## Protection of Data from Discovery & Admission into Evidence

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

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

In accordance with 23 USC 148 and pursuant to 23 CFR 924, the Arkansas State Highway and Transportation Department (AHTD) has prepared a Highway Safety Improvement Program (HSIP) Annual Report for State Fiscal Year 2015 (July 1, 2015 through June 30, 2016). The format of this report is consistent with the reporting guidelines issued by the Federal Highway Administration on February 13, 2013.

Introduction

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. As per 23 U.S.C. 148(h) and 23 CFR 924.15, States are required to report annually on the progress being made to advance HSIP implementation and evaluation efforts. The format of this report is consistent with the HSIP MAP-21 Reporting Guidance dated February 13, 2013 and consists of four sections: program structure, progress in implementing HSIP projects, progress in achieving safety performance targets, and assessment of the effectiveness of the improvements.

Program Structure

Program Administration

How are Highway Safety Improvement Program funds allocated in a State?

Central

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

To address safety concerns on local roads, the AHTD continues to provide technical assistance and training programs on safety issues to local governments through its efforts by System Information and Research Division staff and the Technology Transfer Program. The AHTD continues to coordinate with the Arkansas State Police through the Traffic Records Coordinating Committee and has implemented...
eCrash and the Advance program that allows law enforcement agencies and other State and local agencies to have better access to crash data on all public roads, and run analytics and produce reports on numerous aspects of the crash data.

Furthermore, the AHTD continues to update our linear referencing system. This allowed the location of a crash that occurs on Federal-aid local roads to be identified by geographical location. A project to provide a linear referencing system for all public roads is currently underway. Approximately 55% of all public roads now have a linear referencing system in place. Based on this data, crash queries can be conducted to determine if there are locations with a high frequency of crashes. This data can be provided to a local government agency or a Metropolitan Planning Organization (MPO) upon request.

AHTD has provided a GIS and Aerial photograph driven tool, VISUAL-T, to the Arkansas State Police and various county and local law enforcement agencies to assist the agencies with providing an accurate crash location on the crash report. The AHTD technical staff provided continued support to the local law enforcement agencies in this reporting period. This tool has greatly enhanced both speed and accuracy in providing a crash location to the Crash Database. Agencies using eCrash have also been provided with MapClick that allows law enforcement to accurately pin point crash locations while at the scene and send the LRS location, Lat/Long and all the roadway information associated with the crash location to the eCrash database. Staff is also attending the Local Road HSIP Exchange in Missouri in November 2016.

We attended a Systemic Safety Peer Exchange in Phoenix, AZ, where we met several LTAP representatives. This peer exchange helped us to develop a policy for local road safety improvement program which is under development.

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

Design
Planning
Maintenance
Operations

Briefly describe coordination with internal partners.

Coordination with internal partners, along with the HSO and the eight Metro-Plan Organizations across the State, occurs on different levels. Design, planning, maintenance, operations, MPOs and the HSO are all on the SHSP Steering committee. Coordination has also taken place when addressing work zone safety, roadway departure safety, and in the identification of infrastructure and non-infrastructure projects. Traffic Safety and Maintenance work together on daily basis to address the spot treatments due to fatal crashes.
Traffic Safety performs the preliminary scope of safety improvements on segment jobs according to the HSM guidelines to help with the design process. We have started a site visit protocol for scoping safety improvements for corridor program. It includes personnel from Roadway Design, Planning, Maintenance, and District/Construction engineers. We plan to include personnel from other Divisions as well to expedite the programming/design of these safety jobs.

Based on our field experience, we revised our scope to address safety improvements by choosing low-cost countermeasures such as replacement/installation of guard rails, signs, pavement markings, etc.

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

Metropolitan Planning Organizations
Governors Highway Safety Office

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

Other-New countermeasures such as enhanced pavement markings and centerline rumble strips were installed to address KA crashes.
Other-Performance measure coordination with the Arkansas State Police, Highway Safety Office and some MPO organizations was accomplished in multiple meetings. Different methodologies and laws were discussed prior to setting targets.
Other-We perform a site visit which includes staff from different disciplines/divisions to help scope safety improvements on safety corridor projects.
Other-We have developed minor shoulder widening program in conjunction with the overlay program.

