Highway Safety Improvement Program
Data Driven Decisions

Rhode Island
Highway Safety Improvement Program
2015 Annual Report

Prepared by: RI
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 .................................................................................................................................................. 3
Program Structure ........................................................................................................................................ 3
  Program Administration ........................................................................................................................... 3
  Program Methodology.............................................................................................................................. 6
Progress in Implementing Projects ............................................................................................................. 27
  Funds Programmed............................................................................................................................. 27
  General Listing of Projects .................................................................................................................. 30
Progress in Achieving Safety Performance Targets .................................................................................... 35
  Overview of General Safety Trends ................................................................................................. 35
  Application of Special Rules ................................................................................................................. 49
Assessment of the Effectiveness of the Improvements (Program Evaluation) .......................................... 51
  SHSP Emphasis Areas.......................................................................................................................... 53
  Groups of similar project types .............................................................................................................. 58
  Systemic Treatments.............................................................................................................................. 63
  Project Evaluation................................................................................................................................. 69
Glossary....................................................................................................................................................... 71
Executive Summary

Since 2010, The Rhode Island Department of Transportation (RIDOT) has followed the Highway Safety Manual process to guide their HSIP. For network screening, RIDOT currently uses societal crash cost ranking using the KABCO scale to identify top crash site-specific locations as well as systemic type issues statewide. The systemic approach is a risk based approach that examines roadway types that are susceptible to a specific crash type (roadway departure, intersection) and identified through high-level queries. RIDOT reviews the top crash lists/types to develop and fine tune a plan of incorporating safety improvements through new and existing spot location/systemic projects.

The HSIP Committee is made up of safety stakeholders, including RIDOT, FHWA, and RIDOT HSIP Engineering Support Services consultant that meets monthly to develop the HSIP program, approve HSIP projects and requests for projects, and discuss other safety related issues. The HSIP committee uses a data-driven approach to making any safety related decision and has developed a ranking form based on safety benefits, feasibility and policy conformance to be used whenever HSIP funds are considered for a project. Not only does the HSIP committee review internal requests for funds, but also requests that come in from the local municipalities.

As part of the HSIP project ranking form, points are given for conducting a Road Safety Assessment (RSA) at the location under consideration for safety improvements. The RSA’s follow federal RSA guidelines and RI has embraced the usefulness of the RSA process. The RSA process also promotes involvement from stakeholders outside of RIDOT and strengthens relationships between RIDOT and participating municipalities. These strengthening relationships will prove to be imperative for sharing/updating roadway data to allow for predictive network screening and state-specific SPF development in the future. RIDOT is expected to complete the collection of the majority of the MIRE elements in the fall of 2015.

The collection of the MIRE elements will also assist with the selection of systemic project locations and countermeasures with the risk for specific crash types (i.e. Curves). RIDOT also uses FHWA low-cost proven safety countermeasures, NCHRP, FHWA reports, and other safety documents to assist with countermeasure identification. Again, the MIRE data collection and sharing with municipalities will improve the overall HSIP program as it will provide the municipalities additional tools to conduct RSA’s and submit strong safety project candidates for HSIP committee review and approval.

RIDOT prioritizes projects based on the ranking scores and how the improvements fit into the roadway departure, local safety, safety corridor, intersections, interchanges, and vulnerable users programs. Once completed, the projects are evaluated to determine the safety effectiveness of the safety
improvements. The resulting data will assist RIDOT with developing their own crash modification factors.

RIDOT’s HSIP program has been ever-evolving since 2010, as other RIDOT programs, sections, and administrations have changed. Most recently, RIDOT’s administration has placed a renewed focus on upgrading and maintaining our bridges and roads. As with any new administration, it takes time and adjustments to conduct business in a new and exciting way. RIDOT now has a 10-year plan for all of its core programs (traffic/safety), road, and bridge) that budgets projects based on focus areas. The emphasis on bridges and roads does not mean safety projects are ignored. Safety will always be a critical and necessary program, and while available funding may fluctuate in any given year, RIDOT is collecting the data and possessing the tools to make more informed data-driven decisions to spend safety dollars in the most beneficial way to the State.
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

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

Network Screening - Current: On an annual basis, the RIDOT identifies the roadway facilities exhibiting the most severe safety needs based on crash severity and frequency/exposure. Through the RIDOT’s HSIP, ALL public roads are addressed, focusing on fatal and serious injury crashes in line with their SHSP and the performance measures set forth in MAP-21. Most of the State-owned roadway network and some of the local roadways are mapped to a Linear Referencing System; however, the majority of the local roadways is not referenced and is manually reviewed to ensure their inclusion into the HSIP process.
Network Screening - Proposed: RIDOT is currently undergoing a large data collection effort to obtain all of the Model Inventory of Roadway Data Elements (MIRE), which included roadway, traffic, and other data needed to assist the RIDOT make the most efficient decisions where to allocate safety funds and resources. This data is being collected on ALL state and locally owned roadways. The RIDOT also is working on developing a data maintenance effort to ensure all data collected is updated on a timely basis. Also, RIDOT is working on a data-sharing effort to allow municipalities to use and update data on locally-owned facilities.

