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.”
Table of Contents

Disclaimer...................................................................................................................................................... ii
Executive Summary....................................................................................................................................... 1
Introduction .................................................................................................................................................. 2
Program Structure ........................................................................................................................................ 2
  Program Administration ........................................................................................................................... 2
  Program Methodology.............................................................................................................................. 5
Progress in Implementing Projects ............................................................................................................. 33
  Funds Programmed................................................................................................................................ 33
  General Listing of Projects .................................................................................................................. 37
Progress in Achieving Safety Performance Targets .................................................................................... 46
  Overview of General Safety Trends ........................................................................................................ 46
  Application of Special Rules .................................................................................................................... 61
Assessment of the Effectiveness of the Improvements (Program Evaluation) ............................................. 64
  SHSP Emphasis Areas .............................................................................................................................. 66
  Groups of similar project types................................................................................................................ 71
  Systemic Treatments................................................................................................................................ 76
Glossary....................................................................................................................................................... 84
Executive Summary

The Pennsylvania Department of Transportation is pleased to present this Annual Report of our progress with the Highway Safety Improvement Program.

In 2013, 1,208 people lost their lives on Pennsylvania's roadways - the lowest number since we began tracking these statistics in 1928. Despite this achievement, we acknowledge that even one death on our roads is too many. We remain committed to pursuing our aggressive highway safety goals that aim to reduce fatalities and serious injuries in half by 2030.

Several key initiatives are underway to help us maintain our progress towards meeting these goals. On the project planning side, we have begun incorporating the Highway Safety Manual into our project selection processes and design publications. We've met with each of our Engineering Districts to explain the priorities of the HSIP program and how to effectively choose projects and expend safety funds. And we've released two large planning reports, provided by FHWA, that recommend low-cost safety countermeasures at over 14,000 locations within the Commonwealth to address intersection and run-off road crashes. The first projects to implement these countermeasures were started this year.

While there remains much work required to reach our 2030 goal, we are optimistic that the variety of programs currently underway and those in the future will provide great benefits to the Commonwealth's travelers and enable us to easily realize our goals.
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
☐ District
☒ Other Central and District

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

We recently incorporated a new funding formula in response to the increased funding from the MAP-21 legislation:

1) $500,000 base funding for each planning organization

2) $35 million reserved for statewide initiatives, such as the Intersection Safety and Roadway Departure Safety Implementation Plans
3) The remaining amount - approximately $45.5 million - is to be distributed to the planning organizations by a weighted formula. This formula places 50% weight on fatalities and serious injuries and 50% on reportable crashes.

The funds from all three of these categories are applicable to local road problems.

Local road issues are also directly addressed through our Local Technical Assistance Program (LTAP) reports. Upon a request from a municipality, LTAP engineers will perform an engineering study free of charge and recommend safety countermeasures based on their findings. The Walkable Communities Program focuses on pedestrian safety, while the Local Safe Roads Communities Program focuses on local road safety in general. The safety improvements suggested by these two program reports are eligible for HSIP funding. To encourage implementation of the countermeasures, we are advancing a State Transportation Innovation Council (STIC) initiative to combine some of these completed municipalities into regional groups and emplace the countermeasures in a single project.

Finally, we will continue to incorporate local road locations onto our Statewide High Crash Location Lists, the next of which will be published in 2015. These locations are typically among the highest priorities for safety funding.

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

- Design
- Planning
- Maintenance
- Operations
- Governors Highway Safety Office
- Other: Other-Engineering Districts, Planning Organizations, Program Center

Briefly describe coordination with internal partners.

PennDOT Engineering Districts utilize a data-driven analysis process to identify eligible projects and collaborate with local Planning Organizations to develop a program of safety infrastructure projects. This process was designed to improve highway safety using data-driving project development methods.
and to fulfill the requirements of Section 148 of MAP-21. Each District, in coordination with area planning partners, is required to utilize the following three step selection process in programming Section 148 (HSIP) projects:

1. Select projects that contain locations listed on the Statewide High Crash Locations (SHCL) priority ranking. Low cost improvements at these locations can be considered.

2. Deployment of systematic implementation of proven low cost countermeasures.

- OR -

A project location listed in the Intersection Safety Implementation Plan (ISIP) or Roadway Departure Safety Implementation Plan (RDIP)

- OR -

A District may program locations identified on the Planning Organization lists. The Planning Organization Lists are developed from the same methodology as the Statewide High Crash Location Lists but with lower crash thresholds to allow for the identification of 25 locations overall in each Planning Organization.

3. Projects not meeting the above criteria may be programmed, but first must be approved by the Deputy Secretary for Highway Administration. Such approval requests must include the following information:

   1) General Project Information, including scope, costs and estimated completion dates.
   2) District strategy for exceeding its fatality goal, with the consideration of this project.
   3) Justification and safety benefit of programming a non-SHCL/Systematic project, related to fatality goals.

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

☒ Metropolitan Planning Organizations

☒ Governors Highway Safety Office

☐ Local Government Association

☒ Other: Other-MAST Team - See Question 8 for description
Identify any program administration practices used to implement the HSIP that have changed since the last reporting period.

☐ Multi-disciplinary HSIP steering committee
☐ Other: Other-NONE

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

Response: The HSIP Program fully aligns with the 2012 Pennsylvania Strategic Highway Safety Plan. Within this Plan, Infrastructure Improvements are identified as the third of seven "Vital Safety Focus Areas". Key components of this effort are to:

• Reduce Head-On and Cross-Median Crashes
• Improve Intersection Safety
• Reduce Run-Off-Road Crashes
• Reduce the Severity and Frequency of Hit Fixed Object Crashes

Program Methodology
Select the programs that are administered under the HSIP.

☐ Median Barrier   ☒ Intersection   ☐ Safe Corridor
☐ Horizontal Curve ☒ Bicycle Safety   ☐ Rural State Highways
☒ Skid Hazard      ☐ Crash Data     ☐ Red Light Running Prevention
<table>
<thead>
<tr>
<th>Roadway Departure</th>
<th>Low-Cost Spot Improvements</th>
<th>Sign Replacement And Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Safety</td>
<td>Pedestrian Safety</td>
<td>Right Angle Crash</td>
</tr>
<tr>
<td>Left Turn Crash</td>
<td>Shoulder Improvement</td>
<td>Segments</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Program:** Median Barrier

**Date of Program Methodology:** 2/1/2009

### 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>Median width</td>
</tr>
<tr>
<td>Fatal crashes only</td>
<td>Volume</td>
<td>Horizontal curvature</td>
</tr>
<tr>
<td>Fatal and serious injury crashes only</td>
<td>Population</td>
<td>Functional classification</td>
</tr>
<tr>
<td>Other</td>
<td>Lane miles</td>
<td>Roadside features</td>
</tr>
<tr>
<td>Other</td>
<td>Other</td>
<td>Other</td>
</tr>
</tbody>
</table>

### What project identification methodology was used for this program?

- Crash frequency
- Expected crash frequency with EB adjustment
- Equivalent property damage only (EPDO Crash frequency)
EPDO crash frequency with EB adjustment
Relative severity index
Crash rate
Critical rate
Level of service of safety (LOSS)
Excess expected crash frequency using SPF
Excess expected crash frequency with the 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?

