INDIANA

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2017 ANNUAL REPORT

U.S. Department of Transportation
Federal Highway Administration

Photo source: Federal Highway Administration

Table of Contents

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.”

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) 2017. 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 2017, beginning October 1, 2016 and ending on September 30, 2017. 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 2016, the estimated vehicle miles of travel increased to 797.65 Hundred Million Vehicle Miles of Travel (HMVMT) or a 1.2% increase above the CY 2015 estimate of 788.19 HMVMT. The number of fatal injuries rose from 817 in calendar year 2015 to 822 in 2016, which represents an increase of 0.61%. As a result of the increased VMT, the Fatality Rate decreased slightly from 1.030 fatalities per HMVMT in 2015 to 1.010 in 2016. It should be noted that the rise in fatalities for 2016 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 increased to 1.018 HMVMT in CY 2016 as compared the rate of 1.008 in CY 2015.

While this report also indicates an increase in suspected serious injuries, 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 33 (old Question 26).

In Late 2014 a new uniform method was deployed for declaring an injury to be "Incapacitating"; the definition previously allowed under the MMUUCC Third Edition and previously used by Indiana to classify injury severity for crash events and casualties. The revised method used to classify incapacitating injures was deployed 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.

Indiana's electronic reporting tool currently 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. While the 2014 change (referred to herein as reclassification) removed the subjective element from the determination of incapacitating injuries, the number of reported incapacitating injuries rose significantly above a likely accurate count of potential Class "A" injuries. INDOT along with the Indiana TRCC continue to monitor and assess the effect of the reclassification

method on the relative proportion of injury severity classifications. To date, the apparent effect of incapacitating injury reclassification has been a significant rise in the number of crash casualties that are classified as incapacitating injuries.

The Indiana TRCC is presently developing a new electronic reporting tool that will attempt to address the change in definition of Class “A” injuries as published in the MMUCC 4th Edition.

Regulations promulgated in 2016 to support the federal administration of transportation funding included a requirement that states report Suspected Serious Injuries using the criteria established in the fourth edition of the “Model Minimum Uniform Crash Criteria” (MMUCC). This linkage to a federal regulation of what had historically been an advisory document’s definition put Indiana’s current definition of incapacitating injury out of compliance. The new regulations for establishing and reporting traffic safety performance measures necessitate that Indiana determine a way to approximate a level of injuries (renamed Suspected Serious Injuries in MMUCC 4th Edition) so that current Indiana crash records could be used to calculate historic and projected traffic safety performance counts of probable Class “A” Injuries on the KABCO scale.

In establishing a proxy for missing data regarding Class “A” injuries, Indiana analyzed an incapacitating injury count that remained reasonably consistent across the 10 years prior to the reclassification (in years 2004 to 2013), as a percentage of total numbers of non-fatal injuries. The number of reported probable KABCO class “A” injuries (formerly “Incapacitating injuries”) were evaluated to establish the percentage of non-fatal injuries they contributed total injury counts. The annual average percent contribution of “A” injuries prior to the 2014 definition change the contribution was 7.1%. Weighting this value to account for an increases in injury counts in the most recent three years of the 10 year period, the value is adjusted to 7.2% of all injuries. Indiana intends to use that percentage of non-fatal injuries for each year to represent the number of “Suspected Serious Injuries.”

Note that the 7.2% share of injuries is valid only when examining statewide crashes on all roads in Indiana. A value for any subset of the data requires its own historic analysis using the same methodology to establish the percentage contribution of “suspected Serious Injuries” to all non-fatal injuries in that subset. In the case of statewide percent of Non-Motorist “A” Injuries of All Non-Motorist Non-Fatal Injuries (Average 13.0% 2004-2013) Non-Motorist Fatalities of All Fatalities (Average 10.5% 2004-2013)

We ask that FHWA consider the Indiana’s described reporting methodology for as part of any review of Indiana Crash data and Performance Target setting. The projections produced by this methodology represent a mathematical baseline before further adjustments to reflect consideration of non-highway influences that affect highway travel and traveler risk-taking. These influences would include, but are not limited to, economic change, technology proliferation, and weather.

In federal fiscal year (FFY) 2017, the total expected obligation of federal program funds for safety, from all programs (excluding the annual rail-highway crossing safety program) will be about $44.4 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 Reporting Guidance dated December 29, 2016 and consists of five sections: program structure, progress in implementing highway safety improvement projects, progress in achieving safety outcomes and performance targets, effectiveness of the improvements and compliance assessment.

Program Structure

Program Administration

Describe the general structure of the HSIP in the State.

The HSIP in Indiana provides for infrastructure safety improvements on both state system roads and local roads. Each year, one third of HSIP funding is allocated for use on the local road network. However, the local HSIP program has a somewhat different structure from the state system program.

State System program:
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 conducts an annual network wide screening process to identify possible locations that appear to experience higher than nominal safety risk. OTS also gathers input from various internal and external groups regarding any locations of concern. The principal internal partners that provide key input in the conduct of road safety assessments are the Maintenance and Technical Services Divisions including the Traffic Engineering offices in each district. After refinement of data records, analysis of target locations leads to identification of candidate locations for safety interventions that include both spot and systemic safety improvements.

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 executive 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.

Project design is conducted by the INDOT's Highway Design Division and each project is managed by an assigned project manager utilizing the Scheduling Project Mangement System.

Final evaluation of project safety performance is conducted by OTS in the fourth year following project construction.

Local Safety 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) 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 funding 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.

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.

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. 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 determination of eligibility for all applications to utilize HSIP or HRRRP funding. OTS reviews all safety improvement project proposals for compliance with HSIP eligibility requirements as defined in Indiana's Strategic Highway Safety Plan. Eligible local projects are recommended to the INDOT Division of LPA & Grant Administration for programming approval and inclusion in the STIP and relevant TIP document. The LPA & Grants Division develops an interagency agreement with the relevant LPA to guide each projects development. The relevant INDOT district then assigns a project manager to coordinate development of the project design.

Regarding internal coordination of local safety project design and contract preparation, technical review of local agency design plans is conducted by the Highway Design Division, while contract letting is conducted by the INDOT Construction Management Division.

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.

Where is HSIP staff located within the State DOT?

Planning

Enter additional comments here to clarify your response for this question or add supporting information.

The INDOT Office of Traffic Safety is located within the Traffic Engineering Division and is in turn part of the Engineering Service and Asset Management Business Unit. The primary functions of the Office of Traffic Safety are planning, prioritization and analysis in support of the HSIP in the state of Indiana.

How are HSIP funds allocated in a State?

Central Office via Statewide Competitive Application Process
SHSP Emphasis Area Data
Formula via MPOs

Enter additional comments here to clarify your response for this question or add supporting information.

HSIP Funds for use on state system roads are allocated statewide via INDOT's Asset Management Process.

Local HSIP Funds are allocated regionally to MPOs via a population formula and to rural areas by an LTAP managed assistance program.

Analysis of crash data related to SHSP Emphasis Areas informs selection and programming of various systemic safety improvement projects.

Describe how local and tribal roads are addressed as part of HSIP.

In the State of Indiana, Local Public Agencies (LPAs) operate and maintain all local public roads. There are no designated tribal roads in the state. 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 public 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 allocation of all federal aid 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. In addition, an expanded list of systemic safety project work types was published on December 12 2016. These documents are also posted on the INDOT web site at: http://www.in.gov/indot/2357.htm

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). 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 on public roadways.

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 (e.g., State departments of transportation (DOTs) Bureaus, Divisions) are involved with HSIP planning.

Traffic Engineering/Safety
Design
Planning
Operations
Districts/Regions
Local Aid Programs Office/Division
Other-Local Agency Assistance Divison and Budget & Project Accounting Division
Other-Capital Asset Management

Enter additional comments here to clarify your response for this question or add supporting information.

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 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 HSIP planning.

Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
Governors Highway Safety Office
Local Technical Assistance Program
Academia/University

Enter additional comments here to clarify your response for this question or add supporting information.

INDOT Office of Traffic Safety (OTS) coordinates the SHSP with numerous state and local agencies. Two primary SHSP partners are the Indiana Criminal Justice Institute which houses the Indiana SHSO and the Indiana State Police which manages the state's crash database and the state's FARS office.

Regarding planning of local safety programs and performance target setting INDOT OTS primarily coordinates with MPOs and the LTAP Hazard Elimination Project for Local Roads and Streets (HELPERS). The HELPERS Program in turn coordinates with rural planning organizations (RPOs) and rural local agencies to help guide them toward developing HSIP eligible safety projects.

OTS also partners with the Indiana Joint Transportation Research Program (JTRP) in the development of safety planning analysis tools for INDOT and its local partners.

Describe coordination with external partners.

INDOT Office of Traffic Safety (OTS) coordinates implementation of the Indiana Strategic Highway Safety Plan (SHSP) with state and local agencies as well as the FHWA Division Office. Two principal SHSP partners are the Indiana Criminal Justice Institute which houses the Indiana State Highway Safety Office and the Indiana State Police which houses Indiana's Electronic Vehicle Crash Records System and administers the state's Fatality Analysis Reporting System office.

Regarding planning of local safety programs and performance target setting INDOT OTS coordinates with Indiana's 14 Metropolitan Planning Organizations through the MPO Council. Coordination with rural planning organizations (RPOs) and rural local agencies, INDOT has established the Hazard Elimination Project for Local Roads and Streets (HELPERS) within the Indiana Local Technical Assistance Program (LTAP). The HELPERS program helps guide small agencies in developing HSIP eligible safety projects.

OTS also partners with the Indiana Joint Transportation Research Program (JTRP) in the development of Indiana-specific safety planning analysis tools for INDOT and its local partners.

INDOT OTS also provides information to local agency staff and consultants regarding new technical tools and changing methodologies through presentations made at various conferences during the year such as the annual Purdue University Road School and their annual Civil Engineering Professional Development Seminar as well as other organized events.

Have any program administration practices used to implement the HSIP changed since the last reporting period?

No

Are there any other aspects of HSIP Administration on which the State would like to elaborate?

Yes

Describe other aspects of HSIP Administration on which the State 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's delineated Safety 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 Project Management 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

Does the State have an HSIP manual or similar that clearly describes HSIP planning, implementation and evaluation processes?

No

Enter additional comments here to clarify your response for this question or add supporting information.

At present INDOT does not have a combined HSIP manual, there are INDOT published documents on file with the FHWA Indiana Division Office that provide policies and guidance to staff and partner agencies including:

Business Rules governing the conduct of the Traffic Safety Asset Management process for state system safety improvement project selection and methodology for scoring and prioritization of candidate projects including HSIP assets.

Guidance to local public agencies regarding safety program planning and management of local safety project selection, listing of approved systemic safety improvement work types and process to apply for candidate project HSIP eligibility determination.

Local Technical Assistance Program (LTAP) document for the Indiana HSIP funded Hazard Elimination Program for Existing Roads and Streets (HELPERS) management guidance.

Select the programs that are administered under the HSIP.

Median Barrier
Intersection
Horizontal Curve
Bicycle Safety
Roadway Departure
Sign Replacement And Improvement
Local Safety
Pedestrian Safety
HRRR

2017 Indiana Highway Safety Improvement Program
Other-Centerline and Edgeline Rumble Stripes
Other-Traffic Signal Visibility Improvement

Enter additional comments here to clarify your response for this question or add supporting information.

INDOT has separate program requirements for the selection and prioritization of safety projects on the state highway system and for local agency sponsored projects on local system roads.

Various sub-program are aligned to address SHSP emphasis areas but may overlap regarding target crash types that are addressed.

Program: Bicycle Safety

Date of Program Methodology: 7/29/2015

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Competes with all projects

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
Fatal and serious injury crashes only	Traffic Volume	Other-Roadway and/or shoulder Width potental for Road Diet

What project identification methodology was used for this program? [Check all that apply]

Crash frequency
Probability of specific crash types

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

Yes

Are local road projects identified using the same methodology as state roads?

Yes

Describe the methodology used to identify local road projects as part of this program.

How are projects under this program 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).

Rank of Priority Consideration

Ranking based on B/C : 50
Available funding : 50

Enter additional comments here to clarify your response for this question or add supporting information.
Most bike safety projects are identified and proposed for HSIP funding by local agencies as part of their non-motorized program planning due to exposure probability of bike involved crashes and are most often prioritized by MPOs. Projects proposed by rural local agencies or by INDOT are prioritized by the Office of Traffic Safety and the relevant INDOT district office. Typically bike lanes are installed as part of road diets or elimination of on-street parking.

Program: Horizontal Curve

Date of Program Methodology: 7/29/2015

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Competes with all projects

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
Fatal and serious injury crashes only	Traffic Volume	Other-Roadway and/or shoulder Width potental for Road Diet

What project identification methodology was used for this program? [Check all that apply]

Crash frequency
Probability of specific crash types

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

2017 Indiana Highway Safety Improvement Program
Yes

Are local road projects identified using the same methodology as state roads?

Yes

Describe the methodology used to identify local road projects as part of this program.

How are projects under this program 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).

Rank of Priority Consideration

Ranking based on B/C : 50
Available funding : 50

Enter additional comments here to clarify your response for this question or add supporting information.

Curve Safety projects on the State Highway network are identified by annual network safety screening and are proposed to the Traffic Safety Asset Team for prioritizations by the relevant INDOT district office according to relative risk for future lane departure crashes.

Local agencies may identify local road curves as part of a proposed systemic curve safety project. Rural public agency projects are prioritized by INDOT while MPOs prioritize proposed projects within their planning areas. Typically enhanced warning devices are installed while High Friction Surface Treatment's may also be called for where existing friction is lower than acceptable.

Program: HRRR

Date of Program Methodology: 10/1/2012

What is the justification for this program? [Check all that apply]

FHWA focused approach to safety

What is the funding approach for this program? [Check one]

Funding set-aside

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
All crashes Fatal and serious injury crashes only	Volume	Functional classification

What project identification methodology was used for this program? [Check all that apply]

Crash frequency
Relative severity index

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

Yes

Are local road projects identified using the same methodology as state roads?

Yes

Describe the methodology used to identify local road projects as part of this program.

How are projects under this program advanced for implementation?

Competitive application process

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

Rank of Priority Consideration

Ranking based on B/C : 40
Available funding : 60

Enter additional comments here to clarify your response for this question or add supporting information.

High Risk Rural Road projects may consist of either safety spot improvements or systemic improvements and are identified on the State Highway network by annual network safety screening. State network projects are proposed to the Traffic Safety Asset Team for prioritization by OTS and the relevant INDOT district office according to relative future crash risk.

Most local agencies are unaware of roadway functional class therefore all identification HSIP eligible projects for potential HRRR program funding is performed by INDOT OTS.

2017 Indiana Highway Safety Improvement Program

Program: Intersection

Date of Program Methodology: 10/1/2010

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Competes with all projects

What data types were used in the program methodology? [Check all that apply]

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

What project identification methodology was used for this program? [Check all that apply]

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

Are local road projects identified using the same methodology as state roads?

Yes

Describe the methodology used to identify local road projects as part of this program.

How are projects under this program 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

Other-Weighted factors addressing safety need, intersection geometry and cost effectivness : 50

Total Relative Weight : 100

Enter additional comments here to clarify your response for this question or add supporting information.

Intersection Safety Improvement projects may consist of either safety spot improvements or systemic improvements and are identified on the State Highway network by annual network safety screening. State network projects are proposed to the Traffic Safety Asset Team for prioritization by OTS and the relevant INDOT district office according to relative future crash risk.

Local agencies typically identify intersection safety improvements for spot improvement countermeasures with some utilization of the intersection safety systemic countermeasures. Rural public agency projects are prioritized by INDOT while MPOs prioritize proposed projects within their planning areas.

Program: Local Safety

Date of Program Methodology: 10/1/2010

What is the justification for this program? [Check all that apply]

Other-Designated split of HSIP Apportionment

What is the funding approach for this program? [Check one]

Other-Competes with other local projects

What data types were used in the program methodology? [Check all that apply]

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

What project identification methodology was used for this program? [Check all that apply]

Crash frequency
Relative severity index
Probability of specific crash types

2017 Indiana Highway Safety Improvement Program
Excess proportions of specific crash types

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

Yes

Are local road projects identified using the same methodology as state roads?

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 projects under this program 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

Other-Weighted scoring based on safety need and cost effectivness : 50

Total Relative Weight : 100

Enter additional comments here to clarify your response for this question or add supporting information.
All local sponsored projects are identified and proposed for HSIP funding by local agencies. The majority of local project proposals are in urban areas and are therefore most often prioritized by MPOs. Projects proposed by rural local agencies are prioritized by the Office of Traffic Safety and the relevant INDOT district office.

Program: Median Barrier

Date of Program Methodology: 10/1/2010

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Competes with all projects

What data types were used in the program methodology? [Check all that apply]

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

What project identification methodology was used for this program? [Check all that apply]

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?

No

Are local road projects identified using the same methodology as state roads?

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 projects under this program 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

Other-Weighted ranking factors including safety need, roadway geometry and cost effectivness : 50

Total Relative Weight : 100

Enter additional comments here to clarify your response for this question or add supporting information.
Median Barrier projects are conducted on State network roadways and consist of the systemic application of median barrier to mitigate cross median crash severity. Local agencies may apply for HSIP project eligibility for median barrier, but to date this has not happened.

Program: Pedestrian Safety

2017 Indiana Highway Safety Improvement Program
Date of Program Methodology: 10/1/2010

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Competes with all projects

What data types were used in the program methodology? [Check all that apply]

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

What project identification methodology was used for this program? [Check all that apply]

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

Are local road projects identified using the same methodology as state roads?

Yes

Describe the methodology used to identify local road projects as part of this program.
State Roads are not addressed in this SubProgram

How are projects under this program 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

Other-Weighted factors using safety need and cost effectivness : 50

Total Relative Weight : 100

Enter additional comments here to clarify your response for this question or add supporting information.
Pedestrian safety projects are identified and proposed for HSIP funding either by INDOT or by local agencies as part of their non-motorized program planning due to exposure probability of pedestrian involved crashes. Most pedestrian projects occur in urban areas and are prioritized by MPOs. Projects proposed by rural local agencies or by INDOT are prioritized by the Office of Traffic Safety and the relevant INDOT district office. Typically curb ramps, refuge areas or hybrid beacons are installed as the primary countermeasures.

Program: Roadway Departure

Date of Program Methodology: 10/1/2010

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Competes with all projects

What data types were used in the program methodology? [Check all that apply]

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

What project identification methodology was used for this program? [Check all that apply]

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

Are local road projects identified using the same methodology as state roads?

2017 Indiana Highway Safety Improvement Program
Yes

Describe the methodology used to identify local road projects as part of this program.
State Roads are not addressed in this SubProgram

How are projects under this program 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

Other-Weighted factors based on safety need and cost effectivness : 50

Total Relative Weight : 100

Enter additional comments here to clarify your response for this question or add supporting information.

Roadway departure projects on the State Highway network are identified by annual network safety screening and are proposed to the Traffic Safety Asset Team for prioritizations by the relevant INDOT district office according to relative risk for future lane departure crashes. For state system projects, the most typical countermeasures are outside edge guardrail, median cable barrier or centerline and edge-line rumble stripes.

Local agencies may identify locations with increased risk of road departure typically at local road curves. Rural public agency projects are prioritized by INDOT while MPOs prioritize proposed projects within their planning areas.

Program: Sign Replacement And Improvement

Date of Program Methodology: 10/1/2010

What is the justification for this program? [Check all that apply]

Other-Targeted to improve local road safety

What is the funding approach for this program? [Check one]

Competes with all projects

2017 Indiana Highway Safety Improvement Program

What data types were used in the program methodology? [Check all that apply]

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

What project identification methodology was used for this program? [Check all that apply]

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

Are local road projects identified using the same methodology as state roads?

No

Describe the methodology used to identify local road projects as part of this program.
State INDOT network highways are addressed under the INDOT maintenance program and are not under the safety program

How are projects under this program 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

Total Relative Weight : 100

Enter additional comments here to clarify your response for this question or add supporting information.
Sign Replacement and Improvement systemic projects are exclusively local agency sponsored safety improvements as state network roadways are part of the INDOT Maintenance program. Proposed projects are typically identified by local agencies due to deteriorated condition or lack of retroreflectivity of their regulatory and warning signs. Rural public agency projects are prioritized by INDOT while MPOs prioritize proposed

projects within their planning areas. Each local agency is required to conduct a geocoded inventory of their existing signs and commit to ongoing maintenance of the replaced signs.

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

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Competes with all projects

What data types were used in the program methodology? [Check all that apply]

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

What project identification methodology was used for this program? [Check all that apply]

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

Are local road projects identified using the same methodology as state roads?

Yes

Describe the methodology used to identify local road projects as part of this program.
State INDOT network highways are addressed under the INDOT maintenance program and are not under the safety program

How are projects under this program 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

Other-Weighted factors using safety need and cost effectivness : 50

Total Relative Weight : 100

Enter additional comments here to clarify your response for this question or add supporting information.

Centerline and Edgeline Rumble Stripes are a subset of the Roadway Departure program and projects are conducted on State network roadways and consist of the systemic application of the countermeasure to reduce cross median and roadway departure crashes. Project identification and prioritization are conducted by INDOT OTS and district staff.

Local agencies may apply for HSIP eligibility for rumble stripe systemic projects, but to date this has not happened.

