INDIANA

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2018 ANNUAL REPORT

U.S. Department of Transportation
Federal Highway Administration

Photo source: Federal Highway Administration

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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) 2018. 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 2018, beginning October 1, 2017 and ending on September 30, 2018. 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.

Over the last three calendar years Indiana has experienced a significant rise in the estimated vehicle miles of travel now estimated to be 830.11 Hundred Million Vehicle Miles of Travel (HMVMT) or a 1.2% increase above the CY 2016 estimate of 826.11 HMVMT. The number of fatal injuries rose from 821 in calendar year 2016 to 915 in 2017, which represents an increase of 11.4%. Due to the increased VMT, the Fatality Rate increase was 1.101 fatalities per HMVMT in 2017 compared to 1.031 in 2016. It should be noted that the rise in fatalities for 2017 may be an outlier due to a larger that normal growth in VMT in 2016 and more exposure to crash risk. The 5-year rolling average rate of fatalities increased to 1.040 HMVMT in CY 2017 as compared the rate of 1.018 in CY 2016.

Suspected serious injuries were 3389 in 2017, a slightly lower number than the 3505 that were reported in 2016. Due to the larger VMT the suspected serious injury rate was 4.079 in 2017 compared to 4.394 in 2016. An actual comparison to prior years is complicated by the implementation by Indiana of a new injury classification methodology that’s described in detail in the response to Question 33.

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.

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. The goal is to transition Indiana’s crash records system toward reporting suspected serious injuries in compliance with the current safety reporting regulations promulgated in 2016 to support the federal administration of transportation funding. The regulation 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) 2018, the total expected obligation of federal program funds for safety infrastructure improvements, from all programs (excluding the annual rail-highway crossing safety program) is expected to be about $55.9 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. While numerous refinements to the asset management program have taken place the underlying methodology has not changed. 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. In FFY 2018 the set aside for locally sponsored safety projects was approximately $18.3 million. Individual Metropolitan Planning Organizations (MPO), receive annual apportionments of obligation authority and a predetermined amount of obligation authority is also 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. At the inception of the INDOT safety program under SAFTEA-LU a policy was determined by the INDOT Finance business unit 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 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 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 Divison and is in turn part of the

Engineering Service and Asset Management Business Unit. The primary functions of the Office of Traffic Safety is 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-Capital Asset Management
Other-Research Division
Other-Budget & Project Accounting Division

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 as well as 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. All project plans, construction documents and estimates are reviewed by the INDOT Highway Design & Technical Support Division.

Program Methodology

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

No

To upload a copy of the State processes, attach files below.

File Name:

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
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.

Various sub-program are aligned to address SHSP emphasis areas but may overlap regarding target crash types that are addressed. For example the Intersection safety subprogram encompasses all forms of intersection crash types for signalized, stop controlled and alternative design intersections.

INDOT also 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.

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?

2018 Indiana Highway Safety Improvement Program
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

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?

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

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

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

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

2018 Indiana Highway Safety Improvement Program

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?

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

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

Program: Pedestrian Safety

Date of Program Methodology: 10/1/2010

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

2018 Indiana Highway Safety Improvement Program

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

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?

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

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

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

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

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
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

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

What percentage of HSIP funds address systemic improvements?

47.8

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

Cable Median Barriers
Rumble Strips
Traffic Control Device Rehabilitation
Install/Improve Signing

2018 Indiana Highway Safety Improvement Program
Install/Improve Pavement Marking and/or Delineation
Upgrade Guard Rails
Add/Upgrade/Modify/Remove Traffic Signal
Horizontal curve signs
High friction surface treatment

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

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

Engineering Study
Road Safety Assessment
Crash data analysis
Stakeholder input

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 partnering with Purdue University and the Joint Transportation Research Project to evaluate connected vehicle-related communications and autonomous technologies and will conduct research studies of their potential effectiveness, and interactions with infrastructure, however the project utilizes 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.

INDOT uses IHSDM for safety analysis of selected major projects and for analysis of design exceptions when appropriate.

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 that is used to program traffic safety projects on INDOT system roads requires selection and prioritization of a fiscally constrained program of projects 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 may 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 allocates an available obligation limitation 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. Beginning in FFY 2018, the OTS manager also has a voting membership on the Change Control Board that acts as the approval authority in regard to all submitted Change Management Requests.

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 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 reports 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)	$46,173,539	$20,361,380	44.1%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$0	$832,188	0%
Penalty Funds (23 U.S.C. 154)	$0	$0	0%
Penalty Funds (23 U.S.C. 164)	$0	$19,290,217	0%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	$0	$0	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	$0	$474,430	0%
State and Local Funds	$2,769,178	$14,964,397	540.39%
Totals	$48,942,717	$55,922,612	114.26%

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, 2018. Amounts listed in the question 23 table reflect obligated funds totals at the time of reporting August 31, 2018. Changes in the obligation totals may have occurred subsequent to that date.

Due to the Section 164 Penalty Fund requirement in FFY 2018 the current year obligation of HSIP eligible funds (absent the HRRRP Special Rule) is $20,361,380 or 44.1% of the programmed HSIP.

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

34%

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

101%

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

INDOT Allocated 34% of the FFY 2018 annual apportionment to fund local agency sponsored HSIP eligible projects. The allocation to local agencies for FFY 2018 is $18,326,601

In FFY 2018 the projected total obligation of funds to construct local safety projects is expected to be 100.8% of total apportionment or $18,481,762

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

$251,000

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

$251,000

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?

$26,950,844

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 2018 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 4 th 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 with higher average daily traffic that may be classified as arterial. 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 on rural roads 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 prior to construction year 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 safety 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.

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**
1500668	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	1.71	Miles	$348187.83	$349629.25	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	16,911	30	State Highway Agency	Spot	Pedestrians	Construct ADA Ramps
1702222	Roadway	Pavement surface - high friction surface	0.731	Miles	$248956.13	$249986.76	Penalty Funds (23 U.S.C. 164)	Rural Minor Arterial	5,000	45	State Highway Agency	Spot	Roadway Departure	High Friction Surface
1702119	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	15	Ramps	$355339.27	$364110.3	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	20,000	45	State Highway Agency	Systemic	Pedestrians	Construct ADA Ramps
1701578	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	76	Ramps	$49493.95	$49698.84	Penalty Funds (23 U.S.C. 164)	Urban Major Collector	10,000	35	State Highway Agency	Systemic	Pedestrians	Construct ADA Ramps
1701577	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	0.7	Miles	$579601.2	$580453.07	Penalty Funds (23 U.S.C. 164)	Urban Major Collector	10,000	35	State Highway Agency	Systemic	Pedestrians	Construct ADA Ramps
1700406	Roadway signs and traffic control	Roadway signs and traffic control - other	3	Miles	$996373.94	$1047716.45	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Interstate	103,000	65	State Highway Agency	Systemic	Lane Departure	Enhance pavement markings and highway signage
1601926	Pedestrians and bicyclists	Pedestrian signal - Pedestrian Hybrid Beacon	1	Intersections	$113846.9	$126496.56	HSIP (23 U.S.C. 148)	Urban Major Collector	9,020	40	State Highway Agency	Spot	Pedestrians	Install HAWK Crossing Signal
1601871	Intersection traffic control	Systemic improvements - signal-controlled	1	Intersections	$150385.08	$150485.08	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	33,000	55	State Highway Agency	Spot	Intersections	Signal Visibility Improvement
1601837	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	60	Ramps	$547052.84	$690709.8	HSIP (23 U.S.C. 148)	Urban Minor Arterial	9,550	45	State Highway Agency	Systemic	Pedestrians	Construct ADA Ramps
1601832	Intersection traffic control	Systemic improvements - signal-controlled	6	Intersections	$244604.41	$272782.68	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	18,500	45	State Highway Agency	Systemic	Intersections	Signal Visibility Improvement
1601813	Intersection traffic control	Systemic improvements - signal-controlled	1	Intersections	$147395.52	$148895.52	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	16,600	35	State Highway Agency	Spot	Intersections	Signal Visibility Improvement
1601381	Intersection traffic control	Systemic improvements - signal-controlled	1	Intersections	$102923.51	$102923.51	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	9,750	45	State Highway Agency	Spot	Intersections	Install new traffic signal
1601161	Roadway signs and traffic control	Roadway signs (including post) - new or updated	132	Signs	$39920.28	$44355.87	HSIP (23 U.S.C. 148)	Urban Minor Collector	7,500	35	Town or Township Highway Agency	Systemic	Intersections	Sign Visibility Improvement
1600481	Intersection traffic control	Systemic improvements - signal-controlled	1	Intersections	$70256.54	$70256.54	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Other	22,500	55	State Highway Agency	Spot	Intersections	Install new traffic signal
1592654	Intersection traffic control	Modify traffic signal - modernization/replacement	5	Intersections	$601808.98	$601808.98	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	35,000	45	State Highway Agency	Systemic	Intersections	Signal Visibility Improvement

													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
1592620	Intersection geometry	Intersection geometry - other	1	Intersections	$1098620.57	$1256252.86	HSIP (23 U.S.C. 148)	Rural Major Collector	6,700	30	State Highway Agency	Spot	Intersections	Intersection Improvement Project
1500323	Intersection geometry	Intersection geometrics - modify intersection corner radius	5	Intersections	$5567786.91	$618652.12	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	13,000	20	State Highway Agency	Spot	Intersections	Construct Curb Bumpouts for traffic calming and pedestrian safety
1500429	Lighting	Intersection lighting	63	Roadway Luminaires	$853804.8	$948672	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	5,000	40	City of Municipal Highway Agency	Systemic	Intersections	Install roadway lighting
1298316	Intersection geometry	Auxiliary lanes - modify left-turn lane offset	1	Intersections	$1121966.42	$1286210.82	Penalty Funds (23 U.S.C. 164)	Urban Minor Arterial	9,400	45	State Highway Agency	Spot	Intersections	Intersection Improvement Project
1298309	Roadway	Roadway widening - add lane(s) along segment	0.79	Miles	$1626468.38	$2047552.59	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	31,200	45	State Highway Agency	Spot	Roadway Departure	Added travel lanes along a road segment
1006624	Intersection geometry	Auxiliary lanes - extend acceleration/deceleration lane	1	Intersections	$1210505.92	$1468122.51	Penalty Funds (23 U.S.C. 164)	Urban Minor Arterial	8,250	40	State Highway Agency	Spot	Intersections	Extend Auxilary Turn Lanes
1296321	Intersection traffic control	Modify traffic signal - modernization/replacement	16	Intersections	$2300562.07	$2364062.07	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	20,000	35	State Highway Agency	Systemic	Intersections	Signal Visibility Improvement
1296847	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	$985889.43	$1423733.99	Penalty Funds (23 U.S.C. 164)	Rural Minor Arterial	11,000	55	State Highway Agency	Spot	Intersections	Install Roundabout
1296911	Intersection geometry	Auxiliary lanes - add left-turn lane	1	Intersections	$1988530.78	$2697840.53	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	41,000	40	State Highway Agency	Spot	Intersections	Add auxilary turn lanes
1297947	Roadside	Barrier - cable	62.86	Miles	$2251705.71	$2387005.71	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Interstate	28,500	70	State Highway Agency	Systemic	Roadway Departure	Install cable rail
1400581	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	$2013184.51	$2267520.29	Penalty Funds (23 U.S.C. 164)	Urban Major Collector	5,000	40	City of Municipal Highway Agency	Spot	Intersections	Install Roundabout
1401164	Intersection geometry	Auxiliary lanes - add left-turn lane	1	Intersections	$944551.22	$1049501.36	HSIP (23 U.S.C. 148)	Urban Minor Arterial	15,900	45	City of Municipal Highway Agency	Spot	Intersections	Add auxilary turn lanes
1401735	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$196623.76	$222684.17	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	21,000	35	City of Municipal Highway Agency	Spot	Intersections	Signal vis project with curb ramp improvements
1500046	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Intersections	$491321	$546012.22	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	18,800	40	City of Municipal Highway Agency	Spot	Intersections	Intersection Improvement Project with signal mod
1500692	Intersection geometry	Intersection geometry - other	1	Modify frontage road access and modernize signal	$598497.31	$664997.01	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	27,000	45	State Highway Agency	Spot	Intersections	Intersection Improvement with Traffic Signal Modernization
1592655	Roadway delineation	Raised pavement markers	113.53	Miles	$122414.82	$122414.82	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Other	10,000	55	State Highway Agency	Systemic	Lane Departure	RPM Refurbishment

