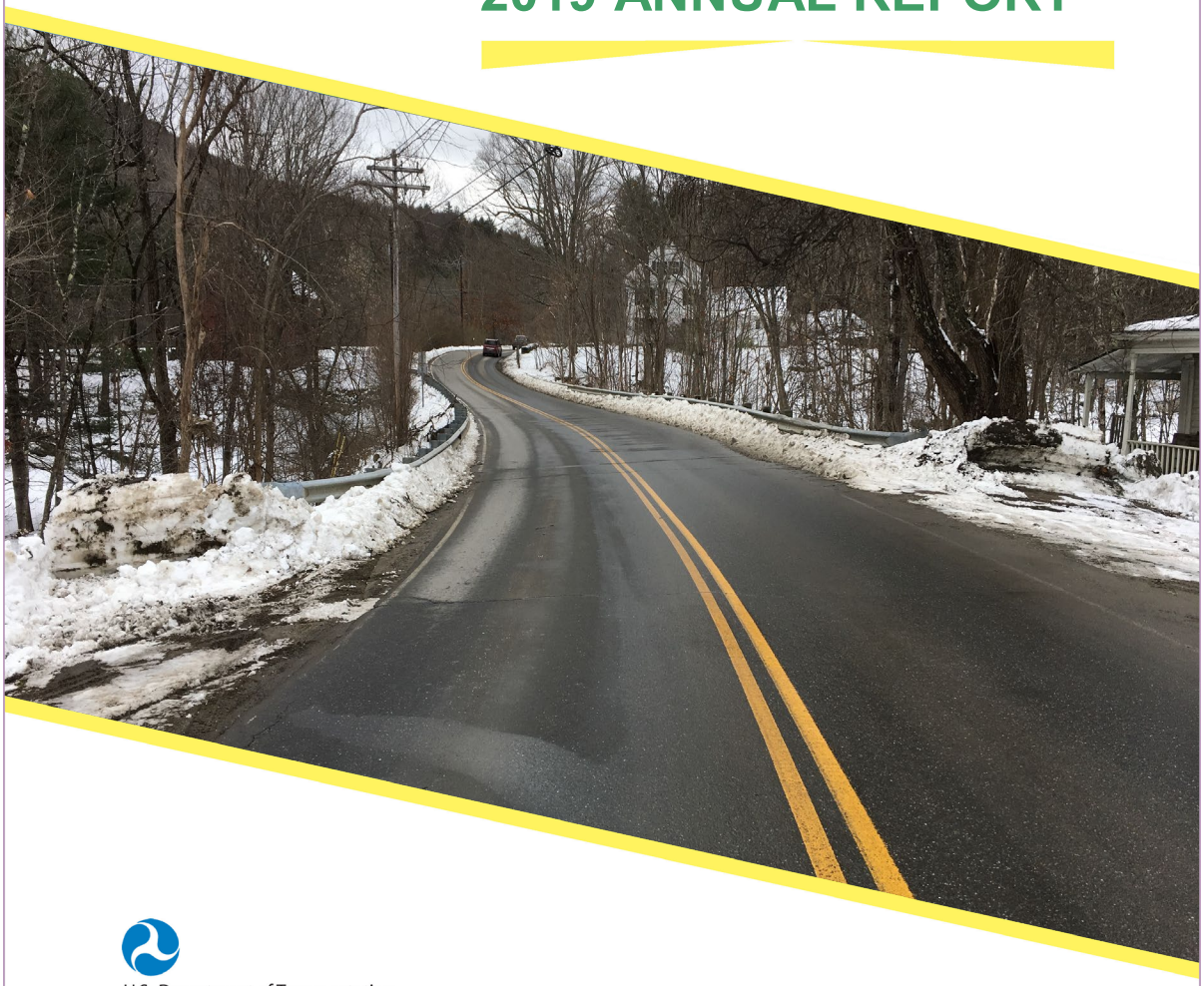
VERMONT

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2019 ANNUAL REPORT



U.S. Department of Transportation
Federal Highway Administration

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Table of Contents

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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.”

Executive Summary

During the state fiscal year (July 1, 2018 to June 30, 2019), VTrans conducted six road safety audits at hot spot locations in collaboration with law enforcement officers and other safety partners around the states. The Agency further continued to work with local municipalities on systemic safety to address local road safety with emphasis on horizontal curves.