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

What is the justification for this program? [Check all that apply]

Addresses SHSP priority or emphasis area

What is the funding approach for this program? [Check one]

Competes with all projects

What data types were used in the program methodology? [Check all that apply]

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

What project identification methodology was used for this program? [Check all that apply]

Crash frequency
Relative severity index

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

Yes

Are local road projects identified using the same methodology as state roads?

Yes

Describe the methodology used to identify local road projects as part of this program.
State INDOT network highways are addressed under the INDOT maintenance program and are not under the safety program

How are projects under this program advanced for implementation?

Competitive application process

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

Relative Weight in Scoring

Cost Effectiveness : 50

Other-Weighted factors using safety need and cost effectivness : 50

Total Relative Weight : 100

Enter additional comments here to clarify your response for this question or add supporting information.

Traffic signal and non-signalized intersection visibility systemic improvement projects are a subset of the Intersection Safety program. projects on the State Highway network are identified by annual network safety screening and are proposed to the Traffic Safety Asset Team for prioritizations by the relevant INDOT district office according to relative risk for future crashes.

Local agencies may identify intersections for systemic application for HSIP eligibility. Rural public agency projects are prioritized by INDOT while MPOs prioritize proposed projects within their planning areas.

What percentage of HSIP funds address systemic improvements?

77.8

HSIP funds are used to address which of the following systemic improvements? Please check all that apply.

Cable Median Barriers

2017 Indiana Highway Safety Improvement Program
Rumble Strips
Traffic Control Device Rehabilitation
Install/Improve Signing
Install/Improve Pavement Marking and/or Delineation
Upgrade Guard Rails
Add/Upgrade/Modify/Remove Traffic Signal
Horizontal curve signs

Enter additional comments here to clarify your response for this question or add supporting information.

The goal of the INDOT safety program is to obligate a minimum of 50% of HSIP spending on systemic improvement work types. Actual obligation for systemic projects may vary on a year to year basis.

INDOT performs Safety Edge as a general paving standard rather than as a systemic HSIP program.

What process is used to identify potential countermeasures? [Check all that apply]

Engineering Study
Road Safety Assessment
Crash data analysis

Enter additional comments here to clarify your response for this question or add supporting information.

Does the State HSIP consider connected vehicles and ITS technologies?

No

Enter additional comments here to clarify your response for this question or add supporting information.
At this time INDOT does not consider connected vehicle and ITS technologies in evaluation of potential HSIP project selection and eligibility. INDOT is presently installing connected vehicle-related communication at select traffic signals in the state and will conduct a research study of the potential their effectiveness, however the project is with funding other than the HSIP. INDOT considers various ITS technologies as a means to achieve higher mobility and safety performance, though funding for installations is not currently made through the HSIP.

Does the State use the Highway Safety Manual to support HSIP efforts?

No

Enter additional comments here to clarify your response for this question or add supporting information.
INDOT has developed data driven analysis tools similar/equivalent to HSM that support HSIP efforts. The CMF Clearinghouse is used for all CMFs not currently calibrated for Indiana roadways.

Have any program methodology practices used to implement the HSIP changed since the last reporting period?

No

Are there any other aspects of the HSIP methodology on which the State would like to elaborate?

Yes

Describe other aspects of the HSIP methodology on which the State would like to elaborate.

INDOT seeks 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 annual system wide analysis to identify both individual locations with high potential for severe crashes or need for deployment of a systemic improvement. Locations of concern may also be identified, analyzed and programmed for safety improvement by other means such as public complaints filtered through one of the INDOT's Customer Service system.

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 Asset Management process is used to program traffic safety projects on INDOT system roads requires selection and prioritization of a fiscally constrained set of project for each state fiscal year. The Traffic Safety Asset Management (TSAM) Team chaired by the OTS manager and 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 cost constrained lists of safety improvement projects that are programmed for construction in each future fiscal year over a 5 year window.

A uniform scoring/prioritization procedure is utilized to provide proposed projects with weighted scores that consider history of crashes and their severity, traffic volume, road inventory data as well as consideration of cost effectiveness of the proposed solution. Since no uniform set of criteria can fully assess the relative intensity of safety needs in every case, the candidate project prioritization process also considers un-scored factors that my influence future crash risk by way of safety asset committee deliberation.

The TSAM team 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 requested funding level in context of other asset team proposals and projected revenue level for the target year. The Program Management Group then ratifies the funding level for the overall INDOT safety program for the target construction year. A Change Management process is available for project and program managers' use throughout each project's design/development phase to provide consideration of any proposed changes to individual project intent, budget or scheduled construction fiscal year as needed.

In regard to candidate projects on the local road system, individual LPAs may propose future projects for HSIP funding through two methods dependent on the type of regional planning area. Proposed projects located in areas within a metropolitan planning organization (MPO) must first be selected and prioritized 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 regional RPO 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 and regarding best practices for traffic safety and facilitates the conduct of appropriate RSA procedures.

The INDOT OTS makes all eligibility determinations for HSIP and HRRRP funding. The necessary information is provided by local public agencies via RSA report and is used by OTS 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 submitted by the relevant local officials. An exception to the full application package is the submission of eligibility information for a predetermined list of systemic safety project types that may be submitted via an INDOT developed form.

Project Implementation

Funds Programmed

Reporting period for HSIP funding.

Federal Fiscal Year

Enter additional comments here to clarify your response for this question or add supporting information.

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	$40,225,929	$17,078,538	42.46%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$3,885,158	$3,496,642	90%
Penalty Funds (23 U.S.C. 154)	$0	$0	0%
Penalty Funds (23 U.S.C. 164)	$0	$18,285,981	0%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	$0	$0	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	$0	$0	0%
State and Local Funds	$4,000,000	$5,013,797	125.34%
Totals	$48,111,087	$43,874,958	91.2%

Enter additional comments here to clarify your response for this question or add supporting information.

Obligated program totals includes planned transfers from Advance Construction to the HSIP, HRRRP and 164-HE programs before October 1, 2017. Amounts listed in the question 23 table reflect obligated funds totals at the time of reporting August 31, 2017. Changes in the obligation totals may have occurred subsequent to that date.

Due to the Section 164 Penalty Fund requirement in FFY 2017 the actual obligation of HSIP eligible funds (absent the HRRRP Special Rule) is $35,364,519 or 87.91% of the programmed HSIP.

.

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

33%

How much funding is obligated to local or tribal safety projects?

63%

Enter additional comments here to clarify your response for this question or add supporting information.

INDOT Allocates 33% of each annual apportionment to fund local agency sponsored HSIP eligible projects. The allocation to local agencies for FFY 2017 is $16,425,925

In FFY 2017 the projected total obligation of funds to construct local safety projects is expected to be 63%of total apportionment or $29,181,960

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

$250,000

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

$285,000

Enter additional comments here to clarify your response for this question or add supporting information.

HSIP is used to fund the operations of the Hazard Elimination Program for Exiting Roads and Streets (HELPERS) Program managed by the Indiana Local Technical Assistance Program.

In addition, MPOs may utilize up to 15% of allocated HSIP funds for safety program planning activities.

How much funding was transferred in to the HSIP from other core program areas during the reporting period under 23 U.S.C. 126?

$0

How much funding was transferred out of the HSIP to other core program areas during the reporting period under 23 U.S.C. 126?

$24,613,894

Enter additional comments here to clarify your response for this question or add supporting information.

Due to the Section 164 Penalty Fund requirement in FFY 2017 a transfer of funds from HSIP took place to balance INDOT’s asset management policy.

Discuss impediments to obligating HSIP funds and plans to overcome this challenge in the future.

MAP-21 and the FAST Act make 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 suitable 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.

Under the current Indiana Crash Database the definition of an “incapacitating injury” as any injury that requires immediate transport from the scene for medical treatment 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. However, this definition is no longer compliant with the MMUCC 4th Edition.

The new MMUCC guidelines will require the term “suspected serious injury” equivalent to the “A” injury classification under the KABCO scale. The revised classification rule starting April 15, 2019 will be too short a time for the TRCC to adjust the data elements that are available in the state’s electronic vehicle crash data base. 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 a difficult task for most officers who are not medically trained but injury assessment is not an officers primary duty at a crash scene. Good communication between emergency medical technicians and reporting officers will be 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.

In 2016, the Indiana State Police (ISP) and members of the TRCC began working on a new version of the Electronic Indiana Crash Reporting Tool for Officers. 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 rapid, accurate and consistent as possible. In the meantime, INDOT has proposed a method to estimate annual suspected serious injury counts from the crash database.

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 due to significant involvement of arterial roads in the project applications. Moreover, multiyear analysis of 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. The current best practice of comparing substantive to nominal crash risk has proven to be a better predictor of 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 of 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 actual conditions.

Does the State want to elaborate on any other aspects of it's progress in implementing HSIP projects?

Yes

Describe any other aspects of the State's progress in implementing HSIP projects on which the State would like to elaborate.

In March of 2016 the Governor of Indiana signed a revised Strategic Highway Safety Plan for Indiana. This new SHSP assists 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 such as technologies, countermeasures and methodologies 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 INDOTs 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 from 18 months for certain systemic improvements to 5 years in the future for projects requiring more involved development process.

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 crashes with fatal and/or suspected serious injury outcomes either by reducing the occurrence of these crashes or their relative severity. Current available analysis tools are designed to consider all incapacitating injury crashes to be serious so fatal and suspected serious injury crashes are primarily targeted as well as site specific data for countermeasure decision making. For most road safety assessment 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 that aid in prioritizing project proposals.

Most rural local roads lack accurate 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 prioritize 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 the projects obligated using HSIP funds for the reporting period.

													RELATIONSHIP TO SHSP	
PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
0400495	Alignment	Horizontal and vertical alignment	0.502	Miles	$2353429.33	$2423523.36	Penalty Funds (23 U.S.C. 164)	Rural Major Collector	5,920	55	State Highway Agency	Spot	Roadway Departure	Increase sight distance
0710463	Roadway	Roadway widening - curve	0.44	Miles	$430820.6	$439909.79	Penalty Funds (23 U.S.C. 164)	Rural Minor Arterial	1,580	55	State Highway Agency	Spot	Roadway Departure	Increase lane width
1172207	Intersection traffic control	Modify traffic signal - modernization/replacement	18	Intersections	$652153.67	$652153.67	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Other	12,000	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1296261	Intersection traffic control	Modify traffic signal - modernization/replacement	30	Intersections	$524980.27	$531490.43	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Other	7,500	55	State Highway Agency	Systemic	Intersections	Increase signal visibility
1296298	Intersection geometry	Auxiliary lanes - modify turn lane storage	0.133	Miles	$395548.7	$479023.57	Penalty Funds (23 U.S.C. 164)	Urban Major Collector	3,150	30	City of Municipal Highway Agency	Spot	Intersections	Increase storage
1296299	Intersection geometry	Auxiliary lanes - add right-turn lane	0.114	Miles	$681120.18	$682981.61	Penalty Funds (23 U.S.C. 164)	Urban Minor Arterial	19,995	40	City of Municipal Highway Agency	Spot	Intersections	Increase storage
1296422	Roadway delineation	Raised pavement markers	453.06	Miles	$447635.41	$447635.41	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Interstate	31,000	70	State Highway Agency	Systemic	Roadway Departure	RPM Replacement
1296424	Intersection traffic control	Modify traffic signal - modernization/replacement	9	Intersections	$1002306.4	$1028806.4	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Other	25,900	35	State Highway Agency	Spot	Intersections	Increase signal visibility
1296428	Roadway signs and traffic control	Curve-related warning signs and flashers	3087	Numbers	$482187.33	$482187.33	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Interstate	30,000	70	State Highway Agency	Systemic	Roadway Departure	Increase sign visibility
1296843	Roadway delineation	Raised pavement markers	13087	Numbers	$217748.57	$217748.57	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Interstate	183,300	55	State Highway Agency	Systemic	Roadway Departure	RPM Replacement
1296846	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$117342.23	$183142.23	Penalty Funds (23 U.S.C. 164)	Rural Minor Arterial	10,081	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1296849	Intersection traffic control	Intersection signing - add enhanced regulatory sign (double-up and/or oversize)	20	Intersections	$101658.22	$101658.22	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Other	20,000	55	State Highway Agency	Systemic	Intersections	Increase sign visibility
1296914	Roadway delineation	Raised pavement markers	2090	Numbers	$242380.9	$242380.9	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Other	15,000	55	State Highway Agency	Systemic	Roadway Departure	RPM Replacement
1296917	Intersection traffic control	Modify traffic signal - modernization/replacement	22	Intersections	$399586.34	$399586.34	Penalty Funds (23 U.S.C. 164)	Rural Major Collector	10,000	55	State Highway Agency	Systemic	Intersections	Increase signal visibility
1296920	Roadway	Rumble strips - unspecified or other	8.3	Miles	$684440.75	$684440.75	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Other	5,000	55	State Highway Agency	Systemic	Lane Departure	Install Rumble Strips
1296961	Intersection traffic control	Modify traffic signal - modernization/replacement	11	Intersections	$207156.96	$207156.96	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Other	10,068	30	State Highway Agency	Systemic	Intersections	Increase signal visibility
1296966	Intersection traffic control	Modify traffic signal - modernization/replacement	9	Intersections	$286647.9	$287792.9	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Other	27,700	40	State Highway Agency	Systemic	Intersections	Increase signal visibility
1296971	Intersection traffic control	Modify traffic signal - modernization/replacement	29	Intersections	$671187.46	$671187.46	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Other	25,000	60	State Highway Agency	Systemic	Intersections	Increase signal visibility

													RELATIONSHIP TO SHSP	
PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	EMPHASIS AREA	STRATEGY
1296972	Intersection traffic control	Intersection signing - add enhanced regulatory sign (double-up and/or oversize)	36	Intersections	$44614.22	$44614.22	Penalty Funds (23 U.S.C. 164)	Rural Minor Arterial	4,000	55	State Highway Agency	Systemic	Intersections	Increase sign visibility
1297111	Intersection traffic control	Modify traffic signal - modernization/replacement	4	Intersections	$453554.75	$453554.75	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Other	23,000	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1298230	Roadside	Barrier - cable	30.17	Miles	$3232412.37	$3232412.37	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Interstate	30,343	70	State Highway Agency	Systemic	Roadway Departure	Install cable barrier
1382614	Intersection geometry	Intersection geometrics - modify intersection corner radius	1	Intersections	$323664.74	$330464.74	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Other	9,195	25	State Highway Agency	Spot	Intersections	Increase turning radii
1500613	Intersection traffic control	Modify traffic signal - add emergency vehicle preemption	39	Intersections	$764640.32	$849600.35	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	36,000	45	State Highway Agency	Systemic	Intersections	Install Optical Preempt
1592510	Intersection traffic control	Modify control - traffic signal to roundabout	1	Intersections	$1411335.81	$1691465.81	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Other	8,355	55	State Highway Agency	Spot	Intersections	Construct a roundabout
1593072	Roadway delineation	Raised pavement markers	2470	Numbers	$149745.34	$149745.34	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Interstate	57,000	70	State Highway Agency	Systemic	Roadway Departure	RPM Replacement
1600079	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$155381.34	$228627.91	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Interstate	17,300	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1600084	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$132582.35	$132689.98	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Interstate	18,500	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1600085	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$54399.14	$54506.77	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Interstate	5,600	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1600086	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$44091.05	$44198.68	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Interstate	8,440	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1600087	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$40661.89	$40769.52	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Interstate	5,643	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1600088	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$56132.58	$56240.21	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Interstate	7,589	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1600089	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$159053.04	$159160.67	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Interstate	23,000	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1600090	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$81944.39	$82052.02	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Interstate	23,000	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1600099	Roadway signs and traffic control	Curve-related warning signs and flashers	27.5	Miles	$128050.15	$128050.15	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Other	1,005	55	State Highway Agency	Systemic	Roadway Departure	RPM Replacement
1600113	Roadway delineation	Raised pavement markers	226.69	Miles	$244007.45	$244007.45	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	12,500	55	State Highway Agency	Systemic	Roadway Departure	Install Rumble Strips
1600118	Roadway	Rumble strips - center	16.8	Miles	$261905.67	$261905.67	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Other	10,000	55	State Highway Agency	Systemic	Roadway Departure	RPM Replacement
1600125	Roadway delineation	Raised pavement markers	3.83	Miles	$191446.13	$191446.13	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Other	10,000	55	State Highway Agency	Systemic	Roadway Departure	RPM Replacement
1600465	Roadway signs and traffic control	Roadway signs and traffic control - other	1	Intersections	$125325.84	$125325.84	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Other	5,000	35	State Highway Agency	Spot	Intersections	Positive Guideance

													RELATIONSHIP TO SHSP	
PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	EMPHASIS AREA	STRATEGY
1601134	Pedestrians and bicyclists	Modify existing crosswalk	22	Intersections	$275267.96	$276258.89	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial - Other	6,500	35	State Highway Agency	Spot	Intersections	Install ADA Curb Ramps
1601765	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$66703.08	$66703.08	Penalty Funds (23 U.S.C. 164)	Rural Minor Arterial	9,800	60	State Highway Agency	Spot	Intersections	Increase signal visibility
1601762	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$22092.95	$27616.19	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	26,675	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1601761	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$18137.03	$22671.28	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	25,800	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1601765	Roadway signs and traffic control	Roadway signs and traffic control - other	1	Intersections	$66703.08	$66703.08	Penalty Funds (23 U.S.C. 164)	Rural Minor Arterial	9,800	45	State Highway Agency	Spot	Intersections	Increase sign visibility
1297755	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	1294	Numbers	$207576.84	$230640.93	HRRR Special Rule (23 U.S.C. 148(g)(1))	Urban Principal Arterial - Other	22,800	35	City of Municipal Highway Agency	Systemic	Intersections	Increase sign visibility
1297756	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	313	Numbers	$120883.89	$134315.43	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	10,000	55	County Highway Agency	Systemic	Intersections	Increase sign visibility
1298317	Roadway signs and traffic control	Curve-related warning signs and flashers	651	Numbers	$161900.59	$161900.59	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Principal Arterial - Interstate	45,000	70	State Highway Agency	Systemic	Roadway Departure	Increase sign visibility
1383409	Pedestrians and bicyclists	Modify existing crosswalk	36	Intersections	$281993.42	$386901.61	HRRR Special Rule (23 U.S.C. 148(g)(1))	Urban Local Road or Street	5,000	35	Town or Township Highway Agency	Spot	Intersections	Install ADA Curb Ramps
1383434	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	648	Numbers	$87237.9	$96931	HSIP (23 U.S.C. 148)	Urban Major Collector	3,600	35	City of Municipal Highway Agency	Systemic	Intersections	Increase sign visibility
1383447	Non-infrastructure	Non-infrastructure - other	1	Numbers	$132030	$146700	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Local Road or Street	5,000	55	County Highway Agency	Systemic	Data	Sign Inventory
1383477	Pedestrians and bicyclists	Modify existing crosswalk	8	Intersections	$170422.92	$276428.66	HRRR Special Rule (23 U.S.C. 148(g)(1))	Urban Local Road or Street	2,000	35	Town or Township Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps
1400720	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	301	Numbers	$52223.97	$58026.63	HRRR Special Rule (23 U.S.C. 148(g)(1))	Urban Minor Arterial	4,400	35	Town or Township Highway Agency	Systemic	Intersections	Increase sign visibility
1400735	Pedestrians and bicyclists	Modify existing crosswalk	9	Intersections	$74837.19	$113596.49	HRRR Special Rule (23 U.S.C. 148(g)(1))	Urban Local Road or Street	1,500	35	Town or Township Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps
1400809	Pedestrians and bicyclists	Modify existing crosswalk	36	Intersections	$280865.38	$416572.65	HRRR Special Rule (23 U.S.C. 148(g)(1))	Urban Local Road or Street	1,500	35	Town or Township Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps
1400810	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	262	Numbers	$79578.93	$88421.05	HRRR Special Rule (23 U.S.C. 148(g)(1))	Urban Local Road or Street	1,500	35	Town or Township Highway Agency	Systemic	Intersections	Increase sign visibility
1400849	Pedestrians and bicyclists	Modify existing crosswalk	6	Intersections	$81001.27	$124201.25	HRRR Special Rule (23 U.S.C. 148(g)(1))	Urban Minor Collector	5,000	35	Town or Township Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps

