Arkansas' Highway Safety Improvement Program Report for State Fiscal Year 2014

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 2014 (July 1, 2013 through June 30, 2014). The format of this report is consistent with the reporting guidelines issued by the Federal Highway Administration on February 13, 2013.

Program Structure

Program Administration

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

☑Central

☐District

☐Other: Click here to enter text.

If District, how are the HSIP funds allocated?

☐Formula

☐Crash data

☐Other: Click here to enter text.

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 to implement eCrash and the CARE (Critical Analysis Reporting Environment) program that will allow law enforcement agencies to have better access to crash data on all public roads.

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. 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.

Identify which internal partners are involved with Highway Safety Improvement Program planning.
Check all that apply.
☑Design
☑Planning
☑Maintenance
☑Operations
☐Governor's Highway Safety Office
☐Other: Click here to enter text.

Briefly describe coordination with internal partners.
Coordination with internal partners, along with the HSO, occurs on different levels. Design, planning, maintenance, operations and the HSO are all on the SHSP committee. Coordination has also taken place when addressing work zone safety, roadway departure safety, and in the identification of infrastructure and non-infrastructure projects.

Identify which external partners are involved with Highway Safety Improvement Program planning.
Check all that apply.
☑Metropolitan Planning Organizations
☑Governor's Highway Safety Office
☐Local Government Association
☐Other: Click here to enter text.

Identify any program administration practices used to implement the HSIP that have changed since the last reporting period.
☐Multi-disciplinary HSIP steering committee
☑Other: Performance measure coordination with Arkansas State Police, Highway Safety Office.

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 has also hired a Professional Engineer with the Roadway Design background to help with streamlining HSIP project delivery. The TSS has also hired another civil engineering graduate with a Ph.D. in Traffic Safety effective August, 2014. 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 became a member State in the Evaluation of Low-Cost Safety Improvements Pooled Fund Study. Two members of the TSS and their FHWA counterpart participated in the Roadway Departure peer exchange in Alabama.

Program Methodology

Select the programs that are administered under the HSIP.

☑Median Barrier	☐Intersection	☐Safe Corridor
☑Horizontal Curve	☐Bicycle Safety	☑Rural State Highway
☑Skid Hazard	☑Crash Data	☐Red Light Running
☑Roadway Departure	☑Low-Cost Spot Improvements	☑Sign Replacement and Improvement
☐Local Safety	☐Pedestrian Safety	☐Right Angle Crash
☐Left-turn Crash	☐Shoulder Improvement	☐Segments
☐Other:		

Click here to enter text.

For each program checked above, enter the following information:

Program: Below information applies to all programs checked above.

Date of Program Methodology: 7/7/2011

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

Crashes	***Exposure***	***Roadway***
☑All crashes	☑Traffic	☑Median width
☐Fatal crashes only	☐Volume	☐Horizontal curvature

☑Fatal and serious injury crashes only	☐Population	☑Functional classification
☐Other: Click here to enter text.	☑Lane miles	☐Roadside features
	☐Other: Click here to enter text.	☑Other: Pavement, curve, lane and shoulder width, rural/urban, etc.

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

☑Crash frequency
☐Expected crash frequency with EB adjustment
☐Equivalent property damage only (EPDO crash frequency)
☐Relative severity index
☑Crash rate
☐Critical rate
☐Level of service of safety (LOSS)
☐Excess expected crash frequency using SPFs
☐Excess expected crash frequency with EB adjustment
☐Excess expected crash frequency using method of moments
☐Probability of specific crash types
☐Excess proportions of specific crash types
☐Other:

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

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

If no, describe the methodology used to identify local road projects as part of this program.
AHTD is working on a linear referencing system (LRS) for all public roads. It is also working toward expanding its safety training options to locals through the local technical assistance program (LTAP).

How are highway safety improvement projects advanced for implementation?