													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
1592656	Intersection traffic control	Modify traffic signal - modernization/replacement	34	Intersections	$483565.21	$483565.21	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Other	10,000	55	State Highway Agency	Systemic	Intersections	Signal Visibility Improvement
1593090	Roadway delineation	Raised pavement markers	41964	Numbers	$294806.04	$294806.04	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Other	15,000	55	State Highway Agency	Systemic	Lane Departure	RPM Refurbishment
1593094	Intersection traffic control	Modify traffic signal - modernization/replacement	6	Intersections	$690184.13	$691184.13	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Other	13,000	55	State Highway Agency	Systemic	Intersections	Signal Visibility Improvement
1593103	Roadway delineation	Raised pavement markers	50352	Numbers	$430718.46	$430718.46	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Other	15,000	55	State Highway Agency	Systemic	Lane Departure	RPM Refurbishment
1593104	Intersection traffic control	Modify traffic signal - modernization/replacement	7	Intersections	$1066947.68	$1069847.68	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	15,000	45	State Highway Agency	Systemic	Intersections	Signal Visibility Improvement
1600022	Intersection traffic control	Modify traffic signal - modernization/replacement	17	Intersections	$1157737.87	$1159292.87	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	15,000	50	State Highway Agency	Systemic	Intersections	Signal Visibility Improvement
1600023	Roadway delineation	Raised pavement markers	132.2	Miles	$236673.39	$236673.39	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Other	15,000	55	State Highway Agency	Systemic	Lane Departure	RPM Refurbishment
1600024	Roadway signs and traffic control	Curve-related warning signs and flashers	1146	Signs	$322872.69	$322872.69	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Other	15,000	55	State Highway Agency	Systemic	Roadway Departure	Curve warning sign upgrades
1600080	Intersection traffic control	Modify traffic signal - modernization/replacement	5	Intersections	$833695.98	$833695.98	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	15,000	45	State Highway Agency	Systemic	Intersections	Signal Visibility Improvement
1600112	Intersection traffic control	Modify traffic signal - modernization/replacement	6	Intersections	$868254.51	$869754.51	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	15,000	55	State Highway Agency	Systemic	Intersections	Signal Visibility Improvement
1600114	Roadway signs and traffic control	Roadway signs (including post) - new or updated	1350	Signs	$637464.59	$637464.59	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Other	10,000	55	State Highway Agency	Systemic	Roadway Departure	Regulatory sign upgrade
1600651	Pedestrians and bicyclists	Pedestrian warning signs - add/modify flashers	13	Intersections	$415389.31	$461543.68	HSIP (23 U.S.C. 148)	Urban Minor Arterial	8,000	35	City of Municipal Highway Agency	Systemic	Pedestrians	School Crossing Zone warning systems
1600677	Roadway delineation	Roadway delineation - other	53	Centerline and edgeline rumble stripes installation	$750226.73	$750226.73	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	8,500	55	State Highway Agency	Systemic	Roadway Departure	Installation of Centerline and Edgeline Rumble Stripes
1600836	Roadside	Barrier - cable	5.03	Miles	$708191.33	$743691.33	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Interstate	34,100	70	State Highway Agency	Systemic	Roadway Departure	Install cable rail
1601164	Pedestrians and bicyclists	Pedestrian signal - Pedestrian Hybrid Beacon	3	Locations	$272260.46	$302511.62	HSIP (23 U.S.C. 148)	Urban Minor Arterial	5,000	35	City of Municipal Highway Agency	Systemic	Pedestrians	Install HAWK Crossing Signal
1601183	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	43	Ramps	$260642.72	$315563.63	Penalty Funds (23 U.S.C. 164)	Rural Major Collector	5,500	35	State Highway Agency	Systemic	Pedestrians	Install 43 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
1601205	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	20	Ramps	$206091.92	$270199.64	Penalty Funds (23 U.S.C. 164)	Rural Major Collector	5,500	35	State Highway Agency	Systemic	Pedestrians	Install 20 ADA Curb Ramps
1601444	Roadway	Roadway widening - add lane(s) along segment	0.07	Miles	$270935.42	$272968.76	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	26,000	45	State Highway Agency	Spot	Intersections	Install left turn lane
1601788	Intersection traffic control	Modify traffic signal - modernization/replacement	41	Intersections	$828841.46	$842547.46	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Other	15,500	55	State Highway Agency	Systemic	Intersections	Signal Visibility Improvement
1601882	Intersection traffic control	Intersection traffic control - other	1	Change from a 2 way stop control to a signal control	$165808.59	$165808.59	Penalty Funds (23 U.S.C. 164)	Urban Minor Arterial	11,000	40	State Highway Agency	Spot	Intersections	New signal installation
1601884	Intersection traffic control	Intersection traffic control - other	1	Change from a 2 way stop control to a signal control	$313682.56	$313682.56	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial (RPA) - Other	12,500	55	State Highway Agency	Spot	Intersections	New signal installation
1601933	Intersection traffic control	Modify traffic signal - modernization/replacement	7	Intersections	$195391.21	$195391.21	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	17,400	35	State Highway Agency	Systemic	Intersections	Signal Visibility Improvement
1700390	Roadway	Pavement surface - high friction surface	8	Locations	$459634.15	$460537.16	Penalty Funds (23 U.S.C. 164)	Rural Minor Arterial	5,500	55	State Highway Agency	Systemic	Roadway Departure	Install High Friction Surface Material
1700712	Roadway delineation	Roadway delineation - other	6.133	Centerline and edgeline rumble stripes installation	$186671.87	$186671.87	Penalty Funds (23 U.S.C. 164)	Rural Minor Arterial	8,100	55	State Highway Agency	Systemic	Roadway Departure	Installation of Centerline and Edgeline Rumble Stripes
1702292	Intersection traffic control	Intersection traffic control - other	1	Change from a 2 way stop control to a signal control	$135402.26	$151902.26	Penalty Funds (23 U.S.C. 164)	Urban Principal Arterial (UPA) - Other	16,500	45	State Highway Agency	Spot	Intersections	New signal installation
1297948	Roadway delineation	Roadway delineation - other	13.35	Curve Sign and Marking Visibility Improvements	$173137.3	$173137.3	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Principal Arterial (RPA) - Other	7,900	55	State Highway Agency	Systemic	Roadway Departure	Curve warning sign and marking upgrades
1601162	Intersection traffic control	Pavement markings - add stop line	73	Intersections	$23326.93	$25918.82	HRRR Special Rule (23 U.S.C. 148(g)(1))	Urban Major Collector	7,800	35	State Highway Agency	Systemic	Intersections	Install Stop Lines, Yield Lines and Crosswalk Lines
1700618	Roadway	Pavement surface - high friction surface	9	Curves	$562124.02	$624582.24	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural Minor Arterial	8,500	55	State Highway Agency	Systemic	Roadway Departure	Install High Friction Surface Material
1382818	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	$1311614.12	$1483415.95	HSIP (23 U.S.C. 148)	Rural Minor Collector	3,100	50	County Highway Agency	Spot	Intersections	Install Roundabout
1383683	Roadway	Roadway widening - add lane(s) along segment	0.526	Miles	$2789100	$3125400	HSIP (23 U.S.C. 148)	Urban Minor Arterial	18,700	30	Town or Township Highway Agency	Spot	Lane Departure	Reconstruct Greene Street
1400812	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	795	Signs	$266363.02	$295958.91	HSIP (23 U.S.C. 148)	Rural Major Collector	5,500	55	State Highway Agency	Systemic	Roadway Departure	Sign Visibility Improvement
1400816	Intersection traffic control	Modify traffic signal - add emergency vehicle preemption	13	Intersections	$177030	$293091.5	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	13,700	55	State Highway Agency	Systemic	Intersections	Install Emergency Vehicle Preemption

													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
1401706	Intersection geometry	Auxiliary lanes - add left-turn lane	1	Intersections	$2730185.78	$3033539.75	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	20,500	40	City of Municipal Highway Agency	Spot	Intersections	Add auxilary turn lanes
1500421	Pedestrians and bicyclists	Install sidewalk	35	Ramps	$452494.12	$613271.24	HSIP (23 U.S.C. 148)	Urban Local Road or Street	3,500	35	City of Municipal Highway Agency	Systemic	Pedestrians	Install 35 ADA Curb Ramps with new sidewalk
1600426	Pedestrians and bicyclists	Modify existing crosswalk	15	Intersections	$718086	$850426.67	HSIP (23 U.S.C. 148)	Urban Minor Arterial	15,000	35	City of Municipal Highway Agency	Systemic	Pedestrians	Enhance existing pedestrian crosswalks
1601863	Pedestrians and bicyclists	Install sidewalk	0.694	Miles	$940874.22	$1064269.66	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	20,500	40	City of Municipal Highway Agency	Spot	Pedestrians	Install sidewalk
1700387	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	12	Intersections	$642126.05	$646661.98	HSIP (23 U.S.C. 148)	Urban Principal Arterial (UPA) - Other	15,000	55	State Highway Agency	Systemic	Intersections	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.

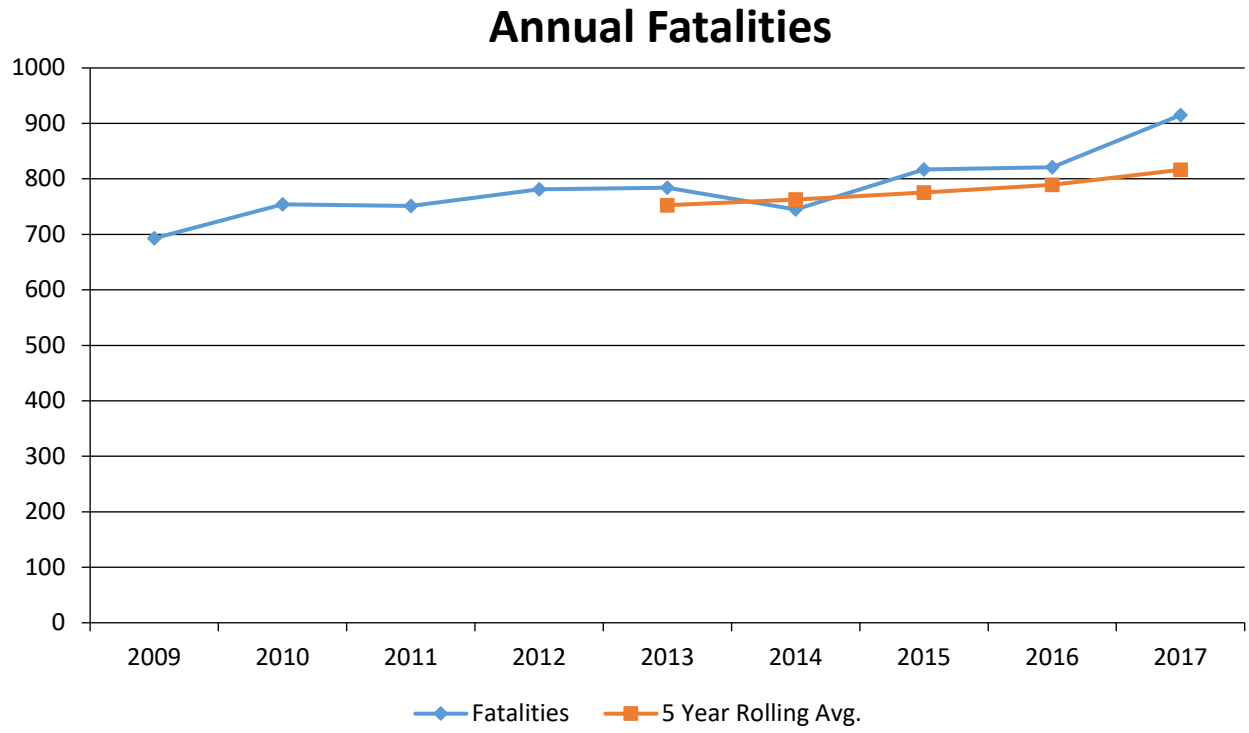
Projects with the Improvement Category of Non-infrastructure consist of improvements to traffic safety data systems or traffic safety planning and education efforts undertaken by metropolitan planning organizations as part of their Unified Planning Work Programs