☐ Yes
☒ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process
☒ Selection committee
☐ Other

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
- Available funding
- Incremental B/C
- Ranking based on net benefit
- Other

Potential for Improvement: 1
based on Crash History

<table>
<thead>
<tr>
<th>Program:</th>
<th>Intersection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Program Methodology:</td>
<td>9/1/2009</td>
</tr>
</tbody>
</table>

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>Median width</td>
</tr>
<tr>
<td>Fatal crashes only</td>
<td>Volume</td>
<td>Horizontal curvature</td>
</tr>
<tr>
<td>Fatal and serious injury crashes only</td>
<td>Population</td>
<td>Functional classification</td>
</tr>
<tr>
<td>Other</td>
<td>Lane miles</td>
<td>Roadside features</td>
</tr>
<tr>
<td>Other</td>
<td>Other</td>
<td>Other</td>
</tr>
</tbody>
</table>

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

Expected crash frequency with EB adjustment

Equivalent property damage only (EPDO Crash frequency)

EPDO crash frequency with EB adjustment

Relative severity index

Crash rate

Critical rate

Level of service of safety (LOSS)

Excess expected crash frequency using SPF

Excess expected crash frequency with the 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?

Yes

No

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

Yes

No

How are highway safety improvement projects 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).

- Other

Relative Weight in Scoring

Rank of Priority Consideration

- Ranking based on B/C
- Available funding
- Incremental B/C
- Ranking based on net benefit
- Other

Potential for Improvement based on Crash History

Program: Horizontal Curve

Date of Program Methodology: 2/1/2009

What data types were used in the program methodology?

- **Crashes**
  - All crashes
  - Fatal crashes only
- **Exposure**
  - Traffic
  - Volume
- **Roadway**
  - Median width
  - Horizontal curvature
2014 Pennsylvania Highway Safety Improvement Program

<table>
<thead>
<tr>
<th>Fatal and serious injury crashes only</th>
<th>Population</th>
<th>Functional classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>Lane miles</td>
<td>Roadside features</td>
</tr>
<tr>
<td>Other</td>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

What project identification methodology was used for this program?

- Crash frequency
- Expected crash frequency with EB adjustment
- Equivalent property damage only (EPDO Crash frequency)
- EPDO crash frequency with EB adjustment
- Relative severity index
- Crash rate
- Critical rate
- Level of service of safety (LOSS)
- Excess expected crash frequency using SPFs
- Excess expected crash frequency with the 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?

- Yes
- No

If yes, are local road projects identified using the same methodology as state roads?
How are highway safety improvement projects advanced for implementation?

- Competitive application process
- Selection committee
- Other

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
- Available funding
- Incremental B/C
- Ranking based on net benefit
- Other
- Potential for Improvement based on Crash History

Program: Bicycle Safety
Date of Program Methodology: 2/1/2009

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>☐ Median width</td>
</tr>
<tr>
<td>☐ Fatal crashes only</td>
<td>☐ Volume</td>
<td>☐ Horizontal curvature</td>
</tr>
<tr>
<td>☐ Fatal and serious injury crashes only</td>
<td>☐ Population</td>
<td>☐ Functional classification</td>
</tr>
<tr>
<td>☐ Other</td>
<td>☐ Lane miles</td>
<td>☐ Roadside features</td>
</tr>
<tr>
<td>☐ Other</td>
<td>☐ Other</td>
<td>☐ Other</td>
</tr>
</tbody>
</table>

What project identification methodology was used for this program?

☒ Crash frequency

☐ Expected crash frequency with EB adjustment

☐ Equivalent property damage only (EPDO Crash frequency)

☐ EPDO crash frequency with EB adjustment

☐ Relative severity index

☐ Crash rate

☐ Critical rate

☐ Level of service of safety (LOSS)

☐ Excess expected crash frequency using SPFs

☐ Excess expected crash frequency with the EB adjustment

☐ Excess expected crash frequency using method of moments

☐ 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
☐ No

If yes, are local road projects identified using the same methodology as state roads?
☑ Yes
☐ No

How are highway safety improvement projects advanced for implementation?
☐ Competitive application process
☑ Selection committee
☐ Other

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
☐ Available funding
☐ Incremental B/C
☐ Ranking based on net benefit
☐ Other
Potential for Improvement based on Crash History

**Program:** Skid Hazard

**Date of Program Methodology:** 2/1/2009

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>Median width</td>
</tr>
<tr>
<td>Fatal crashes only</td>
<td>Volume</td>
<td>Horizontal curvature</td>
</tr>
<tr>
<td>Fatal and serious injury</td>
<td>Population</td>
<td>Functional classification</td>
</tr>
<tr>
<td>crashes only</td>
<td>Lane miles</td>
<td>Roadside features</td>
</tr>
<tr>
<td>Other</td>
<td>Other</td>
<td>Other</td>
</tr>
</tbody>
</table>

What project identification methodology was used for this program?

- Crash frequency
- Expected crash frequency with EB adjustment
- Equivalent property damage only (EPDO Crash frequency)
- EPDO crash frequency with EB adjustment
- Relative severity index
- Crash rate
- Critical rate
Level of service of safety (LOSS)
Excess expected crash frequency using SPFs
Excess expected crash frequency with the 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?
☒ Yes
☐ No

If yes, are local road projects identified using the same methodology as state roads?
☒ Yes
☐ No

How are highway safety improvement projects advanced for implementation?
☐ Competitive application process
☒ Selection committee
☐ Other

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
Program: Roadway Departure

Date of Program Methodology: 2/1/2009

What data types were used in the program methodology?

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

- Exposure
  - Traffic
  - Volume
  - Population

- Roadway
  - Median width
  - Horizontal curvature
  - Functional classification
  - Roadside features
  - Other

What project identification methodology was used for this program?

- Crash frequency
- Expected crash frequency with EB adjustment
☐ Equivalent property damage only (EPDO Crash frequency)
☐ EPDO crash frequency with EB adjustment
☐ Relative severity index
☐ Crash rate
☐ Critical rate
☐ Level of service of safety (LOSS)
☐ Excess expected crash frequency using SPFs
☐ Excess expected crash frequency with the 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?
☒ Yes
☐ No

If yes, are local road projects identified using the same methodology as state roads?
☒ Yes
☐ No

How are highway safety improvement projects advanced for implementation?
☐ Competitive application process
☒ Selection committee
☐ Other
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
☐ Available funding
☐ Incremental B/C
☐ Ranking based on net benefit
☐ Other
☒ Potential for Improvement based on Crash History

Program: Low-Cost Spot Improvements
Date of Program Methodology: 2/1/2009

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>☐ Median width</td>
</tr>
<tr>
<td>☐ Fatal crashes only</td>
<td>☐ Volume</td>
<td>☐ Horizontal curvature</td>
</tr>
<tr>
<td>☐ Fatal and serious injury crashes only</td>
<td>☐ Population</td>
<td>☐ Functional classification</td>
</tr>
</tbody>
</table>
What project identification methodology was used for this program?