													RELATIONSHIP TO SHSP	
PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	EMPHASIS AREA	STRATEGY
1400858	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	0.46	Miles	$91289.89	$167612.36	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Local Road or Street	1,500	35	Town or Township Highway Agency	Spot	Pedestrians	Improve Ped. System
1401687	Intersection geometry	Auxiliary lanes - add left-turn lane	0.212	Miles	$397184.43	$630516.03	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	6,950	55	State Highway Agency	Spot	Intersections	Construct left turn lane
1592418	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	4236	Numbers	$573764.61	$659763.2	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Local Road or Street	5,000	35	Town or Township Highway Agency	Systemic	Intersections	Increase sign visibility
1592419	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	1198	Numbers	$104170.6	$106532.4	HRRR Special Rule (23 U.S.C. 148(g)(1))	Urban Minor Arterial	4,000	40	Town or Township Highway Agency	Systemic	Intersections	Increase sign visibility
1600069	Intersection traffic control	Modify traffic signal - modernization/replacement	3	Intersections	$420839.92	$420839.92	HRRR Special Rule (23 U.S.C. 148(g)(1))	Urban Principal Arterial - Other	12,800	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1600091	Roadway signs and traffic control	Curve-related warning signs and flashers	403	Signs	$120933.49	$120933.49	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Principal Arterial - Other	15,000	55	State Highway Agency	Systemic	Roadway Departure	Increase sign visibility
1601181	Pedestrians and bicyclists	Modify existing crosswalk	19	Intersections	$263556.59	$292840.66	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Local Road or Street	3,000	35	Town or Township Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps
1601789	Pedestrians and bicyclists	Modify existing crosswalk	13	Intersections	$449274.07	$499193.41	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Major Collector	1,500	35	State Highway Agency	Spot	Pedestrians	Improve Ped. System
0810280	Roadway	Roadway widening - add lane(s) along segment	1.49	Miles	$2852805	$19287183.78	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	25,075	35	City of Municipal Highway Agency	Spot	Roadway Departure	Improve Driving Surface
1005755	Lighting	Continuous roadway lighting	0.11	Miles	$14285.34	$15872.6	HSIP (23 U.S.C. 148)	Urban Major Collector	1,300	30	Town or Township Highway Agency	Spot	Roadway Departure	Install Lighting
1006029	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	2208	Numbers	$473760.39	$476538.17	Penalty Funds (23 U.S.C. 164)	Urban Minor Arterial	13,000	35	City of Municipal Highway Agency	Systemic	Intersections	Increase sign visibility
1006030	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	605	Numbers	$115097.18	$116174.96	Penalty Funds (23 U.S.C. 164)	Urban Minor Arterial	8,100	35	City of Municipal Highway Agency	Systemic	Intersections	Increase sign visibility
1383351	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	207	Numbers	$49544.1	$55049	HSIP (23 U.S.C. 148)	Rural Local Road or Street	1,500	35	Town or Township Highway Agency	Systemic	Intersections	Increase sign visibility
1400166	Pedestrians and bicyclists	Modify existing crosswalk	13	Intersections	$423720	$564436	HSIP (23 U.S.C. 148)	Urban Minor Arterial	10,300	35	City of Municipal Highway Agency	Spot	Intersections	Install ADA Curb Ramps
1400279	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	0.108	Miles	$343817.27	$346928.38	Penalty Funds (23 U.S.C. 164)	Urban Minor Arterial	14,300	35	City of Municipal Highway Agency	Spot	Intersections	Provide more capacity
1400569	Pedestrians and bicyclists	Install sidewalk	0.568	Miles	$1003318.25	$1417147.81	HSIP (23 U.S.C. 148)	Urban Minor Arterial	11,750	35	City of Municipal Highway Agency	Spot	Bicyclists	Construct shared use path
1400709	Intersection traffic control	Modify control - two-way stop to roundabout	0.27	Miles	$1721939.27	$1913265.86	HSIP (23 U.S.C. 148)	Urban Minor Arterial	12,740	40	County Highway Agency	Spot	Intersections	Construct a roundabout

													RELATIONSHIP TO SHSP	
PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	EMPHASIS AREA	STRATEGY
1400714	Railroad grade crossings	Protective devices	2	Locations	$516602.95	$574003.28	HSIP (23 U.S.C. 148)	Urban Major Collector	2,680	40	City of Municipal Highway Agency	Spot	Intersections	Enhance RR Crossing
1400963	Railroad grade crossings	Grade separation	1	Locations	$1029965.49	$1144406.1	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	10,500	35	City of Municipal Highway Agency	Spot	Intersections	Grade separation
1401032	Intersection geometry	Auxiliary lanes - modify turn lane storage	0.133	Miles	$1903433.65	$2352642.06	HSIP (23 U.S.C. 148)	Urban Major Collector	3,150	30	City of Municipal Highway Agency	Spot	Intersections	Increase storage
1401042	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	2201	Numbers	$242761.28	$263223.86	HSIP (23 U.S.C. 148)	Urban Minor Arterial	5,000	55	County Highway Agency	Systemic	Intersections	Increase sign visibility
1401046	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	2765	Numbers	$613099.78	$635289.94	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	5,500	35	City of Municipal Highway Agency	Systemic	Intersections	Increase sign visibility
1401347	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	1901	Numbers	$639349	$639349	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	9,500	45	City of Municipal Highway Agency	Systemic	Intersections	Increase sign visibility
1401349	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	1335	Numbers	$443938.5	$493265	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	35,000	35	City of Municipal Highway Agency	Systemic	Intersections	Increase sign visibility
1401685	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	632	Numbers	$75332.81	$98913.63	HSIP (23 U.S.C. 148)	Rural Minor Collector	1,500	35	Town or Township Highway Agency	Systemic	Intersections	Increase sign visibility
1601764	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$47100.01	$68875.01	HSIP (23 U.S.C. 148)	Rural Minor Arterial	12,550	55	State Highway Agency	Spot	Intersections	Increase signal visibility
1500320	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	400	Numbers	$353713.54	$385992.83	HSIP (23 U.S.C. 148)	Rural Local Road or Street	2,500	35	Town or Township Highway Agency	Systemic	Intersections	Increase sign visibility
1500321	Pedestrians and bicyclists	Pedestrian signal - install new at non-intersection location	1	Locations	$147292.23	$157680.26	HSIP (23 U.S.C. 148)	Urban Minor Arterial	8,800	20	Town or Township Highway Agency	Spot	Pedestrians	Increase ped xing visibility
1500322	Pedestrians and bicyclists	Pedestrian warning signs - add/modify flashers	1	Locations	$220857.07	$245396.74	HSIP (23 U.S.C. 148)	Urban Minor Arterial	17,800	35	Town or Township Highway Agency	Spot	Pedestrians	Increase ped xing visibility
1601763	Roadway delineation	Longitudinal pavement markings - remarking	1	Intersections	$8232.97	$10545.78	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	11,575	45	State Highway Agency	Spot	Intersections	Positive guidance
1500404	Pedestrians and bicyclists	Modify existing crosswalk	7	Intersections	$214757.38	$238619.32	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	20,000	35	Town or Township Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps
1500423	Intersection traffic control	Modify traffic signal - replace existing indications (incandescent-to-LED and/or 8-to-12 inch dia.)	8	Intersections	$60733.04	$67481.16	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	20,000	35	Town or Township Highway Agency	Spot	Intersections	Change signal heads
1500428	Pedestrians and bicyclists	Modify existing crosswalk	55	Ramps	$226250.46	$251389.41	HSIP (23 U.S.C. 148)	Urban Major Collector	5,000	40	City of Municipal Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps
1500435	Pedestrians and bicyclists	Modify existing crosswalk	53	Ramps	$723940.06	$804377.84	HSIP (23 U.S.C. 148)	Urban Minor Arterial	4,000	35	City of Municipal Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps
1500437	Roadside	Barrier end treatments (crash cushions, terminals)	35	Locations	$1416746	$1673162.22	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	20,000	35	City of Municipal Highway Agency	Spot	Roadway Departure	Upgrade Barrier End Treatments

2017 Indiana Highway Safety Improvement Program

													RELATIONSHIP TO SHSP	
PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	EMPHASIS AREA	STRATEGY
1500439	Pedestrians and bicyclists	Modify existing crosswalk	115	Ramps	$307020.62	$342134.02	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	17,500	35	City of Municipal Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps
1500440	Pedestrians and bicyclists	Modify existing crosswalk	115	Ramps	$435604.4	$484004.9	HSIP (23 U.S.C. 148)	Urban Minor Arterial	9,000	35	City of Municipal Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps
1500441	Pedestrians and bicyclists	Modify existing crosswalk	115	Ramps	$250079.2	$277865.57	HSIP (23 U.S.C. 148)	Urban Minor Arterial	9,000	35	City of Municipal Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps
1500442	Pedestrians and bicyclists	Pedestrian warning signs - overhead	6	Locations	$57916.29	$60221.29	HSIP (23 U.S.C. 148)	Rural Major Collector	5,500	45	County Highway Agency	Spot	Pedestrians	School speed zone signs
1500443	Roadside	Barrier end treatments (crash cushions, terminals)	18	Locations	$620413.71	$689348.57	HSIP (23 U.S.C. 148)	Rural Major Collector	5,500	55	County Highway Agency	Spot	Roadway Departure	Upgrade Barrier End Treatments
1500481	Pedestrians and bicyclists	Modify existing crosswalk	57	Ramps	$879565.31	$977294.79	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	21,800	35	City of Municipal Highway Agency	Spot	Pedestrians	Install ADA Curb Ramps
1592417	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	251	Numbers	$104102.2	$112602.2	HSIP (23 U.S.C. 148)	Urban Major Collector	4,500	35	Town or Township Highway Agency	Systemic	Intersections	Increase sign visibility
1601759	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$64838.19	$99161.99	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	12,850	35	State Highway Agency	Spot	Intersections	Increase signal visibility
1601760	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$34624.44	$43280.55	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	18,500	35	State Highway Agency	Spot	Intersections	Increase signal visibility

Enter additional comments here to clarify your response for this question or add supporting information.

HSIP is used to fund the operations of the Hazard Elimination Program for Exiting Roads and Streets (HELPERS) Program managed by the Indiana Local Technical Assistance Program.

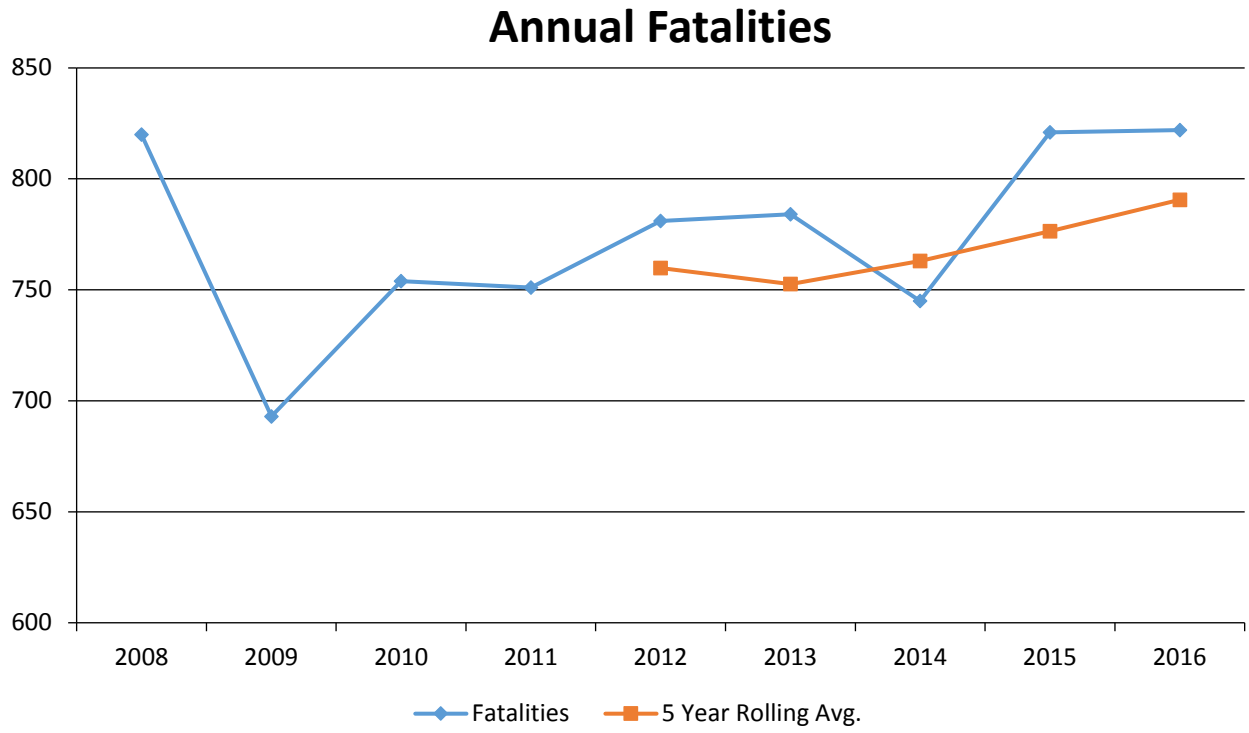
Projects with the Improvement Category of Non-infrastructure consist of improvements to traffic safety data systems or traffic safety planning and education efforts undertaken by metropolitan planning organizations as part of their Unified Planning Work Programs.

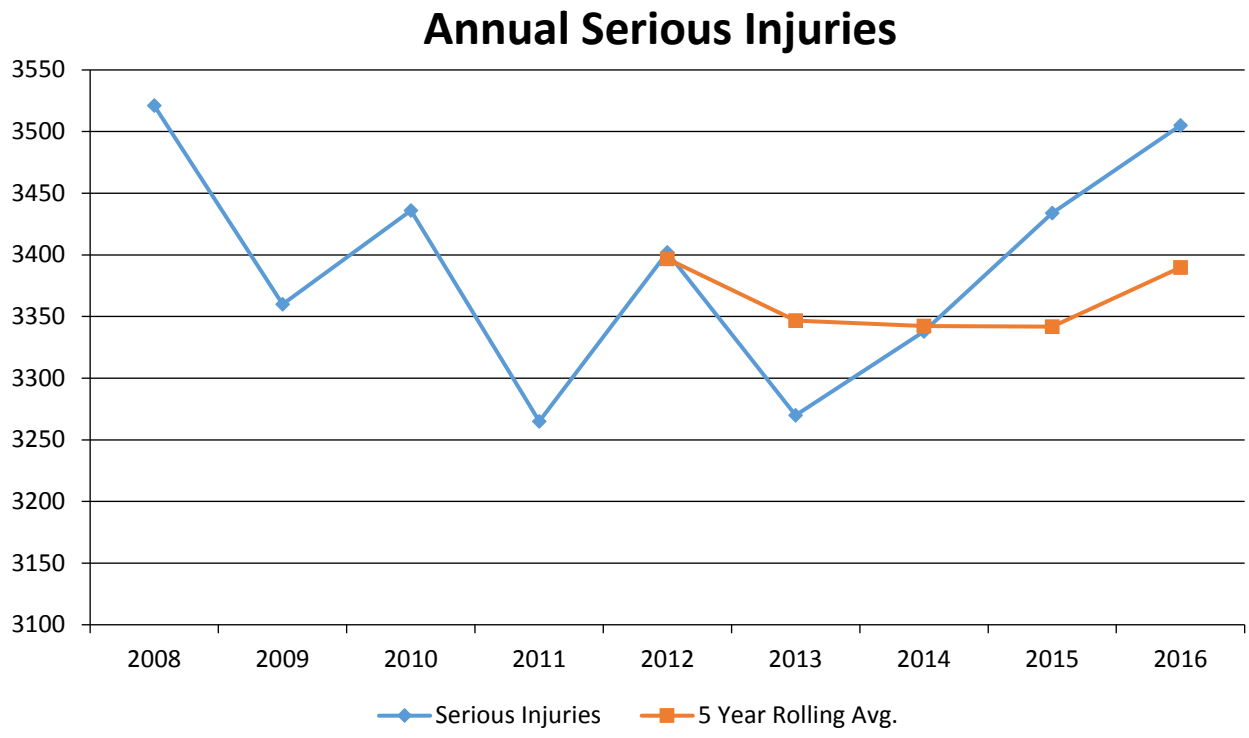
Safety Performance

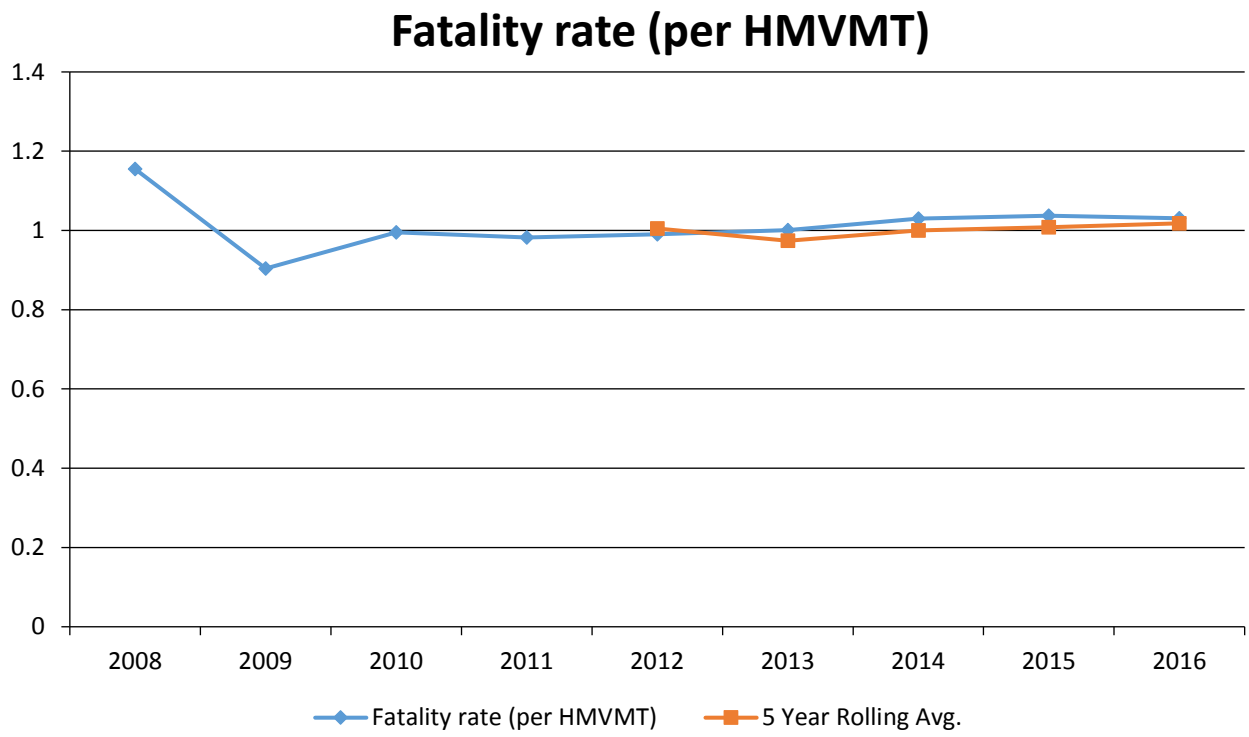
General Highway Safety Trends

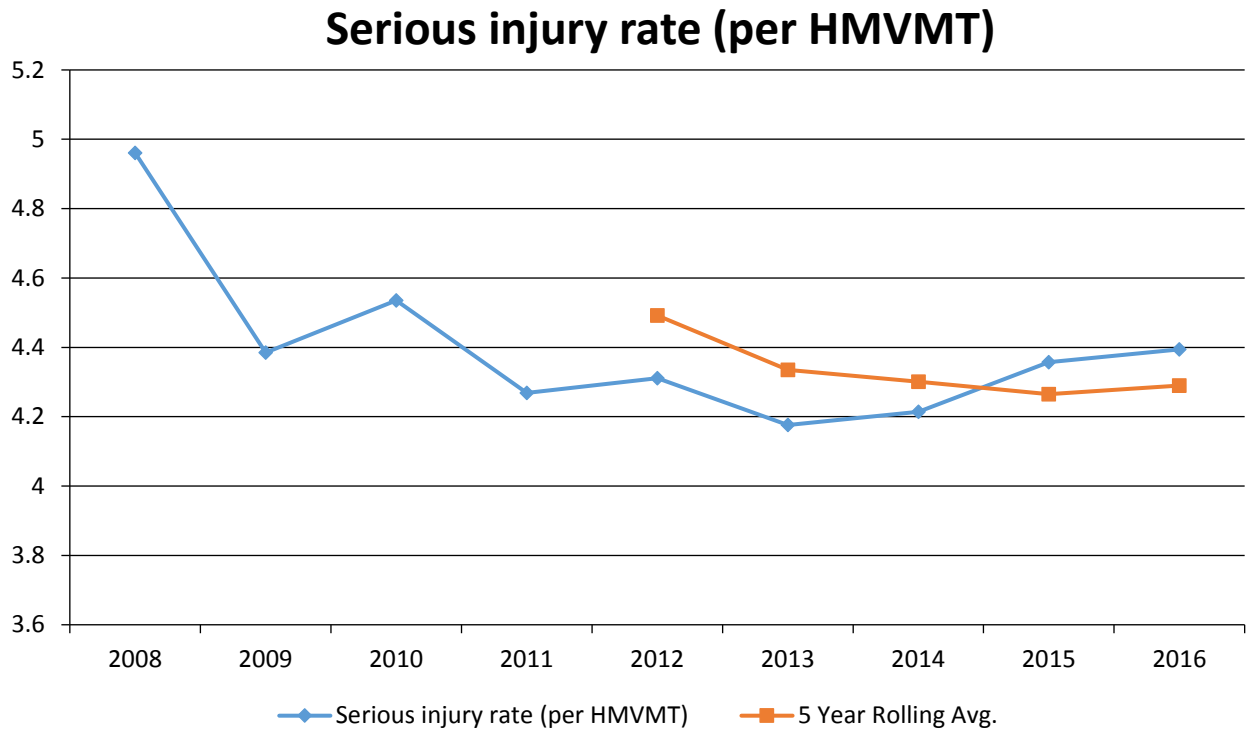
Present data showing the general highway safety trends in the State for the past five years.

