

**Maryland
Highway Safety Improvement Program
CY 2012 Annual Report**

Executive Summary

Summary Maryland Highway Safety Improvement Program (HSIP) CY 2012

- HSIP is administered centrally
- Local roads are not allocated HSIP funds
- The Maryland Highway Safety Office (MHSO) along with the Maryland Transportation Authority (MDTA) and the Maryland Institute for Emergency Medical Services are important internal partners with the Maryland State Highway Administration (SHA) in the HSIP process. Several regional planning organizations also coordinate with the SHA as external partners.
- Programs administered under the HSIP
 - Median Barrier
 - Horizontal Curve
 - Skid Hazard
 - Roadway Departure
 - Left-turn crash
 - Intersection Crash Data
 - Low Cost Spot Improvements
 - Pedestrian Safety
 - Rural State Highway
 - Right Angle Crash
 - Highway Sections
- The data types used in the HSIP program methodology are vehicle crashes and traffic volume
- The project identification methodology used in the HSIP program are Crash frequency and Relative severity index
- The HSIP projects are advanced for implementation by an SHA selection committee. The criteria considered are Safety, Congestion, Operations and Local Support
- The proportion of HSIP program Funds used in CY 2012 for funding systemic improvements is 34%
- The types of systemic improvements include
 - Cable median barriers
 - Rumble strips
 - Traffic control device rehabilitation
 - Pavement installation and improvement
- Engineering studies are used to identify potential countermeasures
- The HSIP funding for CY 2012
 - Programmed - \$4,388,623.49
 - Non-infrastructure portion - \$3,071,402
 - Obligated - \$12,618,395

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- Non-infrastructure portion - \$1,316,221.51
- More site specific information is expected to be available in CY 2013 for individual HSIP related projects
- The General listing of projects includes various traffic control, roadside, intersection geometry and non-infrastructure projects
- The Overview of safety trends indicates that the reported number of fatalities have decreased from 623 in 2008 to 527 in 2012 (rolling average format) and that the number of serious injuries have decreased from 6,077 in 2008 to 3,895 in 2012 (rolling average format)
- The Roadway ownership indicates that in 2012 the top four road systems experienced the following number of fatalities:
 - MD State Highways – 220
 - County Roads – 130
 - Interstate Highways – 63
 - US Highways – 56
- Older Driver (65+) Fatal and Severe Injury per capita rate has decreased from 2005-9 (3.4) as compared with 2007-2011 (3.0)
- The effectiveness of the HSIP program will be indicated by the crash data trends. More site specific data is expected to become available in subsequent HSIP reports
- The significant programmatic change in the HSIP program is the inclusion of more non-infrastructure projects such as the Roadway Safety Audit and the Strategic Highway Safety Program (non-construction portions) along with various MHSO public safety outreach efforts.
- Overall yearly crash trends for the individual SHSP areas along with the HSIP Sub-Program areas are shown in charts in the annual report

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Program Structure

Program Administration

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

Central

District

Other: OT

If District, how are the HSIP funds allocated?

Formula

Crash data

Other: OT

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

Local Roads are not given HSIP funds from the State

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 (Maryland Highway Safety Office)

Other: Office of Traffic and Safety (SHA), Maryland Highway Safety Office (MVA)

Briefly describe coordination with internal partners.

The Traffic Development and Support Division (TDSD) along with the Maryland Highway Safety Office (MHSO) (Note: MHSO moved from SHA in 2012 and is now part of MVA) and other Office of Traffic and Safety (OOTS) divisions provided leadership, support, and coordination for Maryland's highway safety projects in CY 2012. Part of TDSD and MHSO's responsibility is to work with other State agencies to address highway safety issues. This effort results in a multi agency approach which includes the Motor Vehicle Administration, the Maryland Transportation Authority, the Maryland Institute for Emergency Medical Services and others having roles in highway safety problems. The seven SHA District Offices also provide a network of field personnel willing to coordinate and provide technical assistance to local agencies. There is a continuing relationship between OOTS and the Federal Highway Administration (FHWA) along with National Highway Traffic Safety Administration and Federal Motor Carrier Safety Administration.

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Identify which external partners are involved with Highway Safety Improvement Program planning.
Check all that apply.

XMetropolitan 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: OT

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

OT

Program Methodology

Select the programs that are administered under the HSIP.