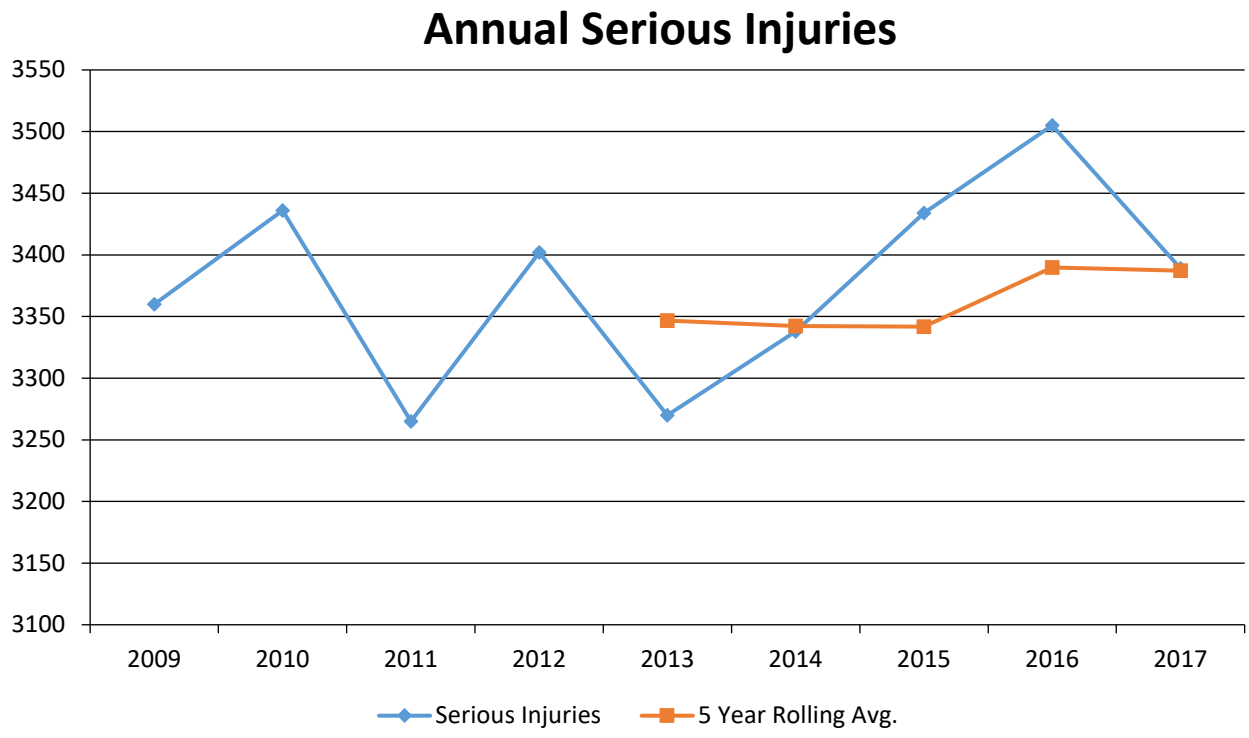
Safety Performance

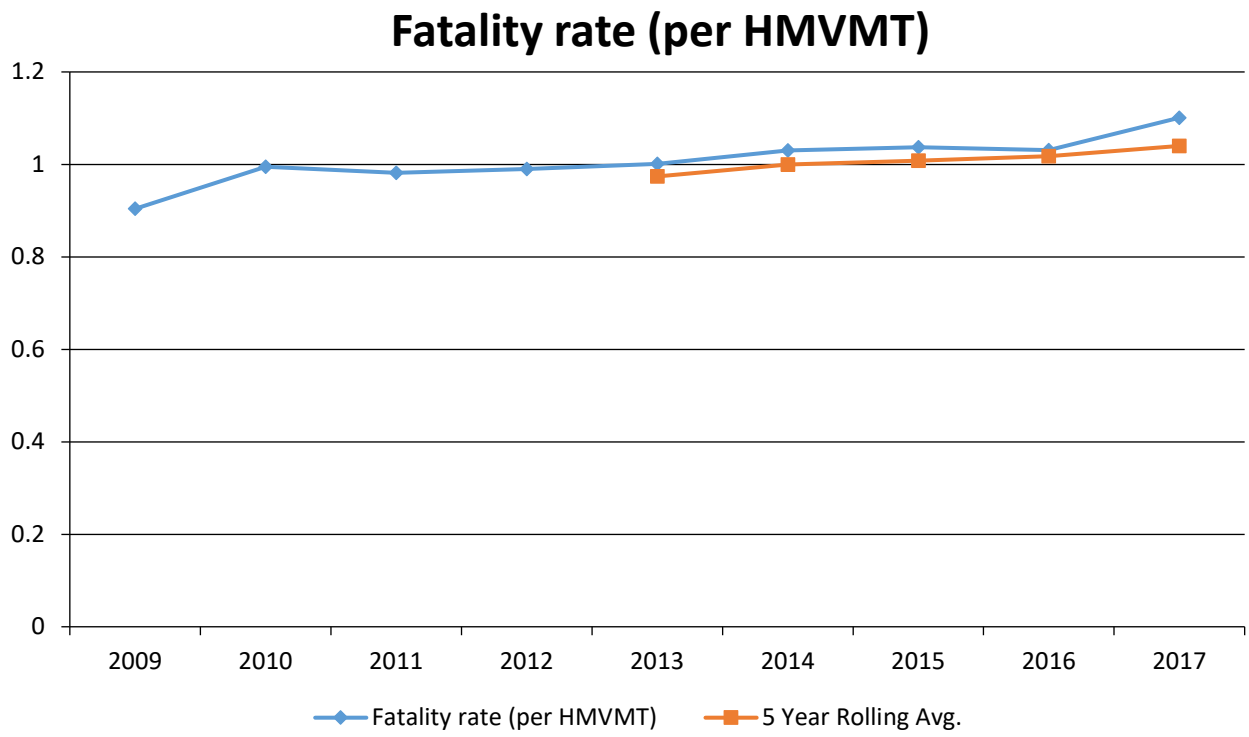
General Highway Safety Trends

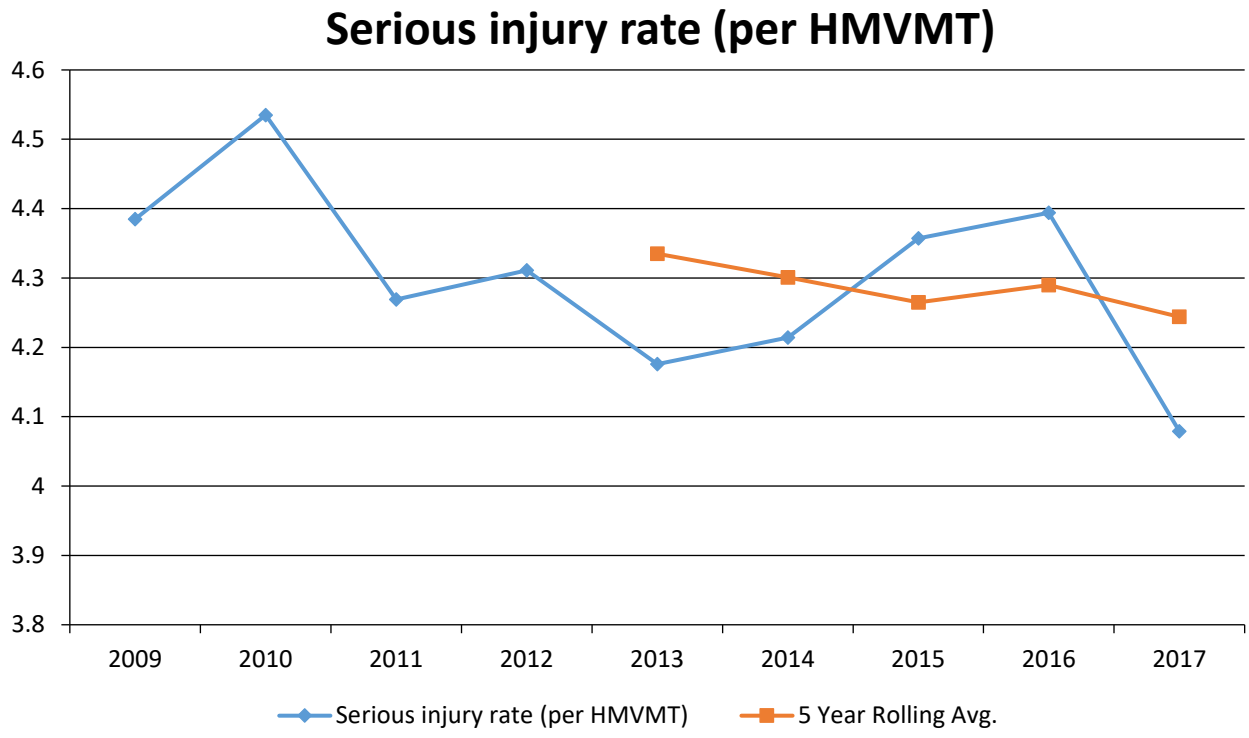
Present data showing the general highway safety trends in the State for the past five years.

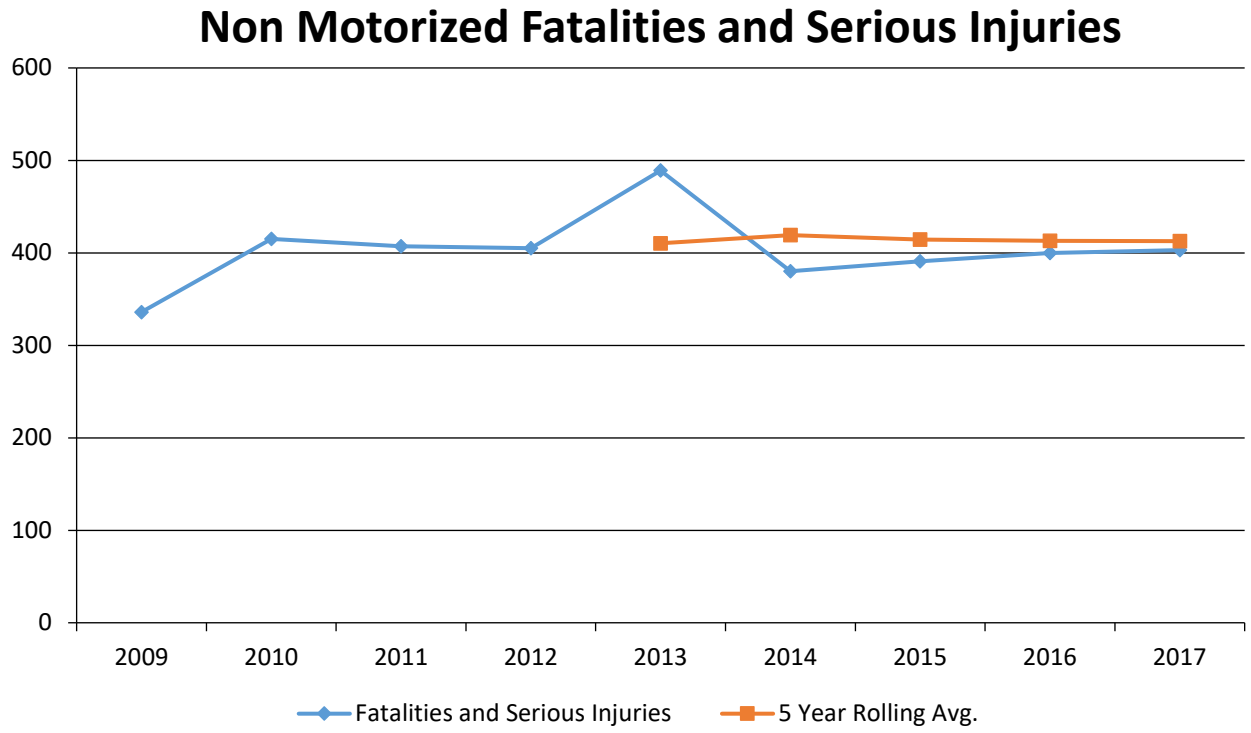
PERFORMANCE MEASURES	2009	2010	2011	2012	2013	2014	2015	2016	2017
Fatalities	693	754	751	781	784	745	817	821	915
Serious Injuries	3,360	3,436	3,265	3,402	3,270	3,338	3,434	3,505	3,389
Fatality rate (per HMVMT)	0.904	0.995	0.982	0.990	1.001	1.030	1.037	1.031	1.101
Serious injury rate (per HMVMT)	4.385	4.535	4.269	4.311	4.176	4.214	4.357	4.394	4.079
Number non-motorized fatalities	60	78	85	84	94	95	112	115	106
Number of non-motorized serious injuries	276	337	322	321	395	285	279	285	297


Annual Fatalities
1000
900
800
700
600
500
400
300
200
100
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
3550
3500
3450
3400
3350
3300
3250
3200
3150
3100
2009
2010
2011
2012
2013
2014
2015
2016
2017
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.2
1
0.8
0.6
0.4
0.2
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
4.6
4.5
4.4
4.3
4.2
4.1
4
3.9
3.8
2009
2010
2011
2012
2013
2014
2015
2016
2017
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 2015,
FARS Annual Report File for the year 2016
Indiana State Police FARS Report for the year 2017