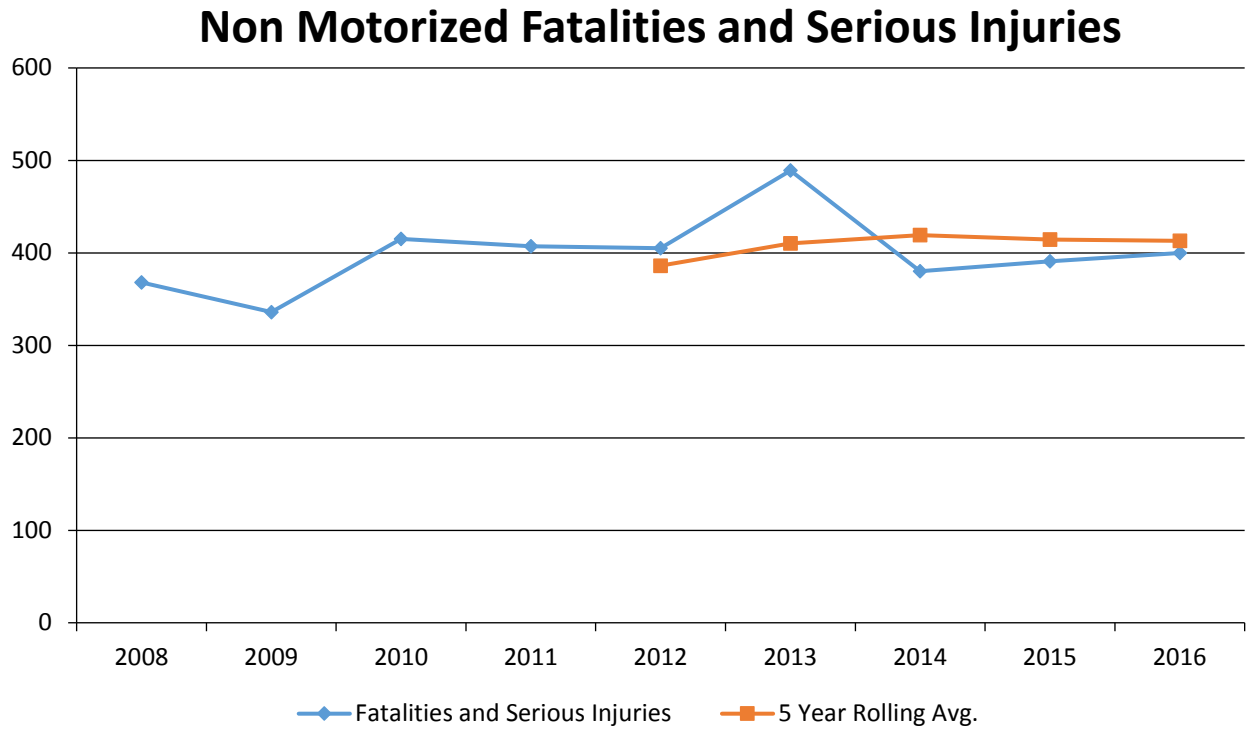
PERFORMANCE MEASURES	2008	2009	2010	2011	2012	2013	2014	2015	2016
Fatalities	820	693	754	751	781	784	745	821	822
Serious Injuries	3,521	3,360	3,436	3,265	3,402	3,270	3,338	3,434	3,505
Fatality rate (per HMVMT)	1.155	0.904	0.995	0.982	0.990	1.001	1.030	1.037	1.031
Serious injury rate (per HMVMT)	4.961	4.385	4.535	4.269	4.311	4.176	4.214	4.357	4.394
Number non-motorized fatalities	78	60	78	85	84	94	95	112	115
Number of non-motorized serious injuries	290	276	337	322	321	395	285	279	285


Annual Fatalities
850
800
750
700
650
600
2008
2009
2010
2011
2012
2013
2014
2015
2016
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
3550
3500
3450
3400
3350
3300
3250
3200
3150
3100
2008
2009
2010
2011
2012
2013
2014
2015
2016
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
5.2
5
4.8
4.6
4.4
4.2
4
3.8
3.6
2008
2009
2010
2011
2012
2013
2014
2015
2016
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



Enter additional comments here to clarify your response for this question or add supporting information.

In June 2014, INDOT submitted comments on the proposed National Highway Traffic Safety Performance Measures Rulemaking (NPRM) including a comment regarding the expected transition to the MMUCC 4th Edition as it relates to definition of Suspected Serious Injury. INDOT's comments included the objection that an 18-month implementation period is unreasonably short of the time necessary to engage all partners to enable changes in the Indiana crash database to comply with the new definition of Suspected Serious Injury. Prior to this proposed rulemaking, incapacitating injury (victim transported from the scene) was deemed an acceptable measure in prior editions of the MMUCC.

Federal regulations promulgated in 2016 by Federal Highway Administration to support the administration of transportation funding included a requirement that states must report Suspected Serious Injuries using the criteria established in the MMUCC 4th Edition. This linkage of a federal regulation to an advisory document's recommended definition put Indiana's current designation of incapacitating injury out of compliance. The new regulation for setting and reporting traffic safety performance measures compels Indiana to determine a method to approximate counting of Suspected Serious Injuries so that current Indiana crash records can be used to calculate historic and projected traffic safety performance counts in accord with "A" injuries on the KABCO scale.

In establishing a proxy for missing data regarding Suspected Serious Injuries, Indiana analyzed statewide incapacitating injury counts across the 10 years prior to the Indiana TRCC reclassification that began in November 2014. Crash data records for the years 2004 to 2013 were analyzed to determine a percentage of the total number of non-fatal incapacitating injuries recorded each of these years. The incapacitating injury counts from these years are assumed to equate to the current definition of suspected serious injuries and were evaluated to establish the average percentage of non-fatal suspected serious injuries that contribute to total injury counts. The annual average percent contribution of suspected serious injuries prior to the 2014 Indiana TRCC definition

change was found to be 7.1%. Weighting this value to account for an increases in suspected serious injury counts in the most recent three years of the 10 year period (2011, 2012 and 2013), the resulting value is adjusted to 7.2% of all injuries. Indiana intends to use the 7.2% estimate of non-fatal injuries for each year to represent the number of statewide "Suspected Serious Injuries" until such time as a specific count of MMUCC 4th Edition compliant data can be incorporated into the Indiana Crash Database.

Note that the 7.2% share of injuries is considered to be valid only when examining statewide crashes on all roads in Indiana. A separate percentage value of Suspected Serious Injuries for any subset of the data requires its own historic analysis using the same methodology to establish an estimated percentage contribution in that subset.

INDOT asks that FHWA accept Indiana's described reporting methodology as part of any review of Indiana Crash data and Performance Target Setting methodology.

Describe fatality data source.

FARS

Enter additional comments here to clarify your response for this question or add supporting information.

Data from the Fatal Accident Reporting System was utilized according to the most complete dataset for the given year as follows:

FARS Final Report File for the preceding years through 2014,
FARS Annual Report File for the year 2015
Indiana State Police FARS Report for the year 2016

To the maximum extent possible, present this data by functional classification and ownership.

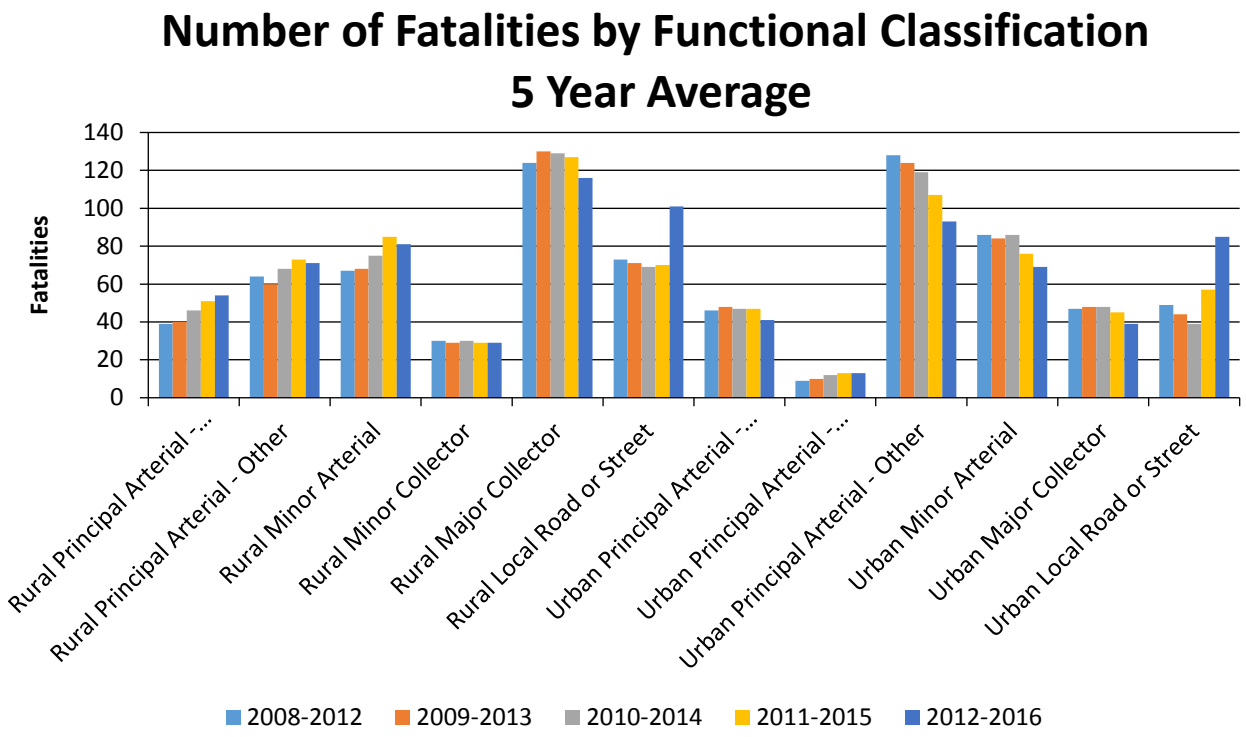
Year 2016

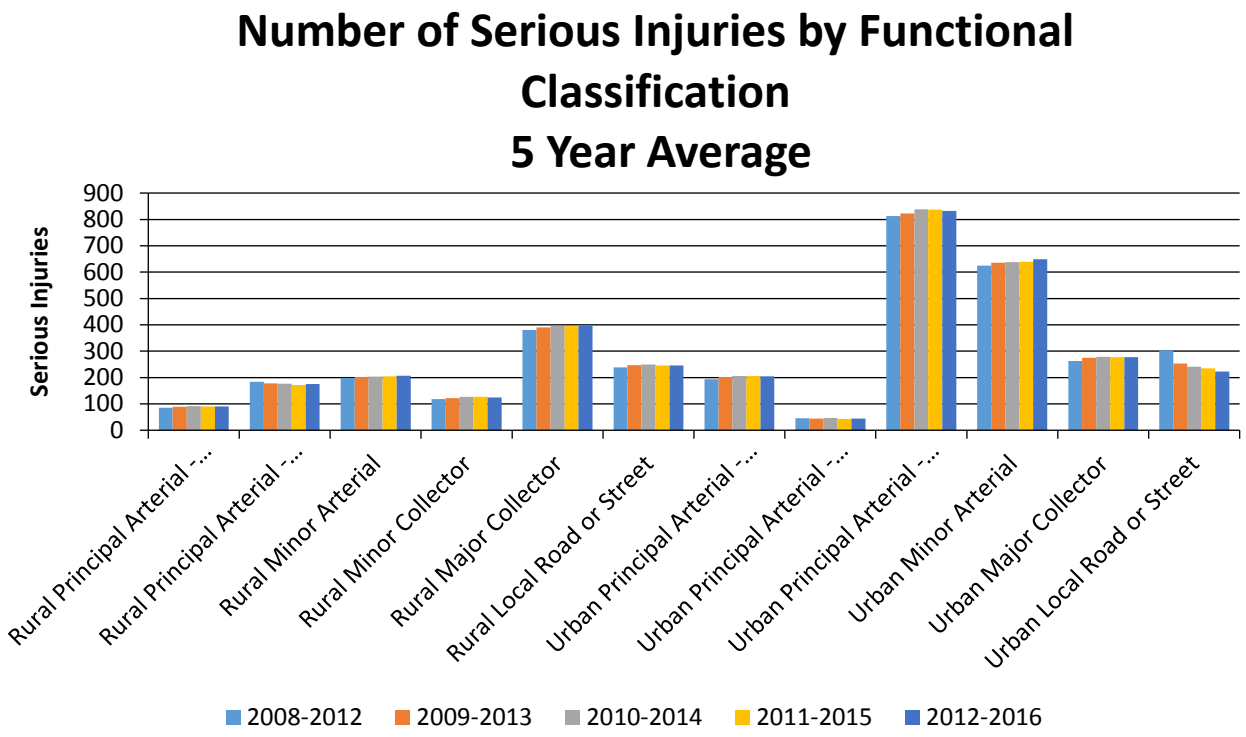
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial - Interstate	54	90	0.67	1.12
Rural Principal Arterial - Other Freeways and Expressways				
Rural Principal Arterial - Other	71	175	1.64	4.05
Rural Minor Arterial	81	207	2.19	5.61
Rural Minor Collector	29	124	1.33	5.82
Rural Major Collector	116	398	1.92	6.61
Rural Local Road or Street	101	246	2.04	4.96
Urban Principal Arterial - Interstate	41	204	0.39	1.93

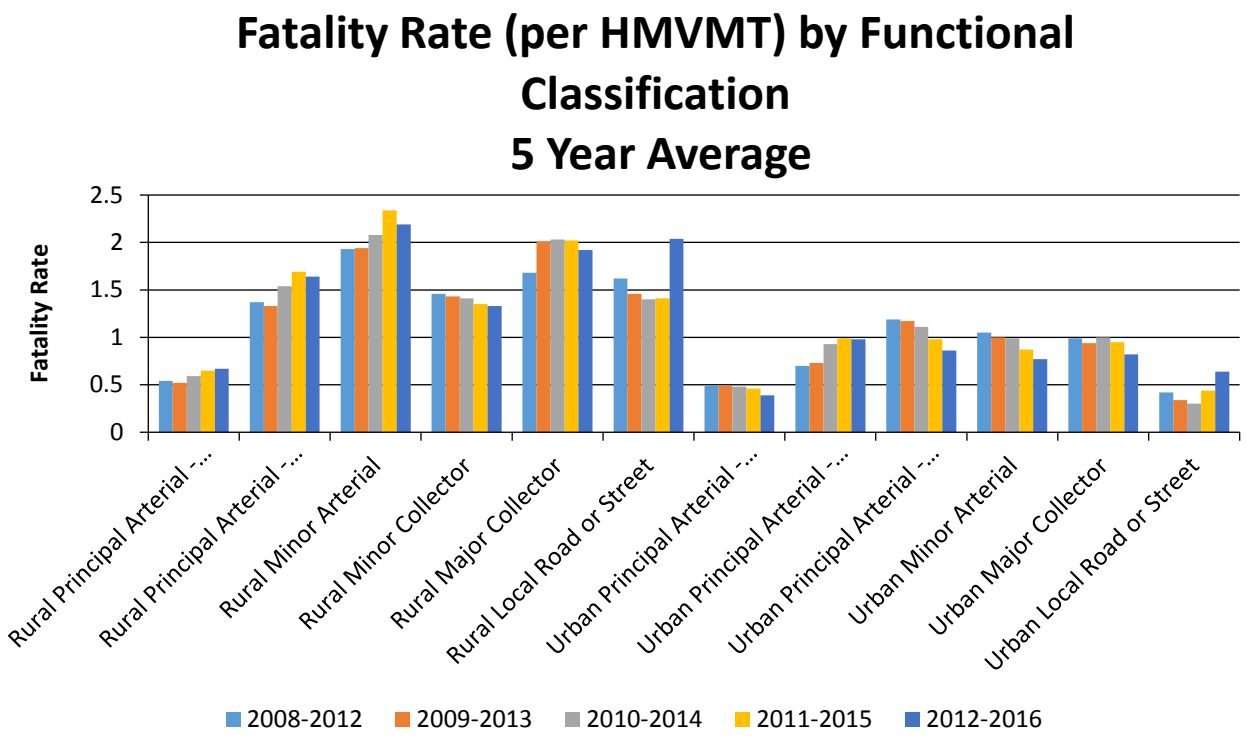
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Urban Principal Arterial - Other Freeways and Expressways	13	44	0.98	3.25
Urban Principal Arterial - Other	93	832	0.86	7.68
Urban Minor Arterial	69	649	0.77	7.28
Urban Minor Collector				
Urban Major Collector	39	277	0.82	5.83
Urban Local Road or Street	85	223	0.64	1.68

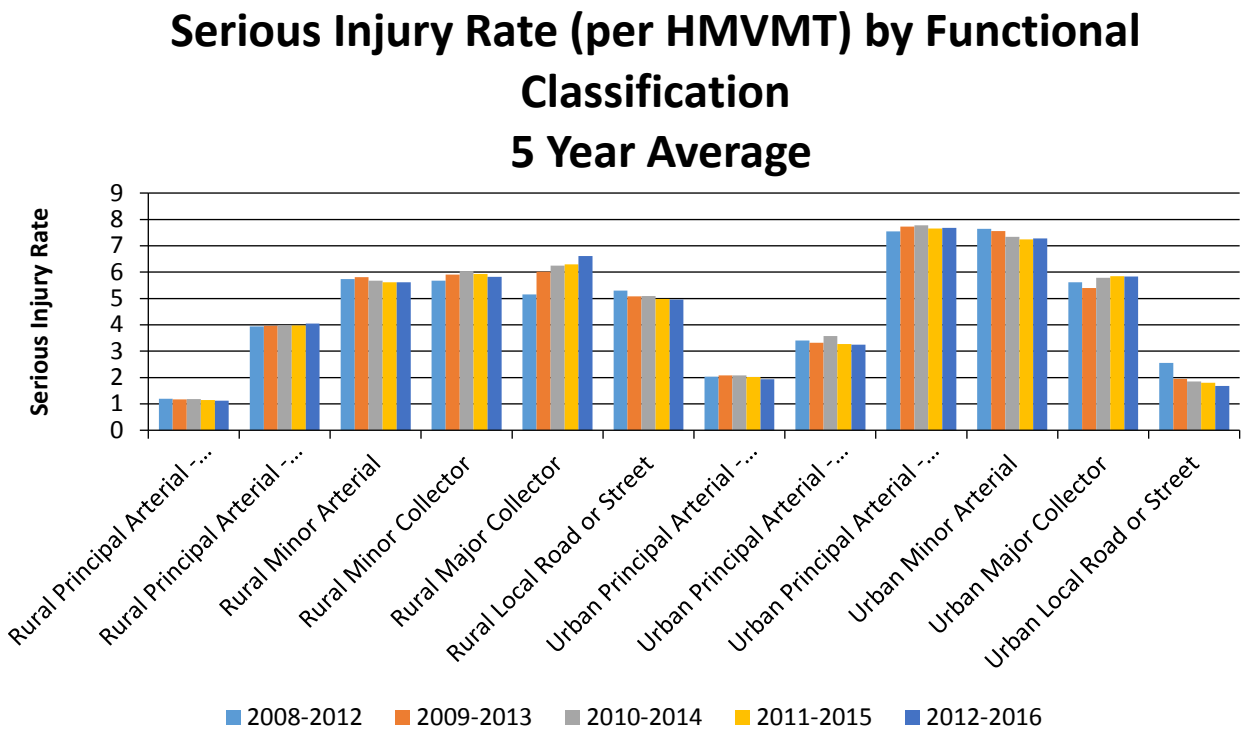
Year 2015

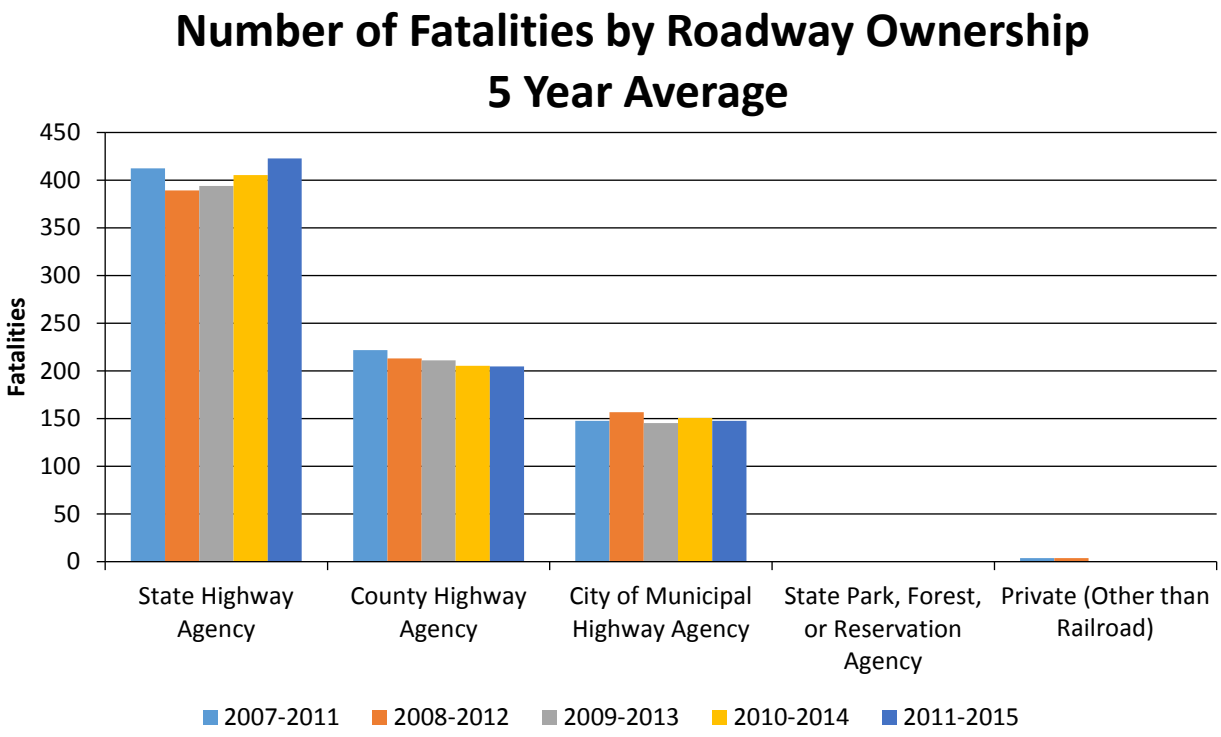
Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency	422.91	1,446.69	1.07	3.66
County Highway Agency	204.81	808.17	1.1	4.32
Town or Township Highway Agency				
City of Municipal Highway Agency	147.76	1,180.17	0.73	5.83
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, University)				
Indian Tribe Nation				