XMedian Barrier

XIntersection

Safe Corridor

XHorizontal Curve

Bicycle Safety

XRural State Highway

XSkid Hazard

XCrash Data

Red Light Running

XRoadway Departure

XLow-Cost Spot Improvements

Sign Replacement and Improvement

Local Safety

XPedestrian Safety

XRight Angle Crash

XLeft-turn Crash

Shoulder Improvement

XSegments

Other:

OT

For each program checked above, enter the following information:

Program: Median Barrier (2010), Horizontal Curve(2010), Skid Hazard (2012), Roadway Departure (2010), Left-Turn Crash (2010), Intersection (2010), Crash Data (2010), Low Cost Spot Improvements (2010), Pedestrian Safety (2012), Rural State Highway (2010), Right Angle Crash (2010), Segments (2010)

Date of Program Methodology: See Above

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

Crashes

All crashes

Fatal crashes only

Fatal and serious injury
crashes only

Other:

OT

Exposure

Traffic

Volume

Population

Lane miles

Other:

OT

Roadway

Median width

Horizontal curvature

Functional classification

Roadside features

Other:

OT

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: OT

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?

If no, describe the methodology used to identify local road projects as part of this program.

OT

How are highway safety improvement projects advanced for implementation?

Competitive application process

Selection committee

Other: OT

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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).

XRelative Weight in Scoring

Safety: 60%

Congestion / Operations: 30%

Support / Opportunity: 10%

Rank of Priority Consideration

Ranking based on B/C	OT
Available funding	OT
Incremental B/C	OT
Ranking based on net benefit	OT
Cost effectiveness	OT
Other	OT

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

34% for CY 2012

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

- | | |
|---|---|
| X Cable median barriers | X Upgrade guard rails |
| X Rumble strips | <input type="checkbox"/> Clear zone improvements |
| X Traffic control device rehabilitation | <input type="checkbox"/> Safety edge |
| <input type="checkbox"/> Pavement/shoulder widening | <input type="checkbox"/> Install/improve lighting |
| <input type="checkbox"/> Install/Improve Signing | X Add/upgrade/modify/remove traffic signal |
| X Install/improve pavement marking/delineation | <input type="checkbox"/> Other: |
| | OT |

What process is used to identify potential countermeasures?

X Engineering Study

Road Safety Assessment

Other: OT

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

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Other: OT

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

OT

Progress in Implementing Projects

Funds Programmed

Reporting period for Highway Safety Improvement Program funding.

Calendar Year

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

HSIP Project Funding		
Reporting Period 01/01/2012 to 12/31/2012		
Funding Category	Programmed*	Obligated
HSIP (Section 148)	57,696.51	325,000.00
HSIP (SAFETEA-LU)	3,408,246.75	9,944,377.00
HRRRP (SAFETEA-LU)	91,872.23	400,000.00
HRRR Special Rule		
Penalty Transfer - Section 154		
Penalty Transfer – Section 164	0	656,000
Incentive Grants - Section 163		
Incentive Grants (Section 406)	179,253	393,058
Other Federal-aid Funds (i.e. STP, NHPP)	651,555	900,000
State and Local Funds		
Total	4,388,623.49	12,618,395

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

None

How much funding is obligated to local safety projects?

None

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

\$3,071,402 – CY 2012

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

\$1,316,221.51 – CY 2012

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

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None

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

None

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

None at this time

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

More site specific information is expected to be available in CY 2013 for individual HSIP related projects

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General Listing of Projects

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

Project	Improvement Category (see Attachment 4)	Output (i.e. #, miles)	HSIP Cost*	Total Cost	Funding Category^	Functional Classification** ^	AADT**	Speed**	Roadway Ownership^	Relationship to SHSP	
										Emphasis Area^	Strategy
Intersection Traffic Control (preliminary engineering)	Modify control – two way stop to roundabout	n/a	91,872.23	400,000	HSIP – High Risk Rural Road Program	Rural minor arterial	7,152 (2012 mainline)	50 MPH (mainline)	MD State Highway Cecil Co	Highway Infrastructure	Safety improvement at High Crash Location
Non _ infrastructure	Road safety audits	n/a	57,696.51	325,000	HSIP	n/a	n/a	n/a	MD State Highway	Pedestrian Crashes	Develop model processes to identify and prioritize high incident locations and system wide pedestrian safety issues
Pedestrians and bicyclists	Modify existing crosswalk (ADA)	n/a	124,206.50	188,329	HSIP (SAFETEA -LU)	n/a	n/a	n/a	MD State Highway District 3	Pedestrian Crashes	Develop and evaluate model approaches to engineering built environments that accommodate safe pedestrian travel
Roadside	Barrier - other	n/a	5081	50,336	HSIP (SAFETEA -LU)	n/a	n/a	n/a	MD State Highway District 7	Highway Infrastructure	Analyze data to identify system wide improvements to reduce the number and severity of infrastructure crashes
Non _ infrastructure	Transportation safety planning	n/a	427,717	797,334	HSIP (SAFETEA -LU)	n/a	n/a	n/a	MD State Highway	Highway Infrastructure	Develop model processes to identify and prioritize high incident locations and system wide pedestrian safety issues
Roadside	Barrier - other	n/a	621,319.37	1,206,920	HSIP (SAFETEA -LU)	n/a	n/a	n/a	MD State Highway District 1	Highway Infrastructure	Analyze data to identify system wide improvements to reduce the number and severity of infrastructure crashes
Roadway	Roadway – other (pavement markings)	n/a	570,773.24	5,089,271	HSIP (SAFETEA -LU)	n/a	n/a	n/a	MD State Highway District 6	Highway Infrastructure	Analyze data to identify system wide improvements to reduce the number and severity of infrastructure crashes
Roadside	Barrier - other	n/a	181,162.25	853,481	HSIP (SAFETEA -LU)	n/a	n/a	n/a	MD State Highway District 5	Highway Infrastructure	Analyze data to identify system wide improvements to reduce the number and severity of infrastructure crashes
Intersection Geometry	Auxiliary Lanes miscellaneous	n/a	1,477,987.39	1,758,666	HSIP (SAFETEA -LU)	Urban minor arterial	20,410 (2012 mainline)	40 MPH (mainline)	MD State Highway Baltimore Co	Highway Infrastructure	Safety improvement at High Crash Location