Diagnosis and Implementation: The RIDOT has developed a Local Safety Program to work with municipalities to identify and mitigate crash issues on locally-maintained roadways. RIDOT has developed a process for locals to request a safety improvement with the intent for locals to perform the "planning" step from the HSIP process. RIDOT will then determine if the improvement is eligible for HSIP funds and distribute the funds needed to the locals so they can administer the construction of the improvements. As part of this program, the RIDOT will provide the needed training and resources to assist the locals in the planning process with the intent for locals to perform the "planning" step independently. Initially, $1,000,000 of funding will be allotted annually for local projects that will be ranked and awarded separately from state initiated projects. Currently, there is a pilot project that includes three (3) participating municipalities with projects scheduled for reimbursement in FY16.

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

- [x] Design
- [x] Planning
- [x] Maintenance
- [x] Operations
- [x] Governors Highway Safety Office
- [x] Other: Other-GIS Analysts

Briefly describe coordination with internal partners.
The RIDOT works internally with transportation planners, design engineers, GIS analysts, safety engineers, highway safety program coordinators and maintenance/operations staff as part of the entire HSIP process, including the identification of critical locations and the selection of appropriate countermeasures/improvements. These partners are involved in Road Safety Assessments (RSAs) that were performed at many of these locations to facilitate this multidiscipline approach.

RIDOT also houses the Office of Highway Safety where the HSIP, HSP, and SHSP are all developed in a coordinated effort focused on developing consistent safety goals. Safety initiatives are now implemented in a more integrated and multi-disciplinary manner, providing RIDOT with more flexibility to direct resources to address particular safety needs.

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

- Metropolitan Planning Organizations
- Governors Highway Safety Office
- Local Government Association
- Other:

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

- Multi-disciplinary HSIP steering committee
- Other:

Describe any other aspects of Highway Safety Improvement Program Administration on which you would like to elaborate.
Beginning in 2015, the RIDOT has begun the process of implementing a semi-annual review of safety improvement proposals for selection. Local governments and RIDOT staff submit engineering studies of potential safety projects. These safety proposals are evaluated to focus limited resources on areas of greatest need. HSIP funds are available for locations or corridors where a known 'substantive safety' problem exists as indicated by location specific data on severe crashes or where a risk based analysis has demonstrated the need for systemic countermeasures. All HSIP expenditures require that a specific project action can produce a measureable and significant reduction in the number or risk of severe crashes. To achieve the maximum benefit, the focus of the program is on cost effective use of the funds allocated for safety improvements. RIDOT's HSIP project selection methods prioritize safety proposals that align with the SHSP, address roadways with actual or potential for higher deaths and serious injuries, and target the underlying safety issue.

The HSIP Proposal Selection Committee (HSIP PSC) is made up of the HSIP Program Manager, FHWA Safety and Operations Engineer, and other RIDOT staff. The purpose of the HSIP PSC is to review and select HSIP proposals for advancement. The HSIP PSC meets on a monthly basis.

RIDOT has 5 different “on-call” consultant contracts. The first on-call contract involves one consultant to perform the network screening, diagnosis, and countermeasure selection. This consultant will then develop conceptual improvement plans for RIDOT’s review. RIDOT then distributes all improvement projects to the other 4 on-call consultants, which are charged with advancing the conceptual plans to final design and construction. Once the improvements have been implemented, the first on-call consultant tracks these projects and develops safety effectiveness evaluations.

Also new in 2015, RIDOT has developed programs and sub-programs to better help organize and track proposed improvements. The programs are anticipated to align with the SHSP and will include Roadway Departure, Intersection Safety, Safety Corridor, Interchange Improvements, Low-Cost Improvements (RI*STARS), Vulnerable Road Users, and Local Safety. Sub-programs may include Median Barrier, Horizontal Curve, Road Diet, Wrong-Way Driving Mitigation, and Localized Bottleneck Reduction.

**Program Methodology**

Select the programs that are administered under the HSIP.