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

The AHTD Traffic Safety Section (TSS), which manages the HSIP, continued to use the Highway Safety Manual on case by case basis. The TSS now has 4 Engineers working on the Safety Program. Prior to May 2011, TSS did not have an Engineer. The TSS has marketed the SHSP (approved by FHWA in March 2013) with a focus on TZD through the Arkansas Highways Magazine, idrivearkansas.com and tzdarkansas.org.

Also HSM Safety Performance Functions’ research is under progress along with continued improvements to data analysis processes and tools used by the TSS. AHTD continued to be a member State in the
Evaluation of Low-Cost Safety Improvements Pooled Fund Study. AHTD is coordinating with the FHWA Division Office to conduct a HSIP Peer Review during the 2017 Federal Fiscal Year. Information learned from this effort will be used to update the HSIP Process document.

We attended a systemic peer exchange in Phoenix, AZ, where we met several LTAP representatives. This peer exchange helped us to develop a policy for local road safety improvement program which is under development. Staff is also attending the Local Road HSIP Exchange in Missouri in November 2016.

**Program Methodology**

Select the programs that are administered under the HSIP.

<table>
<thead>
<tr>
<th>Program</th>
<th>Median Barrier</th>
<th>Intersection</th>
<th>Rural State Highways</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skid Hazard</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shoulder Improvement</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What data types were used in the program methodology?

- **Crashes**
  - All crashes
  - Fatal and serious injury crashes only

- **Exposure**
  - Traffic

- **Roadway**
  - Median width
  - Functional classification

What project identification methodology was used for this program?

Other-Systemic approach

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

No

How are highway safety improvement projects advanced for implementation?

Other-The process is consistent with the AHTD HSIP process adopted in 2011.

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

- Based on systemic approach considering median width, ADT, etc.

Program: Intersection
Date of Program Methodology: 4/1/2015

What data types were used in the program methodology?

- **Crashes**
  - All crashes
  - Fatal and serious injury crashes only

- **Exposure**
  - Other-Rural vs Urban

- **Roadway**
  - Other-ROW and utilities consideration

What project identification methodology was used for this program?

Crash frequency

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

No

How are highway safety improvement projects advanced for implementation?

Other-The process is consistent with the AHTD HSIP process adopted in 2011.

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

- Cost Effectiveness
  - 2
  - Analyzed multiple locations statewide that were identified through various sources.

- 1
Program: Rural State Highways
Date of Program Methodology: 6/6/2016

What data types were used in the program methodology?
Crashes Exposure Roadway
All crashes Traffic Functional classification

What project identification methodology was used for this program?
Crash rate

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

How are highway safety improvement projects advanced for implementation?
Other-Includes only signing improvements on high risk rural highways using state maintenance funds.

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

Program: Skid Hazard
Date of Program Methodology: 1/1/2013

What data types were used in the program methodology?
Crashes Exposure Roadway
All crashes Other-Wet pavement crashes Other-Skid resistance consideration
Fatal and serious injury crashes only

What project identification methodology was used for this program?
Crash frequency
Crash rate

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

How are highway safety improvement projects advanced for implementation?
Other-The process is consistent with the AHTD HSIP process adopted in 2011.
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

Wet pavement crashes were considered statewide and further analyzed to select the locations based on a certain threshold.

<table>
<thead>
<tr>
<th>Program: Crash Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Program Methodology: 1/1/2012</td>
</tr>
</tbody>
</table>

What data types were used in the program methodology?

- **Crashes**
  - All crashes
  - Other-Converting from TRACS to E-Crash with the add-on software of ADVANCE for querying data.

- **Exposure**
  - Other-All types of data exposure considered for improvements

- **Roadway**
  - Other-MIRE roadway data elements are the priority for improvements.

What project identification methodology was used for this program?

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

Yes

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

Yes

How are highway safety improvement projects advanced for implementation?

Other-The MIRE is connected with the eCrash which will improve the data quality for analysis.

Other-The AHTD continues to coordinate with the Arkansas State Police through the TRCC to implement eCrash and the Advance program that will allow law enforcement agencies and other State and local agencies to have timely access to the crash data.