☒ Crash frequency
☐ Expected crash frequency with EB adjustment
☐ Equivalent property damage only (EPDO Crash frequency)
☐ EPDO crash frequency with EB adjustment
☐ Relative severity index
☐ Crash rate
☐ Critical rate
☐ Level of service of safety (LOSS)
☐ Excess expected crash frequency using SPFs
☐ Excess expected crash frequency with the 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?

☒ Yes
☐ No

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

☒ Yes
☐ No
How are highway safety improvement projects advanced for implementation?

- [ ] Competitive application process
- [x] Selection committee
- [ ] Other

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
- [x] Rank of Priority Consideration

- [ ] Ranking based on B/C
- [ ] Available funding
- [ ] Incremental B/C
- [ ] Ranking based on net benefit
- [ ] Other
- [x] Potential for Improvement based on Crash History

---

**Program:** Local Safety

**Date of Program Methodology:** 2/1/2009

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>☐ Median width</td>
</tr>
<tr>
<td>☐ Fatal crashes only</td>
<td>☐ Volume</td>
<td>☐ Horizontal curvature</td>
</tr>
<tr>
<td>☐ Fatal and serious injury</td>
<td>☐ Population</td>
<td>☑ Functional classification</td>
</tr>
<tr>
<td>crashes only</td>
<td>☐ Lane miles</td>
<td>☐ Roadside features</td>
</tr>
<tr>
<td>☐ Other</td>
<td>☐ Other</td>
<td>☐ Other</td>
</tr>
</tbody>
</table>

What project identification methodology was used for this program?

- ☑ Crash frequency
- ☐ Expected crash frequency with EB adjustment
- ☐ Equivalent property damage only (EPDO Crash frequency)
- ☐ EPDO crash frequency with EB adjustment
- ☐ Relative severity index
- ☐ Crash rate
- ☐ Critical rate
- ☐ Level of service of safety (LOSS)
- ☐ Excess expected crash frequency using SPFs
- ☐ Excess expected crash frequency with the 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?
If yes, are local road projects identified using the same methodology as state roads?

Yes

No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☒ Selection committee

☐ Other

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

☐ Available funding

☐ Incremental B/C

☐ Ranking based on net benefit

☐ Other

☒ Potential for Improvement based on Crash History

1
### Program:

**Pedestrian Safety**

### Date of Program Methodology:

2/1/2009

### 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>Median width</td>
</tr>
<tr>
<td>Fatal crashes only</td>
<td>Volume</td>
<td>Horizontal curvature</td>
</tr>
<tr>
<td>Fatal and serious injury crashes only</td>
<td>Population</td>
<td>Functional classification</td>
</tr>
<tr>
<td>Other</td>
<td>Lane miles</td>
<td>Roadside features</td>
</tr>
<tr>
<td>Other</td>
<td>Other</td>
<td>Other</td>
</tr>
</tbody>
</table>

### What project identification methodology was used for this program?

- [x] Crash frequency
- [ ] Expected crash frequency with EB adjustment
- [ ] Equivalent property damage only (EPDO Crash frequency)
- [ ] EPDO crash frequency with EB adjustment
- [ ] Relative severity index
- [ ] Crash rate
- [ ] Critical rate
- [ ] Level of service of safety (LOSS)
- [ ] Excess expected crash frequency using SPF
- [ ] Excess expected crash frequency with the 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?

☑ Yes

☐ No

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

☑ Yes

☐ No

How are highway safety improvement projects advanced for implementation?

☐ Competitive application process

☑ Selection committee

☐ Other

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

☐ Available funding

☐ Incremental B/C
Ranking based on net benefit

Other

Potential for Improvement

1
based on Crash History

Program: Left Turn Crash

Date of Program Methodology: 2/1/2009

What data types were used in the program methodology?

Crashes

- All crashes
- Fatal crashes only
- Fatal and serious injury crashes only
- Other

Exposure

- Traffic
- Volume
- Population
- Lane miles
- Other

Roadway

- Median width
- Horizontal curvature
- Functional classification
- Roadside features
- Other

What project identification methodology was used for this program?

- Crash frequency
- Expected crash frequency with EB adjustment
- Equivalent property damage only (EPDO Crash frequency)
- EPDO crash frequency with EB adjustment
- Relative severity index
Crash rate
Critical rate
Level of service of safety (LOSS)
Excess expected crash frequency using SPFs
Excess expected crash frequency with the 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?
☑ Yes
☐ No

If yes, are local road projects identified using the same methodology as state roads?
☑ Yes
☐ No

How are highway safety improvement projects advanced for implementation?
☐ Competitive application process
☑ Selection committee
☐ Other

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
Available funding
Incremental B/C
Ranking based on net benefit
Other
Potential for Improvement based on Crash History

Program: Shoulder Improvement

Date of Program Methodology: 2/1/2009

What data types were used in the program methodology?

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

Exposure
- Traffic
- Volume
- Population

Roadway
- Median width
- Horizontal curvature
- Functional classification
- Roadside features
- Other

What project identification methodology was used for this program?
Check the items that apply:

- Crash frequency
- Expected crash frequency with EB adjustment
- Equivalent property damage only (EPDO Crash frequency)
- EPDO crash frequency with EB adjustment
- Relative severity index
- Crash rate
- Critical rate
- Level of service of safety (LOSS)
- Excess expected crash frequency using SPF
- Excess expected crash frequency with the 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?

- Yes
- No

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

- Yes
- No

How are highway safety improvement projects 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
- Rank of Priority Consideration

- Ranking based on B/C
- Available funding
- Incremental B/C
- Ranking based on net benefit
- Other
- Potential for Improvement based on Crash History

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

25

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

- Cable Median Barriers
- Rumble Strips
- Traffic Control Device Rehabilitation
- Pavement/Shoulder Widening
- Install/Improve Signing
- Install/Improve Pavement Marking and/or
What process is used to identify potential countermeasures?

☒ Engineering Study
☒ Road Safety Assessment
☐ Other:

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

In 2013, Pennsylvania began an effort to integrate the Highway Safety Manual into its project planning processes. Three major initiatives have come from this effort:

1) Creation of Pennsylvania-specific Safety Performance Functions (SPFs), which are currently in development through a research contract with Penn State University.
2) Development of a Pennsylvania-specific Excel-based HSM Worksheet, which is currently in development through a consultant contract.
3) Integration of HSM principles and practices into our design manuals and publications, which is currently underway through a consultant contract.

While the benefits of these efforts will not affect safety projects reported in this Annual Report, they are worth noting here since each initiative will soon be reaching completion.
## Progress in Implementing Projects

### Funds Programmed

Reporting period for Highway Safety Improvement Program funding.