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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*	[2008]	[2009]	[2010]	[2011]	[2012]
Number of fatalities	623	604	581	548	527
Number of serious injuries	6077	5407	4780	4304	3895
Fatality rate (per HMVMT)	1.11	1.04	1.03	0.97	0.94
Serious injury rate (per HMVMT)	10.82	9.6	8.5	7.68	6.96

*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	[Year]			
	Number of fatalities	Number of serious injuries	Fatality rate (per HMVMT)	Serious injury rate (per HMVMT)
n/a	n/a	n/a	n/a	n/a

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Roadway Ownership	[2010-2012]			
	Number of fatalities	Number of injuries	Fatality rate (per HMVMT)	injury rate (per HMVMT)
County Rd				
2010	113	9510	0.20	16.92
2011	109	9767	0.19	17.43
2012	130	9327	0.23	16.54
Government Rd				
2010	1	35	0.002	0.06
2011	1	55	0.002	0.10
2012	2	38	0.004	0.07
Interstate Hwy				
2010	47	3312	0.08	5.89
2011	60	3510	0.11	6.26
2012	63	3174	0.11	5.63
MD State Hwy				
2010	205	14350	0.36	25.53
2011	227	14007	0.40	24.99
2012	220	14625	0.39	25.94
Municipal Rd				
2010	41	7387	0.07	13.14
2011	9	7422	0.02	13.24
2012	4	7936	0.01	14.07
Other Public Rd				
2010	1	128	0.002	0.23
2011	1	94	0.002	0.17
2012	1	160	0.002	0.28
Ramp				
2010	0	37	0	0.07
2011	0	22	0	0.04
2012	0	22	0	0.04
Service Rd				
2010	0	42	0	0.07
2011	0	17	0	0.03
2012	0	15	0	0.03
US Hwy				
2010	78	4050	0.14	7.21
2011	54	3858	0.10	6.88
2012	56	3750	0.10	6.65
Unknown Rd				
2010	10	1582	0.02	2.81
2011	27	2002	0.05	3.57
2012	35	1670	0.06	2.96

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

Application of Special Rules

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

Older Driver Performance Measures	[Year]	[Year]	[Year]	[Year]
Fatality rate (per capita)	See calculations			
Serious injury rate (per capita)	See calculations			
Fatality and serious injury rate (per capita)	See Calculations			

Show your calculations.

2005 to 2009 Driver and Pedestrian Fatal and Severe Injury 65 and older					
Year	Accidents	Pop Figure	Rate	Years	Total Rate
2005	477	112	4.26	1	
2006	417	115	3.63	1	
2007	382	118	3.24	1	
2008	366	121	3.02	1	
2009	365	121	3.02	1	
			17.16	5	3.4
2007 to 2011 Driver and Pedestrian Fatal and Severe Injury 65 and older					
Year	Accidents	Pop Figure	Rate	Years	Total Rate
2007	382	118	3.24	1	
2008	366	121	3.02	1	
2009	365	121	3.02	1	
2010	330	123	2.68	1	
2011	360	126	2.86	1	
			14.82	5	3.0

Does the older driver special rule apply to your state?

No

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If yes, describe the approach to include respective strategies to address the increase in those rates in the State SHSP.