For the state fiscal year (July 1, 2018 to June 30, 2019), the total amount of funding that was obligated during the reporting period was $14,597,927. Of this, $9,888,085 was obligated from HSIP Section 148 and 4,709,842 was obligated from Section 164.

Over the years, the HSIP and other related safety efforts have been efficient at reducing the number of major crashes (fatal + serious injury crashes) on Vermont roads. One of the principal measures of success that illustrates this is the reduction in the five-year average of major crashes which passed from 367 major crashes for the 2008-2012 period to 288 for the 2014-2018 period.
The five-year averages of the number of fatalities and serious injuries went down for the same periods as well. The five-year average of the number of fatalities went from 70 fatalities to 60 while the five-year average of the number of serious injuries went from 386 to 284 serious injuries.

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 Reporting Guidance dated December 29, 2016 and consists of five sections: program structure, progress in implementing highway safety improvement projects, progress in achieving safety outcomes and performance targets, effectiveness of the improvements and compliance assessment.

Program Structure

Program Administration

Describe the general structure of the HSIP in the State.

The overall program structure is centralized.

HSIP staff review high crash locations on the federal aid network and identify potential projects. Solutions are proposed to mitigate crash patterns and crash types. Crash modification factors and benefits-to-costs ratios (B/C ratio) are used to determine the best solutions. A project must have a B/C ratio of greater than 1 to be further considered.

A group of senior management review the recommendations for further advancement of the projects to scoping or design.

Major HSIP projects are designed by consultants or Agency staff following the normal project development process.

Small projects such as signage, markings, beacons and brush cutting are implemented via work orders done by the Agency.

Statewide projects related to signs and markings are contracted out yearly.

The Agency incorporate the SafetyEdge and centerline rumble stripes on all paving projects according to Agency guidelines.

Projects are evaluated using before and after crash data for a period of three-years before and three years after construction.

Where is HSIP staff located within the State DOT?

Operations

HSIP staff is now part of the Operations and Safety Bureau following a reorganization in December 2018.

How are HSIP funds allocated in a State?

- SHSP Emphasis Area Data
- Other-Central Office via High Crash Location Reviews

Describe how local and tribal roads are addressed as part of HSIP.

Local roads that are part of the Federal Aid System are addressed the same way as state maintained roads, using the approved HSIP ranking methodology for the identification of locations with potential safety problems. The local roads that rank within the subset of top locations are reviewed through an engineering study. Low cost remedial actions are implemented via a statewide project, while high cost solutions are implemented by VTrans through the regular design process.

VTrans operates a program called Systemic Local Roads Safety Program (SLRS). This program targets all urban and rural local roads with traffic volumes of less than 5000 vehicles per day. This program includes town-maintained roads that are not necessarily on the Federal-Aid Systems. For this SLRS program, locations are identified by the regional planning commissions using crash risk factors (such as presence of a horizontal curve), crash data, and anecdotal information. For these locations, safety corridor reviews are performed to identify signing and marking improvements. These low cost treatments are designed and implemented via a statewide project. The methodology used to select the SLRS projects was attached as an uploaded document under the Program Methodology Section.

Approximately $800,000 of HSIP funds are used for the SLRS program.

Upon the request of a municipality, VTrans will perform a road safety audit of any local road to assist the municipality with local safety concerns. A multidisciplinary team is put together, a site visit is performed and a report outlying recommendations is provided to the municipality

Identify which internal partners (e.g., State departments of transportation (DOTs) Bureaus, Divisions) are involved with HSIP planning.

- Design
- Governors Highway Safety Office
- Maintenance
- Operations
- Traffic Engineering/Safety

Describe coordination with internal partners.

Depending on the characteristics of the site to be reviewed, Design, Operations and Maintenance staff as well as the Governor’s Highway Safety Office Enforcement Liaison are asked to take part to the visit of the site and to formulate some recommendations. Key individuals are contacted several weeks in advance usually by email by the lead investigator. For each site, along with a request to attend an on-site meeting, the lead investigator also sends relevant background information such as crash information and a general description of the problem.

Pavement markings and sign projects are designed by VTrans Traffic Design Section or their consultants. The coordination of projects with other units happens during the review of the projects.

Identify which external partners are involved with HSIP planning.

- Law Enforcement Agency
- Local Government Agency
- Regional Planning Organizations (e.g. MPOs, RPOs, COGs)

Describe coordination with external partners.