- [ ] Median Barrier
- [ ] Horizontal Curve
- [ ] Skid Hazard
- [x] Roadway Departure
- [x] Intersection
- [ ] Bicycle Safety
- [ ] Crash Data
- [ ] Low-Cost Spot Improvements
- [x] Safe Corridor
- [ ] Rural State Highways
- [ ] Red Light Running Prevention
- [ ] Sign Replacement And
2015 Rhode Island Highway Safety Improvement Program

- Local Safety
- Left Turn Crash
- Other: Other-Interchange Improvements
- Pedestrian Safety
- Shoulder Improvement
- Other: Other-Vulnerable Road Users
- Right Angle Crash
- Segments

Program: Intersection

Date of Program Methodology: 4/19/2015

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-Type of Traffic Control
- Other-Sight Distance
- Other-Speeds
- Other-# of Lanes

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-Crash Frequency - fatal and serious crashes only

Other-Facility risk factors and similar geometric 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
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**

<table>
<thead>
<tr>
<th>Process</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ranking based on B/C</td>
<td>15</td>
</tr>
<tr>
<td>Available funding</td>
<td></td>
</tr>
<tr>
<td>Incremental B/C</td>
<td></td>
</tr>
<tr>
<td>Ranking based on net benefit</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Reduction in Fatalities and Injuries</td>
<td>15</td>
</tr>
<tr>
<td>Facility Risk Level (Based on Historical Fatalities and Injuries)</td>
<td>20</td>
</tr>
<tr>
<td>SHSP Emphasis Area</td>
<td>15</td>
</tr>
<tr>
<td>Project Feasibility</td>
<td>25</td>
</tr>
<tr>
<td>Policy Conformance</td>
<td>10</td>
</tr>
</tbody>
</table>

**Program:** Safe Corridor

**Date of Program Methodology:** 4/19/2015
**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></td>
<td>☑ Other-Transit</td>
<td>☑ Other-# Of Lanes</td>
</tr>
</tbody>
</table>

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

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Crash frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Expected crash frequency with EB adjustment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Equivalent property damage only (EPDO Crash frequency)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ EPDO crash frequency with EB adjustment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Relative severity index</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Crash rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Critical rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Level of service of safety (LOSS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Excess expected crash frequency using SPF's</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Excess expected crash frequency with the EB adjustment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Excess expected crash frequency using method of moments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Probability of specific crash types</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Excess proportions of specific crash types</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ Other-Crash frequency - fatal and serious injury crashes only</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Other-Facility risk factors/similar geometric 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 15
☐ Available funding
☐ Incremental B/C
☐ Ranking based on net benefit
☐ Other
<table>
<thead>
<tr>
<th>Program:</th>
<th>Roadway Departure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Program Methodology:</td>
<td>4/19/2015</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></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></td>
<td>□ Other</td>
<td>□ Other-Roadway width</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Other-Clear Zone</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-Crash frequency - Fatal and serious crashes only

Other-Facility risk factors/similar geometric 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 15
- Available funding
- Incremental B/C
- Ranking based on net benefit
- Other
- Reduction in fatalities and injuries 15
- Facility risk level 20
- SHSP emphasis area 15
- Project feasibility 25
- Policy conformance 10

Program: Low-Cost Spot Improvements

Date of Program Methodology: 10/1/2012

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></td>
<td>☒ Other-Congestion</td>
<td>☒ Other-Overlaps with all other HSIP programs</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-Delay/Congestion

**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 50
- Available funding
- Incremental B/C
- Ranking based on net benefit
- Other
- Reduction in Delay/Congestion 50
Program: Local Safety
Date of Program Methodology: 4/19/2015

What data types were used in the program methodology?

**Crashes**
- [x] All crashes
- [ ] Fatal crashes only
- [x] Fatal and serious injury crashes only
- [ ] Other

**Exposure**
- [ ] Traffic
- [x] Volume
- [ ] Population
- [ ] Lane miles
- [ ] Other

**Roadway**
- [ ] Median width
- [ ] Horizontal curvature
- [ ] Functional classification
- [ ] Roadside features
- [x] Other-Overlaps with all other HSIP programs

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
- [x] 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 - Coordination with local municipalities

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 15
☐ Available funding
☐ Incremental B/C
Ranking based on net benefit

Other

Reduction in fatalities and serious injuries 15

Facility risk level 20

SHSP emphasis area 15

Project feasibility 25

Policy conformance 10

Program: Other-Interchange Improvements

Date of Program Methodology: 4/19/2015

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-Impaired and older drivers

Roadway

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

What project identification methodology was used for this program?

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

☐ 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 15
- Available funding
- Incremental B/C
- Ranking based on net benefit
- Other
- Reduction in fatal and serious injury crashes 15
- Facility risk level 20
- SHSP emphasis area 15
- Project feasibility 25
- Policy conformance 10

Program: Other-Vulnerable Road Users

Date of Program Methodology: 8/1/2013

What data types were used in the program methodology?