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).

Various state agencies are
prioritizing and funding needed improvements through the TRCC.

Program: Roadway Departure
Date of Program Methodology: 1/1/2014

What data types were used in the program methodology?
- Crashes
- Exposure
- Roadway
- Traffic
- Other - Minimum of 1 foot shoulder

What project identification methodology was used for this program?
Crash frequency

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

How are highway safety improvement projects advanced for implementation?
Other - The process is consistent with the AHTD HSIP process adopted in 2011.

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

Rank of Priority Consideration

- Available funding 2
- The process was systemic based approach but due to available funding the systematic approach was also considered.

Program: Shoulder Improvement
Date of Program Methodology: 1/1/2016

What data types were used in the program methodology?
What project identification methodology was used for this program?
Crash rate

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

How are highway safety improvement projects advanced for implementation?
Other-The process is consistent with the AHTD HSIP process adopted in 2011.

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).

<table>
<thead>
<tr>
<th>Rank of Priority Consideration</th>
<th>Cost Effectiveness</th>
<th>Sites were selected in conjunction with the Overlay Program.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Program: Segments
Date of Program Methodology: 1/1/2013

What data types were used in the program methodology?

<table>
<thead>
<tr>
<th>Crashes</th>
<th>Exposure</th>
<th>Roadway</th>
</tr>
</thead>
<tbody>
<tr>
<td>All crashes</td>
<td>Traffic</td>
<td>Lane miles</td>
</tr>
<tr>
<td>Fatal and serious injury</td>
<td>Volume</td>
<td>Horizontal curvature</td>
</tr>
<tr>
<td>crashes only</td>
<td></td>
<td>Roadside features</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other-Clearzones and shoulder widths.</td>
</tr>
</tbody>
</table>

What project identification methodology was used for this program?
Crash rate
Other-Statewide average crash rates
Are local roads (non-state owned and operated) included or addressed in this program?
No

How are highway safety improvement projects advanced for implementation?
Other-Each segment is analyzed for low cost countermeasures and improvements as well as realignment or turn lanes at select locations.

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

Rank of Priority Consideration

- Ranking based on B/C: 1

---

**Program:** Other-Pavement Marking Improvements

**Date of Program Methodology:** 1/1/2016

**What data types were used in the program methodology?**

- *Crashes*
  - All crashes
  - Fatal and serious injury crashes only
- *Exposure*
  - Traffic
  - Volume
- *Roadway*
  - Population
  - Functional classification
  - Other-APHN Routes excluding Interstates, Freeways, and Expressways.

**What project identification methodology was used for this program?**
Crash rate

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

**How are highway safety improvement projects advanced for implementation?**
Other-The process is consistent with the AHTD HSIP process adopted in 2011.

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
Systematic approach was used to select rural APHN routes other than Interstates, Freeways and Expressways.

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

37%

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

- Cable Median Barriers
- Rumble Strips
- Install/Improve Pavement Marking and/or Delineation

What process is used to identify potential countermeasures?

Engineering Study

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

Systemic Approach

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

Systemic approaches to addressing roadway departure safety are underway. AHTD is already implementing cable median barrier projects, rumble strip/stripe projects, and enhanced pavement marking projects through a systemic process. With guidance from the Roadway Departure Safety
Implementation Plan, a systemic approach to install high friction surface treatment and shoulder widening/improvement is also underway. For segmental projects, AHTD continues to use B/C analysis to target low and medium cost improvements to hot spots while also applying the other low cost improvements for the entire length of the project.

The successful implementation of ongoing rumble strips is due in part by the development of a policy for the use of rumble strips in April 2012 that has increased the installation of both shoulder and centerline rumble strips throughout Arkansas. AHTD is working towards the installation of centerline rumble strips in passing zones by upgrading the policy considering low-noise rumble strips.

AHTD is progressing toward the use of enhanced thermoplastic pavement marking by replacing High Performance Pavement Marking in the policy. This change will provide cost saving for the department that will allow additional maintenance efforts throughout the state.

AHTD is also developing Local Road Safety Program for the Highway Commission's approval.