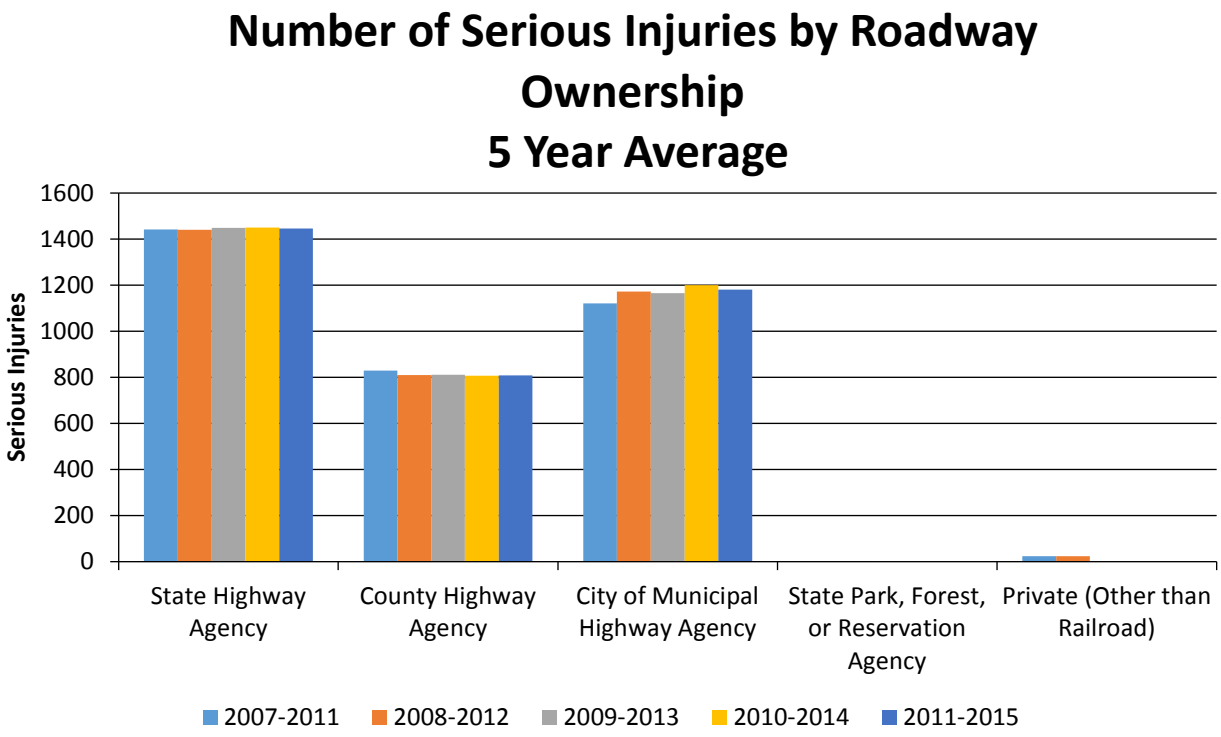

Number of Fatalities by Functional Classification
5 Year Average
Fatalities
140
120
100
80
60
40
20
0
Rural Principal Arterial -...
Rural Principal Arterial - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial - Other
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016

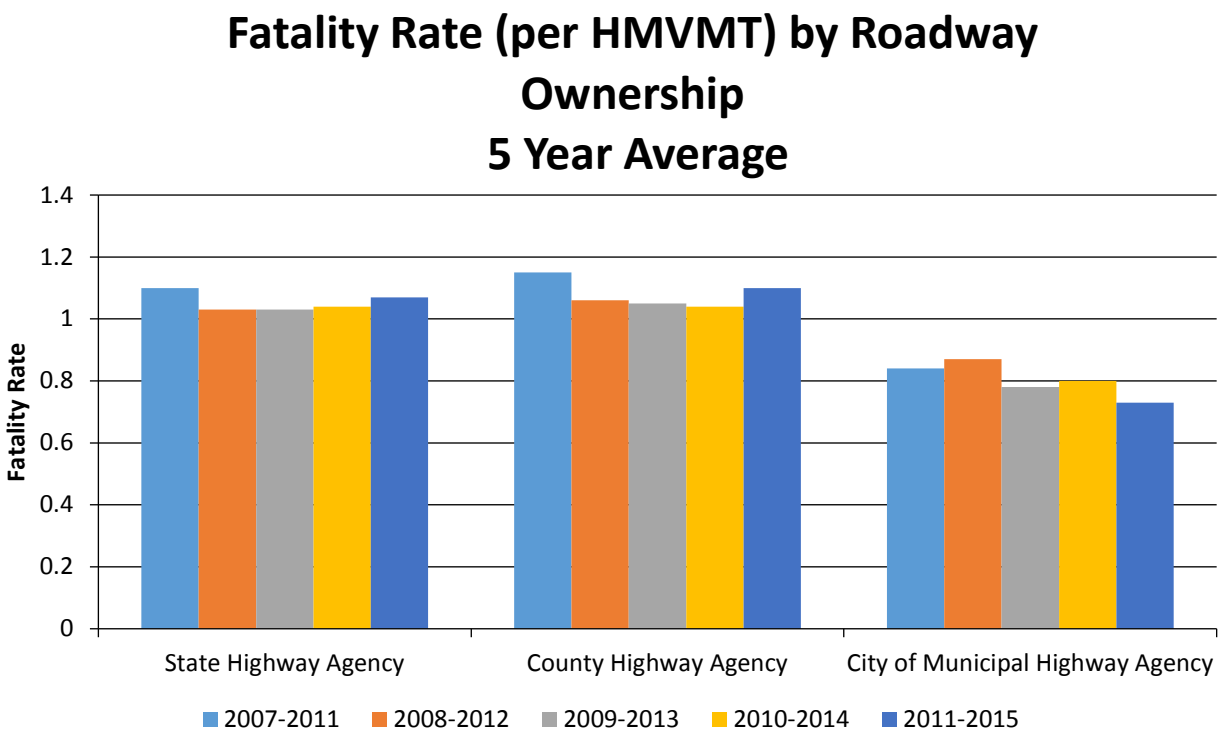

Number of Serious Injuries by Functional Classification
5 Year Average
Serious Injuries
900
800
700
600
500
400
300
200
100
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016

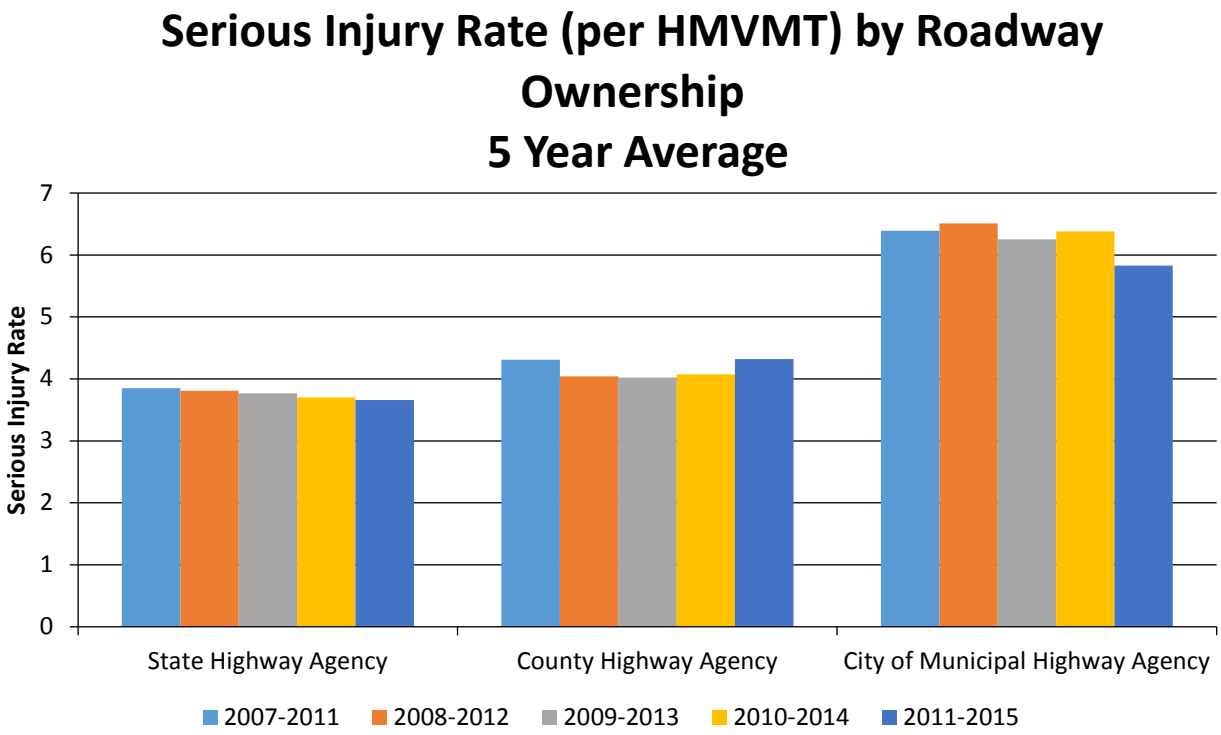

Fatality Rate (per HMVMT) by Functional Classification
5 Year Average
Fatality Rate
2.5
2
1.5
1
0.5
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Serious Injury Rate (per HMVMT) by Functional Classification
5 Year Average
Serious Injury Rate
0
1
2
3
4
5
6
7
8
9
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Fatalities by Roadway Ownership
5 Year Average
Fatalities
450
400
350
300
250
200
150
100
50
0
State Highway Agency
County Highway Agency
City of Municipal Highway Agency
State Park, Forest, or Reservation Agency
Private (Other than Railroad)
2007-2011
2008-2012
2009-2013
2010-2014
2011-2015


Number of Serious Injuries by Roadway Ownership
5 Year Average
Serious Injuries
1600
1400
1200
1000
800
600
400
200
0
State Highway Agency
County Highway Agency
City of Municipal Highway Agency
State Park, Forest, or Reservation Agency
Private (Other than Railroad)
2007-2011
2008-2012
2009-2013
2010-2014
2011-2015


Fatality Rate (per HMVMT) by Roadway Ownership
5 Year Average
Fatality Rate
1.4
1.2
1
0.8
0.6
0.4
0.2
0
State Highway Agency
County Highway Agency
City of Municipal Highway Agency
2007-2011
2008-2012
2009-2013
2010-2014
2011-2015



Enter additional comments here to clarify your response for this question or add supporting information.

Data Tables for 5 year averages form 2013 through 2015 have been adjusted for final approved VMT data and changes in the classification of Suspected Serious Injuries per the methodology described under Question 30 - Additional Information.

Federal regulations promulgated in 2016 by Federal Highway Administration to support the administration of transportation funding included a requirement that states report Suspected Serious Injuries using the criteria established in the MMUCC 4th Edition. This linkage to a federal regulation to what had historically been an advisory document's recommended definition put Indiana's current designation of incapacitating injury out of compliance. The new regulation for establishing and reporting traffic safety performance measures necessitate that Indiana determine a method to approximate counting of Suspected Serious Injuries (per the MMUCC 4th Edition) so that current Indiana crash records could be used to calculate historic and projected traffic safety performance counts in accord with "A" injuries on the KABCO scale.

In establishing a proxy for missing data regarding Suspected Serious Injuries, Indiana analyzed statewide incapacitating injury counts that remained reasonably stable across the 10 years prior to the Indiana TRCC reclassification that began in November 2014. Crash data records for the years 2004 to 2013 were analyzed to determine a percentage of the total number of non-fatal incapacitating injuries recorded each of these years. The incapacitating injury counts from these years are assumed to equate to the current definition of suspected serious injuries and were evaluated to establish the average percentage of non-fatal suspected serious injuries that contribute to total injury counts. The annual average percent contribution of suspected serious injuries prior to the 2014 Indiana TRCC definition change was found to be 7.1%. Weighting this value to account for an increases in suspected serious injury counts in the most recent three years of the 10 year period (2011, 2012 and 2013), the resulting value is adjusted to 7.2% of all injuries. Indiana intends to use the 7.2% estimate

of non-fatal injuries for each year to represent the number of statewide “Suspected Serious Injuries” until such time as a specific count of MMUCC 4th Edition compliant data can be incorporated into the Indiana Crash Database.

Note that the 7.2% share of injuries is considered to be valid only when examining statewide crashes on all roads in Indiana. A separate percentage value pf Suspected Serious Injuries for any subset of the data requires its own historic analysis using the same methodology to establish an estimated percentage contribution to the total of all non-fatal injuries in that subset.

Are there any other aspects of the general highway safety trends on which the State would like to elaborate?

Yes

Provide additional discussion related to general highway safety trends.
In 2016, the early estimate of vehicle miles of travel increased by 1.20% above 2015. The number of police reported fatalities increased by 1.22%. All injuries increased by 2.04%. Suspected serious injury crashes appear to show a small decrease.

INDOT along with the Indiana TRCC will continue to monitor and assess the effect of the change in the method of injury severity classification.

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 2016 crash data shows that Indiana is experiencing conditions similar to surrounding states in regard to changes in the 5 year rolling averages of Fatalities, Suspected Serious Injuries, Fatality Rate and Suspected Serious Injury Rate. In 2016, 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 2016. The 5 year average of fatalities resulting from single vehicle lane departures in 2016 accounted for 42.7% of all Indiana motor vehicle fatalities, compared to the 5 year average of 44.8% calculated for 2015. The continued risk of roadway departure events has resulted in the development of several systemic improvement types aimed at reducing the incidence and consequences of lane departure crashes.

Serious Crashes as a result of intersection crashes make up the second worst type of harmful event. In 2016 the 5 year average of intersection fatalities contributed 33.1% of total traffic fatalities, similar to the 32.7% average from 2015. 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 heads that control “permitted/protected” left turn traffic signal phasing 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 and more visible traffic signal heads. INDOT is also increasing the construction of innovative intersection types to reduce traffic conflicts; such as Roundabouts, J Turns and other Median U-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 2016 the 5 year rolling average rate of pedestrian involved serious crashes made up 5.7% of the total compared to a 6.3% average in 2015. Higher numbers of bike users and pedestrians combined with growing VMT has led to many more conflicts between these road users. Despite higher levels of exposure the 5 year average percentage of serious crashes that involve bicyclists was 2.1% compared to the 5 year average in 2015 of 2.3%. The number of motorcycle and moped crashes was slightly lower in 2016 compared to 2015, but it should be noted that similar to non-motorized vulnerable road users' exposure for motorcycle/moped riders is generally rising.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2018 Targets *

Number of Fatalities 814.9

Describe the basis for established target, including how it supports SHSP goals.

Data Source: Fatality Analysis Reporting System 2009-2014 FARS Final File Count 2015 FARS Annual Report File 2016 Indiana State Police FARS Report For the purpose of comparison to the SHSO annual report, the 5 year average performance target listed above is based on a projected calendar 2018 value of (846) as described in the following methodology. Baseline projections are calculated using fatality counts and applying an equation to generate predictive values for 2017-2018. This was accomplished by the software built into Microsoft Excel for applying a logarithmic trend line with a forward forecast of two years. The equation is of the form [y = A*ln(x) + B]. The resulting equation is then adjusted to more closely fit recent peak years by shifting the value of B to produce a matching value for the recorded peak. INDOT estimates seven fatalities annually may be influenced by every .1% change in annual unemployment. Recent economic forecasts indicate an additional decrease in annual unemployment of .2% during the 2017-2018 period can be reasonably anticipated in Indiana. As of April 2017, Indiana, at 3.6% unemployment, is just .7% away from its historic high monthly employment level recorded during September and October 2000 (2.9% unemployment). Consequently, the fatality count projections include an additional seven fatalities each year in anticipation of an improving economic climate influencing greater risk-taking and unfortunately increased severe crash outcomes.

Number of Serious Injuries 3479.8

Describe the basis for established target, including how it supports SHSP goals.

Data Source: Fatality Analysis Reporting System 2009-2014 FARS Final File Count

2015 FARS Annual Report File 2016 Indiana State Police FARS Report For the purpose of comparison to the SHSO annual report, the 5 year average performance target listed above is based on a projected calendar 2018 value of (3,577) as described in the following methodology. Baseline projections are calculated using fatality counts and applying an equation to generate predictive values for 2017-2018. This was accomplished by the software built into Microsoft Excel for applying a logarithmic trend line with a forward forecast of two years. The equation is of the form [y = A*ln(x) + B]. The resulting equation is then adjusted to more closely fit recent peak years by shifting the value of B to produce a matching value for the recorded peak. INDOT estimates seven fatalities annually may be influenced by every .1% change in annual unemployment. Recent economic forecasts indicate an additional decrease in annual unemployment of .2% during the 2017-2018 period can be reasonably anticipated in Indiana. As of April 2017, Indiana, at 3.6% unemployment, is just .7% away from its historic high monthly employment level recorded during September and October 2000 (2.9% unemployment). Consequently, the fatality count projections include an additional seven fatalities each year in anticipation of an improving economic climate influencing greater risk-taking and unfortunately increased severe crash outcomes.

Fatality Rate 1.036

Describe the basis for established target, including how it supports SHSP goals.

Data Source: Fatality Analysis Reporting System The NHTSA calculated and reported values through 2015. For the purpose of comparison to the SHSO annual report, the 5 year average performance target listed above is based on a projected calendar 2018 value of (1.070) as described in the following methodology. Estimated/Predicted values for 2016-2018: The predicted annual Vehicle Miles Traveled (VMT) growth rate for each of the next five years is estimated to be 1.20% from the last FHWA approved VMT in 2015. INDOT’s Technical Planning Support and Programming Division arrived at this figure by averaging the last 5 years of Annual Growth Rates for each of five factor groups and then averaging them. The predicted annual estimates for fatalities are then evaluated with the projected VMTs for their respective future years to produce predicted fatality rates per 100-million VMT.

Serious Injury Rate 4.347

Describe the basis for established target, including how it supports SHSP goals.

Data Source: Automated Reporting Information Exchange System (ARIES) The INDOT calculated and reported values through 2013. Using estimated incapacitating injuries and the FHWA VMT values for 2014-2015. The 5 year average performance target listed above is based on a projected calendar 2018 value of (4.379) as described in the following methodology. Estimated/Predicted values for 2016-2018: The predicted annual Vehicle Miles Traveled (VMT) growth rate for each of the next five years is estimated to be 1.20% from the last FHWA approved VMT in 2015. INDOT’s Technical Planning Support and Programming Division arrived at this figure by averaging the last 5 years of Annual Growth Rates for each of five factor groups and then averaging them. The predicted annual estimates for incapacitating injuries for are

then evaluated with the projected VMTs for their respective future years to produce predicted incapacitating injury rates per 100-million VMT.

Total Number of Non-Motorized Fatalities and Serious Injuries	417.0

Describe the basis for established target, including how it supports SHSP goals.

Data Source: Fatality Analysis Reporting System (Non-motorist persons) 2009-2014 FARS Final File Count 2015 FARS Annual Report File 2016 Indiana State Police FARS Report Data Source: Automated Reporting Information Exchange System (ARIES) (Non-motorist persons)* 2009-2013 the “As reported” count of “Incapacitating Injuries” 2014-2016 an estimated count amounting to 13% of all non-fatal injuries Baseline projections of Non-Motorist Fatalities are calculated using FARS Fatality counts and applying a equation to generate predictive values for 2016-2018. This was accomplished by the software built into Microsoft Excel for applying a logarithmic trend line with a forward forecast of two years. The equation is of the form [y = A*ln(x) + B]. The resulting equation is then adjusted to more closely fit recent peak years by shifting the value of B to produce a matching value for the recorded peak. Non-Motorist incapacitating injuries are projected logarithmically as above for 2017-2018 with non-motorist incapacitating injuries projected as 13% of projected all non-motorist non-fatal injuries. *In addition to persons classified as pedestrians or pedalcyclists, persons classified as animal drawn vehicle operators are included in the calculation. This is due to the significant number of crashes involving these vehicles across Indiana.

Enter additional comments here to clarify your response for this question or add supporting information.

*Based on (Target Year - 4) to (Target Year) 5-year average
[For example, for the 2017 reporting period the target year is 2018 (to be displayed above table for this question). The footnote would read “Based on 2014 - 2018 5 year average”.]

Describe efforts to coordinate with other stakeholders (e.g. MPOs, SHSO) to establish safety performance targets.

Following the promulgation of the new rule, on (DATE) INDOT Office of Traffic Safety solicited a partnership group of Contributing/Consulting/Advisory Agencies and Organizations to coordinate setting the 5 safety performance targets. The Traffic Safety Performance Target Setting Team held seven meetings from July of 2016 through June of 2017.