<table>
<thead>
<tr>
<th>Crashes</th>
<th>Exposure</th>
<th>Roadway</th>
</tr>
</thead>
<tbody>
<tr>
<td>All crashes</td>
<td>Traffic</td>
<td>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>
</tbody>
</table>
2015 Rhode Island Highway Safety Improvement Program

Crashes only

☐ Other
☐ Lane miles
☐ Roadside features
☐ Other
☐ Other - Roadway width

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 - Facility risk/similar type geometrics

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
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).

- [x] Relative Weight in Scoring
- [ ] Rank of Priority Consideration

- [x] Ranking based on B/C 15
- [ ] Available funding
- [ ] Incremental B/C
- [ ] Ranking based on net benefit
- [ ] Other
- [x] Reduction in fatal and serious injury crashes 15
- [x] Facility risk level 20
- [x] Project feasibility 25
- [x] Policy conformance 15
- [x] SHSP emphasis area 10
What proportion of highway safety improvement program funds address systemic improvements?

32

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

- [x] Cable Median Barriers
- [ ] Traffic Control Device Rehabilitation
- [x] Install/Improve Signing
- [x] Upgrade Guard Rails
- [x] Safety Edge
- [x] Add/Upgrade/Modify/Remove Traffic Signal
- [x] Other Other-Blunt End Terminal
- [x] Other Other-Road Diets
- [x] Rumble Strips
- [ ] Pavement/Shoulder Widening
- [x] Install/Improve Pavement Marking and/or Delineation
- [x]Clear Zone Improvements
- [ ] Install/Improve Lighting
- [x] Other Other-Wrong-Way Driving
- [x] Other Other-High Friction Surface Treatments

What process is used to identify potential countermeasures?

- [x] Engineering Study
- [x] 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: Other-While there have been no changes implemented, RIDOT is working on identifying high risk facilities and risk factors
- Other: Other-RIDOT already uses HSM, RSAs, and Systemic Approach in their HSIP.

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

While fatal crashes in Rhode Island seldom occur at the same location, they typically follow specific trends. RIDOT uses systemic improvements to more effectively deploy safety countermeasures on a wide scale basis across the State, focusing on areas with the highest fatal crash trends. Locations for implementing improvements are not based on the number or rate of crashes at particular locations, but on an analysis of what roadways share safety issues that may be mitigated by the improvement. Fatal and serious injury crashes on rural and urban segments are random in nature and typically spread over hundreds of miles rather than being densely clustered at intersections in urban environments. Identifying problems on a systemic approach can address these crashes because the focus is on high-risk roadway features, not specific locations.

RIDOT wishes to use the predictive method to use a more sound, data-driven approach to allocating resources that results in fewer fatalities and serious injuries on the nation's roadways. The predictive method (Excess expected crash frequency using SPF, EB adjustment,) combines crash, roadway inventory and traffic volume data to provide more reliable estimates of an existing or proposed roadway's expected safety performance, such as crash frequency and severity. To achieve this goal, RIDOT is currently undergoing a large data collection effort to obtain all of the Model Inventory of Roadway Data Elements (MIRE), which included roadway, traffic, and other data needed to assist the RIDOT make the most efficient decisions where to allocate safety funds and resources. The RIDOT also is
working on developing a data maintenance effort to ensure all data collected is updated on a timely basis. RIDOT hopes to begin using the predictive method in their HSIP methodology by 2017.
# Progress in Implementing Projects

## Funds Programmed

Reporting period for Highway Safety Improvement Program funding.

- Calendar Year
- 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>HSIP (Section 148)</td>
<td>11000000</td>
<td>6103415.56</td>
</tr>
<tr>
<td>HRRRP (SAFETEA-LU)</td>
<td>180548.65</td>
<td>180548.65</td>
</tr>
<tr>
<td>HRRR Special Rule</td>
<td>900000</td>
<td>900000</td>
</tr>
<tr>
<td>Penalty Transfer - Section 154</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penalty Transfer - Section 164</td>
<td>4392354</td>
<td>8306460</td>
</tr>
<tr>
<td>Incentive Grants - Section 163</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incentive Grants (Section 406)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Federal-aid Funds (i.e. STP, NHPP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State and Local Funds</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
How much funding is programmed to local (non-state owned and maintained) safety projects?

$756,978.00

How much funding is obligated to local safety projects?

$756,978.00

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

19%

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

19%

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

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

$0.00

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

RIDOT’s HSIP program has been ever-evolving since 2010, as other RIDOT programs, sections, and administrations have changed. Most recently, RIDOT’s administration has placed a renewed focus on upgrading and maintaining our bridges and roads. As with any new administration, it takes time and adjustments to conduct business in a new and exciting way. RIDOT now has a 10-year plan for all of its core programs (traffic/safety, road, and bridge) that budgets projects based on focus areas. The emphasis on bridges and roads does not mean safety projects are ignored. Safety will always be a critical and necessary program, and while available funding may fluctuate in any given year, RIDOT is collecting the data and possessing the tools to make more informed data-driven decisions to spend safety dollars in the most beneficial way to the State.