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

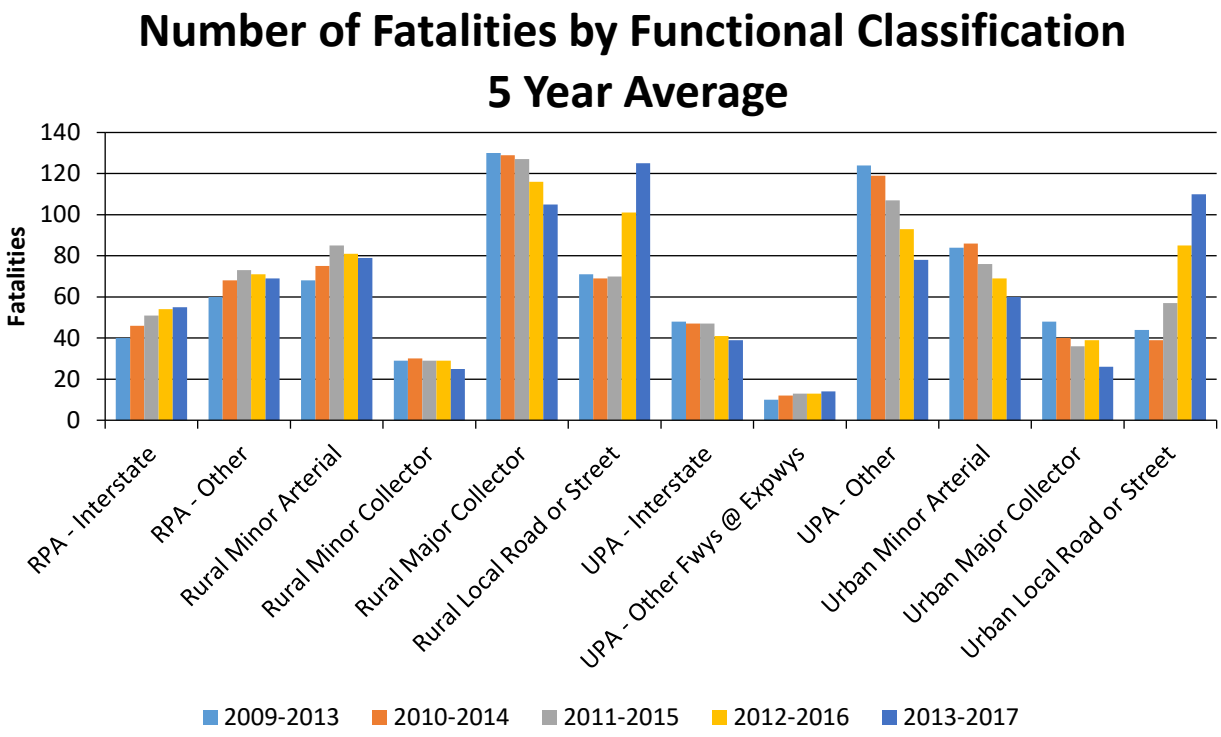
Year 2017

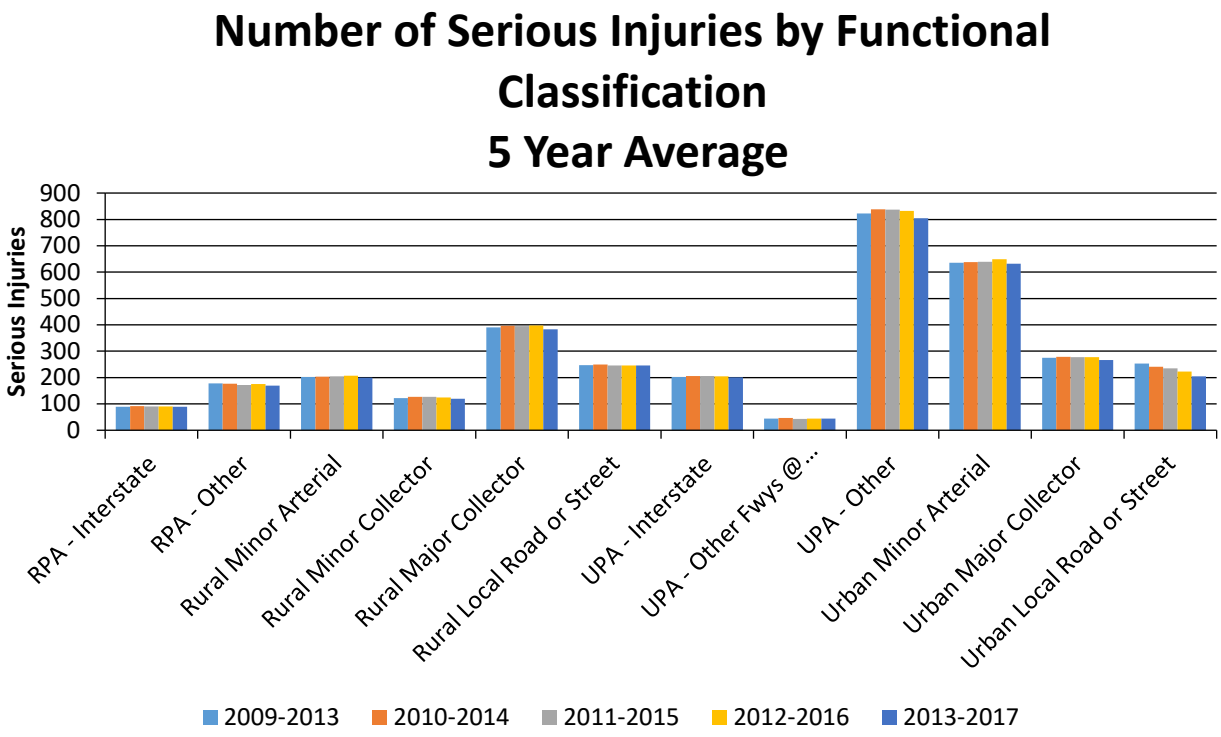
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial (RPA) - Interstate	55	89	0.65	1.06
Rural Principal Arterial (RPA) - Other Freeways and Expressways				
Rural Principal Arterial (RPA) - Other	69	169	1.53	3.72
Rural Minor Arterial	79	200	2.16	5.44
Rural Minor Collector	25	119	1.19	5.73
Rural Major Collector	105	383	1.82	6.62
Rural Local Road or Street	125	246	2.45	4.84
Urban Principal Arterial (UPA) - Interstate	39	201	0.34	1.77

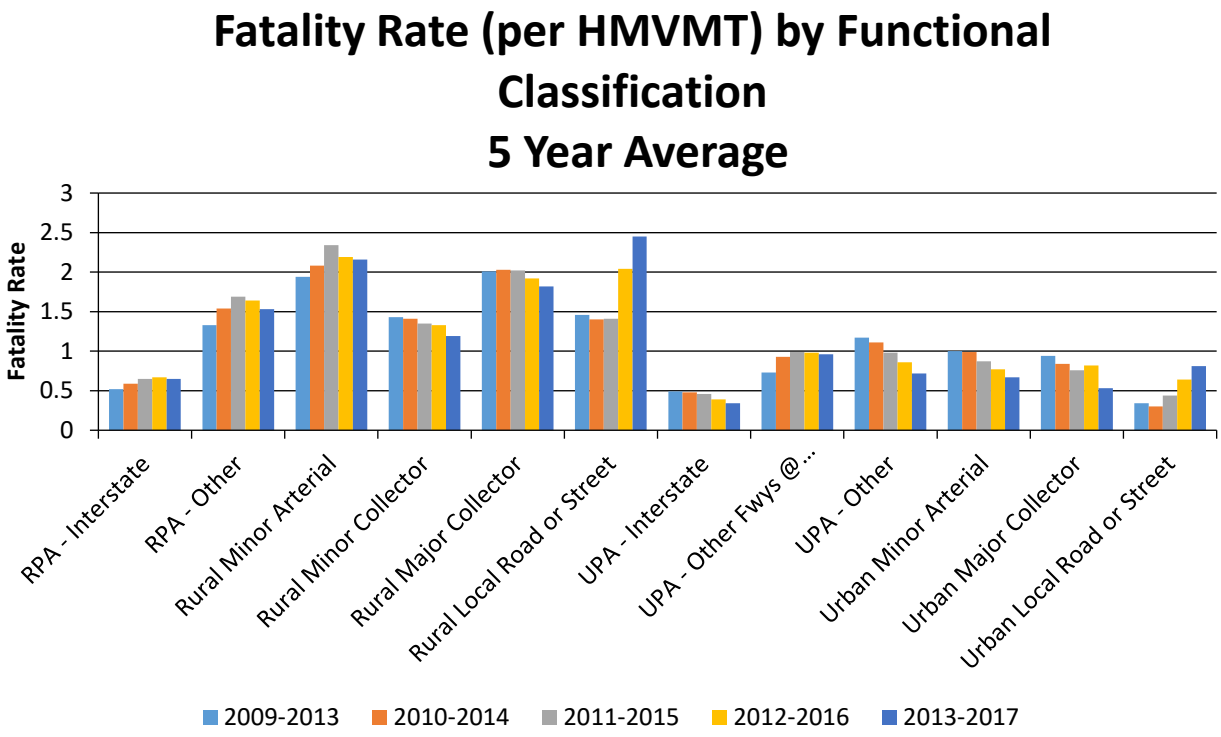
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Urban Principal Arterial (UPA) - Other Freeways and Expressways	14	44	0.96	3.13
Urban Principal Arterial (UPA) - Other	78	804	0.72	7.4
Urban Minor Arterial	60	632	0.67	7.03
Urban Minor Collector				
Urban Major Collector	26	267	0.53	5.47
Urban Local Road or Street	110	204	0.81	1.5