- [ ] Calendar Year
- [x] State Fiscal Year
- [ ] Federal 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><strong>HSIP (Section 148)</strong></td>
<td>93741572</td>
<td>98299699.14</td>
</tr>
<tr>
<td><strong>HRRRP (SAFETEA-LU)</strong></td>
<td>2197524</td>
<td>2383419.94</td>
</tr>
<tr>
<td><strong>HRRR Special Rule</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Penalty Transfer - Section 154</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Penalty Transfer – Section 164</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Incentive Grants - Section 163</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Incentive Grants (Section 406)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other Federal-aid Funds (i.e. STP, NHPP)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>State and Local Funds</strong></td>
<td>10000000</td>
<td>9714478</td>
</tr>
</tbody>
</table>
How much funding is programmed to local (non-state owned and maintained) safety projects?
0 %

How much funding is obligated to local safety projects?
0 %

How much funding is programmed to non-infrastructure safety projects?
0 %

How much funding is obligated to non-infrastructure safety projects?
0 %

How much funding was transferred in to the HSIP from other core program areas during the reporting period?
0 %
How much funding was transferred out of the HSIP to other core program areas during the reporting period?

0 %

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

In last year’s HSIP Annual Report, we discussed the difficulties with ensuring that funds are being properly obligated towards safety projects with the greatest potential of improving safety and helping us meet our safety goals. We had many projects that were grandfathered into the HSIP program that required large blocks of funding to address areas with little safety deficiencies. However, the majority of those projects have been passed through to completion and the internal approval rate for HSIP funds is approaching 90%.

Additionally, we conducted visits to each of PennDOT’s eleven Engineering Offices as mentioned last year. Attendees included Central Office safety personnel, District engineering staff, and representatives from the transportation planning organizations. Our explanation of the priorities of the HSIP program were well-received and we were able to clear up several issues that District staff members were facing.

A continuing impediment is the distribution of funds to the Planning Organizations by formula without maintaining a centralized control over the monies. While approval to use HSIP funds on a project is retained at a high level, the projects and funding proposals are all generated from the Planning Organizations. We have recently adjusted the funding distribution formula (in response to the increased funding levels through the MAP-21 legislation) to reserve $35 million for statewide initiatives, which will help provide additional high-level control of funding and project selection. It is also hoped that last year’s HSIP meetings were able to thoroughly educate Planning Organization staff about the intent and priorities of the HSIP program and will lead to more effective project and funding choices.