As with internal partners, external partners are involved during the conduct of road safety audits and safety reviews. They are asked to take part to the visit of the sites and to formulate some recommendations. Key individuals are contacted several weeks in advance usually by email by the lead investigator. For each site, along with a request to attend an on-site meeting, the lead investigator also sends relevant background information such as crash information and a general description of the problem.

Describe other aspects of HSIP Administration on which the State would like to elaborate.

There has been a continued challenge in the deployment of HSIP countermeasure projects in that they follow the same design process as every other road and bridge projects at VTrans. The solution may be identified quickly, however there is no priority put on an HSIP projects compared to other projects and therefore, implementation can take several years as the safety project works through the same design process (PE, ROW and construction) as all VTrans projects.

HSIP funds are used to implement projects that come out directly from the HSIP planning process performed by the Operations and Safety Bureau. However, HSIP funds are also used by other business units at VTrans such as Traffic Design, Roadway Design and the Municipal Assistance Bureau, to design and construct other safety projects in accordance with strategies of the Strategic Highway Safety Plan.

The Assets Management & Programming Bureau at VTrans is responsible for programming projects and therefore the Operations and Safety Bureau is not directly responsible for programming safety projects.

The delivery of low-cost projects, such as the installation of signs or the upgrade of signal equipment on town highways has been an issue as well. While, since 2012, we have been developing and contracting regional projects to implement these low-cost solutions on town and city owned roads (thus making sure that federal procurement procedures are followed), the time lag between the road reviews and the installation of the low cost improvements has been lengthy (two to four years). In addition, preparing formal plans for contacting purposes has also been time consuming and expensive. VTrans is working on developing an alternative contracting process to accelerate the delivery of these low-cost projects using an on-call contractor (and work order style plans). It was anticipated that this process for signs and markings would be in place for the 2019 construction season, However, the process will not be available until 2020.

Program Methodology

Does the State have an HSIP manual or similar that clearly describes HSIP planning, implementation and evaluation processes?

Yes
FileName:
Vermont HSIP Manual February 19 2016.pdf
Vermont HSIP Low Cost Program October 2016.pdf

Select the programs that are administered under the HSIP.

- HRRR
- Local Safety
- Low-Cost Spot Improvements
- Sign Replacement And Improvement
- Other-Major Project Spot Improvements

Program: HRRR

Date of Program Methodology:2/19/2016

What is the justification for this program?

- Other-FAST Act Special Rules

What is the funding approach for this program?

Other-Funding set-aside only if special rules apply

What data types were used in the program methodology?

Crashes	Exposure	Roadway
Other-Fatal and all injury crashes		Functional classification

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

Are local road projects identified using the same methodology as state roads?

Yes

How are projects under this program advanced for implementation?

- Other-statewide project for low cost improvements

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

Available funding:100
Total Relative Weight:100

Program: Local Safety

Date of Program Methodology:2/19/2016

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Funding set-aside

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes	Volume	Horizontal curvature Functional classification

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

Are local road projects identified using the same methodology as state roads?

Yes

How are projects under this program 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

Available funding:100
Total Relative Weight:100

Program: Low-Cost Spot Improvements

Date of Program Methodology:10/3/2016

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Funding set-aside

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes	Traffic Lane miles	Functional classification

What project identification methodology was used for this program?

- Crash rate
- Equivalent property damage only (EPDO Crash frequency)
- Relative severity index

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

Yes

Are local road projects identified using the same methodology as state roads?

Yes

How are projects under this program advanced for implementation?

- Other-Office of Highway Safety Staff based on recommendations from Road Safety Audit Team

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

Available funding:100
Total Relative Weight:100

2019 Vermont Highway Safety Improvement Program
Program: Sign Replacement And Improvement

Date of Program Methodology:2/9/2015

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes	Exposure	Roadway
		Other-Sign replacement needs

What project identification methodology was used for this program?

- Other-Average Sign Age

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

No

Are local road projects identified using the same methodology as state roads?

How are projects under this program advanced for implementation?

- Other-Programed by Asset Management & Performance Bureau

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

Available funding:100
Total Relative Weight:100

Program: Other-Major Project Spot Improvements

Date of Program Methodology:2/19/2016

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes	Exposure	Roadway
All crashes	Traffic Lane miles	Functional classification

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Equivalent property damage only (EPDO Crash frequency)
- Relative severity index

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

Yes

Are local road projects identified using the same methodology as state roads?