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

None
## 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>Enhanced freeway Delineation (Older Drivers Special Rule)(164HE)</td>
<td>Roadway delineation</td>
<td>171 Miles</td>
<td>2789273.28</td>
<td>2789273.28</td>
<td>Penalty Transfer - Section 164</td>
<td>Urban Principal Arterial - Other Freeways and Expressways</td>
<td>0</td>
<td>55</td>
<td>State Highway Agency</td>
<td>Roadway Departure, Implement countermeasures with greatest potential for safety improvement</td>
</tr>
<tr>
<td>Safety Analyst Software</td>
<td>Non-infrastructure</td>
<td>1 Numbers</td>
<td>200000</td>
<td>200000</td>
<td>Penalty Transfer - Section 164</td>
<td>Data</td>
<td>0</td>
<td>0</td>
<td>Data</td>
<td>Improve data to assist is making more robust data driven decisions</td>
</tr>
<tr>
<td>MIRE Data Collection (Additional Services)</td>
<td>Non-infrastructure</td>
<td>1 Numbers</td>
<td>1191270</td>
<td>1191270</td>
<td>HSIP (Section 148)</td>
<td>Data</td>
<td>0</td>
<td>0</td>
<td>Data</td>
<td>Improve data to assist is making more robust data driven decisions</td>
</tr>
<tr>
<td>HSIP Contract 4 - Central/Cranston</td>
<td>records</td>
<td>2 Numbers</td>
<td>1100214.09</td>
<td>1100214.09</td>
<td>HSIP (Section 148)</td>
<td>Urban Principal Arterial - Other Freeways and Expressways</td>
<td>60000</td>
<td>50</td>
<td>State Highway Agency</td>
<td>Intersections</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>State Traffic Commission Contract 5</td>
<td>records</td>
<td>5 Numbers</td>
<td>567859.19</td>
<td>567859.19</td>
<td>Penalty Transfer – Section 164</td>
<td>Urban Principal Arterial - Other</td>
<td>0</td>
<td>35</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>Intersection Improvements to Route 102/117</td>
<td>records</td>
<td>1 Numbers</td>
<td>1521591.15</td>
<td>2421591.15</td>
<td>HRRR Special Rule</td>
<td>Rural Principal Arterial - Other</td>
<td>5000</td>
<td>50</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>Intersection Improvement</td>
<td>records</td>
<td>1 Numbers</td>
<td>1727366.00</td>
<td>1727366.00</td>
<td>Penalty Transfer</td>
<td>Urban Principal</td>
<td>2600</td>
<td>25</td>
<td>State Highway Agency</td>
<td>Intersections</td>
</tr>
<tr>
<td>Location</td>
<td>Safety Improvement Type</td>
<td>Total Cost</td>
<td>Penalty Transfers</td>
<td>Agency</td>
<td>Agency Contact</td>
<td>Roadway Departure</td>
<td>Countermeasures</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>Rhode Island</td>
<td>Roadside Barrier end treatments</td>
<td>25 Numbers</td>
<td>1791708.96</td>
<td>0</td>
<td>State Highway Agency</td>
<td>Roadway Departure</td>
<td>Implement countermeasures with greatest potential for safety improvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhode Island</td>
<td>Interchange traffic control</td>
<td>3 Numbers</td>
<td>250459.21</td>
<td>1200</td>
<td>State Highway Agency</td>
<td>Intersections</td>
<td>Implement countermeasures with greatest potential for safety improvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhode Island</td>
<td>Non-infrastructure transportation safety planning</td>
<td>8 Numbers</td>
<td>1286397.81</td>
<td>0</td>
<td>State Highway Agency</td>
<td></td>
<td>Implement countermeasures with greatest potential for safety improvement</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Statewide Wrong-Way Driving Mitigation C-1
- **Advanced technology and ITS**
- Advanced technology and ITS - other
- **24 Numbers**
- 347543.51
- 2000000
- HSIP (Section 148)
- Urban Principal Arterial - Interstate
- **0**
- **55**
- State Highway Agency
- Older Drivers
- Implement countermeasures with greatest potential for safety improvement

### Strategic Highway Safety Program - 5 Year Plan
- **Non-infrastructure Transportation safety planning**
- **5 Numbers**
- 340521.21
- 340521.21
- HSIP (Section 148)
- **0**
- **0**
- Data
- Maintain and update SHSP