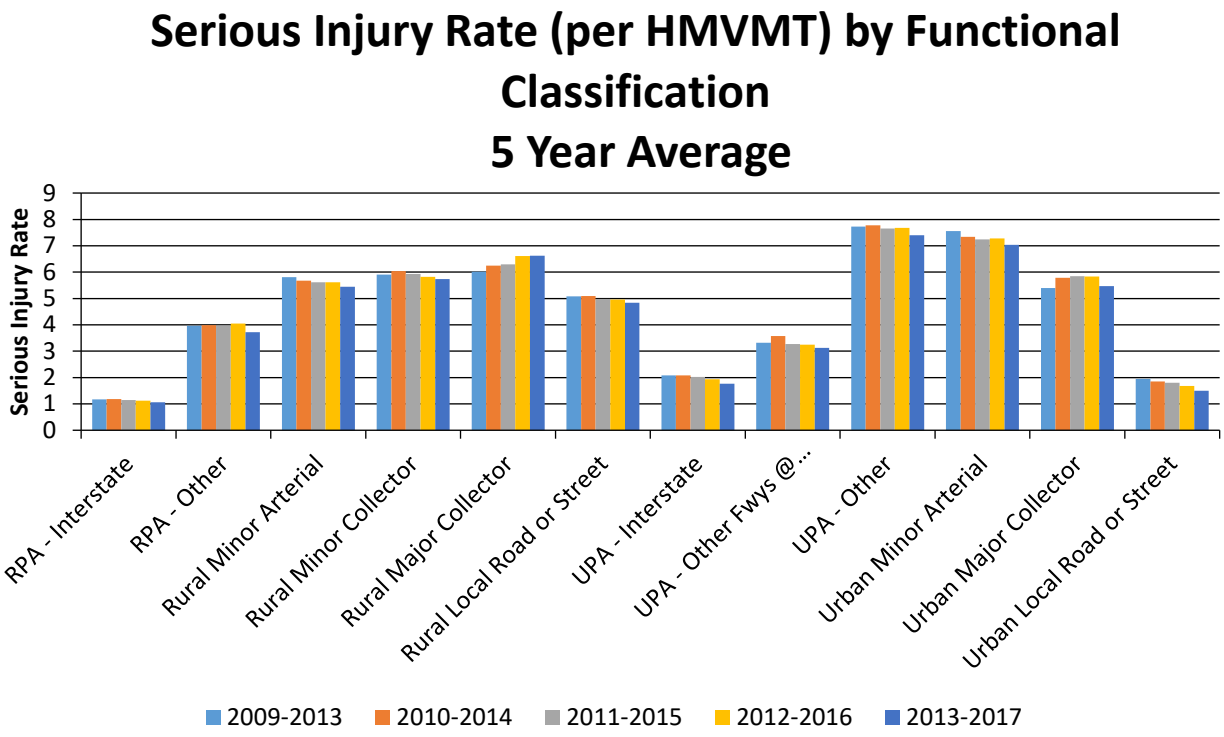
Year 2017

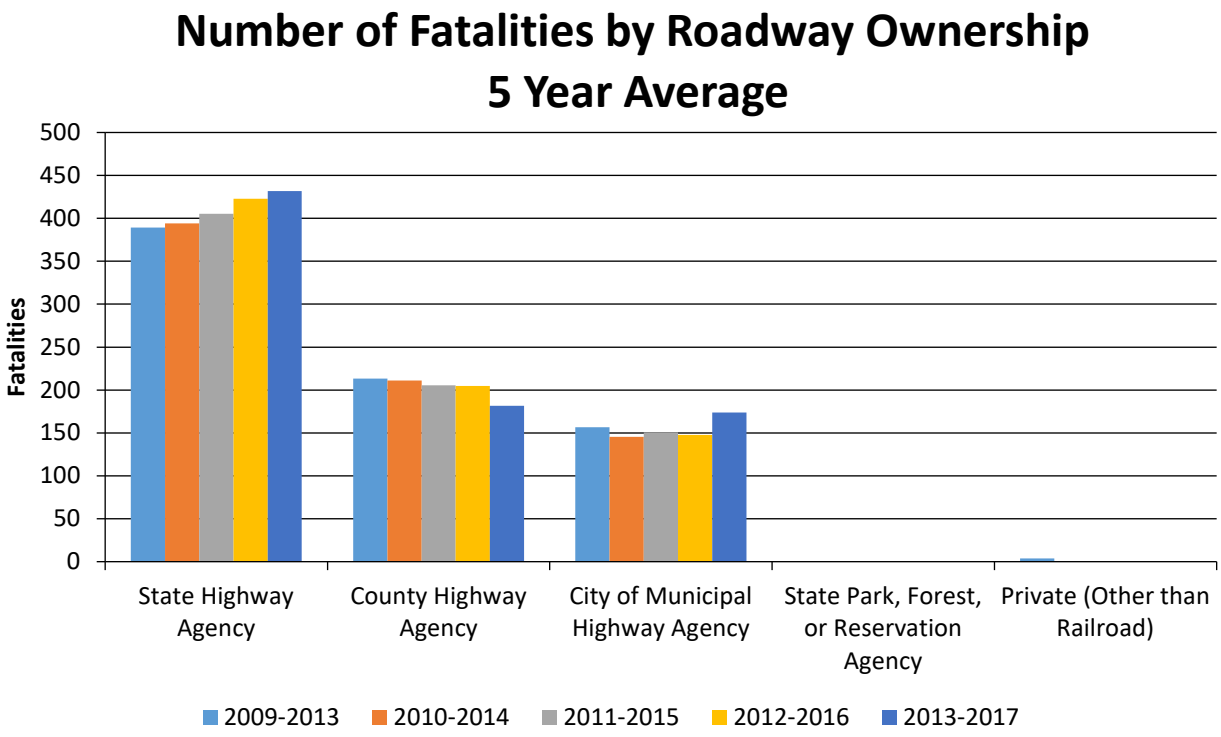
Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency	431.82	1,422.33	1.04	3.43
County Highway Agency	181.42	803.85	1	4.45
Town or Township Highway Agency				
City of Municipal Highway Agency	173.91	1,093	0.82	5.17
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				

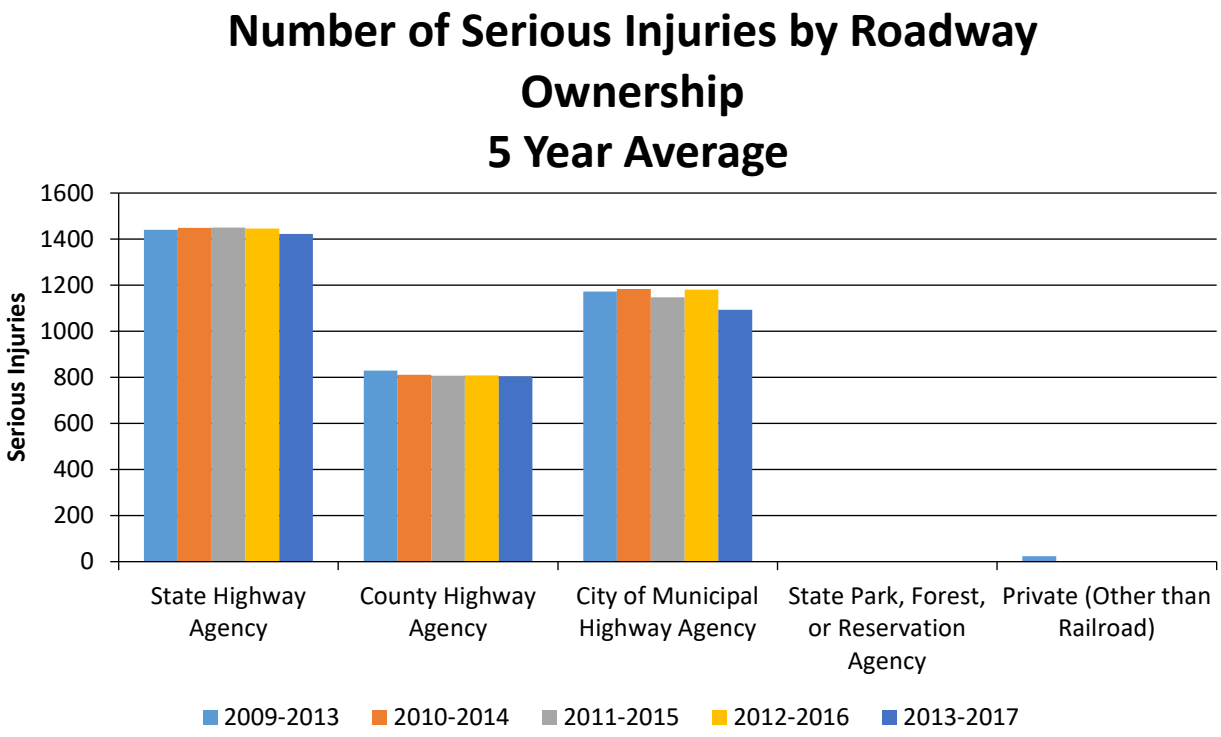

Number of Fatalities by Functional Classification
5 Year Average
Fatalities
140
120
100
80
60
40
20
0
RPA - Interstate
RPA - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
UPA - Interstate
UPA - Other Fwys @ Expwys
UPA - Other
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017

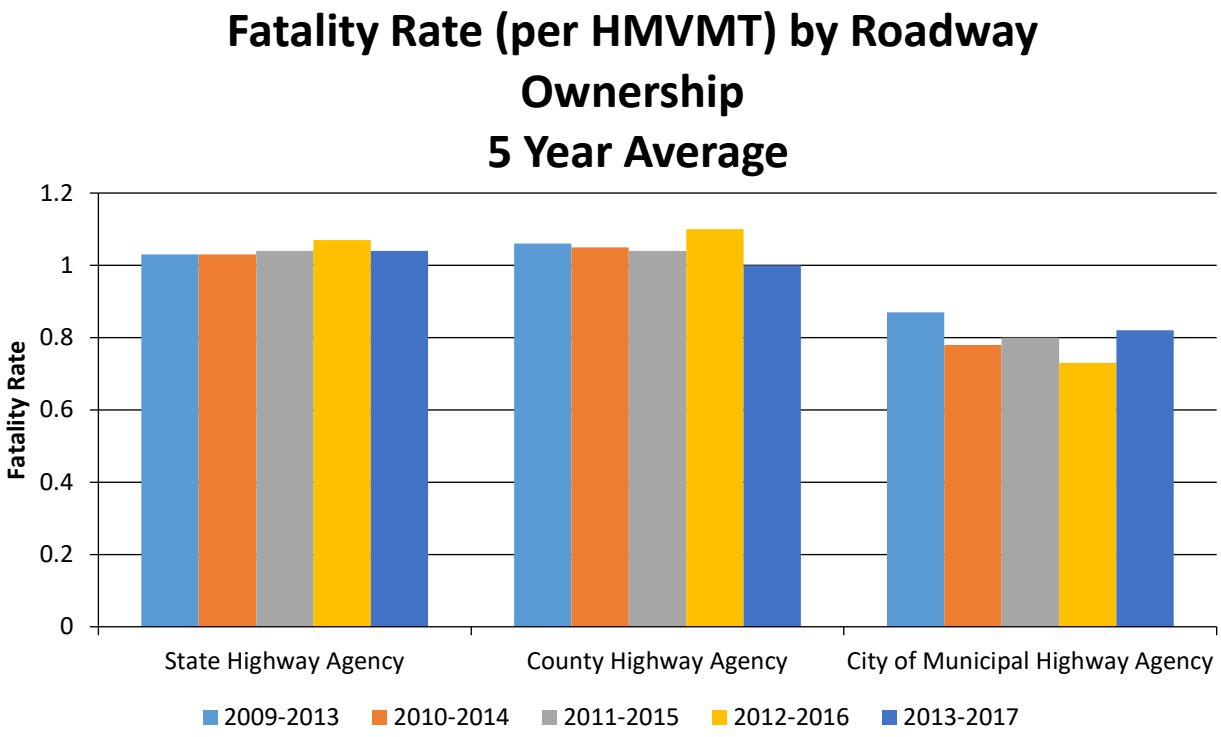

Number of Serious Injuries by Functional Classification
5 Year Average
Serious Injuries
900
800
700
600
500
400
300
200
100
0
RPA - Interstate
RPA - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
UPA - Interstate
UPA - Other Fwys @...
UPA - Other
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017

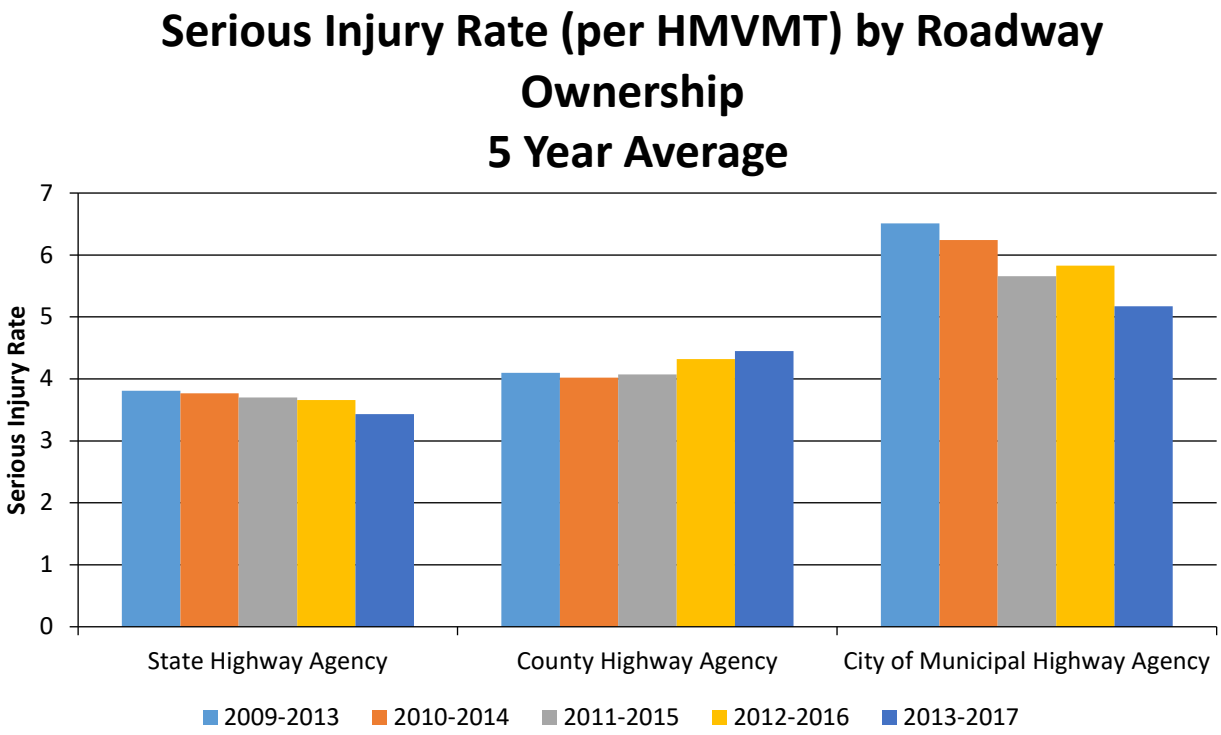

Fatality Rate (per HMVMT) by Functional Classification
5 Year Average
Fatality Rate
3
2.5
2
1.5
1
0.5
0
RPA - Interstate
RPA - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
UPA - Interstate
UPA - Other Fwys @...
UPA - Other
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017


Serious Injury Rate (per HMVMT) by Functional Classification
5 Year Average
Serious Injury Rate
0
1
2
3
4
5
6
7
8
9
RPA - Interstate
RPA - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
UPA - Interstate
UPA - Other Fwys @...
UPA - Other
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017


Number of Fatalities by Roadway Ownership
5 Year Average
Fatalities
500
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)
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017


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)
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017


Fatality Rate (per HMVMT) by Roadway Ownership
5 Year Average
Fatality Rate
1.2
1
0.8
0.6
0.4
0.2
0
State Highway Agency
County Highway Agency
City of Municipal Highway Agency
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017



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

Data Tables for 5 year averages from 2013 through 2017 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 2017, the early estimate of vehicle miles of travel increased by 1.20% above 2016. The number of police reported fatalities increased by 11.45%. Suspected serious injuries decreased by 0.08%.

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 2017 INDOT and Indiana State Police have continued 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 2017 crash data shows that Indiana is experiencing conditions somewhat 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 2017, Indiana was part of a national trend of increased numbers of serious crash events resulting in severe and fatal injuries.