Yes

How are projects under this program advanced for implementation?

- 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).

Rank of Priority Consideration

Available funding:1
Incremental B/C:2

What percentage of HSIP funds address systemic improvements?

0

HSIP funds are used to address which of the following systemic improvements?

The safety edge and rumble strips are installed on all projects as per policy.

VTrans has a systemic improvement program that focuses on horizontal curves on town-maintained roads (it is called Systemic Local Road Safety – SLRS). However, no projects were constructed during the reporting period (as explained later in this report).

VTrans has sign projects and pavement marking projects that are constructed from year to year but systematically (74% of HSIP funds).

What process is used to identify potential countermeasures?

- Crash data analysis
- Data-driven safety analysis tools (HSM, CMF Clearinghouse, SafetyAnalyst, usRAP)
- Engineering Study
- Road Safety Assessment
- Stakeholder input

The SHSP provides general guidance for certain type of issues (for example, improve signalization) but does not specifically point to specific countermeasures.

Does the State HSIP consider connected vehicles and ITS technologies?
No

The HSIP does not address ITS or automated vehicles directly. However, HSIP funds are being used on traffic signal projects that consider autonomous vehicles and ITS technologies.

Does the State use the Highway Safety Manual to support HSIP efforts?

Yes

Please describe how the State uses the HSM to support HSIP efforts.

Vermont has been using the overall safety management process discussed in Part B of the HSM to conduct the HSIP.

Vermont has been using the critical rate method to screen the roadway network when identifying high crash locations.

Vermont has been using the methodology shown in Appendix 4a to updates its crash cost estimates.

Vermont has been using crash modification factors for estimating the crash reduction benefits when calculating benefits/costs ratios (B/C ratio) for evaluating alternatives.

Vermont is in the process of preparing an implementation plan for incorporating AASHTOWARE SafetyAnalyst into the safety management process.

Vermont has used at some occasions the predictive equations presented in Part C of the HSM when conducting some site impacts analysis. However, the fact the equations are not calibrated to Vermont conditions has limited the use of these tools.

In FFY2019, Vermont has been working with the UVM Transportation Center to calibrate the predictive equations for two-lane rural roads found in Chapter 10 of the HSM. This project will be completed by September 30, 2019.

Describe other aspects of the HSIP methodology on which the State would like to elaborate.

The main challenge concerning our HSIP ranking methodology for spot improvements continues to be that it does not address roads that are off the Federal Aid System. The current HSIP ranking methodology generates locations based on the high crash locations that are generated by VTrans' Highway Safety Data Section. The data that the Highway Safety Data Section uses as input are only for the roads that fall under the Federal Aid highway system. Consequently, only locally maintained roads that are on the Federal Aid systems are considered as part of the ranking methodology of the HSIP.

Given that Vermont is a rural state with crashes that tend to be dispersed, another ongoing challenge with our current sport improvement methodology is that it tends to identify rural locations with very few crashes or urban locations with a large number of crashes at high traffic intersections.

VTrans is working towards the implementation AASHTOWare SafetyAnalyst within our HSIP process. In FF2017, a consultant was hired to review Vermont's existing data availability and quality, to conduct a gap analysis between existing data sets and the Safety Analyst data requirements and to prioritize the data collection and transformation needs for implementation.
VTrans hired a consultant in FF2018 to collect MIRE intersections data for all intersections on the Federal Aid System to further support the development of more advanced network screening methodologies. This project will be completed by September 2019. VTrans has a parallel project with regional planning commissions for the collection of the FDE's at intersections on local roads but with a longer completion horizon of 2 to 5 years. In the longer term, we are hoping to include all public roads while implementing the AASHTOWare SafetyAnalyst methodology. In the shorter term, the implementation of the AASHTOWare SafetyAnalyst would only include the Federal Aid Network.
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Project Implementation

Funds Programmed

Reporting period for HSIP funding.

State Fiscal Year

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	$9,888,085	$9,888,085	100%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$0	$0	0%
Penalty Funds (23 U.S.C. 154)	$0	$0	0%
Penalty Funds (23 U.S.C. 164)	$4,709,842	$4,709,842	100%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	$0	$0	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	$0	$0	0%
State and Local Funds	$0	$0	0%
Totals	$14,597,927	$14,597,927	100%

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

8%

How much funding is obligated to local or tribal safety projects?