OT

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

XOther: The effectiveness of the HSIP program will be indicated by the crash data trends. More site specific data is expected to become available in subsequent HSIP reports

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

XOther: More non-infrastructure projects included in HSIP

Briefly describe significant program changes that have occurred since the last reporting period.

The significant programmatic change in the HSIP program is the inclusion of more non-infrastructure projects such as the Roadway safety Audit and the Strategic Highway Safety Program (non-construction portions) along with various MHSO public safety outreach efforts.

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SHSP Emphasis Areas

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

HSIP-related SHSP Emphasis Areas	Number of fatalities	Number of injuries	Fatality rate (per HMVMT)	injury rate (per HMVMT)
Distracted Driving				
2008	290	31778	0.52	56.60
2009	252	30152	0.45	54.20
2010	249	28875	0.44	51.37
2011	231	29112	0.41	51.94
2012	246	28518	0.44	50.57
Impaired Driving				
2008	145	4291	0.26	7.64
2009	162	4525	0.29	8.13
2010	177	4087	0.31	7.27
2011	181	4031	0.32	7.19
2012	173	4022	0.31	7.13
Aggressive Driving				
2008	63	4203	0.11	7.49
2009	54	4050	0.10	7.28
2010	47	3792	0.08	6.75
2011	44	3900	0.08	6.96
2012	55	3612	0.10	6.41
Occupant Protection				
2008	n/a	n/a	n/a	n/a
2009	n/a	n/a	n/a	n/a
2010	47	3792	0.08	6.75
2011	44	3900	0.08	6.96
2012	55	3612	0.10	6.41
Highway Infrastructure				
2008	424	30130	0.76	53.66
2009	367	26154	0.66	47.01
2010	345	27044	0.61	48.12
2011	313	27410	0.56	48.90
2012	321	26803	0.57	47.53
Pedestrian Crashes				
2008	115	2469	0.20	4.40
2009	111	2340	0.20	4.21
2010	101	2339	0.18	4.16
2011	105	2173	0.19	3.88
2012	96	2425	0.17	4.30

Groups of similar project types

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Present the overall effectiveness of HSIP subprograms.

HSIP Sub-program Types	Number of fatal accidents	Number of serious injury accidents	Fatal acc rate (per HMVMT)	Serious injury acc rate (per HMVMT)
Skid Hazard				
2010 – wet surface	55	486	0.10	0.86
2011 – wet surface	63	566	0.11	1.01
2012 – wet surface	67	410	0.12	0.73
Left Turn Crash				
2010 – left turn	22	268	0.04	0.48
2011 – left turn	19	241	0.03	0.43
2012 – left turn	26	209	0.05	0.37
Intersection Crash				
2010 – int related	109	1189	0.19	2.12
2011 – int related	105	1106	0.19	1.97
2012 – int related	87	945	0.15	1.68
Pedestrian Safety				
2010 - pedestrian	85	333	0.15	0.59
2011 - pedestrian	97	324	0.17	0.58
2012 - pedestrian	88	305	0.16	0.54
Right Angle Crash				
2010 - angle	64	510	0.11	0.91
2011 - angle	52	475	0.09	0.85
2012 - angle	51	376	0.09	0.67

Systemic Treatments

Present the overall effectiveness of systemic treatments.

HSIP Sub-program Types	Number of fatal accidents*	Number of serious injury accidents*	Fatality acc rate (per HMVMT)*	Serious injury acc rate (per HMVMT)*
Median Barrier				
2010 - opp direction	37	182	0.07	0.32
2011 – opp direction	50	164	0.09	0.29
2012 – opp direction	55	135	0.10	0.24
Horizontal Curve				
2010 – run off road	24	135	0.04	0.24
2011 – run off road	34	147	0.06	0.26
2012 – run off road	44	113	0.08	0.20
Roadway Departure				
2010 – run off road	24	135	0.04	0.24
2011 – run off road	34	147	0.06	0.26
2012 – run off road	44	113	0.08	0.20

*For the target crash type.

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

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Note 1: “Functional classification and ownership” information was not available at report time

Note 2: All injuries were used instead of severe injuries for the “Roadway Ownership” tables used in lieu of unavailable (at report time) severe injury totals.

Note 3: Fatal accident and severe injury accident totals were used in lieu of unavailable (at report time) fatality and severe injury totals for “HSIP Sub Program” and “Systemic Treatment” worksheets

Note 4: All injuries were used instead of severe injuries for the “SHSP Emphasis Areas” tables in order to maintain consistency with the MD SHSP injuries goals.

Provide project evaluation data for completed projects (optional).

[Insert project evaluation table]