### Progress in Implementing Projects

#### Funds Programmed

**Reporting period for Highway Safety Improvement Program funding.**

State Fiscal Year

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

<table>
<thead>
<tr>
<th>Funding Category</th>
<th>Programmed*</th>
<th>Obligated</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSIP (Section 148)</td>
<td>$43,449,423.00</td>
<td>26 %</td>
</tr>
<tr>
<td>HRRRP (SAFETEA-LU)</td>
<td>$1,197,217.00</td>
<td>1 %</td>
</tr>
<tr>
<td>HRRR Special Rule</td>
<td>$0.00</td>
<td>0 %</td>
</tr>
<tr>
<td>Penalty Transfer - Section 154</td>
<td>$11,554,765.00</td>
<td>7 %</td>
</tr>
<tr>
<td>Penalty Transfer – Section 164</td>
<td>$0.00</td>
<td>0 %</td>
</tr>
<tr>
<td>Incentive Grants - Section 163</td>
<td>$0.00</td>
<td>0 %</td>
</tr>
<tr>
<td>Incentive Grants (Section 406)</td>
<td>$0.00</td>
<td>0 %</td>
</tr>
<tr>
<td>Other Federal-aid Funds (i.e. STP, NHPP)</td>
<td>$91,841,961.00</td>
<td>55 %</td>
</tr>
<tr>
<td>State and Local Funds</td>
<td>$20,208,233.00</td>
<td>12 %</td>
</tr>
</tbody>
</table>
How much funding is programmed to local (non-state owned and operated) safety projects?
$0.00

How much funding is obligated to local safety projects?
$0.00

How much funding is programmed to non-infrastructure safety projects?
$969,000.00

How much funding is obligated to non-infrastructure safety projects?
$450,132.00

How much funding was transferred in to the HSIP from other core program areas during the reporting period?
$0.00

How much funding was transferred out of the HSIP to other core program areas during the reporting period?
$0.00

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

Developing policies to systematically deploy the use of HSIP funds for the implementation of minor shoulder widening, horizontal curves, signs, raised pavement markers etc. Better streamlining of the
HSIP project development process (into the normal project development process) for corridor safety projects; implementing numerous low cost countermeasures.
AHTD is working on revising the HSIP process document to improve the program and plans to host a peer exchange next month that will be funded by FHWA. Four states representatives from their state or FHWA division offices will be participating to help us document the ways any impediments should be overcome.

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

Over 600 miles of cable median barriers have been installed to reduce or eliminate KA crashes on interstates and other high speed routes. Statewide shoulder rumble strip/stripes are installed or being installed on 5,000 plus miles of the State Highway System by the end of calendar year 2016. Statewide HFST are being installed at 40 plus locations of the State Highway System by the end of this calendar year. Statewide 6" wide enhanced pavement markings are being installed on over 4200 miles of the State Highway System by the end of calendar year 2016.
### General Listing of Projects

List each highway safety improvement project obligated during the reporting period.