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

In 2012, FHWA provided PennDOT with an Intersection Safety Implementation Plan (ISIP) and a Roadway Departure Safety Implementation Plan (RDIP). These two plans recommended a variety of low-cost safety countermeasures at over 14,000 locations. After a review of the materials and meetings with each of the Department’s eleven Engineering Districts, ISIP and RDIP projects are being started.
through the design and implementation processes. The first of these projects are included in this report's Project Listing.
### 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>Ginger Hill Intersection</td>
<td>Intersection geometry</td>
<td>1 Miles</td>
<td>18000</td>
<td>400000</td>
<td>HSIP (Section 148)</td>
<td>Rural Minor Arterial</td>
<td>5327</td>
<td>45</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>Intersection SR 0088 &amp; 0837</td>
<td>Intersection geometry - add left-turn lane</td>
<td>0 Miles</td>
<td>2743</td>
<td>862000</td>
<td>HSIP (Section 148)</td>
<td>Urban Principal Arterial - Other</td>
<td>7407</td>
<td>25</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>PA475 Hustontown Intersection</td>
<td>Intersection geometry - modify intersection corner radius</td>
<td>1 Miles</td>
<td>239153</td>
<td>1002148</td>
<td>HSIP (Section 148)</td>
<td>Rural Minor Arterial</td>
<td>2626</td>
<td>35</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>Route</td>
<td>Description</td>
<td>Miles</td>
<td>Milepost</td>
<td>HSIP Section</td>
<td>Traffic Type</td>
<td>HSIP Action</td>
<td>Agency</td>
<td>Departure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
<td>-------</td>
<td>----------</td>
<td>--------------</td>
<td>--------------</td>
<td>-------------</td>
<td>--------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US 522 Gem Curve</td>
<td>Alignment, Horizontal curve realignment</td>
<td>1 Miles</td>
<td>142700</td>
<td>HSIP (Section 148)</td>
<td>Rural Minor Arterial</td>
<td>1440</td>
<td>20</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td></td>
</tr>
<tr>
<td>SR 183/4016 (Shaefers)</td>
<td>Intersection geometry, Intersection geometry - other</td>
<td>1 Miles</td>
<td>310716</td>
<td>HSIP (Section 148)</td>
<td>Rural Minor Arterial</td>
<td>1261</td>
<td>45</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td></td>
</tr>
<tr>
<td>Remove Weave Condition</td>
<td>Interchange design, Acceleration / deceleration / merge lane</td>
<td>0 Miles</td>
<td>176157</td>
<td>HSIP (Section 148)</td>
<td>Interstate Ramp</td>
<td>2058</td>
<td>35</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td></td>
</tr>
<tr>
<td>PA 27/North St. Connector</td>
<td>Intersection traffic control, Intersection traffic control - other</td>
<td>0 Miles</td>
<td>780000</td>
<td>HSIP (Section 148)</td>
<td>Urban Minor Arterial</td>
<td>1368</td>
<td>25</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td></td>
</tr>
<tr>
<td>222 &amp; Shantz &amp; 863 Improvement</td>
<td>Intersection traffic control, Intersection traffic</td>
<td>0 Miles</td>
<td>600000</td>
<td>HSIP (Section 148)</td>
<td>Rural Principal Arterial - Other</td>
<td>2798</td>
<td>55</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td></td>
</tr>
<tr>
<td>Intersection</td>
<td>Description</td>
<td>Control - Other</td>
<td>Distance</td>
<td>Unit</td>
<td>Control</td>
<td>Agency</td>
<td>improvement</td>
<td>Agency</td>
<td>Improvement</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
<td>-----------------</td>
<td>----------</td>
<td>------</td>
<td>---------</td>
<td>--------</td>
<td>-------------</td>
<td>--------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>Strasburg Pk Intersection</td>
<td>Intersection geometry - other</td>
<td>0 Miles</td>
<td>1291071</td>
<td>1610410</td>
<td>HSIP (Section 148)</td>
<td>Urban Major Collector</td>
<td>9190</td>
<td>35</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>Belmont Rd Intersection</td>
<td>Alignment Vertical alignment or elevation change</td>
<td>0 Miles</td>
<td>556252</td>
<td>562515</td>
<td>HSIP (Section 148)</td>
<td>Rural Major Collector</td>
<td>6303</td>
<td>50</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>PA26/PA305 Intersection Improvement</td>
<td>Intersection geometry - other</td>
<td>0 Miles</td>
<td>12202</td>
<td>730000</td>
<td>HSIP (Section 148)</td>
<td>Rural Minor Arterial</td>
<td>2309</td>
<td>35</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>Montour Street to US 11</td>
<td>Intersection geometry - other</td>
<td>1 Miles</td>
<td>28601</td>
<td>841363</td>
<td>HSIP (Section 148)</td>
<td>Rural Minor Arterial</td>
<td>22339</td>
<td>40</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>SR 1004 Curve</td>
<td>Alignment Horizontal</td>
<td>1 Miles</td>
<td>690694</td>
<td>193000</td>
<td>HSIP (Section 148)</td>
<td>Rural Major Collector</td>
<td>2018</td>
<td>45</td>
<td>State Highway</td>
<td>Roadway</td>
</tr>
<tr>
<td>Realignment</td>
<td>Details</td>
<td>Miles</td>
<td>2014</td>
<td>2014</td>
<td>Collector</td>
<td>Agency</td>
<td>Departure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------------------------------</td>
<td>-------</td>
<td>------</td>
<td>------</td>
<td>-------------------------------</td>
<td>----------------------</td>
<td>---------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US 6 Center Turn Lane</td>
<td>Intersection geometry 0 Miles Auxiliaries - add two-way</td>
<td>0</td>
<td>176000</td>
<td>270000</td>
<td>HSIP (Section 148) Rural Principal Arterial - Other</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Turn Lane Geometry Auxiliaries - add two way left-turn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA 68 Clarion Curve</td>
<td>Alignment Horizontal curve realignment 1 Miles</td>
<td>1</td>
<td>32490</td>
<td>436000</td>
<td>HSIP (Section 148) Urban Principal Arterial - Other</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 0307 Shoulder Rumble</td>
<td>Roadway Rumble strips - edge or shoulder 1 Miles</td>
<td>1</td>
<td>525000</td>
<td>525000</td>
<td>HSIP (Section 148) Urban Minor Arterial</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strips</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United High School Curve</td>
<td>Alignment Horizontal curve realignment 1 Miles</td>
<td>1</td>
<td>584550</td>
<td>680000</td>
<td>HSIP (Section 148) Rural Minor Arterial</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow Creek Park Intersection</td>
<td>Intersection geometry Auxiliaries - add left-turn 1 Miles</td>
<td>1</td>
<td>207000</td>
<td>341500</td>
<td>HSIP (Section 148) Rural Principal Arterial - Other</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Description</td>
<td>Problem Description</td>
<td>Length</td>
<td>Design Cost</td>
<td>Construction Cost</td>
<td>Funds Provided</td>
<td>Type of Improvement</td>
<td>Agency</td>
<td>Entity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>--------</td>
<td>-------------</td>
<td>-------------------</td>
<td>---------------</td>
<td>---------------------</td>
<td>--------</td>
<td>--------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mount Zion Rd Improvement</strong></td>
<td>Intersection traffic control</td>
<td>1 Miles</td>
<td>112500</td>
<td>650000</td>
<td>HSIP (Section 148)</td>
<td>Urban Principal Arterial - Other</td>
<td>2229 7</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td></td>
</tr>
<tr>
<td><strong>SR 739 Shoulder / Widening</strong></td>
<td>Roadway Rumble strips - edge or shoulder</td>
<td>2 Miles</td>
<td>474000</td>
<td>1121250</td>
<td>HSIP (Section 148)</td>
<td>Rural Major Collector</td>
<td>1011  35</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td></td>
</tr>
<tr>
<td><strong>SR 11 Shoulders / ELRS</strong></td>
<td>Roadway Rumble strips - edge or shoulder</td>
<td>3 Miles</td>
<td>349000</td>
<td>862500</td>
<td>HSIP (Section 148)</td>
<td>Rural Major Collector</td>
<td>2205  55</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td></td>
</tr>
<tr>
<td><strong>SR 11 Shoulders / ELRS</strong></td>
<td>Roadway Rumble strips - edge or shoulder</td>
<td>3 Miles</td>
<td>67760</td>
<td>862500</td>
<td>HSIP (Section 148)</td>
<td>Rural Major Collector</td>
<td>2837  55</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td></td>
</tr>
<tr>
<td><strong>94 &amp; 394 Intersection Improvements</strong></td>
<td>Intersection traffic control</td>
<td>2 Miles</td>
<td>120021</td>
<td>1035000</td>
<td>HSIP (Section 148)</td>
<td>Rural Minor Arterial</td>
<td>8170  35</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td></td>
</tr>
<tr>
<td>Project Description</td>
<td>Roadway Segment</td>
<td>Benefit</td>
<td>Benefit Description</td>
<td>Benefit Code</td>
<td>Agency</td>
<td>Location</td>
<td>Notes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------</td>
<td>---------</td>
<td>----------------------</td>
<td>--------------</td>
<td>--------</td>
<td>----------</td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR2012 Mt. Tom to Airport</td>
<td>Intersection geometry</td>
<td>1 Miles</td>
<td>53506</td>
<td>2400000</td>
<td>HSIP (Section 148)</td>
<td>Rural Minor Arterial</td>
<td>10818</td>
<td>45</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>Colebrook Road Improvement</td>
<td>Roadway delineation</td>
<td>4 Miles</td>
<td>30000</td>
<td>3000000</td>
<td>HSIP (Section 148)</td>
<td>Rural Major Collector</td>
<td>7117</td>
<td>45</td>
<td>State Highway Agency</td>
<td>Lane Departure</td>
</tr>
<tr>
<td>Market St Road Safety audit</td>
<td>Non-infrastructure Road safety audits</td>
<td>5 Miles</td>
<td>30000</td>
<td>30000</td>
<td>HSIP (Section 148)</td>
<td>Urban Principal Arterial - Other</td>
<td>25890</td>
<td>35</td>
<td>State Highway Agency</td>
<td>Road Safety audit which will recommend improvements in many areas.</td>
</tr>
<tr>
<td>Lycoming Median Guide Rail</td>
<td>Roadside Barrier - cable</td>
<td>44 Miles</td>
<td>67000</td>
<td>679000</td>
<td>HSIP (Section 148)</td>
<td>Rural Principal Arterial - Other Freeways and Expressway</td>
<td>13149</td>
<td>65</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
</tr>
<tr>
<td>Mercer Tree Removal</td>
<td>Roadside Removal of roadside objects (trees, poles, etc.)</td>
<td>9.15 Miles</td>
<td>60000</td>
<td>60000</td>
<td>HSIP (Section 148)</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------------------------------</td>
<td>------------</td>
<td>-------</td>
<td>-------</td>
<td>-------------------</td>
<td>---</td>
<td>---</td>
<td>---------------------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>Erie Tree Removal</td>
<td>Roadside Removal of roadside objects (trees, poles, etc.)</td>
<td>14.87 Miles</td>
<td>90000</td>
<td>90000</td>
<td>HSIP (Section 148)</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td></td>
</tr>
<tr>
<td>2013-14 Centre Reg ISIP</td>
<td>Intersection traffic control Intersection traffic control - other</td>
<td>0.02 Miles</td>
<td>58950</td>
<td>150000</td>
<td>HSIP (Section 148)</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td></td>
</tr>
<tr>
<td>Group 2-14 NC Rumblestrip</td>
<td>Roadway Rumble strips - unspecified or other</td>
<td>0.02 Miles</td>
<td>100000</td>
<td>700000</td>
<td>HSIP (Section 148)</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td></td>
</tr>
<tr>
<td>Programme</td>
<td>Type</td>
<td>Description</td>
<td>Miles</td>
<td>Estimate 1</td>
<td>Estimate 2</td>
<td>Agency</td>
<td>Travelers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>------</td>
<td>-------------</td>
<td>-------</td>
<td>------------</td>
<td>------------</td>
<td>--------</td>
<td>-----------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013-14 Centre RDIP</td>
<td>Roadway</td>
<td>Roadway signs and traffic control Curve-related warning signs and flashers</td>
<td>0.02</td>
<td>135810</td>
<td>150000</td>
<td>HSIP (Section 148)</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
</tr>
<tr>
<td>ISIP Systematic</td>
<td>Intersection</td>
<td>Intersection traffic control Intersection traffic control - other</td>
<td>0</td>
<td>155000</td>
<td>105000</td>
<td>HSIP (Section 148)</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>RDIP Systematic</td>
<td>Roadway</td>
<td>Roadway - other</td>
<td>0</td>
<td>67000</td>
<td>370000</td>
<td>HSIP (Section 148)</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
</tr>
<tr>
<td>DW Systematic Improvement -2014</td>
<td>Intersection</td>
<td>Intersection traffic control Intersection traffic control - other</td>
<td>742 Numbers</td>
<td>86000</td>
<td>403000</td>
<td>HSIP (Section 148)</td>
<td>0</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Performance Measures*</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of fatalities</td>
<td>1471</td>
<td>1413</td>
<td>1365</td>
<td>1329</td>
<td>1277</td>
</tr>
<tr>
<td>Number of serious injuries</td>
<td>4022</td>
<td>3858</td>
<td>3693</td>
<td>3556</td>
<td>3432</td>
</tr>
<tr>
<td>Fatality rate (per HMVMT)</td>
<td>1.38</td>
<td>1.34</td>
<td>1.31</td>
<td>1.3</td>
<td>1.27</td>
</tr>
<tr>
<td>Serious injury rate (per HMVMT)</td>
<td>3.76</td>
<td>3.65</td>
<td>3.55</td>
<td>3.48</td>
<td>3.4</td>
</tr>
</tbody>
</table>