### Pedestrian Enhancements to Coronado Road
- **Pedestrians and bicyclists**
- Miscellaneous pedestrians and bicyclists
- **0.5 Miles**
- 756977.95
- 2271003.69
- HSIP (Section 148)
- Urban Major Collector
- **10000**
- **25**
- City of Municipal Highway Agency
- Pedestrians
- Implement countermeasures with greatest potential for safety improvement

### Signal Improvements to Mineral Spring Avenue
- **Intersection traffic control**
- Systemic improvements - signal-
- **3 Numbers**
- 1619241.59
- 1619241.59
- Penalty Transfer – Section 164
- Urban Principal Arterial - Other
- **25000**
- **25**
- State Highway Agency
- Intersections
- Implement countermeasures with greatest potential for safety
### 2015 Rhode Island Highway Safety Improvement Program

<table>
<thead>
<tr>
<th>controlled</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></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>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of fatalities</td>
<td>73</td>
<td>70</td>
<td>69</td>
<td>69</td>
<td>63</td>
</tr>
<tr>
<td>Number of serious injuries</td>
<td>542</td>
<td>512</td>
<td>467</td>
<td>419</td>
<td>403</td>
</tr>
<tr>
<td>Fatality rate (per HMVMT)</td>
<td>0.88</td>
<td>0.85</td>
<td>0.85</td>
<td>0.86</td>
<td>0.79</td>
</tr>
<tr>
<td>Serious injury rate (per HMVMT)</td>
<td>6.57</td>
<td>6.48</td>
<td>5.98</td>
<td>5.39</td>
<td>5.18</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

![Graph showing the number of fatalities and serious injuries from 2010 to 2014. The number of fatalities decreased from 73 in 2010 to 63 in 2014. The number of serious injuries also decreased from 500 in 2010 to 69 in 2014.](image-url)
Rate of Fatalities and Serious Injuries for the Last Five Years

![Graph showing the rate of fatalities and serious injuries from 2010 to 2014. The graph indicates a decrease in both fatality and serious injury rates over the years.]
To the maximum extent possible, present performance measure* data by functional classification and ownership.

### Year - 2014

<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>0.8</td>
<td>2.8</td>
<td>0.2</td>
<td>0.78</td>
</tr>
<tr>
<td>RURAL PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXPRESSWAYS</td>
<td>0.8</td>
<td>3.6</td>
<td>0.21</td>
<td>0.9</td>
</tr>
<tr>
<td>RURAL PRINCIPAL ARTERIAL - OTHER</td>
<td>4</td>
<td>12.6</td>
<td>2.93</td>
<td>8.87</td>
</tr>
<tr>
<td>RURAL MINOR ARTERIAL</td>
<td>1.6</td>
<td>8</td>
<td>1.25</td>
<td>6.15</td>
</tr>
<tr>
<td>RURAL MINOR COLLECTOR</td>
<td>1.2</td>
<td>2.4</td>
<td>3.32</td>
<td>7.81</td>
</tr>
<tr>
<td>RURAL MAJOR COLLECTOR</td>
<td>1.6</td>
<td>12.8</td>
<td>1.01</td>
<td>8.1</td>
</tr>
<tr>
<td>RURAL LOCAL ROAD OR STREET</td>
<td>0.6</td>
<td>4.4</td>
<td>2.65</td>
<td>19.57</td>
</tr>
<tr>
<td>URBAN PRINCIPAL</td>
<td>9.6</td>
<td>45</td>
<td>0.55</td>
<td>2.59</td>
</tr>
<tr>
<td>Category</td>
<td>2015</td>
<td>2016</td>
<td>2017</td>
<td>Other</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 - OTHER</td>
<td>5.8</td>
<td>27.2</td>
<td>0.49</td>
<td>2.25</td>
</tr>
<tr>
<td>FREEWAYS AND EXPRESSWAYS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN PRINCIPAL ARTERIAL - OTHER</td>
<td>18</td>
<td>130.8</td>
<td>0.88</td>
<td>6.35</td>
</tr>
<tr>
<td>URBAN MINOR ARTERIAL</td>
<td>9</td>
<td>66.6</td>
<td>0.88</td>
<td>6.55</td>
</tr>
<tr>
<td>URBAN MINOR COLLECTOR</td>
<td>0</td>
<td>1.8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>URBAN MAJOR COLLECTOR</td>
<td>3.8</td>
<td>38.4</td>
<td>0.46</td>
<td>4.69</td>
</tr>
<tr>
<td>URBAN LOCAL ROAD OR STREET</td>
<td>2.2</td>
<td>23</td>
<td>0.73</td>
<td>7.55</td>
</tr>
<tr>
<td>OTHER</td>
<td>9.4</td>
<td>76.8</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
# Fatalities by Roadway Functional Classification