<table>
<thead>
<tr>
<th>Project</th>
<th>Improvement Category</th>
<th>Output</th>
<th>HSIP Cost</th>
<th>Total Cost</th>
<th>Funding Category</th>
<th>Functional Classification</th>
<th>AADT</th>
<th>Speed</th>
<th>Roadway Ownership</th>
<th>Relationship to SHSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>012185</td>
<td>Non-infrastructure Outreach</td>
<td>0 Miles</td>
<td>132</td>
<td>147</td>
<td>HSIP (Section 148)</td>
<td>Arkansas Safety Summit</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Education Implement outreach program to local governments.</td>
</tr>
<tr>
<td>012221</td>
<td>Non-infrastructure Outreach</td>
<td>0 Miles</td>
<td>450000</td>
<td>450000</td>
<td>Penalty Transfer - Section 154</td>
<td>AGIO LINEAR REFERENCING SYSTEM UPGRADE</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Traffic Data Systems Cont. to implement crash data location methods.</td>
</tr>
<tr>
<td>012227</td>
<td>Roadway signs and traffic control Roadway signs (including post) - new or updated</td>
<td>15.9 Miles</td>
<td>141270</td>
<td>141270</td>
<td>Penalty Transfer - Section 154</td>
<td>Rural Local Road or Street</td>
<td>5200</td>
<td>55</td>
<td>State Highway Agency</td>
<td>Roadway Departure Implement low cost safety measures.</td>
</tr>
<tr>
<td>012228</td>
<td>Roadway Rumble strips - edge or shoulder</td>
<td>1012.76 Miles</td>
<td>10830967</td>
<td>11914064</td>
<td>HSIP (Section 148)</td>
<td>Various</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Roadway Departure Install rumble strips.</td>
</tr>
<tr>
<td>Project Number</td>
<td>Project Description</td>
<td>Total Length</td>
<td>Funding Source</td>
<td>Amount</td>
<td>Match</td>
<td>Agency Responsible</td>
<td>Departure Type</td>
<td>Notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------------------------------------</td>
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<td>-------------------------</td>
<td>--------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>012230</td>
<td>Roadway Rumble strips - edge or shoulder</td>
<td>922.45 Miles</td>
<td>Penalty Transfer - Section 154</td>
<td>Various</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td>Install rumble strips.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>012239</td>
<td>Roadway Pavement surface - high friction surface</td>
<td>3.7 Miles</td>
<td>Penalty Transfer - Section 154</td>
<td>Rural Minor Collector</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td>High Friction Surface.</td>
<td></td>
</tr>
<tr>
<td>012257</td>
<td>Roadway delineation Roadway delineation - other</td>
<td>1689.86 Miles</td>
<td>HSIP (Section 148)</td>
<td>Various</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td>Enhanced delineation.</td>
<td></td>
</tr>
<tr>
<td>020326</td>
<td>Railroad grade crossings Grade separation</td>
<td>0.1 Miles</td>
<td>HSIP (Section 148)</td>
<td>Rural Principal Arterial - Other</td>
<td>7800</td>
<td>45</td>
<td>State Highway Agency</td>
<td>Railroad Crossings</td>
<td>Grade separation.</td>
<td></td>
</tr>
<tr>
<td>020595</td>
<td>Intersection geometry Intersection geometrics - modify skew angle</td>
<td>6.9 Miles</td>
<td>HSIP (Section 148)</td>
<td>Rural Principal Arterial - Other</td>
<td>6600</td>
<td>60</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td>Improve sight distance.</td>
<td></td>
</tr>
<tr>
<td>020610</td>
<td>Intersection geometry</td>
<td>0.1 Miles</td>
<td>Penalty Transfer</td>
<td>Rural Principal</td>
<td>4350</td>
<td>60</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td>Install right turn lanes.</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Length</td>
<td>Start</td>
<td>End</td>
<td>Penalty Type</td>
<td>Section</td>
<td>Agency</td>
<td>Intersection Activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------</td>
<td>-------</td>
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2016  Arkansas  Highway Safety Improvement Program
Progress in Achieving Safety Performance Targets

Overview of General Safety Trends

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

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<th>Performance Measures*</th>
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*Performance measure data is presented using a five-year rolling average.
Number of Serious Injuries for the Last Five Years
5-yr Average Measure Data

Rate of Fatalities for the Last Five Years
5-yr Average Measure Data
Rate of Serious Injuries for the Last Five Years
5-yr Average Measure Data
To the maximum extent possible, present performance measure* data by functional classification and ownership.

### Year - 2014

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# Fatalities by Roadway Functional Classification
5-yr Average Measure Data

![Bar chart showing the number of fatalities by roadway functional classification from 2010 to 2014.](chart.png)

- **Roadway Functional Classification:**
  - Urban Local Road or Street
  - Rural Principal Arterial
  - Urban Minor Collector
  - Rural Minor Collector
  - Urban Major Collector
  - Rural Local Road or Street
  - Urban Principal Arterial
  - Rural Principal Arterial
  - Urban Minor Arterial
  - Other
  - Freeways and Expressways

- **X-axis:** Roadway Functional Classification
- **Y-axis:** Number of Fatalities

- **Legend:**
  - 2010
  - 2011
  - 2012
  - 2013
  - 2014
# Serious Injuries by Roadway Functional Classification
5-yr Average Measure Data