The traffic safety Performance Target Setting Team deliberated and ultimately agree upon both the methodology that was used to establish the traffic safety performance targets. A final agreement on each target that was set for federal fiscal year 2018 was reached in meeting held on June 22nd of 2017.

The Indiana Traffic Safety Performance Target Setting Team consisted of the following organizations:

Indiana Department of Transportation, Office of Traffic Safety

Indiana Criminal Justice Institute, Traffic Safety and Research Divisions (SHSO)

2017 Indiana Highway Safety Improvement Program
Indiana Metropolitan Planning Organization Council - Executive Director Task group

Federal Highway Administration, Indiana Division

Local Technical Assistance Program - HELPERS Program

The task group completed their deliberations in time to allow the Indiana Criminal Justice Institute (SHSO) to report the three overlapping performance targets in their 2017 Highway safety Plan Report to NHTSA before the July 1, 2017 deadline.

INDOT is planning follow-up sessions with data mangers of the Indiana MPOs to fully explain the methodology used by INDOT and the partner group to set Indiana's safety performance targets and to discuss each MPO's plans to meet their individual target setting requirements.

Does the State want to report additional optional targets?

No

Enter additional comments here to clarify your response for this question or add supporting information.

Indiana does not choose to report on additional optional targets at this time.

Applicability of Special Rules

Does the HRRR special rule apply to the State for this reporting period?

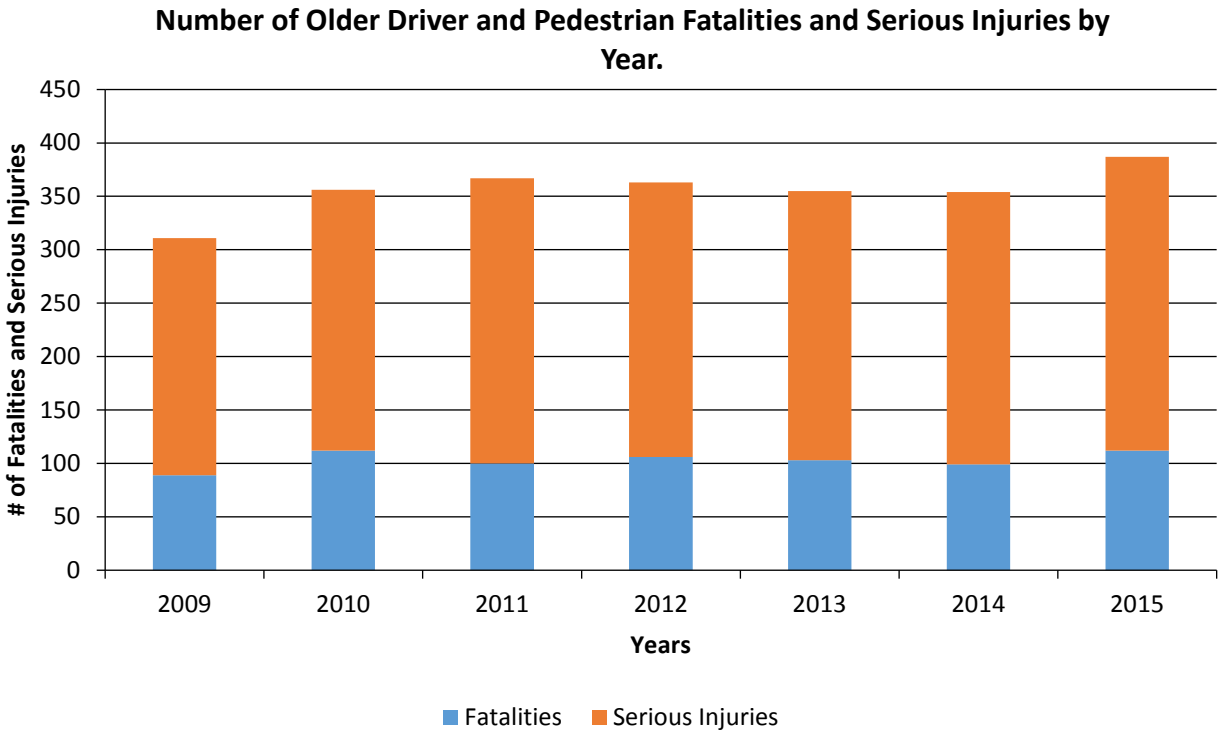
Yes

Enter additional comments here to clarify your response for this question or add supporting information.

In 2012 NHTSA made a calculation of rural versus urban fatalities that resulted in allocation of the HRRR Special Rule requirement to Indiana for the federal fiscal years 2013 through 2017. INDOT has programmed projects in fiscal year 2017 that meet the requirements of the HRRR Program.

Provide the number of older driver and pedestrian fatalities and serious injuries for the past seven years.

PERFORMANCE MEASURES	2009	2010	2011	2012	2013	2014	2015
Number of Older Driver and Pedestrian Fatalities	89	112	100	106	103	99	112
Number of Older Driver and Pedestrian Serious Injuries	222	244	267	257	252	255	275



Enter additional comments here to clarify your response for this question or add supporting information.

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

Change in fatalities and serious injuries
Economic Effectiveness (cost per crash reduced)

Enter additional comments here to clarify your response for this question or add supporting information.

Per commitment under Indiana's Strategic Highway Safety Plan to move Towards Zero Deaths, INDOT's goal and primary measure of effectiveness is the reduction of fatalities and serious injuries on all public roadways in the state.

In addition, INDOT seeks through its Traffic Safety Capital Program to achieve a cost effective investment of federal, state and local dollars per fatal and serious injury crash reduced.

Based on the measures of effectiveness selected previously, describe the results of the State's program level evaluations.

Per commitment under Indiana's Strategic Highway Safety Plan to move Towards Zero Deaths, INDOT's goal and primary measure of effectiveness is the reduction of fatalities and serious injuries on all public roadways in the state. In this regard, INDOT monitors the number and rate of fatal and serious injury crash events and casualties in determining progress Toward Zero Deaths.

INDOT's additional goal during fiscal year 2017 was to maintain integrity of planned $44 million investment in the 2017 traffic safety capital program, toward achieving an expected reduction of at least 5,914 severe crashes on INDOT jurisdictional roads through the projects' design lives. Essentially the goal over time to be maintained is the overall cost-effectiveness (C-E) of the program; that is, the relationship of dollars invested to crashes reduced, or $24,400 per severe crash as the baseline ratio at the start of the fiscal year.

This is summary of results relative to that federal fiscal year 2017 goal. The safety program effected a slightly positive change in C-E, down to about $24,200. Overall, the fiscal year 2017 performance expectation was achieved.

What other indicators of success does the State use to demonstrate effectiveness and success of the Highway Safety Improvement Program?

More systemic programs
Policy change

Enter additional comments here to clarify your response for this question or add supporting information.

At the start of calendar 2017 INDOT approved seven new systemic safety project work types, bringing a total number of 25 work types available for state or local project sponsors.

On March 1 of 2016 the Governor of Indiana signed a revised Strategic Highway Safety Plan that reorients the traffic safety emphasis areas in a manner more conductive to local agency involvement in HSIP funded safety improvements.

Are there any significant programmatic changes that have occurred since the last reporting period?

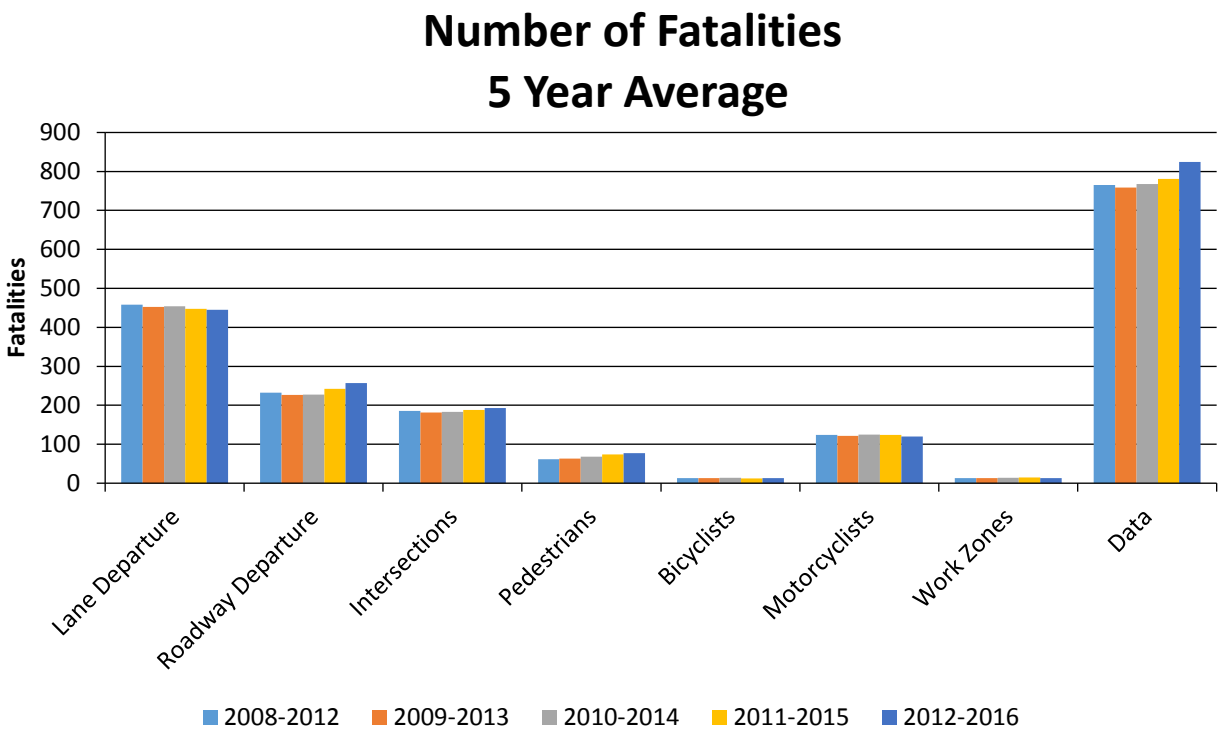
No

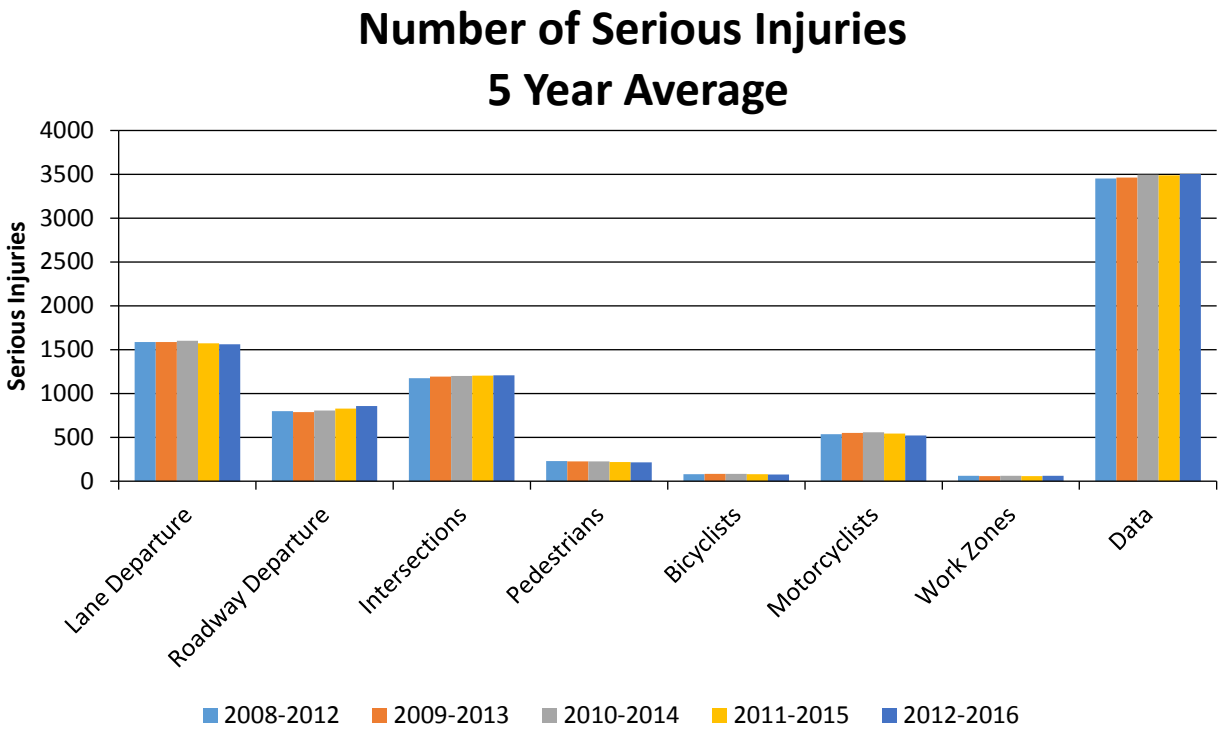
Effectiveness of Groupings or Similar Types of Improvements

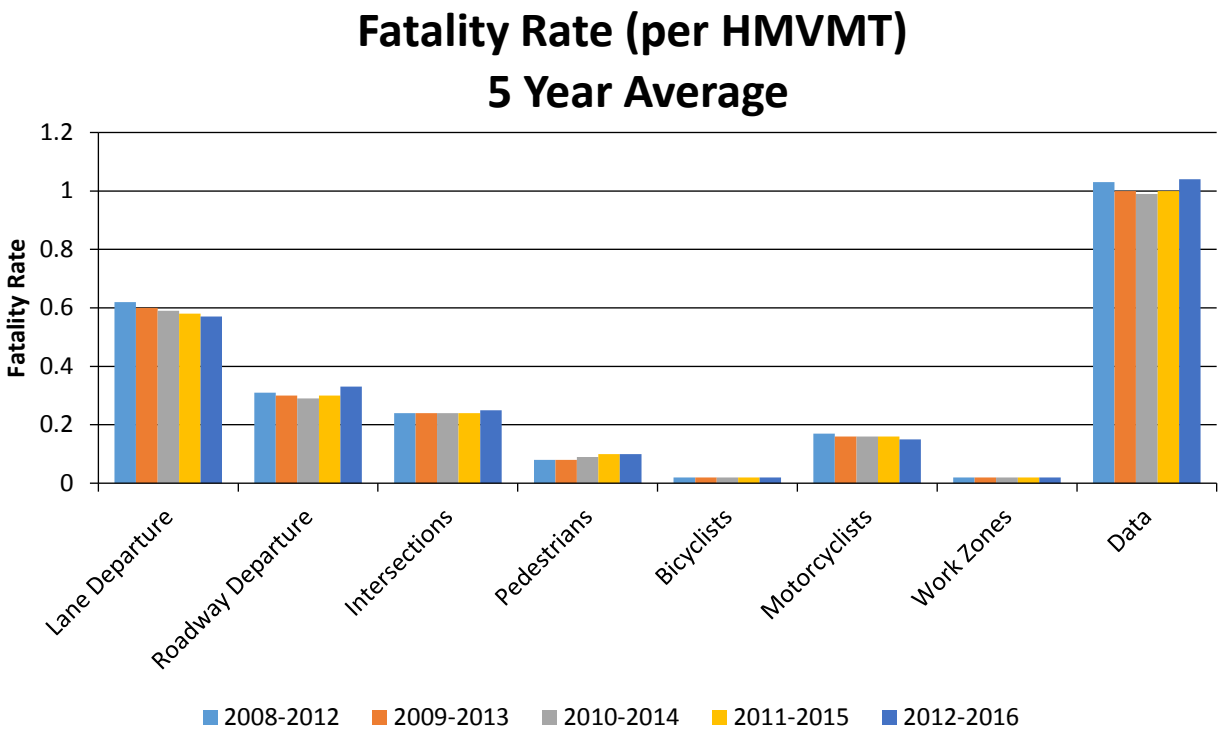
Present and describe trends in SHSP emphasis area performance measures.

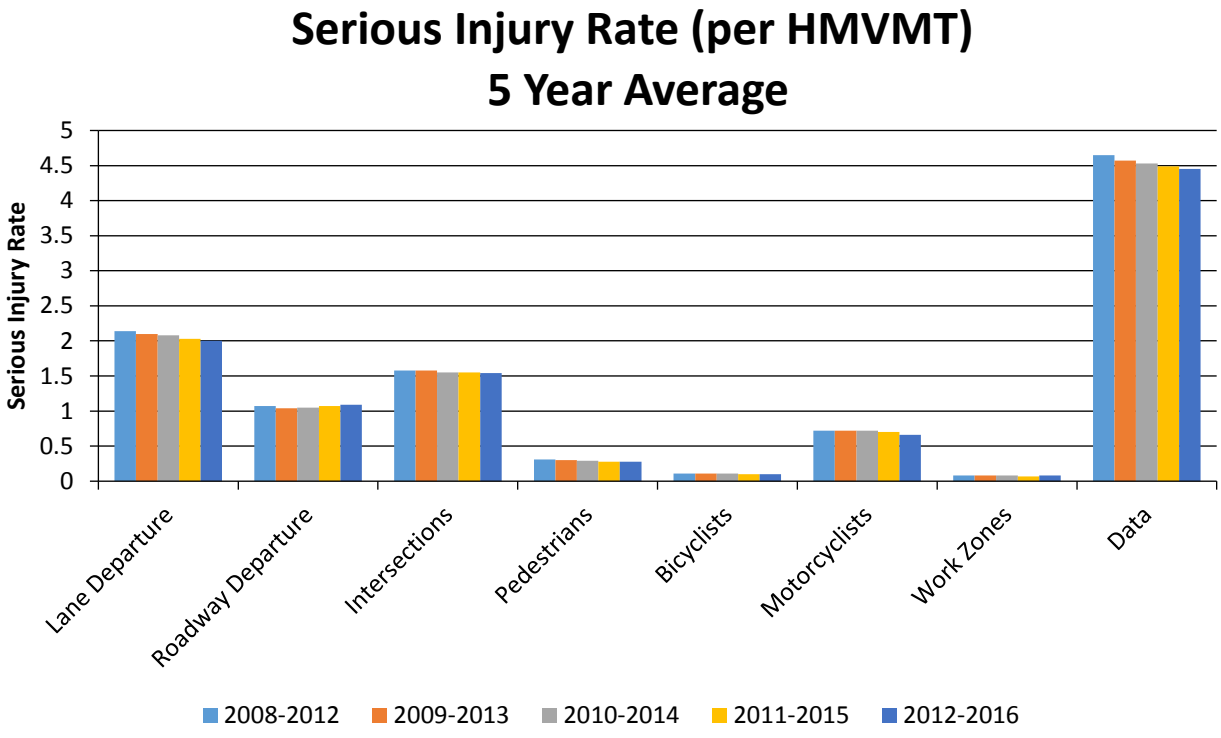
Year 2016

SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)	Other 1	Other 2	Other 3
Lane Departure	Combined Run-off-road, Head-on & Opposite Dir Sideswipe	445.4	1,563.06	0.57	2			
Roadway Departure	Run-off-road	256.8	857.33	0.33	1.09			
Intersections	Intersections	193	1,208.67	0.25	1.54			
Pedestrians	Vehicle/pedestrian	77.2	215.76	0.1	0.28			
Bicyclists	Vehicle/bicycle	13	76.11	0.02	0.1			
Motorcyclists	Motorcycle & Moped	119.4	519.75	0.15	0.66			
Work Zones	Work Zones	13.4	61.72	0.02	0.08			
Data	All	824	3,505	1.04	4.45			


Number of Fatalities
5 Year Average
Fatalities
900
800
700
600
500
400
300
200
100
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Motorcyclists
Work Zones
Data
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Serious Injuries
5 Year Average
Serious Injuries
4000
3500
3000
2500
2000
1500
1000
500
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Motorcyclists
Work Zones
Data
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016





Enter additional comments here to clarify your response for this question or add supporting information.

In 2016 INDOT began 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.
Federal regulations promulgated in 2016 by Federal Highway Administration to support the administration of transportation funding included a requirement that states report Suspected Serious Injuries using the criteria established in the MMUCC 4th Edition. This linkage to a federal regulation to what had historically been an advisory document's recommended definition put Indiana's current designation of incapacitating injury out of compliance. The new regulation for establishing and reporting traffic safety performance measures necessitate that Indiana determine a method to approximate counting of Suspected Serious Injuries (per the MMUCC 4th Edition) so that current Indiana crash records could be used to calculate historic and projected traffic safety performance counts in accord with "A" injuries on the KABCO scale.

In establishing a proxy for missing data regarding Suspected Serious Injuries, Indiana analyzed statewide incapacitating injury counts that remained reasonably stable across the 10 years prior to the Indiana TRCC reclassification that began in November 2014. Crash data records for the years 2004 to 2013 were analyzed to determine a percentage of the total number of non-fatal incapacitating injuries recorded each of these years. The incapacitating injury counts from these years are assumed to equate to the current definition of suspected serious injuries and were evaluated to establish the average percentage of non-fatal suspected serious injuries that contribute to total injury counts. The annual average percent contribution of suspected serious injuries prior to the 2014 Indiana TRCC definition change was found to be 7.1%. Weighting this value to account for an increases in suspected serious injury counts in the most recent three years of the 10 year period (2011, 2012 and 2013), the resulting value is adjusted to 7.2% of all injuries. Indiana intends to use the 7.2% estimate of non-fatal injuries for each year to represent the number of statewide "Suspected Serious Injuries" until such time as a specific count of MMUCC 4th Edition compliant data can be incorporated into the Indiana Crash Database.