Roadway Functional Classification

# Serious Injuries by Roadway Functional Classification

![Bar chart showing the number of serious injuries by roadway functional classification from 2010 to 2014.](chart.png)
Fatality Rate by Roadway Functional Classification

![Fatality Rate by Roadway Functional Classification](image-url)
Serious Injury Rate by Roadway Functional Classification

Roadway Functional Classification:
- Major Collector (U)
- Minor Collector (R)
- Local Road or Street (R)
- Principal Arterial - Other (R)
- Principal Arterial - Interstate (R)
- Principal Arterial - Other Freeways and Expressways (R)
- Minor Arterial - Other (U)
- Principal Arterial - Other (U)
- Minor Collector (U)

Years compared:
- 2010
- 2011
- 2012
- 2013
- 2014
<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>32</td>
<td>191.2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>COUNTY HIGHWAY AGENCY</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOWN OR TOWNSHIP HIGHWAY AGENCY</td>
<td>10.2</td>
<td>101.4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CITY OF MUNICIPAL HIGHWAY AGENCY</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</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>0</td>
<td>0</td>
<td>0</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>0</td>
<td>0</td>
<td>0</td>
<td>0</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>
</tbody>
</table>
Number of Fatalities by Roadway Ownership

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

<table>
<thead>
<tr>
<th>Roadway Functional Classification</th>
<th># of Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>45</td>
</tr>
<tr>
<td>County</td>
<td>10</td>
</tr>
<tr>
<td>Town</td>
<td>5</td>
</tr>
<tr>
<td>City</td>
<td>4</td>
</tr>
<tr>
<td>State Park</td>
<td>2</td>
</tr>
<tr>
<td>Other State</td>
<td>1</td>
</tr>
<tr>
<td>Railroad</td>
<td>0</td>
</tr>
<tr>
<td>State Toll</td>
<td>0</td>
</tr>
<tr>
<td>Local Toll</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
</tbody>
</table>

2015 Rhode Island Highway Safety Improvement Program
Describe any other aspects of the general highway safety trends on which you would like to elaborate.

RIDOT updated their Functional Classification in 2015. Therefore, the figures reported on in previous years HSIP Annual report will differ. Also, the new functional classifications do not align with NHTSA FARS as of this report.

RIDOT is currently exceeding its SHSP goal of reducing fatalities by 50% by 2030. We have attached graphics that illustrate the fatality and serious injury trends.

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>0.088</td>
<td>0.086</td>
<td>0.092</td>
<td>0.092</td>
<td>0.096</td>
</tr>
<tr>
<td>Serious injury rate (per capita)</td>
<td>0.212</td>
<td>0.25</td>
<td>0.24</td>
<td>0.23</td>
<td>0.226</td>
</tr>
<tr>
<td>Fatality and serious injury rate (per capita)</td>
<td>0.3</td>
<td>0.336</td>
<td>0.332</td>
<td>0.322</td>
<td>0.322</td>
</tr>
</tbody>
</table>

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

See Attached Document for Sub-Section Application of Special Rules.
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-Development of HSIP Proposal Form and Project Ranking
- Other: Other-RIDOT already focused on Fatalities and Serious Injuries and included Local Roads in the HSIP.
- Other: Other-Development of HSIP Subprograms
Briefly describe significant program changes that have occurred since the last reporting period.

Diagnosis and Implementation: The RIDOT has developed a Local Safety Program to work with municipalities to identify and mitigate crash issues on locally-maintained roadways. RIDOT has developed a process for locals to request a safety improvement with the intent for locals to perform the "planning" step from the HSIP process. RIDOT will then determine if the improvement is eligible for HSIP funds and distribute the funds needed to the locals so they can administer the construction of the improvements. As part of this program, the RIDOT will provide the needed training and resources to assist the locals in the planning process with the intent for locals to perform the "planning" step independently. Initially, $1,000,000 of funding will be allotted annually for local projects that will be ranked and awarded separately from state initiated projects. Currently, there is a pilot project that includes three (3) participating municipalities with projects scheduled for reimbursement in FY16.