☐Competitive application process
☐Selection committee

☑Other: The project selection process is consistent with the recent HSIP guidance and the AHTD/FHWA HSIP process adopted in 2011. This process shall be revised as necessary to address the new MAP-21 requirements.

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

☑Rank of Priority Consideration

Ranking based on B/C	Click here to enter text.
Available funding	Click here to enter text.
Incremental B/C	Click here to enter text.
Ranking based on net benefit	Click here to enter text.
Cost effectiveness	Click here to enter text.
Other	The process is consistent with the AHTD/FHWA HSIP process adopted in 2011.

What proportion of highway safety improvement program funds address systemic improvements?
55%

Highway safety improvement program funds are used to address which of the following systemic improvements? Please check all that apply.

☑Cable median barriers	☐Upgrade guard rails
☐Rumble strips	☐Clear zone improvements
☐Traffic control device rehabilitation	☐Safety edge
☐Pavement/shoulder widening	☐Install/improve lighting
☐Install/Improve Signing	☐Add/upgrade/modify/remove traffic signal
☐Install/improve pavement marking/delineation	☐Other: Click here to enter text.

What process is used to identify potential countermeasures?

☑Engineering Study

☐Road Safety Assessment

☐Other: Click here to enter text.

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

☑Highway Safety Manual
☐Road Safety Audits
☑Systemic Approach
☐Other: Click here to enter text.

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 is underway. AHTD is already implementing cable median barrier projects through a systemic process. With guidance from the Roadway Departure Safety Implementation Plan, a systemic approach to install signs, markings, and rumble strips is also under way. New methods are being used on projects such as HWY 5 where B/C is being used to target lower cost improvements to hot spots while also applying the other low cost improvements for the entire length.

Progress in Implementing Projects

Funds Programmed

Reporting period for Highway Safety Improvement Program funding.

State Fiscal Year (July 1, 2013 through June 30, 2014)

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

HSIP Project Funding		
Reporting Period 07/01/2013 to 06/30/2014		
Funding Category	**Programmed**	**Obligated**
HSIP (Section 148)	**36,324,000**	**(298,402)**
HRRRP (SAFETEA-LU)	**0**	**0**
HRRR Special Rule	**8,000**	**0**
Penalty Transfer - Section 154	**10,798,500**	**20,810,890**
Penalty Transfer – Section 164	**10,798,500**	**0**

Incentive Grants - Section 163	**0**	**0**
Incentive Grants (Section 406)	**0**	**0**
Other Federal-aid Funds (i.e. STP, NHPP)	**126,264,000***	**44,674,116***
State and Local Funds	**22,586,000**	**11,129,554**
Total	**206,779,000**	**76,316,158**

*Includes signals, intersection/interchange improvements, passing lanes, Safe Routes to School, and safety related studies

How much funding is programmed to local (non-state owned and maintained) safety projects?
None directly
How much funding is obligated to local safety projects?
None directly

How much funding is programmed to non-infrastructure safety projects?
$2,614,000
How much funding is obligated to non-infrastructure safety projects?
$2,614,000

How much funding was transferred in to the HSIP from other core program areas during the reporting period?
None
How much funding was transferred out of the HSIP to other core program areas during the reporting period?
HSIP to STP(Flex) - $11,293,608

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.

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

Significant progress has been made towards the installation of cable median barriers to reduce or eliminate KA crashes on Interstates and other high speed routes.