Widespread deployment of multiple countermeasures has resulted in small decreases in crashes resulting from vehicle departure from the travel lanes (including roadway departure, head-on and opposite direction sideswipe). Lane departure crash events continue to be the most numerous harmful events in 2017. The 5 year average of fatalities resulting from single vehicle lane departures in 2017 accounted for 42.7% of all Indiana motor vehicle fatalities, compared to the 5 year average of 44.8% calculated for 2016. 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 continues to make up the second worst type of harmful event. In 2017 the 5 year average of intersection fatalities contributed 33.0% of total traffic fatalities, similar to the 32.7% average from 2016. INDOT is advancing systemic improvements to increase the visibility of both signalized and un-signalized intersections along with a program to modernize traffic signal control equipment. INDOT is also engaged in a program to “change-out” older 5 section heads used to 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 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 2017 the 5 year rolling

average rate of pedestrian involved serious crashes made up 5.8% of the total compared to a 5.7% average in 2016. 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 in 2017 that involve bicyclists was 2.0% compared to the 5 year average in 2016 of 2.3%. The number of motorcycle and moped crashes has been on a downward trend since 2013 and was slightly lower in 2017 compared to 2016, but it should be noted that similar to non-motorized vulnerable road users exposure to conflicts for motorcycle/moped riders is generally rising.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2019 Targets *

Number of Fatalities 889.6

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

Data Source: Fatality Analysis Reporting System 2009-2015 FARS Final File Count 2016 FARS Annual Report File 2017 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 2019 value of (951) as described in the following methodology. Baseline projections are calculated using fatality counts and applying an equation to generate predictive values for 2018-2019. 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 2018-2019 period can be reasonably anticipated in Indiana. 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 3501.9

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

Data Source: Automated Reporting Information Exchange System (ARIES) 2009-2013 the “As reported” count of “Incapacitating Injuries” 2014-2017 an estimated count amounting to 7.2% of all non-fatal injuries For the purpose of comparison to the SHSO annual report, the 5 year average performance target listed above is based on a projected calendar 2019 value of (3,605) as described in the following methodology. Baseline projections are calculated using incapacitating injury counts (or estimations) and applying an equation to generate predictive values for 2014-2017. This was accomplished by the software built into Microsoft Excel for applying a logarithmic trend line with a forward forecast of four 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.

Fatality Rate 1.087

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 2016. For the purpose of comparison to the SHSO annual report, the 5 year average performance target listed above is based on a projected calendar 2019 value of (1.148) as described in the following methodology. Estimated/Predicted values for 2017-2019: 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 4.234

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 2014-2017. The 5 year average performance target listed above is based on a projected calendar 2019 value of (4.236) as described in the following methodology. Estimated/Predicted values for 2017-2019: 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 393.6

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 2016 FARS Annual Report File 2017 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" 2014-2017 an estimated count amounting to 13% of all non-fatal injuries "The 5 year average performance target listed above is based on a projected calendar 2019 value of (417) as described in the following methodology." Baseline projections of Non-Motorist Fatalities are calculated using FARS Fatality

counts and applying an equation to generate predictive values for 2017-2019. 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 2018-2019 with non-motorist incapacitating injuries projected as 13% of projected all non-motorist non-fatal injuries. *In addition to persons classified as pedestrians or pedal-cyclists, 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.

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 in-order to establish a procedure for calculation of the required annual safety performance targets. 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 and the calendar 2018 targets.

Using the same procedures INDOT has calculated safety performance targets for calendar 2019. A final agreement on each target that was set for calendar year 2019 was reached between INDOT and the other members of the Traffic Safety Performance Target Setting Team including Indiana's State Highway Safety Office (housed in the Indiana Criminal Justice Institute) on June 27, 2018.

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

Indiana Department of Transportation, Office of Traffic Safety

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

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 2018 Highway safety Plan Report to NHTSA before the July 1, 2018 deadline.

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?

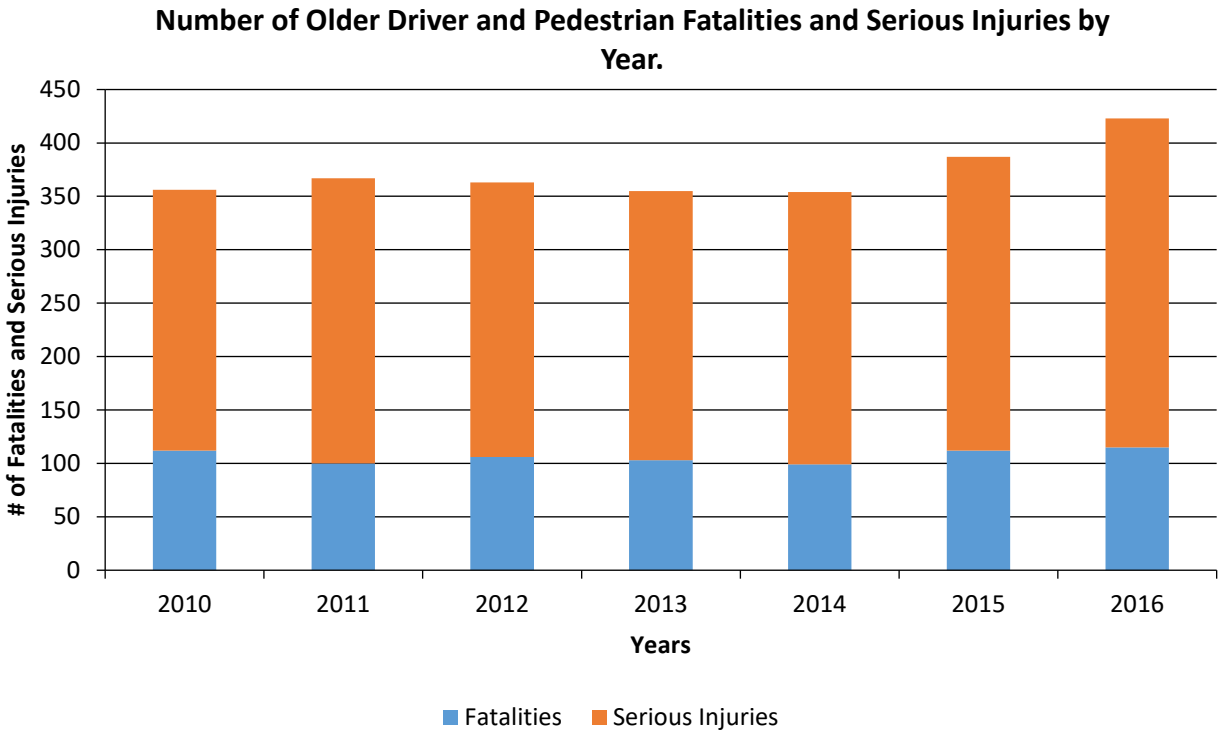
No

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

In 2012 FHWA made a calculation based on NHTSA's determination 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. In FFY 2018 INDOT does not fall under the HRRR Special Rule.

Provide the number of older driver and pedestrian fatalities and serious injuries 65 years of age and older for the past seven years.

PERFORMANCE MEASURES	2010	2011	2012	2013	2014	2015	2016
Number of Older Driver and Pedestrian Fatalities	112	100	106	103	99	112	115
Number of Older Driver and Pedestrian Serious Injuries	244	267	257	252	255	275	308



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 2018 was to maintain integrity of a planned $46 million investment in the 2018 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 a summary of results relative to the federal fiscal year 2018 goal. The safety program affected a slightly positive change in C-E, down to about $24,000 from $24,200 the prior year. Overall, the fiscal year 2018 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
Other-Total Federal Safety Obligations

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

At the start of calendar 2018 INDOT approved High Friction Surface as a new systemic safety project work type in production, bringing a total number of 25 work types available for state or local project sponsors.

In FFY 2018 INDOT has over $54.4 million in federal aid highway safety funds including HSIP and Section 164-HE funds programmed for obligation prior to the end of the federal fiscal year.

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

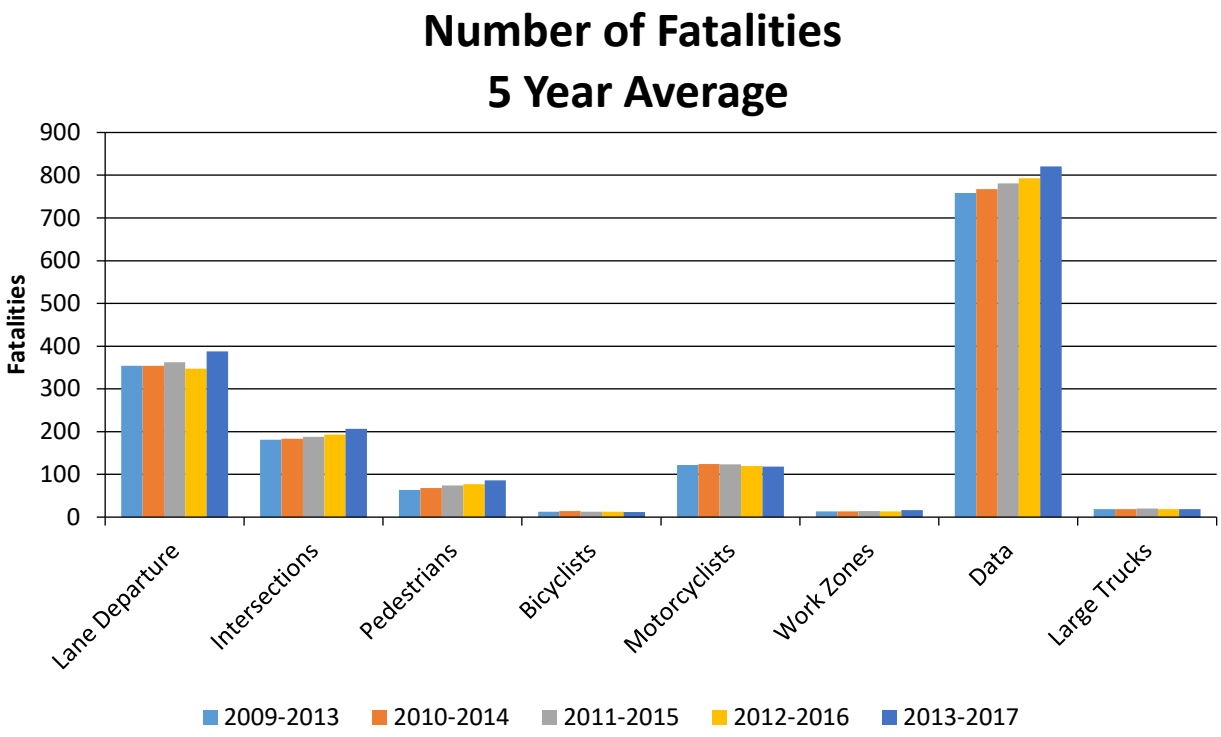
No

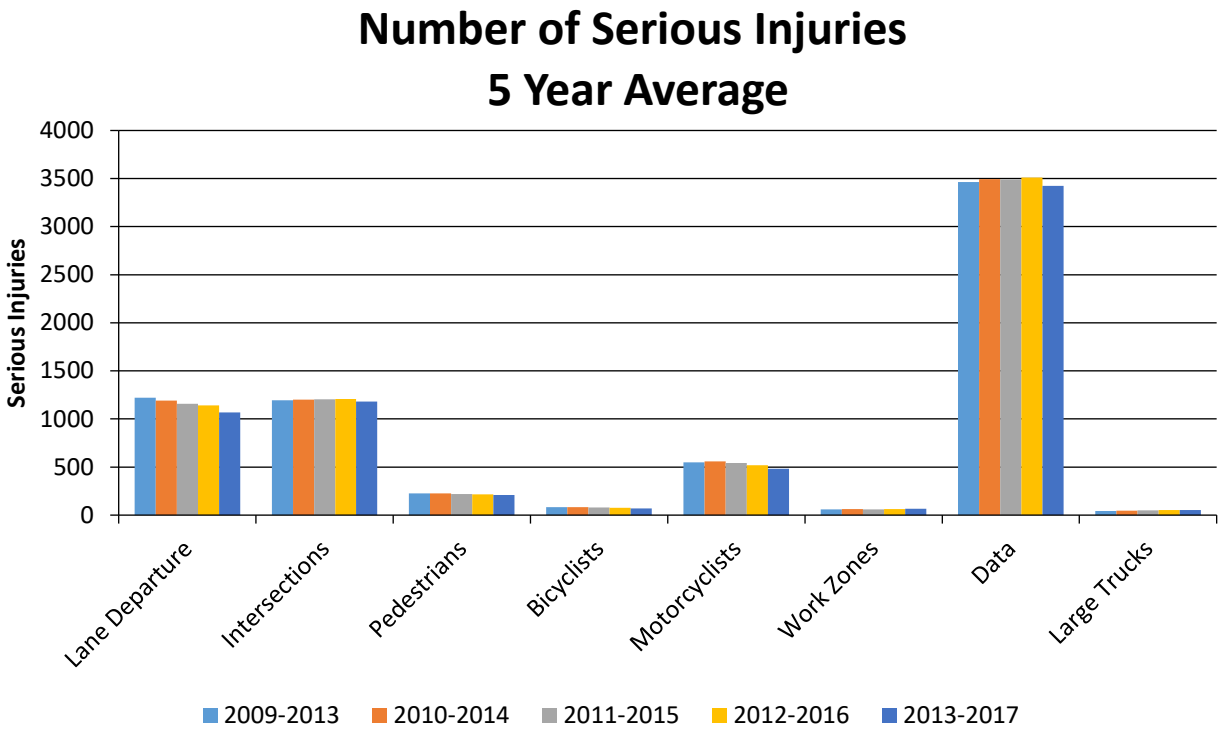
Effectiveness of Groupings or Similar Types of Improvements

