Pedestrians and bicyclists	Pedestrian signal - Pedestrian Hybrid Beacon			1	6	7		1	1	4	6	0.96

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.