8%

The percentage above does not include the portion of some projects were the ownership is both state or local. 34% of funds is used on markings projects for which roads are owned by the state or a municipality. These projects are for the installation of new pavement markings, centerlines and edgelines on NHS, State routes, and centerlines on Class 1 and 2 roads (owned by municipalities).

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

0%

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

0%

No funds were obligated for data, planning or SHSP support in SFY 2019. No funding programmed prior to FAST Act is still active.

How much funding was transferred in to the HSIP from other core program areas during the reporting period under 23 U.S.C. 126?

0%

How much funding was transferred out of the HSIP to other core program areas during the reporting period under 23 U.S.C. 126?

0%

Discuss impediments to obligating HSIP funds and plans to overcome this challenge in the future.

VTrans currently does not have any difficulty obligating its HSIP funds as there are some significant safety projects which will be going to construction in the next two to three years.

Once these large projects are completed, VTrans may have some challenges spending its HSIP dollars. VTrans has made great progress over the past decade or so on intersection crashes. If intersections eventually cease to be a SHSP focus area, VTrans may have some additional challenges in spending HSIP funds.

When flexibility was allowed, VTrans flexed a very small percentage of overall HSIP funding for education and outreach efforts.

Describe any other aspects of the State's progress in implementing HSIP projects on which the State would like to elaborate.

The 2016 FHWA lead HSIP review recognized that HSIP funds were used by other VTrans business units (other than by section responsible for the HSIP) to develop and implement safety projects. VTrans will be working in the future to develop a process to track all projects that uses HSIP funds during implementation and to gauge their effectiveness on reducing highway fatalities and serious injuries after completion.

General Listing of Projects

List the projects obligated using HSIP funds for the reporting period.

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
BARRE CITY HES 037-1(8) - Development	Intersection geometry	Auxiliary lanes - add left-turn lane	0.229	Miles	$25000	$25000	Penalty Funds (23 U.S.C. 164)	Urban	Minor Arterial	7,500	25	City or Municipal Highway Agency	Spot	Intersections	Improve Geometry
BARRE TOWN STP HES 0169(8) - Construction	Intersection geometry	Intersection geometrics - modify skew angle	0.01	Miles	$536144.01	$536144.01	HSIP (23 U.S.C. 148)	Rural	Major Collector	5,200	35	State Highway Agency	Spot	Intersections	Improve Geometry
BENNINGTON STP 1000(21) - Development	Alignment	Vertical alignment or elevation change	1	Numbers	$40000	$40000	HSIP (23 U.S.C. 148)			0	50	State Highway Agency	Spot	Intersections	Improve Geometry
BRATTLEBORO NH 2000(27) - Construction	Intersection traffic control	Pavement markings - refresh existing pavement markings	0.048	Miles	$13758.56	$13758.56	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	0		State Highway Agency	Spot	Intersections	Improve Signs and Markings
BRATTLEBORO NH 2000(27) - Construction	Intersection traffic control	Pavement markings - refresh existing pavement markings	0.048	Miles	$128715.74	$128715.74	Penalty Funds (23 U.S.C. 164)	Urban	Principal Arterial-Other	0		State Highway Agency	Spot	Intersections	Improve Signs and Markings
BRATTLEBORO NHG SIGN(53) - Construction	Roadway signs and traffic control	Roadway signs (including post) - new or updated	0.242	Miles	$87828.99	$87828.99	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	15,400	35	Town or Township Highway Agency	Statewide	Older Drivers	Improve Signs and Markings
BRATTLEBORO NHG SIGN(53) - Construction	Roadway signs and traffic control	Roadway signs (including post) - new or updated	0.242	Miles	$738806.96	$738806.96	Penalty Funds (23 U.S.C. 164)	Urban	Principal Arterial-Other	15,400	35	Town or Township Highway Agency	Statewide	Older Drivers	Improve Signs and Markings
BURLINGTON HES 5000(18) - Development	Intersection traffic control	Modify control - two-way stop to roundabout	0.04	Miles	$175000	$175000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	6,300	25	City or Municipal Highway Agency	Statewide	Intersections	Improve Operations
BURLINGTON HES 5000(18) - Development	Intersection traffic control	Modify control - two-way stop to roundabout	0.04	Miles	$75646.59	$75646.59	Penalty Funds (23 U.S.C. 164)	Urban	Principal Arterial-Other	6,300	25	City or Municipal Highway Agency	Statewide	Intersections	Improve Operations
CHARLOTTE NHG SGNL(49) - Construction	Intersection traffic control	Modify traffic signal - modernization/replacement	0.055	Miles	$469609.75	$469609.75	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	0	50	State Highway Agency	Statewide	Intersections	Improve Operations
COLCHESTER HES 028-1(28) - Complete	Intersection geometry	Auxiliary lanes - add left-turn lane	0.02	Miles	$15534.91	$15534.91	Penalty Funds (23 U.S.C. 164)	Urban	Minor Arterial	0	50	State Highway Agency	Spot	Intersections	Improve Geometry