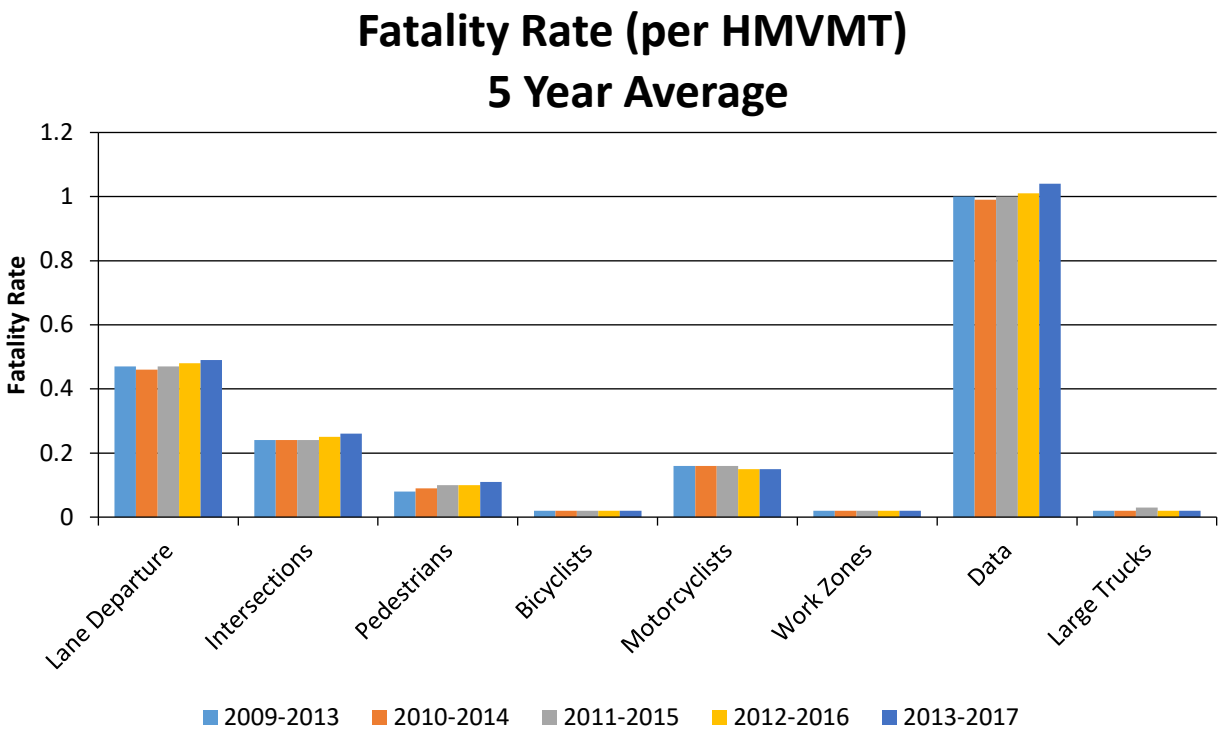
Present and describe trends in SHSP emphasis area performance measures.

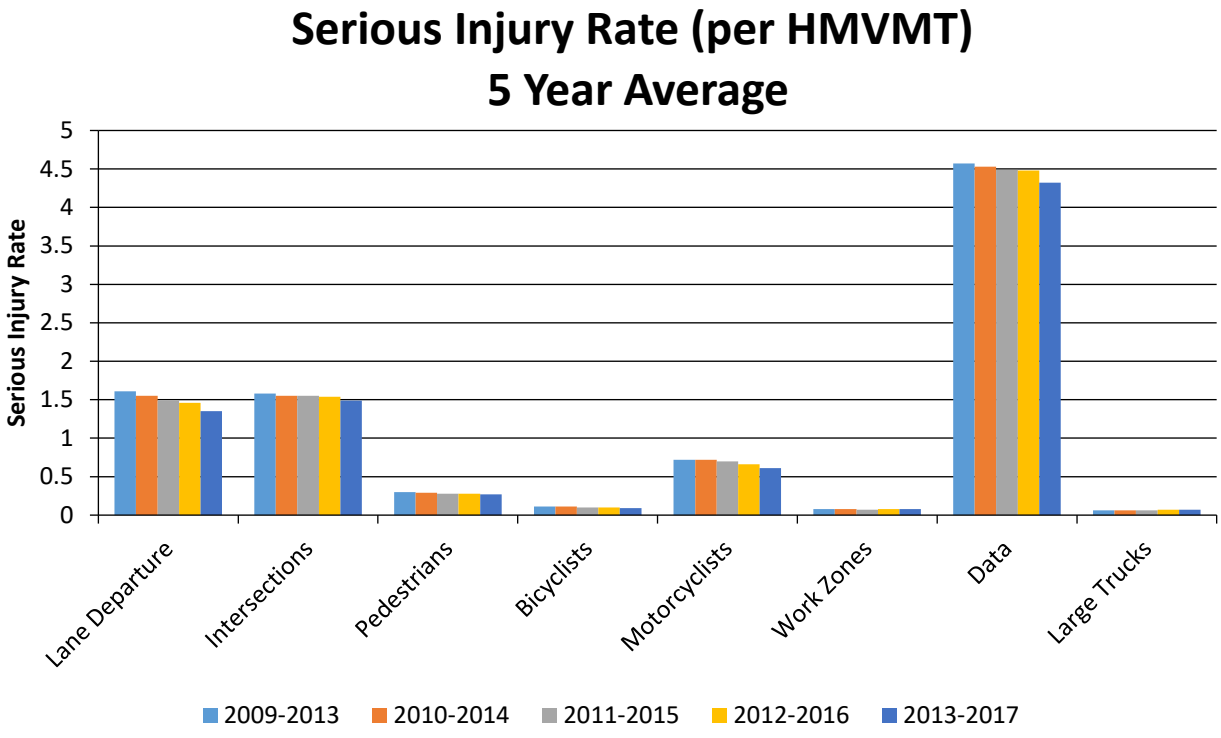
Year 2017

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)
Lane Departure	Combined Head-on, Run-off-road and Opposite Direction Sidswipe	387.8	1,069.04	0.49	1.35
Intersections	Intersections	206.6	1,179.48	0.26	1.49
Pedestrians	Vehicle/pedestrian	86	209.75	0.11	0.27
Bicyclists	Vehicle/bicycle	12	68.01	0.02	0.09
Motorcyclists	Motorcycle and Moped	118	482.39	0.15	0.61
Work Zones	Work Zones	16.6	65.51	0.02	0.08
Data	All	820.8	3,423.81	1.04	4.32
Large Trucks	Truck-related	18.4	53.13	0.02	0.07


Number of Fatalities
5 Year Average
Fatalities
900
800
700
600
500
400
300
200
100
0
Lane Departure
Intersections
Pedestrians
Bicyclists
Motorcyclists
Work Zones
Data
Large Trucks
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017


Number of Serious Injuries
5 Year Average
Serious Injuries
4000
3500
3000
2500
2000
1500
1000
500
0
Lane Departure
Intersections
Pedestrians
Bicyclists
Motorcyclists
Work Zones
Data
Large Trucks
2009-2013
2010-2014
2011-2015
2012-2016
2013-2017





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

In 2018 INDOT continued an ongoing 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 regulations 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?

No

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

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 OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
1173395	Rural Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	162.00	167.00			10.00	7.00	32.00	28.00	204.00	202.00	1.04
0014000	Rural Principal Arterial (RPA) - Interstate	Roadway	Pavement surface - miscellaneous	59.00	196.00	2.00		21.00	1.00	16.00	10.00	98.00	207.00	4.47
0100753	Urban Principal Arterial (UPA) - Other	Intersection geometry	Auxiliary lanes - miscellaneous/other/unspecified	7.00	4.00					4.00	1.00	11.00	5.00	2.14
0100785	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Systemic improvements - stop-controlled	134.00	130.00			3.00	2.00	19.00	7.00	156.00	139.00	1.37
0201320	Rural Principal Arterial (RPA) - Other	Roadway	Roadway widening - curve	8.00	8.00				2.00	1.00		9.00	10.00	1.00
0201391	Urban Principal Arterial (UPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	170.00	184.00	3.00	1.00	25.00	5.00	32.00		230.00	190.00	1.22
0301112	Urban Principal Arterial (UPA) - Other	Roadway	Roadway - other	93.00	72.00			8.00	2.00	22.00	15.00	123.00	89.00	0.79
0401082	Urban Principal Arterial (UPA) - Other	Roadway	Roadway widening - add lane(s) along segment	12.00	16.00			3.00		3.00	3.00	18.00	19.00	0.60
0810294	Urban Principal Arterial (UPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	133.00	135.00			5.00	2.00	40.00	29.00	178.00	166.00	1.10
0810298	Rural Principal Arterial (RPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	8.00	7.00				1.00	3.00	2.00	11.00	10.00	1.06
0810299	Urban Principal Arterial (UPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	3.00	2.00			1.00		2.00		6.00	2.00	2.00
0900103	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	706.00	792.00	4.00		51.00	15.00	170.00	120.00	931.00	927.00	1.98
0900104	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	226.00	393.00	1.00		15.00	3.00	47.00	18.00	289.00	414.00	2.25
0900105	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	329.00	386.00	4.00		27.00	7.00	72.00	104.00	432.00	497.00	1.90

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
0900106	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	48.00	51.00	2.00		2.00		14.00	20.00	66.00	71.00	1.52
0900107	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	100.00	81.00			2.00		12.00	9.00	114.00	90.00	1.54
0900108	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	97.00	106.00	1.00		2.00		36.00	23.00	136.00	129.00	1.16
0900109	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	114.00	141.00	1.00		2.00		50.00	25.00	167.00	166.00	2.63
0900110	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	170.00	166.00	4.00		8.00	2.00	60.00	75.00	242.00	243.00	1.44
0900111	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	229.00	259.00	2.00		8.00	6.00	55.00	42.00	294.00	307.00	1.09
0900112	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	383.00	374.00	7.00	1.00	18.00	3.00	87.00	101.00	495.00	479.00	1.04
0901298	Rural Principal Arterial (RPA) - Interstate	Interchange design	Interchange design - other	178.00	108.00			2.00	1.00	19.00	1.00	199.00	110.00	1.79
1000001	Rural Principal Arterial (RPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	69.00	108.00			8.00	2.00	9.00	7.00	86.00	117.00	0.85
1005907	Urban Principal Arterial (UPA) - Other	Roadside	Barrier- metal	15.00	6.00			1.00	1.00	4.00	2.00	20.00	9.00	0.76
1006047	Urban Principal Arterial (UPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	12.00	17.00			2.00	3.00		5.00	14.00	25.00	2.14
1006059	Rural Major Collector	Railroad grade crossings	Protective devices	1.00								1.00		1.20
1006060	Urban Local Road or Street	Intersection traffic control	Modify traffic signal - add emergency vehicle preemption	67.00	72.00	1.00		1.00	1.00	13.00	21.00	82.00	94.00	1.24
1006063	Rural Local Road or Street	Intersection traffic control	Modify traffic signal - modify signal mounting (spanwire to mast arm)	1788.00	2098.00	6.00	2.00	24.00	33.00	424.00	499.00	2242.00	2632.00	1.18
1006069	Rural Major Collector	Intersection traffic control	Intersection flashers - add advance intersection warning sign-mounted		2.00								2.00	2.85
1006094	Urban Principal Arterial (UPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	7.00	6.00			1.00		1.00	1.00	9.00	7.00	1.17
1006107	Rural Major Collector	Railroad grade crossings	Railroad grade crossing signing	1.00								1.00		7.20