General Listing of Projects

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

Project	Improvement Category	Output *(miles)*	HSIP Cost	Total Cost	Funding Cat.	Func. Class.	AADT	Speed	Roadway Ownership^	Relationship to SHSP	
										*Emphasis Area	**Strategy
012195	Roadside	37.28	164,402	174,402	154	Other Freeways &Exprwy.	5988	70	State Hwy	3	B
012196	Roadside	31.78	159,395	169,395	154	Other Freeways &Exprwy.	12000	70	State Hwy	3	B
012216	Roadway	UNK	2,754,661	2,754,661	154	Various	Various	Various	State Hwy	2	C
012220	Non-Infrast.	NA	214,000	214,000	154	NA	NA	NA	NA	4	G
012221	Non-Infrast.	NA	500,000	500,000	154	NA	NA	NA	NA	4	G
030435	Roadside	28.91	130,122	130,122	154	Other Freeways &Exprwy.	4800	70	State Hwy	3	B
61309	Roadway	2.41	110,719	120,719	154	Minor Arterial	6412	55	State Hwy	2	D
061407	Roadway	2.59	484,881	2,650,372	154	Interstate	84190	65	State Hwy	2	C
061431	Roadside	4.58	5,000	5,000	154	Other Principal Art.	9546	45	State Hwy	3	B
090379	Roadside	15.15	85,015	85,015	154	Other Principal Art.	10000	65	State Hwy	3	B
090414	Roadway	3.16	1,887,347	1,907,347	154	Various	Various	Various	State Hwy	2	C
BB0101	Roadway	4.10	549,358	549,358	154	Interstate	28000	70	State Hwy	2	C
BB0104	Roadway	11.62	1,727,627	1,727,627	154	Interstate	30000	70	State Hwy	2	C
BB0301	Roadway	7.10	1,706,739	1,706,739	154	Interstate	26784	70	State Hwy	2	C
BB0613	Roadway	8.80	1,512,356	1,512,356	154	Interstate	43000	70	State Hwy	2	C
BB0702	Roadway	8.30	498,535	927,221	154	Interstate	27000	70	State Hwy	2	C
BB0803	Roadway	13.10	1,046,552	1,046,552	154	Interstate	22000	70	State Hwy	2	C
BB0805	Roadway	10.80	1,043,983	1,043,983	154	Interstate	30827	70	State Hwy	2	C

BB1103	Roadway	16.10	159,050	159,050	154	Interstate	21000	70	State Hwy	2	C
012200	Roadway	5.26	98,392	762,340	154	Interstate	27000	70	State Hwy	2	C
012208	Non-Infrast.	NA	900,000	1,362,264	154	NA	NA	NA	NA	7	I
012211	Non-Infrast.	NA	1,000,000	1,000,000	154	NA	NA	NA	NA	7	I
061194	Roadway	.80	4,067,576	4,067,576	154	Other Principal Art.	32166	35	State Hwy	2	D
100819	Roadside	19.89	5,000	5,000	154	Other Freeways &Exprwy	5600	70	State Hwy	3	B
001827	Roadside	NA	2,171,746	2,413,051	148	Interstate	Various	Various	State Hwy	6	F
012053	Roadway	NA	855,204	950,226	148	Various	Various	Various	State Hwy	2	H
040646	Roadside	3.36	139,700	155,222	148	Various	Various	Various	State Hwy	3	B
050175	Roadway	.77	4,160,202	4,622,447	148	Minor Arterial	13000	25	State Hwy	2	D
070396	Roadside	5.59	133,116	147,906	148	Other Freeways &Exprwy	6600	55	State Hwy	3	B
090221	Roadway	0.63	150,448	167,163	148	Minor Arterial	2400	55	State Hwy	2	D
090406	Roadway	R.R. Overpass	18,000	20,000	148	Other Principal Art.	10520	55	State Hwy	5	E
012166	Roadway	18.50	799,784	888,649	148	Interstate	26000	70	State Hwy	2	C
012200	Roadway	5.26	2,007,581	2,230,646	148	Interstate	25500	70	State Hwy	2	C
061408	Roadway	1.00	316,793	351,992	148	Interstate	43989	70	State Hwy	2	C
110564	Roadside	9.82	1,643,668	1,826,298	148	Interstate	26000	70	State Hwy	3	B
110576	Roadway	4.64	1,397,549	1,552,832	148	Interstate	26000	70	State Hwy	2	C
BB0806	Roadway	18.60	1,263,770	1,404,189	148	Interstate	28000	70	State Hwy	2	C
BB1003	Roadway	7.90	389,644	432,938	148	Interstate	18000	70	State Hwy	2	C
061248	Roadway	5.40	55,537	61,708	148	Minor Arterial	2500	55	State Hwy	2	C
BB0108	Roadway	2.97	280,328	311,477	148	Interstate	24000	70	State Hwy	2	C