Note that the 7.2% share of injuries is considered to be valid only when examining statewide crashes on all roads in Indiana. A separate percentage value pf Suspected Serious Injuries for any subset of the data requires its own historic analysis using the same methodology to establish an estimated percentage contribution to the total of all non-fatal injuries in that subset. For example, the case of statewide Non-Motorist Suspected Serious Injuries as a percentage of All Non-Motorist Non-Fatal Injuries, for the years 2004 through 2013 the resulting average is 13.0%. In comparison, the average percentage of Non-Motorist Fatalities of All Fatalities for the analysis years 2004 through 2015 is 10.5%.

INDOT asks that FHWA accept Indiana's described reporting methodology as part of any review of Indiana Crash data and Performance Target Setting methodology.

Has the State completed any countermeasure effectiveness evaluations during the reporting period?

Yes

Please provide the following summary information for each countermeasure effectiveness evaluation.

CounterMeasures:	Center and Edgeline Longitudinal Rumble Stripe
Description:	Constructed milled-in longitudinal rumble stripes along predetermined centerlines of un-divided two and four lane highways, and along the right travel lane edge line of treated highways. Intended to reduce the number of lane departure crash

	events; specifically run-off-road, opposite direction sideswipes and head-on crashes between two motor vehicles.
Target Crash Type:	Other (define)
Number of Installations:	
Number of Installations:	
Miles Treated:	317 run miles of centerline and 255 run miles of edgeline rumble
Years Before:	3 years (normalized to yearly crash frequency)
Years After:	1.5 to 3 years (normalized to yearly crash frequency)
Methodology:	Simple before/after
Results:	Methodology - Simple Before/After analysis of applicable fatal and injury crash records of in-service longitudinal centerline rumble stripes and edgeline rumble strips located on undivided two and four lane highways. Results - Fatal crash events with the targeted manners of collision experienced an 84.1% crash reduction. All injury crash events experienced an 8.2 % reduction,
File Name:	Rumble Stripe Before After Study Final 11-15-2016.pdf
CounterMeasures:	Cable Barrier Systems
Description:	Cable Barriers constructed along predetermined grass medians of rural interstate highways to mitigate severity of cross median crash events. The barriers consist of four strand high tension work rope barriers meeting tests level 4 criteria.
Target Crash Type:	Cross median
Number of Installations:	
Number of Installations:	
Miles Treated:	436 miles
Years Before:	3 years normalized to yearly crash frequency
Years After:	2 and 3 years normalized to yearly crash frequency
Methodology:	Simple before/after

Results:	Methodology – Simple Before/After analysis of applicable fatal and injury crash records of in service cable barrier systems located in depressed grass medians of rural interstate highways. Crash records were normalized to an annual basis and analyzed for both pre and post - installation time periods. Results - Fatal cross median crashes showed the greatest reduction when comparing before and after crash performance which was calculated statewide to be 70%. Incapacitating Injury crashes (involving persons transported from the scene for treatment for any reason) showed an overall reduction of 10%.
File Name:	Rumble Stripe Before After Study Final 11-15-2016.pdf

Project Effectiveness

Provide the following information for previously implemented projects that the State evaluated this reporting period.

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
0800443 ST 1024, Atwater Ave @ Henderson St./relocation of access to Dun St. fr Atwater Ave	Other Principal Arterial(OPA)	Intersection geometry	Intersection geometrics - realignment to align offset cross streets	23.00	16.00					8.00	3.00	31.00	19.00	1.75
SR 46, At Parkview Drive, E of Nashville	Other Principal Arterial(OPA)	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	7.00	7.00						1.00	7.00	8.00	0.565217391304348
IR 1001, Relocate entrance to Portage HS on Airport Rd appx 1400' no of US6 at mile 23.1	Minor Arterial	Intersection geometry	Intersection geometrics - realignment to increase cross street offset	9.00	14.00			1.00		9.00	9.00	19.00	23.00	1.88888888888889
SR 15, At CR 100 South / Rozella Road	Other Principal Arterial(OPA)	Intersection geometry	Auxiliary lanes - add right-turn lane	11.00	1.00					1.00		12.00	1.00	8
SR 59, 0.5 mile N of SR 67	Major Collector	Alignment	Horizontal curve realignment		1.00			1.00	1.00	2.00	1.00	3.00	3.00	1
ST 1021, Dartmouth Dr & Washington Center Rd	Major Collector	Intersection geometry	Auxiliary lanes - add left-turn lane	41.00	15.00					20.00	2.00	61.00	17.00	4.37837837837838
US 30, Crossover removal, from Taney Pl, .39 mi W of SR 55 to 81st Pl, .2 mi E of SR 53	Other Principal Arterial(OPA)	Access management	Median crossover - close crossover	571.00	588.00	1.00		8.00	8.00	146.00	154.00	726.00	750.00	0.981067961165048
US 27, At SR 218	Other Principal Arterial (OPA)	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	10.00	9.00					2.00	1.00	12.00	10.00	1.28571428571429
SR 64, At CR 350 E	Minor Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane	21.00	14.00					1.00		22.00	14.00	1.9
IR 1016, CR 300N at Fortville Pike	Major Collector	Intersection geometry	Auxiliary lanes - add left-turn lane	14.00	10.00	1.00				2.00	6.00	17.00	16.00	0.944444444444445
ST 1001, Sign Replacements in City of Elkhart	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	6296.00	6304.00	19.00	13.00	71.00	133.00	1019.00	977.00	7405.00	7427.00	0.886260268659874
ST 1001, Fort Wayne CBD - Countdown Indicator Signal updates Ph 2: Calhoun St and East	Multiple District	Intersection traffic control	Modify traffic signal - modernization/replacement	402.00	445.00			5.00	12.00	94.00	120.00	501.00	577.00	0.851053159478435
ST 1001, Fort Wayne CBD - Countdown Indicator Signal updates Ph 1. Harrison St & West	Multiple District	Intersection traffic control	Modify traffic signal - modernization/replacement	162.00	166.00			1.00	4.00	43.00	38.00	206.00	208.00	0.992314647377938

2017 Indiana Highway Safety Improvement Program

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
VA 1073, Purchase & installation of 960 pedestrian countdown heads at 120 intersections	Minor Arterial	Pedestrians and bicyclists	Pedestrian signal - modify existing	74.00	107.00	35.00	51.00	90.00	115.00	587.00	669.00	786.00	942.00	0.82962962962963
ST 1001, Placement of backplates on signal heads at 21 locations (see project log)	Multiple District	Intersection traffic control	Modify traffic signal - add backplates with retroreflective borders	67409.00	71684.00	212.00	226.00	1194.00	1169.00	14721.00	15044.00	83536.00	88123.00	0.972351633664774
ST 1001, 82nd Street in Castleton	Other Principal Arterial(OPA)	Roadway signs and traffic control	Roadway signs and traffic control - other	1265.00	1608.00	3.00	4.00	14.00	10.00	214.00	233.00	1496.00	1855.00	0.841091492776886
SR 267, At CR 100 N, 1.01 mile N of US 36	Other Principal Arterial(OPA)	Intersection geometry	Auxiliary lanes - add left-turn lane	50.00	54.00				1.00	10.00	6.00	60.00	61.00	1.02816901408451
SR 267, At CR 100 N, 1.01 miles N of US 36	Other Principal Arterial(OPA)	Intersection traffic control	Modify traffic signal - modernization/replacement	30.00	39.00				1.00	5.00	4.00	35.00	44.00	0.794392523364486
ST 1001, School Flasher Upgrades, various locations in Mishawaka	N/A	Pedestrians and bicyclists	Pedestrian signal - modify existing	6384.00	6758.00	15.00	8.00	70.00	122.00	1418.00	1444.00	7887.00	8332.00	0.957371383782243
ST 1001, Intersection of Dragoon Trail and Logan Street	Minor Arterial	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	27.00	16.00				1.00	8.00	5.00	35.00	22.00	1.5979381443299
ST 1001, Sign Replacements in City of Goshen	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	1403.00	1845.00	2.00	2.00	16.00	23.00	251.00	288.00	1672.00	2158.00	1.03289920375285
ST 1001, Dragoon Trail from Russell Ave to Clover Road	Minor Arterial	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	53.00	45.00	1.00			4.00	21.00	14.00	75.00	63.00	0.726352530541012
ST 1001, Plainfield Various Locations	Local	Roadway signs and traffic control	Roadway signs (including post) - new or updated	863.00	634.00	5.00		15.00	4.00	154.00	116.00	1037.00	754.00	1.81964407939767
ST 1001, Traffic signal backplates	N/A	Intersection traffic control	Modify traffic signal - add backplates with retroreflective borders	2333.00	2750.00	7.00	7.00	32.00	57.00	483.00	490.00	2855.00	3304.00	0.886498547551888
ST 1001, Installation of Countdown Pedestrian Indications	N/A	Intersection traffic control	Modify traffic signal - modernization/replacement	11.00	8.00	4.00	1.00	12.00	15.00	60.00	64.00	87.00	88.00	0.984096385542169
ST 1001, Backing plates on existing traffic signals - 60 intersections	N/A	Intersection traffic control	Modify traffic signal - add backplates with retroreflective borders	2604.00	2677.00			78.00	61.00	662.00	611.00	3344.00	3349.00	1.13681991567958
VA 1068, Sign upgrades - Hamilton Co., Fishers, Carmel, Westfield, Cicero & Noblesville	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	16912.00	17731.00	39.00	27.00	232.00	323.00	2686.00	2817.00	19869.00	20898.00	1.07285714285714
ST 1070, Back plates on signals at 24 intersections on 146th St and Olio Rd	Other Principal Arterial(OPA)	Intersection traffic control	Modify traffic signal - add backplates with retroreflective borders	448.00	469.00	2.00		6.00	16.00	97.00	111.00	553.00	596.00	1.07560780122896

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
IR 1001, Various signs in Hamilton County	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	16556.00	19427.00	49.00	39.00	238.00	614.00	2825.00	2622.00	19668.00	22702.00	1.07354685646501
IR 1001, Sign Replacement in Noble County	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	3439.00	3344.00	16.00	17.00	93.00	138.00	414.00	468.00	3962.00	3967.00	0.840645088530506
US 40, 2.50 miles E of SR 1 at Pennville/Jacksonburg Road	Major Collector	Alignment	Horizontal and vertical alignment	6.00	7.00			1.00		2.00	2.00	9.00	9.00	2.2
SR 5, On SR 5 at CR 450 N, 1.51 miles S of SR 120	Major Collector	Alignment	Horizontal and vertical alignment	12.00	3.00					1.00		13.00	3.00	5.37662337662338
US 24, At US 421 and CR 300E	Other Principal Arterial(OPA)	Intersection traffic control	Intersection flashers - add overhead (continuous)	49.00	51.00		3.00		2.00	14.00	6.00	63.00	62.00	0.722981177899211
US 24, At White CR 300 E	Other Principal Arterial(OPA)	Intersection geometry	Auxiliary lanes - add left-turn lane	40.00	38.00		3.00		2.00	14.00	4.00	54.00	47.00	0.598566308243728
ST 1006, Intersection of Section Street and Washington Street in Sullivan	Minor Collector	Intersection traffic control	Systemic improvements - signal-controlled	8.00	4.00					2.00	2.00	10.00	6.00	1.375
ST 1014, 2 advanced warning flashers at Bright Elementary School	Minor Arterial	Intersection traffic control	Intersection flashers - add overhead (continuous)	5.00	9.00				1.00	1.00	3.00	6.00	13.00	0.351108448172558
IR 1010, 2 advanced warning flashers at North Dearborn Elementary School	Urban Unassigned	Intersection traffic control	Intersection flashers - add advance intersection warning sign-mounted											0
IR 1015, Advanced warning flasher at Sunman Dearborn Intermediate School	Minor Collector	Intersection traffic control	Intersection flashers - add advance intersection warning sign-mounted											0
VA VARI, Sign Replacements at various locations in Town of Waterloo	Multiple District	Roadway signs and traffic control	Roadway signs (including post) - new or updated	369.00	342.00	6.00	3.00	10.00	25.00	61.00	54.00	446.00	424.00	0.770466218885816
US 27, US 27 SB curves at Elizabeth St & at Westbrook Dr, 1.91 & 1.28 mi S of SR 930	Other Principal Arterial(OPA)	Alignment	Horizontal curve realignment	80.00	49.00			1.00	2.00	19.00	6.00	100.00	57.00	1.69230769230769
SR 45, At Liberty Dr/Hickory Leaf Dr	Other Principal Arterial(OPA)	Intersection geometry	Auxiliary lanes - add left-turn lane	29.00	33.00				6.00	16.00	7.00	45.00	46.00	0.793794122475784
VA VARI, Various local roads in Greene County	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	2245.00	2315.00	18.00	16.00	44.00	139.00	342.00	254.00	2649.00	2724.00	0.597736382928555
SR 46, At County Line Rd, approx 4 miles E of US 231	Other Principal Arterial(OPA)	Alignment	Horizontal and vertical alignment	6.00	10.00	1.00						7.00	10.00	4

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
IR 1001, Multiple locations in Clinton County	Local	Roadway signs and traffic control	Roadway signs (including post) - new or updated	355.00	223.00	3.00	2.00	15.00	14.00	50.00	39.00	423.00	278.00	1.25866666666667
SR 61, 4.7 miles N of N jct SR 241	Major Collector	Alignment	Horizontal and vertical alignment	6.00	1.00							6.00	1.00	4
ST 1001, US 30 Frontage Roads from SR 55 to Merrillville Road (Phase II)	Other Principal Arterial(OPA)	Roadway	Roadway - other	304.00	248.00		1.00	3.00	18.00	74.00	51.00	381.00	318.00	0.79372197309417
ST 1001, Lake Avenue from Anthony Blvd to Stanley Ave	Minor Arterial	Intersection geometry	Auxiliary lanes - add two-way left-turn lane	90.00	133.00			1.00	3.00	43.00	19.00	134.00	155.00	1.05020920502092
ST 1001, Sign Replacements at various locations in City of Angola	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	2388.00	2720.00	6.00	6.00	37.00	62.00	226.00	237.00	2657.00	3025.00	0.808676258363581
ST 1001, Sign Replacements at various locations in Gas City	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	591.00	604.00		1.00	1.00	15.00	86.00	71.00	678.00	691.00	0.651492902594224
ST 1001, Sign Replacements at various locations in City of Decatur	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	1227.00	1297.00	6.00	5.00	14.00	45.00	157.00	150.00	1404.00	1497.00	0.689526458318085
ST 1001, Olio Road, Crosswalk and HAWK System	Major Collector	Pedestrians and bicyclists	Pedestrian signal - install new at intersection	21.00	25.00					2.00	2.00	23.00	27.00	0.919431279620853
SR 144, At Kitchen Road, 3.2 miles E of SR 67	Minor Arterial	Intersection traffic control	Modify control - two-way stop to roundabout	17.00	12.00			1.00	1.00	11.00	3.00	29.00	16.00	1.58823529411765
VA VARI, Various locations for the Town of Avon	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	416.00	364.00	2.00	1.00	5.00	21.00	57.00	38.00	480.00	424.00	1.38888888888889
ST 1001, Push button pedestrian signals at various locations on 42nd, 46th & 49th Sts.	Other Principal Arterial(OPA)	Pedestrians and bicyclists	Pedestrian signal - install new at non-intersection location	19.00	16.00	1.00	1.00			7.00	6.00	27.00	23.00	1.15584415584416
IR 1001, Various local roads within Orange County	Minor Arterial	Roadway signs and traffic control	Roadway signs (including post) - new or updated	91.00	116.00			3.00	3.00	25.00	20.00	119.00	139.00	0.947368421052632
ST 1001, Woodland Ave at Barker Rd	Minor Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane	31.00	10.00					3.00		34.00	10.00	3.88888888888889
IR 1001, Various locations on Warren county roads	Minor Collector	Roadway signs and traffic control	Roadway signs (including post) - new or updated	34.00	42.00			2.00	6.00	13.00	5.00	49.00	53.00	1.02564102564103
IR 1001, Various locations on county roads	Minor Collector	Roadway signs and traffic control	Roadway signs (including post) - new or updated	147.00	164.00	3.00	1.00	13.00	12.00	54.00	22.00	217.00	199.00	1.35245901639344
IR 1001, North 9th Street at Burnetts Rd.	Local	Alignment	Horizontal and vertical alignment	17.00	11.00					5.00	4.00	22.00	15.00	1.45833333333333

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
ST 1001, Various Locations In City of New Castle	n/a	Roadway signs and traffic control	Roadway signs (including post) - new or updated	184.00	176.00		1.00	6.00	15.00	52.00	38.00	242.00	230.00	0.964488636363636
IR 1001, Sign Replacement at various locations in Cass County	Multiple District	Roadway signs and traffic control	Roadway signs (including post) - new or updated	461.00	366.00	3.00	4.00	10.00	40.00	144.00	124.00	618.00	534.00	1.03666245259166
IR 1001, Sign Replacement at various locations in Carroll County	Multiple District	Roadway signs and traffic control	Roadway signs (including post) - new or updated	137.00	114.00	1.00	4.00	7.00	8.00	31.00	27.00	176.00	153.00	1.08264462809917
US 40, At CR 500W (Gem Rd), 6.8 miles W of SR 9	Other Principal Arterial(OPA)	Intersection geometry	Auxiliary lanes - add left-turn lane	28.00	26.00			3.00	3.00	5.00	4.00	36.00	33.00	1.08843537414966
IR 1001, Various Locations in City of Richmond	n/a	Roadway signs and traffic control	Roadway signs (including post) - new or updated	450.00	572.00	1.00	2.00	7.00	42.00	151.00	86.00	609.00	702.00	0.967117988394584
ST 1003, CR 150 S & Dan Jones Road, Traffic Signal Modernization In the Town of Avon	Minor Collector	Intersection traffic control	Modify traffic signal - modernization/replacement	1.00	3.00						1.00	1.00	4.00	0.172413793103448
IR 1001, Sign Replacements in Elkhart County	Multiple District	Roadway signs and traffic control	Roadway signs (including post) - new or updated	1903.00	2132.00	14.00	13.00	36.00	138.00	392.00	369.00	2345.00	2652.00	0.857436549172055
IR 1001, Sign Inventory, Various Locations in Lawrence County	Minor Collector	Roadway signs and traffic control	Roadway signs (including post) - new or updated	411.00	422.00	3.00	2.00	13.00	34.00	127.00	82.00	554.00	540.00	1.07547169811321
SR 135, 1.52 miles S of US 31 (Edgewood Avenue)	Minor Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane	19.00	18.00				1.00	9.00	4.00	28.00	23.00	1.25
IR 1001, Update regulatory, warning & guide signs to meet MUTCD requirements	n/a	Roadway signs and traffic control	Roadway signs (including post) - new or updated	2.00						2.00		4.00		1
SR 56, .8 miles E of Thuermer Hollow Road	Local	Alignment	Horizontal curve realignment	28.00	18.00				1.00	4.00	2.00	32.00	21.00	0.666666666666667
US 50, At George Street	Other Principal Arterial(OPA)	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	16.00	28.00					4.00	2.00	20.00	30.00	0.88
US 50, George Street at CSX and US 50	Other Principal Arterial(OPA)	Railroad grade crossings	Protective devices	16.00	28.00					4.00	2.00	20.00	30.00	0.88
VA VARI, Various systematic sign replacements on Johnson County Roads	n/a	Roadway signs and traffic control	Roadway signs (including post) - new or updated	914.00	904.00	4.00		21.00	31.00	233.00	231.00	1172.00	1166.00	1.00809388911372
VA 1019, Various Systematic Sign Replacements	n/a	Roadway signs and traffic control	Roadway signs (including post) - new or updated	4.00	3.00	1.00	5.00	7.00	10.00	15.00	12.00	27.00	30.00	0.714723926380368