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
1006112	Rural Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	1179.00	1309.00	7.00	2.00	30.00	173.00	306.00	198.00	1522.00	1682.00	1.14
1006120	Rural Principal Arterial (RPA) - Other	Intersection geometry	Auxiliary lanes - add left-turn lane	17.00	36.00					10.00		27.00	36.00	1.82
1006476	Urban Major Collector	Intersection traffic control	Intersection flashers - add advance intersection warning sign-mounted	2.00	1.00						1.00	2.00	2.00	0.91
1006555	Urban Principal Arterial (UPA) - Interstate	Interchange design	Installation of new lane on ramp	38.00	4.00					7.00		45.00	4.00	13.50
1006632	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Modify traffic signal - add long vehicle detection	2054.00	2376.00	13.00	5.00	40.00	27.00	587.00	259.00	2694.00	2667.00	0.55
1172118	Rural Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	5672.00	5024.00	16.00	10.00	88.00	29.00	1581.00	1710.00	7357.00	6773.00	1.29
1172173	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Systemic improvements - signal-controlled	912.00	1038.00	5.00	2.00	38.00	23.00	332.00	221.00	1287.00	1284.00	1.19
1172318	Urban Major Collector	Intersection traffic control	Modify traffic signal - add emergency vehicle preemption	1514.00	2001.00	6.00	1.00	41.00	16.00	359.00	332.00	1920.00	2350.00	1.19
1173043	Rural Major Collector	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	1163.00	1300.00	5.00	8.00	31.00	16.00	241.00	95.00	1440.00	1419.00	1.09
1173078	Urban Major Collector	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	1027.00	950.00		1.00	27.00	22.00	165.00	168.00	1219.00	1141.00	1.20
1173111	Urban Major Collector	Intersection geometry	Auxiliary lanes - miscellaneous/other/unspecified	40.00	21.00					10.00	2.00	50.00	23.00	2.46
1173115	Urban Major Collector	Intersection geometry	Auxiliary lanes - extend acceleration/deceleration lane	36.00	24.00		1.00		1.00	13.00	3.00	49.00	29.00	0.99
1173116	Urban Local Road or Street	Intersection geometry	Intersection geometrics - modify intersection corner radius	7.00	2.00					1.00	1.00	8.00	3.00	1.20
1173165	Urban Principal Arterial (UPA) - Other	Roadway delineation	Longitudinal pavement markings - new	32.00	24.00			1.00		14.00	8.00	47.00	32.00	1.21
1173169	Urban Major Collector	Intersection traffic control	Systemic improvements - signal-controlled	150.00	146.00	1.00		14.00	2.00	36.00	38.00	201.00	186.00	1.32
1173227	Urban Local Road or Street	Roadside	Barrier- metal	712.00	775.00	3.00		30.00	18.00	228.00	145.00	973.00	938.00	1.92
1173288	Urban Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	84.00	61.00	1.00	1.00	6.00	10.00	16.00	3.00	107.00	75.00	1.42
1173462	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Modify traffic signal - modernization/replacement	1397.00	1409.00	4.00	1.00	39.00	17.00	404.00	210.00	1844.00	1637.00	2.05
1173467	Urban Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	126.00	105.00	3.00		6.00	5.00	62.00	23.00	197.00	133.00	1.21

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
1173659	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	18.00	68.00			10.00	2.00	6.00	10.00	34.00	80.00	18.01
1173660	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	108.00	250.00	7.00	1.00	48.00	21.00	55.00	33.00	218.00	305.00	2.51
1173676	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	136.00	180.00	7.00		7.00	2.00	39.00	40.00	189.00	222.00	12.45
1173682	Rural Principal Arterial (RPA) - Other	Roadway	Rumble strips - center	451.00	347.00	6.00	2.00	21.00	9.00	223.00	85.00	701.00	443.00	1.61
1173686	Rural Principal Arterial (RPA) - Other	Roadway	Rumble strips - center	306.00	280.00	6.00	2.00	29.00	12.00	58.00	39.00	399.00	333.00	1.40
1173689	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	210.00	395.00	1.00		38.00	8.00	46.00	32.00	295.00	435.00	2.83
1296177	Rural Principal Arterial (RPA) - Other	Roadway	Rumble strips - center	7898.00	7543.00	88.00	29.00	294.00	267.00	1898.00	1877.00	10178.00	9716.00	1.80
1296284	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	332.00	516.00	3.00		5.00	5.00	66.00	17.00	406.00	538.00	3.46
1296287	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	234.00	441.00	3.00		9.00	7.00	67.00	26.00	313.00	474.00	4.27
1296292	Rural Major Collector	Intersection traffic control	Systemic improvements - signal-controlled	595.00	514.00	4.00	2.00	56.00	42.00	131.00	100.00	786.00	658.00	1.26
1296293	Rural Principal Arterial (RPA) - Other	Roadway	Rumble strips - center	315.00	127.00	6.00	3.00	6.00	4.00	40.00	29.00	367.00	163.00	2.21
1296296	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal - modernization/replacement	11153.00	10542.00	30.00	17.00	206.00	149.00	3297.00	2868.00	14686.00	13576.00	0.94
1296297	Rural Major Collector	Intersection traffic control	Systemic improvements - stop-controlled	310.00	314.00			4.00	3.00	79.00	51.00	393.00	368.00	1.08
1296329	Rural Principal Arterial (RPA) - Other	Roadway	Rumble strips - center	222.00	222.00	1.00		5.00	3.00	41.00	15.00	269.00	240.00	2.62
1296334	Rural Major Collector	Roadway	Rumble strips - center	11.00	13.00			4.00	1.00	8.00	8.00	23.00	22.00	1.24
1296336	Urban Minor Arterial	Intersection traffic control	Systemic improvements - signal-controlled	986.00	1014.00	3.00	1.00	100.00	88.00	211.00	232.00	1300.00	1335.00	1.03
1296337	Rural Major Collector	Intersection traffic control	Systemic improvements - stop-controlled	223.00	155.00	2.00		27.00	18.00	35.00	30.00	287.00	203.00	1.34
1296915	Rural Major Collector	Roadway	Rumble strips - center	7474.00	6412.00	94.00	54.00	266.00	207.00	1650.00	855.00	9484.00	7528.00	2.44

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
1297140	Rural Major Collector	Roadway	Roadway - other	8.00						1.00	1.00	9.00	1.00	3.00
1297291	Rural Major Collector	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	1163.00	1030.00	5.00	3.00	31.00	16.00	241.00	155.00	1440.00	1204.00	1.19
1297336	Urban Major Collector	Intersection traffic control	Modify traffic signal - modify signal mounting (spanwire to mast arm)	4048.00	4591.00	7.00	6.00	69.00	72.00	1130.00	1294.00	5254.00	5963.00	1.11
1297422	Rural Principal Arterial (RPA) - Other	Roadway	Rumble strips - center	278.00	276.00	1.00		2.00	2.00	153.00	60.00	434.00	338.00	2.58
1297432	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Modify traffic signal - modernization/replacement	41.00	35.00			3.00	4.00	23.00	6.00	67.00	45.00	1.33
1297564	Rural Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	120.00	121.00	3.00	1.00	7.00	3.00	37.00	40.00	167.00	165.00	1.01
1297567	Rural Major Collector	Intersection traffic control	Systemic improvements - signal-controlled	989.00	1093.00	4.00		104.00	85.00	243.00	201.00	1340.00	1379.00	1.00
1297568	Urban Minor Arterial	Pedestrians and bicyclists	Pedestrian signal	8.00	14.00	1.00		8.00	9.00	18.00	21.00	35.00	44.00	1.08
1297604	Rural Principal Arterial (RPA) - Interstate	Roadway	Pavement surface - miscellaneous	48.00	161.00	2.00	4.00	1.00	13.00	7.00	7.00	58.00	185.00	0.39
1297605	Rural Major Collector	Roadway	Pavement surface - miscellaneous	13.00	16.00				2.00	1.00	1.00	14.00	19.00	0.21
1297610	Rural Principal Arterial (RPA) - Other	Roadway	Pavement surface - miscellaneous	92.00	96.00	1.00	1.00	5.00	11.00	12.00	13.00	110.00	121.00	0.64
1297626	Rural Major Collector	Roadway	Pavement surface - miscellaneous	75.00	101.00				2.00	15.00	27.00	90.00	130.00	0.24
1297627	Rural Principal Arterial (RPA) - Other	Roadway	Pavement surface - miscellaneous	15.00	61.00	1.00	1.00		6.00	18.00	12.00	34.00	80.00	0.41
1298212	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	19.00	15.00	1.00		1.00	2.00	6.00	4.00	27.00	21.00	1.17
1382014	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Modify traffic signal - modernization/replacement	8.00	1.00					3.00	3.00	11.00	4.00	1.57
1382200	Rural Major Collector	Roadway	Roadway - other	6.00	3.00					1.00		7.00	3.00	3.60
1382538	Urban Principal Arterial (UPA) - Other	Lighting	Intersection lighting	430.00	420.00	1.00		5.00	8.00	137.00	165.00	573.00	593.00	0.93
1382775	Urban Major Collector	Pedestrians and bicyclists	Pedestrian signal - Pedestrian Hybrid Beacon	12.00	27.00	5.00		15.00	12.00	73.00	27.00	105.00	66.00	3.57
1382777	Rural Major Collector	Intersection traffic control	Modify traffic signal - modernization/replacement	10.00	22.00			10.00	7.00	33.00	4.00	53.00	33.00	3.10

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
1382793	Rural Major Collector	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	2089.00	2764.00	6.00	10.00	455.00	218.00	542.00	338.00	3092.00	3330.00	1.28
1382796	Urban Local Road or Street	Pedestrians and bicyclists	Miscellaneous pedestrians and bicyclists	75.00	125.00			7.00	1.00	13.00	8.00	95.00	134.00	1.52
1382807	Rural Principal Arterial (RPA) - Other	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	8.00	21.00				2.00	10.00	2.00	18.00	25.00	3.02
1382870	Urban Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	577.00	684.00	1.00	1.00	7.00	12.00	183.00	208.00	768.00	905.00	1.27
1382872	Urban Local Road or Street	Pedestrians and bicyclists	Crosswalk	7.00	11.00							7.00	11.00	0.71
1382911	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - cable	94.00	131.00	1.00		12.00	1.00	12.00	20.00	119.00	152.00	1.53
1382938	Urban Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	792.00	892.00	3.00	2.00	51.00	44.00	120.00	102.00	966.00	1040.00	1.08
1383062	Urban Major Collector	Intersection traffic control	Modify traffic signal - add additional signal heads	421.00	368.00	1.00	1.00	8.00	4.00	86.00	92.00	516.00	465.00	1.45
1383068	Urban Local Road or Street	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	5672.00	7024.00	36.00	21.00	88.00	129.00	1581.00	1710.00	7377.00	8884.00	1.34
1383085	Urban Principal Arterial (UPA) - Other	Pedestrians and bicyclists	Modify existing crosswalk	27.00	54.00	1.00		1.00	1.00	17.00	18.00	46.00	73.00	1.09
1383101	Urban Local Road or Street	Railroad grade crossings	Protective devices											1.00
1383189	Urban Major Collector	Intersection traffic control	Modify traffic signal - modernization/replacement	7764.00	1344.00	21.00	16.00	193.00	123.00	1233.00	925.00	9211.00	2408.00	1.07
1383253	Urban Minor Collector	Roadside	Barrier - other	1.00	2.00							1.00	2.00	0.56
9802570	Rural Minor Arterial	Roadway	Pavement surface - miscellaneous	671.00	897.00	3.00	2.00	18.00	79.00	239.00	188.00	931.00	1166.00	0.51

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?

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 2018.

The incidence of suspected serious injuries in most of the monitored emphasis areas decreased by 3.33% in calendar year 2017 compared to 2016, however, the estimated vehicle miles of travel increased by 1.1% from 2016 to 2017. During the same time period the incidence of fatal injuries increased by 11.4%. This shift in crash severity is difficult to explain on the basis of weather patterns or rate of employment, two known major influences over crash rates.

The resulting rate of crashes with fatality per million vehicle miles of travel increased by 9.5%, while the rate of serious crashes involving probable class A injury outcomes decreased by 0.10%. 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.

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								
Access Control (22)	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
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				
Roadway Type at End Ramp Terminal (199)					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
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**

*Based on Functional Classification

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

No change in data collection percentages have been reported by the INDOT Planning Inventory Office in FFY 2018.

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 by calendar year 2019.

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.

Additional 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" until such time as a specific count of MMUCC 4th Edition compliant data can be incorporated into the Indiana Crash Database.

2018 Indiana Highway Safety Improvement Program
INDOT asks that FHWA accept Indiana's described reporting methodology as part of any review of Indiana Crash data and Performance Target Setting methodology.

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

Did the State conduct an HSIP program assessment during the reporting period?
No

When does the State plan to complete it's next HSIP program assessment.

2021

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

The last HSIP program assessment took place in December of 2016 as a peer-program assessment of Indiana's HSIP conducted with FHWA engineers from the Headquarters' Office of Safety and three peer states. The peer team 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:

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.