*1=Curbing aggressive driving; 2=Keeping vehicles in roadway; 3=Reducing head on and across median crashes; 4=Traffic Data Systems; 5=Rail Road Crossings; 6=Older Drivers; 7= Traffic Safety Planning

**A=Enhancement Speed enforcement; B=Installation of cable median barriers; C=Increase surface friction; D=Widening/Passing lanes; E=Realignment; F=Enhanced signage; G=Enhanced, accurate and timely crash data; H=Shoulder Rumble Strips/Stripes; I= Safety Studies

Coordination of Setting Safety Performance Targets for 2015

The following 2015 Targets were submitted in the 2015 Highway Safety Plan by the Arkansas State Police Highway Safety Office and were developed in coordination between ASP and AHTD. Target setting process is based on 5-year rolling average. Those targets are listed as follows:

Total fatalities: 475

Total serious injuries: 2,810

Fatality rate (per 100 MVMT): 1.49

AHTD will also set target for the serious injury rate (per 100 MVMT) in the next report.

Progress in Achieving Safety Performance Targets

Overview of General Safety Trends

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

Performance Measures*	2004-2008	2005-2009	2006-2010	2007-2011	2008-2012
Number of fatalities	658	632.2	615.6	592.8	574.8
Number of serious injuries	3114.2	3151.2	3205.6	3361.2	3392.0
Fatality rate (per 100MVMT)	2.07	1.97	1.89	1.81	1.74
Serious injury rate (per 100 MVMT)	9.80	9.76	9.78	10.21	10.25

*States should use a 5-year rolling average to present the performance measures

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

Function Classification	2012			
	Number of fatalities	Number of serious injuries	Fatality rate (per 100MVMT)	Serious injury rate (per 100MVMT)
Interstate	56	466	0.62	5.19
Other Freeways	22	78	1.45	5.13
Other Principal Arterials	145	797	2.0	10.98
Minor Arterials	116	602	2.76	14.33
Major Collector	119	683	3.33	19.10
Minor Collector	2	15	3.38	25.34
Local	2	10	.93	4.67

Roadway Ownership	2012			
	Number of fatalities	Number of serious injuries	Fatality rate (per 100MVMT)	Serious injury rate (per 100MVMT)
State Highway System	462	2651	1.80	10.31
City Streets and County Roads	98	575	1.32	7.76

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 (ASP). 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 a continued drop in 2013 and 2014.

- 2009 – 592
- 2010 – 571
- 2011 – 551
- 2012 – 560
- 2013 – 483
- 2014 – 253 (through July - versus 289 in 2013)

Application of Special Rules

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

Older Driver/Pedestrian Performance Measures	2006	2007	2008	2009	2010	2011	2012
Fatality rate (per capita)	0.42	0.50	0.47	0.45	0.44	0.47	0.54
Serious injury rate (per capita)	0.84	1.20	1.41	1.80	1.46	1.70	1.60
Fatality and serious injury rate (per capita)	1.27	1.7	1.88	2.24	1.9	2.16	2.14

Show your calculations.

Rolling Average for 2010 and 2012 for Comparison

2012= (321/150)+(316/146)+(274/144)+(321/143)+(267/142)/5=2.1

2010= (274/144)+(321/143)+(267/142)+(238/140)+(175/138)/5=1.8

Corrected from last year.