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
COLCHESTER HES NH 5600(14) - Development	Interchange design	Interchange design - other	1.025	Miles	$200000	$200000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	22,800	35	State Highway Agency	Spot	Intersections	Improve Infrastructues for all Users
COLCHESTER HES NH 5600(14) - Development	Interchange design	Interchange design - other	1.025	Miles	$20321	$20321	Penalty Funds (23 U.S.C. 164)	Urban	Principal Arterial-Other	22,800	35	State Highway Agency	Spot	Intersections	Improve Infrastructues for all Users
FERRISBURGH NH 019-4(32) - Development	Intersection traffic control	Intersection traffic control - other	0.001	Miles	$80000	$80000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	0		State Highway Agency	Spot	Intersections	Improve Infrastructues for all Users
HARTFORD NH 020-2(44) - Development	Intersection traffic control	Intersection traffic control - other	1	Numbers	$55000	$55000	HSIP (23 U.S.C. 148)			0		State Highway Agency	Spot	Intersections	Improve Operations
HINESBURG HES 021-1(19) - Development	Intersection geometry	Auxiliary lanes - add left-turn lane	0.3	Miles	$75000	$75000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	8,600	40	State Highway Agency	Spot	Intersections	Improve Geometry
HINESBURG HES 021-1(19) - Development	Intersection geometry	Auxiliary lanes - add left-turn lane	0.3	Miles	$158635.59	$158635.59	Penalty Funds (23 U.S.C. 164)	Rural	Minor Arterial	8,600	40	State Highway Agency	Spot	Intersections	Improve Geometry
MILTON STP 5800(3) - Development	Intersection geometry	Intersection geometry - other	0.31	Miles	$135000	$135000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	10,520	35	State Highway Agency	Spot	Intersections	Improve Geometry
MORRISTOWN STP HES 030-2(28) - Construction	Intersection geometry	Intersection geometrics - modify skew angle	0.01	Miles	$470313.61	$470313.61	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	7,200	40	State Highway Agency	Spot	Intersections	Improve Geometry
NEW HAVEN HES 032-1(8) - Development	Intersection geometry	Intersection geometrics - miscellaneous/other/unspecified	0.3	Miles	$100000	$100000	Penalty Funds (23 U.S.C. 164)	Rural	Minor Arterial	4,000	45	State Highway Agency	Spot	Intersections	Improve Geometry
SOUTH HERO STP HES 028-1(22) - Development	Intersection geometry	Auxiliary lanes - add left-turn lane	0.01	Miles	$72000	$72000	Penalty Funds (23 U.S.C. 164)	Rural	Minor Arterial	8,900	50	State Highway Agency	Spot	Intersections	Improve Geometry
STATEWIDE - NORTHEAST REGION STPG MARK(310) - Construction	Roadway delineation	Longitudinal pavement markings - remarking	1	Numbers	$500959.94	$500959.94	HSIP (23 U.S.C. 148)			0		Mix of State, City and Town	Statewide	Lane Departure	Improve Signs and Markings
STATEWIDE - NORTHEAST REGION STPG SIGN(66) - Construction	Roadway signs and traffic control	Roadway signs (including post) - new or updated	43.435	Miles	$272649.98	$272649.98	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	0		State Highway Agency	Statewide	Older Drivers	Improve Signs and Markings