![Graph showing serious injuries by roadway functional classification over a 5-year period, with data represented for each year from 2010 to 2014. The x-axis represents the different road classifications, and the y-axis represents the number of serious injuries.](image-url)
Fatality Rate by Roadway Functional Classification
5-yr Average Measure Data

Roadway Functional Classification
Serious Injury Rate by Roadway Functional Classification
5-yr Average Measure Data
## Year - 2013

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<tr>
<td>STATE HIGHWAY AGENCY</td>
<td>415</td>
<td>2576</td>
<td>1.64</td>
<td>10.18</td>
</tr>
<tr>
<td>COUNTY HIGHWAY AGENCY</td>
<td>63.5</td>
<td>227</td>
<td>2.03</td>
<td>7.26</td>
</tr>
<tr>
<td>CITY OF MUNICIPAL HIGHWAY AGENCY</td>
<td>51</td>
<td>343</td>
<td>0.96</td>
<td>6.47</td>
</tr>
</tbody>
</table>
Number of Serious Injuries by Roadway Ownership
5-yr Average Measure Data

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

Fatality Rate (per HMVM)

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

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

The definition for reporting incapacitating injuries (which we use for reporting serious injuries) was updated in 2007 by Arkansas State Police. The trend for incapacitating injuries has followed fatalities except for the jump in 2008 and 2009. We think this can be partly explained by the updated definition used by law enforcement officers from 2007. The fatality data from the ASP shows an increase in 2015 and the upward trend appears to be continuing in 2016.

- 2009 – 596
- 2010 – 571
- 2011 – 551
- 2012 – 560
- 2013 – 498
- 2014 – 466
- 2015 - 531

Application of Special Rules

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

<table>
<thead>
<tr>
<th>Older Driver Performance Measures</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatality rate (per capita)</td>
<td>0.094</td>
<td>0.124</td>
<td>0.158</td>
<td>0.152</td>
<td>0.148</td>
</tr>
<tr>
<td>Serious injury rate (per capita)</td>
<td>0.258</td>
<td>0.334</td>
<td>0.406</td>
<td>0.458</td>
<td>0.44</td>
</tr>
<tr>
<td>Fatality and serious injury rate (per capita)</td>
<td>0.342</td>
<td>0.448</td>
<td>0.55</td>
<td>0.598</td>
<td>0.578</td>
</tr>
</tbody>
</table>

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

2014        233/465=.501 or .50
2013        329/454=.724 or .72
2012        227/441=.514 or .51
2011        228/429=.531 or .53
2010        266/420=.633 or .63
2009 249/413=.602 or .60
2008 194/404=.480 or .48

2014=.50+.72+.51+.53+.63/5=.578 or .6
2012=.51+.53+.63+.60+.48/5=.550 or .6

Rate of Fatalities and Serious injuries for the Last Five Years
5-yr Average Measure Data
Does the older driver special rule apply to your state?
No

Assessment of the Effectiveness of the Improvements (Program Evaluation)

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

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

AHTD is working on revising the pavement striping maintenance policy to reduce the cost of striping by using alternate low cost materials. This will not only stretch the state maintenance funds but will help the HSIP with improving safety through better maintenance. These policy change decisions were based on benefit-cost analysis using the Highway Safety Manual.

Other-AHTD moving toward a systemic and risk-based approach to address safety.

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

Organizational Changes
Other-More systemic programs included in HSIP.
Other-HSIP jobs are now prioritized based on benefit-cost ratio instead of considering other factors.
Other-Local Road Safety Program efforts are underway to include local roads in the Highway Safety Improvement Program
Briefly describe significant program changes that have occurred since the last reporting period.

More systemic projects have been programmed. Specifically, continued system-wide implementation of cable median barriers and commencement of a system-wide implementation of shoulder rumble strips/stripes, minor shoulder widening, and enhanced pavement markings to address fatal and serious injuries.