2011= (316/143)+(274/144)+(321/143)+(267/142)+(238/140)/5 =2.0

2009=(321/143)+(267/142)+(238/140)+(175/138)+(263/135)/5=1.8

Does the older driver special rule apply to your state?
Yes
If yes, describe the approach to include respective strategies to address the increase in those rates in the State SHSP.
Current strategies listed in the SHSP to address older drivers will be considered. These strategies include:
Improved roadway visibility features;
Implementation of the FHWA Highway Design Handbook for Older Drivers;
Education of older drivers on the safety risks resulting from reduced driving task performance;
Education of older drivers on alternative transportation modes;
Increase frequency of vision assessments for older drivers; and
Promote the use of restricted drivers licenses for older drivers.

SHSP steering committee will review these strategies in the near future and determine if any changes are needed. This may also include an establishment of an older driver action plan and SHSP subcommittee.

Secondary Analysis

Older Pedestrians	2006	2007	2008	2009	2010	2011	2012
Fatalities	5	6	8	3	5	1	6
Serious injuries	8	6	6	4	7	7	6
Fatalities and serious injuries	13	12	14	7	12	8	12

The increase is not due to pedestrians.

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? Select all that apply.

☑B/C ratio
☐Policy change
☑Other: AHTD moving toward a systemic and risk-based approach to address safety.

What significant programmatic changes have occurred since the last reporting period? Select all that apply.

☐Shift focus to fatalities and serious injuries
☑Organizational changes
☑More systemic programs included in HSIP
☑Other: Continued focus to fatalities and serious injuries by initiated using economic appraisals.

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 to address fatal and serious injuries. Other areas as mentioned previously to address roadway departure safety is underway. The Traffic Safety Section staff has increased from 1 to 3 Engineers to address the added demand created by the new process/project data analysis improvements to HSIP.

SHSP Emphasis Areas

For each SHSP emphasis area that relates to the HSIP, present trends in emphasis area performance measures. Show 5 tables for each year

HSIP-related SHSP Emphasis Areas	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
2012				
Roadway Departure	426	1921	1.65	7.46
Intersections	119	944	0.46	3.66
Work Zones	11	105	0.04	0.41

HSIP-related SHSP Emphasis Areas	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
2011				
Roadway Departure	358	1998	1.08	6.06
Intersections	108	961	0.33	2.92
Work Zones	16	117	0.05	0.36

HSIP-related SHSP Emphasis Areas	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
2010				
Roadway Departure	358	2056	1.06	6.11
Intersections	132	945	0.39	2.81
Work Zones	16	89	0.05	0.26

HSIP-related SHSP Emphasis Areas	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
2009				
Roadway Departure	398	2311	1.20	6.97
Intersections	125	1095	0.38	3.30
Work Zones	23	93	0.07	0.28

HSIP-related SHSP Emphasis Areas	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
2008				
Roadway Departure	402	2096	1.24	6.44
Intersections	110	1042	0.34	3.20
Work Zones	12	113	0.04	0.35

Groups of similar project types

Present the overall effectiveness of HSIP subprograms.

Systemic Treatments

Present the overall effectiveness of systemic treatments.

HSIP Sub-program Types	Year	Number of fatalities*	Number of serious injuries*	Fatality rate (per HMVMT)*	Serious injury rate (per HMVMT)*
Cable Median Barriers/Median Crossover Crashes on Interstates and Freeways	2012	3	6	0.03	0.06
Cable Median Barriers/Median Crossover Crashes on Interstates and Freeways	2011	8	22**	0.08	0.22**
Cable Median Barriers/Median Crossover Crashes on Interstates and Freeways	2010	10	14	0.10	0.14
Cable Median Barriers/Median Crossover Crashes on Interstates and Freeways	2009	15	17	0.16	0.18

*For the target crash type Head On and Sideswipe Opposite Direction Crashes.

**Review of crash reports indicated that some of the vehicles had high number of passengers and all of them had serious injuries.

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 and rumble strip projects have shown a clear reduction in fatal and serious injury crashes. Rumble strip analysis recently presented to the Highway Commission helped justify additional systemwide rumble strips projects.

Provide project evaluation data for completed projects (optional).