*Performance measure data is presented using a five-year rolling average.
Number of Fatalities and Serious Injuries for the Last Five Years

- **Fatalities**
  - 2009: 1471
  - 2010: 1413
  - 2011: 1365
  - 2012: 1329
  - 2013: 1277

- **Serious Injuries**
  - 2009: 4000
  - 2010: 3900
  - 2011: 3800
  - 2012: 3700
  - 2013: 3600


- **# Fatalities**
- **# Serious Injuries**
Rate of Fatalities and Serious injuries for the Last Five Years

![Graph showing the rate of fatalities and serious injuries from 2009 to 2013. The graph indicates a decrease in both fatality and serious injury rates over the years.](image-url)
To the maximum extent possible, present performance measure* data by functional classification and ownership.

**Year - 2013**

<table>
<thead>
<tr>
<th>Function Classification</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>
</tr>
</thead>
<tbody>
<tr>
<td>RURAL PRINCIPAL ARTERIAL - INTERSTATE</td>
<td>53</td>
<td>111</td>
<td>0.05</td>
<td>0.11</td>
</tr>
<tr>
<td>RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RURAL PRINCIPAL ARTERIAL - OTHER</td>
<td>104</td>
<td>192</td>
<td>0.1</td>
<td>0.19</td>
</tr>
<tr>
<td>RURAL MINOR ARTERIAL</td>
<td>169</td>
<td>349</td>
<td>0.17</td>
<td>0.35</td>
</tr>
<tr>
<td>RURAL MINOR COLLECTOR</td>
<td>55</td>
<td>155</td>
<td>0.05</td>
<td>0.15</td>
</tr>
<tr>
<td>RURAL MAJOR COLLECTOR</td>
<td>127</td>
<td>283</td>
<td>0.13</td>
<td>0.28</td>
</tr>
<tr>
<td>RURAL LOCAL ROAD OR STREET</td>
<td>27</td>
<td>77</td>
<td>0.03</td>
<td>0.08</td>
</tr>
<tr>
<td>URBAN PRINCIPAL</td>
<td>67</td>
<td>154</td>
<td>0.07</td>
<td>0.15</td>
</tr>
<tr>
<td>Class</td>
<td>Total</td>
<td>Length</td>
<td>Avg.</td>
<td>Max</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------</td>
<td>--------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>ARTERIAL - INTERSTATE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN PRINCIPAL ARTERIAL</td>
<td>34</td>
<td>78</td>
<td>0.03</td>
<td>0.08</td>
</tr>
<tr>
<td>ARTERIAL - OTHER</td>
<td>213</td>
<td>608</td>
<td>0.21</td>
<td>0.6</td>
</tr>
<tr>
<td>FREEWAYS AND EXPRESSWAYS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN PRINCIPAL ARTERIAL</td>
<td>137</td>
<td>396</td>
<td>0.14</td>
<td>0.39</td>
</tr>
<tr>
<td>ARTERIAL - OTHER</td>
<td>70</td>
<td>206</td>
<td>0.07</td>
<td>0.2</td>
</tr>
<tr>
<td>URBAN MINOR ARTERIAL</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>COLLECTOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN MAJOR COLLECTOR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>LOCAL ROAD OR STREET</td>
<td>7</td>
<td>30</td>
<td>0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>OTHER</td>
<td>212</td>
<td>794</td>
<td>0.21</td>
<td>0.79</td>
</tr>
<tr>
<td>RAMP</td>
<td>1</td>
<td>7</td>
<td>0</td>
<td>0.01</td>
</tr>
</tbody>
</table>
# Fatalities by Roadway Functional Classification

![Graph showing fatalities by roadway functional classification for 2009-2013.]
Fatality Rate by Roadway Functional Classification

Roadway Functional Classification

- 2009
- 2010
- 2011
- 2012
- 2013
Serious Injury Rate by Roadway Functional Classification

2009 2010 2011 2012 2013

Roadway Functional Classification
### Year - 2013

<table>
<thead>
<tr>
<th>Roadway Ownership</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>
</tr>
</thead>
<tbody>
<tr>
<td>STATE HIGHWAY AGENCY</td>
<td>1058</td>
<td>2628</td>
<td>1.05</td>
<td>2.61</td>
</tr>
<tr>
<td>COUNTY HIGHWAY AGENCY</td>
<td>4</td>
<td>19</td>
<td>0</td>
<td>0.02</td>
</tr>
<tr>
<td>TOWN OR TOWNSHIP HIGHWAY AGENCY</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CITY OF MUNICIPAL HIGHWAY AGENCY</td>
<td>198</td>
<td>735</td>
<td>0.2</td>
<td>0.73</td>
</tr>
<tr>
<td>STATE PARK, FOREST, OR RESERVATION AGENCY</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>LOCAL PARK, FOREST OR RESERVATION AGENCY</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OTHER STATE AGENCY</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OTHER LOCAL AGENCY</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PRIVATE (OTHER THAN RAILROAD)</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>0.01</td>
</tr>
<tr>
<td>RAILROAD</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>STATE TOLL AUTHORITY</td>
<td>17</td>
<td>48</td>
<td>0.02</td>
<td>0.05</td>
</tr>
<tr>
<td>LOCAL TOLL AUTHORITY</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OTHER PUBLIC INSTRUMENTALITY (E.G. AIRPORT, SCHOOL, UNIVERSITY)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>INDIAN TRIBE NATION</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OTHER</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Number of Fatalities by Roadway Ownership

- 2009
- 2010
- 2011
- 2012
- 2013

# of Fatalities

Roadway Functional Classification

2014 Pennsylvania Highway Safety Improvement Program
Number of Serious Injuries by Roadway Ownership

- 2009
- 2010
- 2011
- 2012
- 2013

Roadway Functional Classification

# of Serious Injuries

0 1000 2000 3000 4000
Serious Injury Rate by Roadway Ownership

![Graph showing serious injury rate by roadway ownership across different years (2009-2013). The bars represent the injury rate per HWYMT for each classification, with state roads having the highest rate in 2009 and 2010.]
Describe any other aspects of the general highway safety trends on which you would like to elaborate.