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
VA VARI, Various locations in Pike County	Minor Collector	Roadway signs and traffic control	Roadway signs (including post) - new or updated	64.00	34.00	1.00		2.00	5.00	26.00	10.00	93.00	49.00	1.81111111111111
IR 1001, Programmatic Sign Improvement in Benton County	n/a	Roadway signs and traffic control	Roadway signs (including post) - new or updated	52.00	50.00	3.00	1.00	1.00	3.00	15.00	16.00	71.00	70.00	1
US 52, CR 700 W	Other Principal Arterial(OPA)	Intersection geometry	Auxiliary lanes - add left-turn lane	13.00	20.00			1.00	3.00	4.00	1.00	18.00	24.00	0.702898550724638
US 52, CR 700 W	Other Principal Arterial(OPA)	Intersection traffic control	Modify traffic signal - modernization/replacement	13.00	20.00			1.00	3.00	4.00	1.00	18.00	24.00	0.690884476534296
ST 1001, Sign Inventory in Bluffton	Multiple District	Roadway signs and traffic control	Roadway signs and traffic control - other	183.00	175.00		1.00	8.00	22.00	32.00	35.00	223.00	233.00	0.841353744765566
IR 1001, 410 aging warning signs located at var. locations throughout Tippecanoe County	n/a	Roadway signs and traffic control	Roadway signs (including post) - new or updated	12.00	10.00	3.00	2.00	5.00	7.00	15.00	13.00	35.00	32.00	1.0411438576014
SR 61, 0.70 mi N of N jct SR 241	Minor Collector	Alignment	Horizontal and vertical alignment	15.00	6.00	1.00			1.00	9.00	1.00	25.00	8.00	1.90909090909091
SR 8, From 1.05 miles E of I-69 to 2.32 miles E of I-69 in Auburn. See logs.	Other Principal Arterial(OPA)	Intersection traffic control	Modify traffic signal - modernization/replacement	30.00	43.00	1.00			3.00	7.00	6.00	38.00	52.00	0.575418994413408
ST 1071, 206th St. at Overdorf Rd. intersection, 0.97 mi. W. of 206th/SR 37 intersection	Major Collector	Alignment	Horizontal and vertical alignment	1.00								1.00		1
SR 38, signals at 12th in New Castle	Other Principal Arterial(OPA)	Intersection traffic control	Modify traffic signal - modernization/replacement	1.00	3.00					1.00		2.00	3.00	1.36363636363636
SR 38, Signals in New Castle SR 38 at 11th, 14th, 15th & 25th - SR 3 at Riley Rd	Other Principal Arterial(OPA)	Intersection traffic control	Modify traffic signal - modernization/replacement	22.00	4.00			3.00		7.00	3.00	32.00	7.00	3.86666666666667
SR 47, 5.65 mi S of SR 32 to SR 32	Minor Arterial	Roadway	Pavement surface - miscellaneous	52.00	53.00	1.00	1.00	6.00	9.00	22.00	18.00	81.00	81.00	0.832699619771863
SR 47, US 52 to US 421	Major Collector	Roadway	Pavement surface - miscellaneous	97.00	14.00	1.00		3.00	1.00	23.00		124.00	15.00	3.84507042253521
US 136, SR 39 to 0.13 Mile West of SR 267	Minor Arterial	Roadway	Pavement surface - miscellaneous	223.00	236.00		2.00	6.00	25.00	62.00	46.00	291.00	309.00	0.485668789808917
SR 3, From Smith Street to US 50	Other Principal Arterial(OPA)	Roadway	Roadway widening - add lane(s) along segment	8.00	2.00					2.00		10.00	2.00	11
SR 64, At SR 162	Major Collector	Intersection geometry	Auxiliary lanes - add left-turn lane	17.00	33.00				7.00	4.00	5.00	21.00	45.00	0.245901639344262
US 150, At Cross Street	Major Collector	Intersection geometry	Auxiliary lanes - add left-turn lane	4.00	3.00						1.00	4.00	4.00	0.375

2017 Indiana Highway Safety Improvement Program

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
VA VARI, Sign inventory, multiple locations in Lebanon	Local	Roadway signs and traffic control	Roadway signs (including post) - new or updated	2480.00	2430.00	12.00	14.00	29.00	157.00	347.00	164.00	2868.00	2765.00	1.03515015600624
ST 1001, Various city streets in Bicknell	Minor Collector	Roadway signs and traffic control	Roadway signs (including post) - new or updated	244.00	217.00	1.00	1.00	4.00	10.00	62.00	17.00	311.00	245.00	1.44806517311609
ST 1001, Sign Replacements at various locations in City of Auburn	Multiple District	Roadway signs and traffic control	Roadway signs (including post) - new or updated	1525.00	1724.00	6.00	5.00	19.00	108.00	191.00	121.00	1741.00	1958.00	0.648415657036347
VA 1012, Various locations within the City of Madison	n/a	Roadway signs and traffic control	Roadway signs (including post) - new or updated	1821.00	2142.00	15.00	12.00	41.00	168.00	316.00	212.00	2193.00	2534.00	0.86628093860495
ST 1009, Various locations within the City of Batesville	n/a	Roadway signs and traffic control	Roadway signs (including post) - new or updated	261.00	320.00	1.00	3.00	3.00	22.00	39.00	18.00	304.00	363.00	0.844578313253012
US 31, Kern Road and Old US 31	Other Principal Arterial(OPA)	Intersection traffic control	Modify traffic signal - modernization/replacement	23.00	32.00				1.00	4.00	2.00	27.00	35.00	0.53405572755418
ST 1007, Sign inventory for the Town of Gosport	Local	Roadway signs and traffic control	Roadway signs and traffic control - other	123.00	128.00		1.00	4.00	14.00	25.00	6.00	152.00	149.00	1.04714226115978
VA 0037, Various locations throughout the Town of Battle Ground	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	27.00	38.00			1.00		12.00	11.00	40.00	49.00	0.0692355244178858
ST 1030, 7th Street (IR311) & Davis Dr. (IR158) in Terre Haute	Local	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	23.00	36.00			1.00	3.00	7.00	4.00	31.00	43.00	0.793706293706294
IR 1019, Roundabout construction at the intersection of CR 625E and CR 150S.	Major Collector	Intersection traffic control	Modify control - two-way stop to roundabout	8.00	4.00				1.00	2.00		10.00	5.00	2.4
US 41, 0.89 mile S of I-64 at Rusher Road	Other Principal Arterial	Intersection traffic control	Modify traffic signal - modernization/replacement	21.00	19.00	1.00	1.00	1.00		6.00	3.00	29.00	23.00	1.49519230769231
SR 56, At Judiciary Street	Minor Arterial	Intersection traffic control	Modify traffic signal - modernization/replacement	7.00	11.00					1.00	1.00	8.00	12.00	0.861990950226244
SR 56, At Main/George Street	Minor Arterial	Intersection traffic control	Modify traffic signal - modernization/replacement	11.00	13.00				1.00		1.00	11.00	15.00	0.391003460207612
I 69, I-69 at SR 38 interchanges NB and SB ramps	Interstate	Intersection traffic control	Modify traffic signal - modernization/replacement	10.00	7.00				1.00	3.00		13.00	8.00	0.00444444444444444
ST 1001, Citywide. The attached application lists all of the signs that will be replaced	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	4244.00	4229.00	8.00	4.00	32.00	40.00	684.00	708.00	4968.00	4981.00	0.983391580568977
ST 1001, Pedestrian Crossings in Center and Washington Townships	N/A	Pedestrians and bicyclists	Modify existing crosswalk		1.00				1.00	2.00		2.00	2.00	1.2

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
SR 332, 5.38 miles E of I-69 at CR 400W (Nebo Road)	Other Principal Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane	36.00	38.00				2.00	5.00	5.00	41.00	45.00	0.779411764705882
IR 1001, Edison Road and Gordon Drive, designated center turn lane	Other Principal Arterial	Intersection geometry	Auxiliary lanes - add two-way left-turn lane	23.00	27.00				1.00	8.00	1.00	31.00	29.00	1.01401869158879
VA 1032, Upgrade regulatory, warning & guide signs to meet MUTCD requirements	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	3921.00	4063.00	10.00	10.00	79.00	310.00	962.00	602.00	4972.00	4985.00	0.672337337740869
IR 1001, Upgrade regulatory, warning & guide signs to meet MUTCD requirements	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	164.00	164.00			8.00	24.00	29.00	15.00	201.00	203.00	0.76734693877551
ST 1001, St. sign inventory & St. sign replacement in the City of Franklin	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	1036.00	1207.00	1.00	2.00	24.00	63.00	158.00	100.00	1219.00	1372.00	0.71841155234657
ST 1001, Intersection of 111th ST & Pennsylvania ST, Carmel IN	Local	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	12.00	9.00	1.00		1.00	1.00	14.00	2.00	28.00	12.00	4.1
US 36, US 36 at SR 234	Other Principal Arterial	Intersection traffic control	Modify traffic signal - modernization/replacement	6.00	10.00					2.00	2.00	8.00	12.00	0.763888888888889
US 150, At Edwardsville/Galena Road (Pectol Road)in Galena	Minor Arterial	Intersection geometry	Auxiliary lanes - add left-turn lane	9.00	16.00				2.00	2.00	1.00	11.00	19.00	0.235955056179775
VA VARI, Various locations in the city of Attica in Fountain County	N/A	Roadway signs and traffic control	Roadway signs (including post) - new or updated	213.00	215.00		1.00		12.00	27.00	15.00	240.00	243.00	0.859164897381458
SR 26, at US 31 WB approach 76+27	Other Principal Arterial	Roadway	Pavement surface - miscellaneous	14.00	25.00					6.00	2.00	20.00	27.00	0.445205479452055
IR 1001, Sign Inventory, Various Locations in Knox County	N/A	Roadway signs and traffic control	Roadway signs and traffic control - other	250.00	193.00	3.00	2.00	5.00	22.00	64.00	29.00	322.00	246.00	0.908154121863799
ST 1001, 2.25 miles from I-465 on 16th Street	Other Principal Arterial	Intersection traffic control	Modify control - traffic signal to roundabout	12.00	35.00			1.00		2.00	3.00	15.00	38.00	2

Enter additional comments here to clarify your response for this question or add supporting information.

Are there any other aspects of the overall HSIP effectiveness on which the State would like to elaborate?

2017 Indiana Highway Safety Improvement Program
Yes

Describe any other aspects of HSIP effectiveness on which the State would like to elaborate.

The combined efforts of Indiana's engineering, education, law enforcement, and emergency medical communities all contribute to the goal of overall decline in serious crash outcomes. In recent years, national and regional trends of larger total crash counts have occurred, however rates of fatalities and serious injuries have remained largely unchanged.

The extent of contribution by HSIP projects to overall statewide traffic safety outcomes is difficult to quantify with current data sources and analysis capabilities, but it's clear that safety programs are a factor influencing the frequency of severe crash outcomes. Fatal and injury crash trends experienced a somewhat consistent downward trend between the start of SAFETEA-LU in 2005 and continuing through 2008 before experiencing a large drop in 2009 at the same time as VMT estimates declined. From year 2010 through 2014, the downward trend resumed until strong growth in estimated VMT and serious crashes occurred in 2015 through the first half of 2017.

The incidence of severe injury crashes in most of the monitored emphasis areas increased in calendar years 2015 and 2016, however, the estimated vehicle miles of travel increased by 1.20% from 2015 to 2016. The resulting rate of crashes with fatality per million vehicle miles of travel increased by 0.01%, while the rate of serious crashes involving probably class A injury outcomes decreased by 0.04%. In response to these trends INDOT has increased the number and variety of systemic safety programs applicable to both state and local roads.

Compliance Assessment

What date was the State's current SHSP approved by the Governor or designated State representative?

03/01/2016

What are the years being covered by the current SHSP?

From: 2016 To: 2020

When does the State anticipate completing it's next SHSP update?

2021

Enter additional comments here to clarify your response for this question or add supporting information.

Anticipate adoption of the next SHSP revision on or before March 1 2021.

Provide the current status (percent complete) of MIRE fundamental data elements collection efforts using the table below.

	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
MIRE NAME (MIRE NO.)	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
ROADWAY SEGMENT										
Segment Identifier (12)	100	0					0	100	0	100
Route Number (8)	100	0								
Route/Street Name (9)	100	0								
Federal Aid/Route Type (21)	100	0								
Rural/Urban Designation (20)	100	0					0	100		
Surface Type (23)	100	0					0	20		
Begin Point Segment Descriptor (10)	100	0					0	100	0	100
End Point Segment Descriptor (11)	100	0					0	100	0	100
Segment Length (13)	100	0								
Direction of Inventory (18)	100	0								
Functional Class (19)	100	0					0	100	0	100
Median Type (54)	100	0								

MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
Access Control (22)	100	0								
One/Two Way Operations (91)	100	0								
Number of Through Lanes (31)	100	0					0	20		
Average Annual Daily Traffic (79)	100	0					0	50		
AADT Year (80)	100	0								
Type of Governmental Ownership (4)	100	0					0	100	0	100
INTERSECTION										
Unique Junction Identifier (120)			100	0						
Location Identifier for Road 1 Crossing Point (122)			100	0						
Location Identifier for Road 2 Crossing Point (123)			100	0						
Intersection/Junction Geometry (126)			100	0						
Intersection/Junction Traffic Control (131)			0	0						
AADT for Each Intersecting Road (79)			100	0						
AADT Year (80)			100	0						
Unique Approach Identifier (139)			100	0						
INTERCHANGE/RAMP										
Unique Interchange Identifier (178)					100	0				
Location Identifier for Roadway at Beginning of Ramp Terminal (197)					100	0				
Location Identifier for Roadway at Ending Ramp Terminal (201)					100	0				
Ramp Length (187)					100	0				
Roadway Type at Beginning of Ramp Terminal (195)					100	0				

MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
Roadway Type at End Ramp Terminal (199)					100	0				
Interchange Type (182)					100	0				
Ramp AADT (191)					100	0				
Year of Ramp AADT (192)					100	0				
Functional Class (19)					100	0				
Type of Governmental Ownership (4)					100	0				
Totals (Average Percent Complete):	**100.00**	**0.00**	**87.50**	**0.00**	**100.00**	**0.00**	**0.00**	**76.67**	**0.00**	**100.00**

Enter additional comments here to clarify your response for this question or add supporting information.

Describe actions the State will take moving forward to meet the requirement to have complete access to the MIRE fundamental data elements on all public roads by September 30, 2026.

For the Non-Local Paved road requirements, INDOT currently maintains all MIRE Required Elements as part of the annual HPMS report.

For the Local Paved Roads requirements, INDOT has full coverage of most required elements with the exception of Surface Type and in some cases Lane Count. A new funding program created through Indiana House Bill 1002 that has recently been passed that allocates funding utilized by Local Technical Assistance Program (LTAP) to create and maintain road data for Local Government Agencies. The plan is to leverage this effort to fill in gaps in coverage on local roads for any fully or partially missing elements.

Unpaved Roads are currently not identified in INDOT's inventory data system. However, route information such as Route Identifier, Beginning Measure, End Measure, Functional Class and Type of Government Ownership are present and accounted for in the current data system. Once Surface Type data form local agencies is incorporated, as described above, unpaved roads will be identified in the inventory system.

INDOT currently has the data to support the creation of data elements for the Intersections of
Non-Local Paved Roads. The Road Inventory Office is currently acquiring spatial analysis software that will automate the creating and management of Intersection Geometries and supporting data.

INDOT has data to support the creation of data elements for the Interchanges\Ramps on Non-Local Paved Roads. Information can be created using the same planned software tools acquisition to be used for managing intersections and Interchanges/Ramps. Other data requirements will need to be determined once the spatial analysis tool is operational. If there is a need for additional data that can't be extracted using those tools, new geoprocessing tools will have to be created by INDOT to meet the requirements.

An official representative\authority to manage all MIRE FDE requirements has not yet been named, however an ad-hoc committee containing representatives from the Traffic Engineering Division, Office of Traffic Safety, Technical Planning and Programing Division, and Road Inventory Office will deliberate the necessary lines of authority.

Provide the suspected serious injury identifier, definition and attributes used by the State for both the crash report form and the crash database using the table below. Please also indicate whether or not these elements are compliant with the MMUCC 4th edition criteria for data element P5. Injury Status, suspected serious injury.

CRITERIA	SUSPECTED SERIOUS INJURY IDENTIFIER(NAME)	MMUCC 4TH EDITION COMPLIANT *	SUSPECTED SERIOUS INJURY DEFINITION	MMUCC 4TH EDITION COMPLIANT *	SUSPECTED SERIOUS INJURY ATTRIBUTES(DESCRIPTORS)	MMUCC 4TH EDITION COMPLIANT *
Crash Report Form	Incapacitating Injury	No	N/A	No	N/A	No
Crash Report Form Instruction Manual	Incapacitating Injury	No	Transported from the Scene	No	Transported from the Scene	No
Crash Database	Incapacitating Injury	No	N/A	No	N/A	No
Crash Database Data Dictionary	Incapacitating Injury	No	Any injury that results in immediate transport from the scene for medical treatment	No	Immediate Transport from the scene for treatment	No

Please describe the actions the State is taking to become compliant by April 15, 2019.
The Indiana State Police is currently working with its crash database contractor to develop a new version of the state's electronic crash reporting client software for officers, with a projected deployment in calendar year 2018.

As part of this upgrade, Indiana will maintain collection of data regarding transport from the scene, which contributes to compliance with MMUCC data element P24. "Transported to First Medical Facility By"

Currently, Indiana's crash data reporting client only collects data for this element with a checkbox to indicate "immediate transport from the scene for medical treatment" which automatically codes the injury severity as "Incapacitating." In the update, the automatic linkage will be removed and a subsequent question will ask if the transport was due to one of the seven specifically enumerated conditions identified in MMUCC data element P5. "Injury Status" for Suspected Serious Injury (A)

Severe laceration resulting in exposure of underlying tissues/muscle/organs or resulting in significant loss of blood

Broken or distorted extremity (arm or leg)

Crush injuries

Suspected skull, chest or abdominal injury other than bruises or minor lacerations

Significant burns (second and third degree burns over 10% or more of the body)

Unconsciousness when taken from the crash scene

Paralysis

All other P5 "Injury Status" attributes are already in compliance.

Enter additional comments here to clarify your response for this question or add supporting information.

In 2014, INDOT submitted comments on the proposed National Highway Traffic Safety Performance Measures Rulemaking (NPRM) including a comment regarding the expected transition to the MMUCC 4th Edition as it relates to definition of Suspected Serious Injury. INDOT's comments included the objection that an 18-month implementation period is unreasonable, far short of the time necessary to engage all partners to enable changes in the Indiana crash database to meet compliance with the new definition of Suspected Serious Injury contained in the Model Minimum Uniform Crash Criteria (MMUCC) Forth (4th) Edition. Prior to this proposed rulemaking, incapacitating injury (victim transported from the scene) was deemed an acceptable measure in prior editions of the MMUCC. On March 15, 2016 the National Performance Management Measures Highway Safety Improvement Program final rule was published in the Federal Register and shared with all consulting partners.
Regulations promulgated in 2016 by Federal Highway Administration to support the federal administration of transportation funding included a requirement that states report Suspected Serious Injuries using the criteria established in the MMUCC 4th Edition. This linkage to a federal regulation to what had historically been an advisory document's recommended definition put Indiana's current designation of incapacitating injury out of compliance. The new regulation for establishing and reporting traffic safety performance measures necessitate that Indiana determine a method to approximate counting of Suspected Serious Injuries (per the MMUCC 4th Edition) so that current Indiana crash records could be used to calculate historic and projected traffic safety performance counts in accord with "A" injuries on the KABCO scale.

In establishing a proxy for missing data regarding Suspected Serious Injuries, Indiana analyzed statewide incapacitating injury counts that remained reasonably stable across the 10 years prior to the Indiana TRCC reclassification that began in November 2014. Crash data records for the years 2004 to 2013 were analyzed to determine a percentage of the total number of non-fatal incapacitating injuries recorded each of these years. The incapacitating injury counts from these years are assumed to equate to the current definition of suspected serious injuries and were evaluated to establish the average percentage of non-fatal suspected serious injuries that contribute to total injury counts. The annual average percent contribution of suspected serious injuries prior to the 2014 Indiana TRCC definition change was found to be 7.1%. Weighting this value to account for an increases in suspected serious injury counts in the most recent three years of the 10 year period (2011, 2012 and 2013), the resulting value is adjusted to 7.2% of all injuries. Indiana intends to use the 7.2% estimate of non-fatal injuries for each year to represent the number of statewide "Suspected Serious Injuries"

2017 Indiana Highway Safety Improvement Program
until such time as a specific count of MMUCC 4th Edition compliant data can be incorporated into the Indiana Crash Database.

INDOT asks that FHWA accept Indiana's described reporting methodology as part of any review of Indiana Crash data and Performance Target Setting methodology

Did the State conduct an HSIP program assessment during the reporting period?

Yes

Describe the purpose and outcomes of the State's HSIP program assessment.

In the fall of 2016, a peer-program assessment of Indiana's HSIP was initiated. FHWA engineers from the Headquarters' Office of Safety and three peer states reviewed Indiana's guiding HSIP documents. In December, 2016, the FHWA Peer-Program Review Team visited Indianapolis to interview the numerous offices that contribute to the highway safety program in Indiana. Details of the program assessment are contained in the Indian HSIP Peer-Program Review document dated February 10, 2017.

The purpose of the review was to allow an outside look of Indiana's HSIP and determine:

1) Noteworthy Practices, and

2) Opportunities for Improvements.

As with most any review activity, the intent of the review was to not only fulfill the requirement of a law, regulation, or oversight document, in this case FHWA's National Program Stewardship and Oversight Plan, but, more importantly, to provide the State DOT with an objective appraisal of its HSIP and identify strengths and areas for improvement.

During the peer-program review, the team identified several practices and procedures in which INDOT exceled. These areas include:

Development of timely crash data and statistically-based data analysis tools.

Communication and coordination with safety partners (e.g. LTAP, ICJI, MPOs, Districts)

Consistent, up-to-date crash facts published weekly via the Crash Snapshot

Emphasis on systemic projects types

Development of a 5-year program of projects

The program assessment team also noted some areas in which further development could improve the effectiveness of the HSIP in Indiana. These areas can be summarized into the following:

Documentation - Develop a combined HSIP Manual and Procedures document

Data - Continue to upgrade crash reporting tools, quality assurance and MIRE FDE data

Local Road Safety - Improve call procedures and administration of local projects

Funding - Strategies to address rising balances of apportioned safety funds

Safety Performance Targets - Methodology to set Safety Performance Targets.
(Task Completed before July 1, 2017)

Details of these findings can be seen in the sections titled Noteworthy Practices and Opportunities for Improvement.

Optional Attachments

Program Structure:

Project Implementation:

Safety Performance:

Evaluation:

Rumble Stripe Before After Study Final 11-15-2016.pdf

Compliance Assessment:

Glossary

5 year rolling average	means the average of five individuals, 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.