Department policy changes are underway to improve maintenance of state routes. HSIP jobs are now prioritized based on benefit-cost ratio instead of considering other factors. Local Road Safety Program efforts are underway to include local roads in the Highway Safety Improvement Program.
SHSP Emphasis Areas

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

### Year - 2014

<table>
<thead>
<tr>
<th>HSIP-related SHSP Emphasis Areas</th>
<th>Target Crash Type</th>
<th>Number of fatalities</th>
<th>Number of serious injuries</th>
<th>Fatality rate (per HMVMT)</th>
<th>Serious injury rate (per HMVMT)</th>
<th>Other-1</th>
<th>Other-2</th>
<th>Other-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway Departure</td>
<td>All</td>
<td>376.4</td>
<td>1738.6</td>
<td>1.12</td>
<td>5.18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intersections</td>
<td>Intersections</td>
<td>97.2</td>
<td>708.6</td>
<td>0.29</td>
<td>2.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Zones</td>
<td>All</td>
<td>14.8</td>
<td>94.8</td>
<td>0.04</td>
<td>0.28</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Number of Fatalities by SHSP Emphasis Area
5-yr Average Measure Data

Year 2010 to Year 2014

SHSP Emphasis Area
Number of Serious Injuries by SHSP Emphasis Area
5-yr Average Measure Data

Year 2010 to Year 2014

2010 2011 2012 2013 2014

# of Serious Injuries

Roadway Departure  Intersections  Pedestrians  Bicyclists  Older Drivers  Motorcycles  Work Zones

SHSP Emphasis Area
Fatality Rate by SHSP Emphasis Area
5-yr Average Measure Data

Year 2010 to Year 2014

SHSP Emphasis Area

- Roadway Departure
- Intersections
- Pedestrians
- Bicycles
- Older Drivers
- Motorcycles
- Work Zones
Groups of similar project types
Present the overall effectiveness of groups of similar types of projects.

**Year - 2014**

<table>
<thead>
<tr>
<th>HSIP Sub-program Types</th>
<th>Target Crash Type</th>
<th>Number of Fatalities</th>
<th>Number of Serious Injuries</th>
<th>Fatality rate (per HMVMT)</th>
<th>Serious injury rate (per HMVMT)</th>
<th>Other-1</th>
<th>Other-2</th>
<th>Other-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Barrier</td>
<td>Cross median</td>
<td>5.8</td>
<td>12.6</td>
<td>0.02</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intersection</td>
<td>Intersections</td>
<td>97.2</td>
<td>542</td>
<td>0.24</td>
<td>1.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skid Hazard</td>
<td>Wet road</td>
<td>51.6</td>
<td>347.6</td>
<td>0.15</td>
<td>1.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roadway Departure</td>
<td>Run-off-road</td>
<td>307</td>
<td>1521</td>
<td>0.9</td>
<td>4.47</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Fatalities by Target Crash Type for Groups of Similar Projects

5-yr Average Measure Data

Year 2010 to Year 2014

![Bar chart showing fatalities by target crash type for 5 years, with data for each year from 2010 to 2014.](image)
# Serious Injuries by Target Crash Type for Groups of Similar Projects
5-yr Average Measure Data

Year 2010 to Year 2014

![Graph showing serious injuries by target crash type for groups of similar projects. The graph compares data from 2010 to 2014.](image-url)
Systemic Treatments
Present the overall effectiveness of systemic treatments.

### Year - 2014

<table>
<thead>
<tr>
<th>Systemic improvement</th>
<th>Target Crash Type</th>
<th>Number of fatalities</th>
<th>Number of serious injuries</th>
<th>Fatality rate (per HMVMT)</th>
<th>Serious injury rate (per HMVMT)</th>
<th>Other-1</th>
<th>Other-2</th>
<th>Other-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable Median Barriers</td>
<td>Cross median</td>
<td>5.8</td>
<td>12.6</td>
<td>0.02</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Fatalities by Target Crash Type for Systemic Safety Improvements

Year 2010 to Year 2014

![Graph showing fatalities by target crash type from 2010 to 2014 with different categories and years represented with bars.](image)

- **Target Crash Type**: Various types of crashes including angle, head-on, intersection, rear-end, right-turn, speed-related, truck-related, vehicle/vehicle, vehicle/pedestrian, wet road.

- **# of Fatalities**: Number of fatalities per category and year.