Please note that 2013 vehicle miles traveled data is not available at the time of publishing this report. The 2013 values have been estimated using the 2012 values. These values will be updated in next year's report.

**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>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatality rate (per capita)</td>
<td>1.682</td>
<td>1.594</td>
<td>1.556</td>
<td>1.538</td>
<td>1.544</td>
</tr>
<tr>
<td>Serious injury rate (per capita)</td>
<td>2.894</td>
<td>2.772</td>
<td>2.636</td>
<td>2.556</td>
<td>2.542</td>
</tr>
<tr>
<td>Fatality and serious injury rate (per capita)</td>
<td>4.576</td>
<td>4.366</td>
<td>4.192</td>
<td>4.094</td>
<td>4.086</td>
</tr>
</tbody>
</table>

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

Data was obtained from the following sources:

1. Fatality and serious injury data was taken from the state crash database
2. Population figures were obtained from the US Census Bureau and from official State publications
3. The ratio of older persons per 1000 population was obtained from FHWA

From the latter two pieces of data, a number of older persons in the Commonwealth was calculated for each year. **NOTE:** the 2013 ratio of older persons was not yet available from FHWA; 2013 values were estimated using the 2012 ratio.

The older pedestrian (age 65+) fatalities and fatalities in crashes involving and older driver (age 65+) were added together. The same was performed on the serious injuries.

A rate of fatalities and serious injuries per 10,000 was then calculated. The 10,000 mark was set by FHWA in order to yield workable numbers for the rates. The rates were then added to get a net Fatality and Serious Injury Rate.

A five year average of this rate was calculated and rounded to the nearest tenth. The 2007-2011 value is
4.2 and the 2009-2013 value is 4.1. Therefore, the Special Rule does not apply for Pennsylvania. However, recognizing our aging population and increasing trends in highway fatalities for our older citizens, we will continue our efforts at improving older driver safety.

**Rate of Fatalities and Serious injuries for the Last Five Years**

![Bar chart showing the rate of fatalities and serious injuries from 2009 to 2013.](chart-image)

**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?

☐ None
☒ Benefit/cost
☐ Policy change
☐ Other:

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

☐ Shift Focus to Fatalities and Serious Injuries
☐ Include Local Roads in Highway Safety Improvement Program
☐ Organizational Changes
☐ None
☒ Other: Other-Change in Funding Distribution Formula

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

The formula for the distribution of safety monies has been adjusted in response to the increase in funding in the MAP-21 legislation. The formula is as follows:
1) $500,000 in "base funding" for each planning organization

2) $35 million reserved for statewide initiatives, such as implementation of the Intersection Safety and Roadway Departure Safety Implementation Plans as well as the systematic implementation of additional proven low cost safety improvements.

3) The remainder - $45.5 million - will be distributed to the planning organizations using a weighted formula based 50% on fatalities and serious injuries and 50% on reportable crashes.

It is hoped that this new funding formula will provide for a greater return on our safety investment and continue our great progress in achieving our aggressive highway safety goals. The base funding will provide smaller planning organizations with the ability to perform medium-sized improvement projects as needed. The $35 million reserved for statewide initiatives provides for some centralized control over safety monies and will ensure the implementation of high-level safety efforts. And finally, the revision of the formula for distributing the remaining funds - approximately equal to our safety funding levels from previous years - will focus those funds of areas with distinct safety problems.
## SHSP Emphasis Areas

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

### Year - 2013

<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>Run-off-road</td>
<td>626</td>
<td>1552</td>
<td>0.62</td>
<td>1.54</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Intersections</td>
<td>Intersection, Crashes</td>
<td>271</td>
<td>1015</td>
<td>0.27</td>
<td>1.01</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pedestrians</td>
<td>Vehicle/pedestrian</td>
<td>150</td>
<td>334</td>
<td>0.15</td>
<td>0.33</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bicyclists</td>
<td>Vehicle/bicycle</td>
<td>15</td>
<td>68</td>
<td>0.01</td>
<td>0.07</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Older Drivers</td>
<td>Older Driver, Crashes</td>
<td>268</td>
<td>467</td>
<td>0.27</td>
<td>0.46</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Motorcyclists</td>
<td>Motorcycle, Crashes</td>
<td>203</td>
<td>549</td>
<td>0.2</td>
<td>0.54</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Work Zones</td>
<td>Work Zone, Crashes</td>
<td>20</td>
<td>47</td>
<td>0.02</td>
<td>0.05</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Number of Fatalities by SHSP Emphasis Area

Year 2009 to Year 2013

SHSP Emphasis Area

# of Fatalities
Number of Serious Injuries by SHSP Emphasis Area

Year 2009 to Year 2013

SHSP Emphasis Area

<table>
<thead>
<tr>
<th>SHSP Emphasis Area</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway Departure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intersections</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedestrians</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicyclists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Older Drivers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorcyclists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Zones</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fatality Rate by SHSP Emphasis Area

Year 2009 to Year 2013

SHSP Emphasis Area

Rate of Fatalities
Serious Injury Rate by SHSP Emphasis Area

Year 2009 to Year 2013

Rate of Serious Injury

Roadway Departure  Intersections  Pedestrians  Bicyclists  Older Drivers  Motorists  Work Zones  Data

SHSP Emphasis Area
Groups of similar project types
Present the overall effectiveness of groups of similar types of projects.