HSIP Project Ranking/Selection Process: Beginning in 2015, the RIDOT has begun the process of implementing a semi-annual review of safety improvement proposals for selection. Local governments and RIDOT staff submit engineering studies of potential safety projects. These safety proposals are evaluated to focus limited resources on areas of greatest need. HSIP funds are available for locations or corridors where a known 'substantive safety' problem exists as indicated by location specific data on severe crashes or where a risk based analysis has demonstrated the need for systemic countermeasures. All HSIP expenditures require that a specific project action can produce a measureable and significant reduction in the number or risk of severe crashes. To achieve the maximum benefit, the focus of the program is on cost effective use of the funds allocated for safety improvements. RIDOT's HSIP project selection methods prioritize safety proposals that align with the SHSP, address roadways with actual or potential for higher deaths and serious injuries, and target the underlying safety issue.
**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>Older Drivers</td>
<td>Vehicle/pedestrian</td>
<td>13.2</td>
<td>58.8</td>
<td>0.16</td>
<td>0.73</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Number of Fatalities by SHSP Emphasis Area

Year 2010 to Year 2014

# of Fatalities

SHSP Emphasis Area
Number of Serious Injuries by SHSP Emphasis Area

Year 2010 to Year 2014

SHSP Emphasis Area
Serious Injury Rate by SHSP Emphasis Area

Year 2010 to Year 2014

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>8</td>
<td>71.8</td>
<td>0.1</td>
<td>0.9</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
# Serious Injuries by Target Crash Type for Groups of Similar Projects

## Year 2010 to Year 2014

![Graph showing serious injuries by target crash type for groups of similar projects from 2010 to 2014.](image)

Target Crash Type:
- All
- Angle
- Cross-median
- Fixed object
- Sideswipe
- Head-on
- Left-turn
- Night-time
- Intersection
- Non-intersection
- Rear-end
- Right-turn
- Run-off-road
- Speed-related
- Truck-related
- Vehicle/animal
- Vehicle/ocycle
- Walked on the road

# of Serious Injuries:
- 0
- 20
- 40
- 60
- 80
- 100
In the past 2 years, RIDOT has revamped the HSIP to develop subprograms (as listed in this report). RIDOT is currently tracking on the safety effectiveness of all improvements implemented under these subprograms. Some systemic and subprogram projects have been recently implemented and sufficient safety crash data is not yet available. It is anticipated that starting in FY2016 RIDOT will be able to present before and after crash data for each subprogram (including systemic).
**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>Cable Median Barriers</td>
<td></td>
<td>0.4</td>
<td>1.6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
# Fatalities by Target Crash Type for Systemic Safety Improvements

Year 2010 to Year 2014

Target Crash Type
# Serious Injuries by Target Crash Type for Systemic Safety Improvements

Year 2010 to Year 2014

`Target Crash Type`
In the past 2 years, RIDOT has revamped the HSIP to develop subprograms (as listed in this report). RIDOT is currently tracking on the safety effectiveness of all improvements implemented under these subprograms. Systemic improvements have been recently implemented and sufficient safety crash data is not yet available. It is anticipated that starting in FY2016 RIDOT will be able to present before and after crash data for each subprogram (including systemic).
Describe any other aspects of the overall Highway Safety Improvement Program effectiveness on which you would like to elaborate.

In the past 2 years, RIDOT has revamped the HSIP to develop subprograms (as listed in this report). RIDOT is currently tracking on the safety effectiveness of all improvements implemented under these subprograms. Systemic and subprogram projects have been recently implemented and sufficient safety crash data is not yet available. It is anticipated that starting in FY2016 RIDOT will be able to present before and after crash data for each subprogram (including systemic).
## Project Evaluation

Provide project evaluation data for completed projects (optional).

<table>
<thead>
<tr>
<th>Location</th>
<th>Functional Class</th>
<th>Improvement Category</th>
<th>Improvement Type</th>
<th>Bef-Fatal</th>
<th>Bef-Serious Injury</th>
<th>Bef-All Injuries</th>
<th>Bef-PDO</th>
<th>Bef-Total</th>
<th>Aft-Fatal</th>
<th>Aft-Serious Injury</th>
<th>Aft-All Injuries</th>
<th>Aft-PDO</th>
<th>Aft-Total</th>
<th>Evaluation Results (Benefit/Cost Ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Principal Arterial - Interstate</td>
<td>Roadway delineation</td>
<td>Delineators post-mounted or on barrier</td>
<td>2</td>
<td>5</td>
<td>42</td>
<td>66</td>
<td>115</td>
<td>0</td>
<td>3</td>
<td>22</td>
<td>76</td>
<td>101</td>
<td>80:1</td>
<td></td>
</tr>
</tbody>
</table>

RIDOT is currently
## Optional Attachments

<table>
<thead>
<tr>
<th>Sections</th>
<th>Files Attached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progress in Achieving Safety Performance</td>
<td>2015 Older Driver Special Rule Calculations.xlsx</td>
</tr>
<tr>
<td>Targets: Application of Special Rules</td>
<td></td>
</tr>
</tbody>
</table>
Glossary

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

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

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

HMVMT means hundred million vehicle miles traveled.

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

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

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

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

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

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

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.