This graph provides a visual representation of the number of fatalities by target crash type over the specified years.
# Serious Injuries by Target Crash Type for Systemic Safety Improvements

Year 2010 to Year 2014

- **2010**
- **2011**
- **2012**
- **2013**
- **2014**

### Target Crash Type

- All
- Angle
- Cross-median
- Fixed object
- Head on
- Left-turn
- Night-time
- Intersections
- Non-intersection
- Rear end
- Right-turn
- Run-off-road
- Speed-related
- Truck-related
- Vehicle
- Vehicle/animal
- Vehicle/bicycle
- Wet-road

### # of Serious Injuries

- 0
- 5
- 10
- 15
- 20
Fatality Rate by Target Crash Type for Systemic Safety Improvements

Year 2010 to Year 2014

Target Crash Type

Rate of Fatalities

0 0.01 0.02 0.03 0.04

All Angle Cross median Fixed object Sideswipe Head-on Left-turn Night-time Intersections Non-intersection Rear-end Right-turn Run-off-road Speed-related Truck-related Vehicle/animal Vehicle/bicycle Vehicle/pedestrian Wet road
Serious Injury Rate by Target Crash Type for Systemic Safety Improvements

Year 2010 to Year 2014

Rate of Serious Injuries

Target Crash Type

- All
- Angle
- Cross median
- Fixed object
- Head on
- Left-turn
- Night-time
- Intersections
- Rear-end
- Right-turn
- Run-off-road
- Speed-related
- Truck-related
- Vehicle/animal
- Vehicle/bicycle
- Vehicle/pedestrian

2010
2011
2012
2013
2014
Describe any other aspects of the overall Highway Safety Improvement Program effectiveness on which you would like to elaborate.

Previous implementation of cable median barrier, enhanced pavement markings, HFST and rumble strip projects has shown a clear reduction in fatal and serious injury crashes. Analysis recently presented to the Highway Commission helped justify additional system-wide projects of these types, which are being implemented.
## Project Evaluation

Provide project evaluation data for completed projects (optional).

<table>
<thead>
<tr>
<th>Location</th>
<th>Functional Class</th>
<th>Improvement Category</th>
<th>Improvement Type</th>
<th>Bef-Fatal</th>
<th>Bef-Serious Injury</th>
<th>Bef-All Injuries</th>
<th>Bef-PDO</th>
<th>Aft-Fatal</th>
<th>Aft-Serious Injury</th>
<th>Aft-All Injuries</th>
<th>Aft-PDO</th>
<th>Aft-Total</th>
<th>Evaluation Results (Benefit/Cost Ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interstate 49, Section 28, Log Mile 41.44-45.74</td>
<td>Rural Principal Arterial - Interstate</td>
<td>Roadway</td>
<td>Pavement surface - high friction surface</td>
<td>2</td>
<td>16</td>
<td>42</td>
<td>60</td>
<td>1</td>
<td>12</td>
<td>15</td>
<td>28</td>
<td>3.77</td>
<td></td>
</tr>
<tr>
<td>Interstate 430, Section 21, Log mile 8.96-9.86</td>
<td>Urban Principal Arterial - Interstate</td>
<td>Roadway</td>
<td>Pavement surface - high friction surface</td>
<td>1</td>
<td>5</td>
<td>52</td>
<td>114</td>
<td>172</td>
<td>2</td>
<td>35</td>
<td>96</td>
<td>133</td>
<td>115.47</td>
</tr>
<tr>
<td>Interstate 40, Sections 43 and 51, Log mile 216.10 to 220.71</td>
<td>Rural Principal Arterial - Interstate</td>
<td>Roadway</td>
<td>Pavement surface - high friction surface</td>
<td>4</td>
<td>9</td>
<td>13</td>
<td>4</td>
<td>7</td>
<td>11</td>
<td>0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Optional Attachments

Sections
Progress in Achieving Safety Performance
Targets: Overview of General Safety Trends

Files Attached
Setting Safety PM Targets - FY 2017.docx
Glossary

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

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

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

**HMVMT** means hundred million vehicle miles traveled.

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

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

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

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

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

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

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

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

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