Year - 2013

<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>Low-Cost Spot Improvements</td>
<td>All</td>
<td>1277</td>
<td>3432</td>
<td>1.27</td>
<td>3.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Intersection</td>
<td>Intersection</td>
<td>271</td>
<td>1015</td>
<td>0.27</td>
<td>1.01</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Horizontal Curve</td>
<td>Curve Driver Error</td>
<td>167</td>
<td>306</td>
<td>0.17</td>
<td>0.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Roadway Departure</td>
<td>Run-off-road</td>
<td>626</td>
<td>1552</td>
<td>0.62</td>
<td>1.54</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Local Safety</td>
<td>Local Road (Only)</td>
<td>203</td>
<td>777</td>
<td>0.2</td>
<td>0.77</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bicycle Safety</td>
<td>Vehicle/bicycle</td>
<td>15</td>
<td>68</td>
<td>0.01</td>
<td>0.07</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Median Barrier</td>
<td>Cross median</td>
<td>54</td>
<td>70</td>
<td>0.05</td>
<td>0.07</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pedestrian Safety</td>
<td>Vehicle/pedestrian</td>
<td>150</td>
<td>334</td>
<td>0.15</td>
<td>0.33</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Shoulder Improvement</td>
<td>Run-off-road</td>
<td>626</td>
<td>1552</td>
<td>0.62</td>
<td>1.54</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
# Fatalities by Target Crash Type for Groups of Similar Projects

Year 2009 to Year 2013

![Bar chart showing fatalities by target crash type for groups of similar projects. The chart displays data from 2009 to 2013, with different colors representing each year. The x-axis represents different types of crashes, such as All, Angle, Cross median, Pedestrian object, Head-on, Left-turn, Night-time, Non-intersection, Right-end, Right-turn, Run-off-road, Speed-related, Truck-related, Vehicle/animal, Vehicle/bicycle, Vehicle/pedestrian. The y-axis represents the number of fatalities, ranging from 0 to 2000.](image-url)
#Serious Injuries by Target Crash Type for Groups of Similar Projects

Year 2009 to Year 2013

<table>
<thead>
<tr>
<th>Target Crash Type</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>4500</td>
<td>3000</td>
<td>2500</td>
<td>2000</td>
<td>1500</td>
</tr>
<tr>
<td>Angle</td>
<td>500</td>
<td>400</td>
<td>350</td>
<td>300</td>
<td>250</td>
</tr>
<tr>
<td>Cross median</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Pedestrian object</td>
<td>500</td>
<td>400</td>
<td>350</td>
<td>300</td>
<td>250</td>
</tr>
<tr>
<td>Head on</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Left-turn</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Night-time</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Non-intersection</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Rear-end</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Right-turn</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Run-off-road</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Speed-related</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Truck-related</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Vehicle/animal</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Vehicle/bicycle</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Wet-road</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>600</td>
<td>500</td>
</tr>
</tbody>
</table>
Serious Injury Rate by Target Crash Type for Groups of Similar Projects

Year 2009 to Year 2013

Target Crash Type

Rate of Serious Injuries

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

Present the overall effectiveness of systemic treatments.

### Year - 2013

<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>Install/Improve Signing</td>
<td>All</td>
<td>1277</td>
<td>3432</td>
<td>1.27</td>
<td>3.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Install/Improve Pavement Marking and/or Delineation</td>
<td>All</td>
<td>1277</td>
<td>3432</td>
<td>1.27</td>
<td>3.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Traffic Control Device Rehabilitation</td>
<td>Intersection</td>
<td>271</td>
<td>1015</td>
<td>0.27</td>
<td>1.01</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cable Median Barriers</td>
<td>Cross median</td>
<td>54</td>
<td>70</td>
<td>0.05</td>
<td>0.07</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rumble Strips</td>
<td>Head on</td>
<td>167</td>
<td>441</td>
<td>0.17</td>
<td>0.44</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Upgrade Guard Rails</td>
<td>Hit Guide Rail</td>
<td>139</td>
<td>256</td>
<td>0.14</td>
<td>0.25</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pavement/Shoulder Widening</td>
<td>Run-off-road</td>
<td>626</td>
<td>1552</td>
<td>0.62</td>
<td>1.54</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Add/Upgrade/Modify/Remove Traffic Signal</td>
<td>Intersection</td>
<td>271</td>
<td>1015</td>
<td>0.27</td>
<td>1.01</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
# Fatalities by Target Crash Type for Systemic Safety Improvements

Year 2009 to Year 2013

<table>
<thead>
<tr>
<th>Target Crash Type</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross median</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed object</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left-turn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Night-time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-intersection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear end</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right-turn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Run-off-road</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed-related</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truck-related</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle/animal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle/bicycle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle/pedestrian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wet road</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# of Fatalities

0  500  1000  1500  2000  2500  3000  3500
# Serious Injuries by Target Crash Type for Systemic Safety Improvements

Year 2009 to Year 2013

<table>
<thead>
<tr>
<th>Target Crash Type</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross median</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed object</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sideswipe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left-turn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Night-time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-intersection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear-end</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right-turn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Run-off-road</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed-related</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truck-related</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle/animal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle/bicycle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wet-road</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# of Serious Injuries
Fatality Rate by Target Crash Type for Systemic Safety Improvements

Year 2009 to Year 2013

Rate of Fatalities

Target Crash Type
Serious Injury Rate by Target Crash Type for Systemic Safety Improvements

Year 2009 to Year 2013

Target Crash Type

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

Please note that 2013 vehicle miles traveled data is not available at the time of publishing this report. The 2013 values have been estimated using the 2012 values. These values will be updated in next year's report.

The most updated version of our HSIP program benefit-cost ratio is 0.85:1. This indicates that only $0.85 of economic benefit is realized for each safety dollar spent. This indicator is negative despite our recent safety successes, which include a record low number of highway fatalities since record keeping began over 80 years ago. However, a closer analysis of the data used to generate this ratio reveals two items worthy of consideration:

1) One project location in Lycoming County, completed in 2009, is the cause of a 0.16 reduction in the benefit cost ratio by itself. If this single project is removed from the analysis, our benefit cost ratio would be a positive 1.01:1. After the intersection improvements, which included acceleration lanes for traffic turning onto a major highway, were completed, a series of four fatal accidents occurred. These involved a pedestrian being struck, a large truck rolling over for unknown causes, a DUI crash, and an inexperienced driver making an entry onto the highway without clearance. None of these accidents would have been affected by the work paid for with HSIP funds.

2) Several projects, including ones in the most recent 2010 set of data, had minimal crash history prior to the completion date. For example, a project in Adams County which cost over $600,000 had no crashes in the three years prior to construction. Another project in Washington County had a pair of property damage only crashes in the three years before completion, but was provided with an intersection upgrade that cost almost $800,000.

The first item is difficult to address; fatal crashes are very random in nature, and their high cost to society cannot be disputed. Our excellent progress in reducing fatalities in the Commonwealth is a much better indicator of the effectiveness of our safety programs.

The second item, however, is one that we are continuously working to correct. As mentioned previously in this report, safety staff from PennDOT's Central Office made visits to each Engineering District office this past fall to present a refresher course on the HSIP program, it's priorities, and the proper ways to obtain the most benefit from safety investments. Many of these seemingly poor project choices were grandfathered into the HSIP program, and therefore not subject to our improved project selection methodology. To combat this, we instituted a policy change in January 2011 that removed projects with limited crash history or limited potential for safety improvement for consideration. Based on the inclusion of the large number of project eligible for HSIP funds under our new guidelines on this year's new Transportation Improvement Program, we feel strongly that the adverse effect of these grandfathered projects will soon be negated.
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-Other Injury</th>
<th>Bef-PDO</th>
<th>Bef-Total</th>
<th>Aft-Fatal</th>
<th>Aft-Serious Injury</th>
<th>Aft-Other Injury</th>
<th>Aft-PDO</th>
<th>Aft-Total</th>
<th>Evaluation Results (Benefit/Cost Ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


### Optional Attachments

<table>
<thead>
<tr>
<th>Sections</th>
<th>Files Attached</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.

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.