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
STATEWIDE - NORTHEAST STPG SIGN(62) - Closing	Roadway signs and traffic control	Sign sheeting - upgrade or replacement	60.696	Miles	$2083.85	$2083.85	HSIP (23 U.S.C. 148)			1,000	50	State Highway Agency	Statewide	Older Drivers	Improve Signs and Markings
STATEWIDE - NORTHWEST REGION STPG MARK(311) - Construction	Roadway delineation	Longitudinal pavement markings - remarking	1	Numbers	$2021098	$2021098	HSIP (23 U.S.C. 148)			0		Mix of State, City and Town	Statewide	Lane Departure	Improve Signs and Markings
STATEWIDE - NORTHWEST REGION STPG SIGN(65) - Construction	Roadway signs and traffic control	Roadway signs (including post) - new or updated	46.304	Miles	$375874.99	$375874.99	HSIP (23 U.S.C. 148)	Rural	Major Collector	0		State Highway Agency	Statewide	Older Drivers	Improve Signs and Markings
STATEWIDE - NORTHWEST STPG SIGN(63) - Construction	Roadway signs and traffic control	Roadway signs (including post) - new or updated	52.918	Miles	$391632.47	$391632.47	HSIP (23 U.S.C. 148)			0		State Highway Agency	Statewide	Older Drivers	Improve Infrastructues for all Users
STATEWIDE - SOUTHEAST REGION STPG MARK(312) - Construction	Roadway delineation	Longitudinal pavement markings - remarking	1	Numbers	$954610.12	$954610.12	HSIP (23 U.S.C. 148)			0		Mix of State, City and Town	Statewide	Lane Departure	Improve Signs and Markings
STATEWIDE - SOUTHEAST REGION STPG MARK(312) - Construction	Roadway delineation	Longitudinal pavement markings - remarking	1	Numbers	$822320.79	$822320.79	Penalty Funds (23 U.S.C. 164)			0		Mix of State, City and Town	Statewide	Lane Departure	Improve Signs and Markings
STATEWIDE - SOUTHEAST REGION STPG SIGN(67) - Construction	Roadway signs and traffic control	Roadway signs (including post) - new or updated	40.155	Miles	$549999.99	$549999.99	HSIP (23 U.S.C. 148)	Rural	Major Collector	0		State Highway Agency	Statewide	Older Drivers	Improve Signs and Markings
STATEWIDE - SOUTHWEST REGION STPG MARK(313) - Construction	Roadway delineation	Longitudinal pavement markings - remarking	1	Numbers	$900000	$900000	HSIP (23 U.S.C. 148)			0		Town or Township Highway Agency	Statewide	Lane Departure	Improve Signs and Markings
STATEWIDE - SOUTHWEST STPG SIGN(64) - Construction	Roadway signs and traffic control	Roadway signs (including post) - new or updated	31.121	Miles	$412000	$412000	HSIP (23 U.S.C. 148)			0		State Highway Agency	Statewide	Older Drivers	Improve Infrastructues for all Users
STATEWIDE HES HSIP(9) - Development	Roadway signs and traffic control	Roadway signs and traffic control - other	0.999	Miles	$71463.6	$71463.6	Penalty Funds (23 U.S.C. 164)	Rural	Principal Arterial-Other	0	50	State Highway Agency	Spot	Roadway Departure	Improve Signs and Markings

2019 Vermont Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
STATEWIDE HES RMBL(4) - Construction	Roadway	Rumble strips - center	176.328	Miles	$375000	$375000	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Statewide	Roadway Departure	Improve Infrastructues for all Users
STATEWIDE IMG MARK(117) - Construction	Roadway delineation	Longitudinal pavement markings - remarking	339.098	Miles	$1451395.3	$1451395.3	Penalty Funds (23 U.S.C. 164)			0		State Highway Agency	Statewide	Lane Departure	Improve Signs and Markings
STATEWIDE IMG SIGN(61) - Development	Roadway signs and traffic control	Roadway signs and traffic control - other	1	Numbers	$50000	$50000	HSIP (23 U.S.C. 148)			0		State Highway Agency	Statewide	Older Drivers	Improve Signs and Markings
STATEWIDE IMG SIGN(69) - Construction	Roadway signs and traffic control	Roadway signs (including post) - new or updated	1	Numbers	$105397.49	$105397.49	HSIP (23 U.S.C. 148)			0		State Highway Agency	Statewide	Older Drivers	Older Driver Improvement
WALLINGFORD-RUTLAND NHG SIGN(68) - Development	Roadway signs and traffic control	Roadway signs (including post) - new or updated	20.834	Miles	$55000	$55000	HSIP (23 U.S.C. 148)			0		State Highway Agency	Statewide	Older Drivers	Improve Signs and Markings
WEST RUTLAND STPG SGNL(50) - Development	Intersection traffic control	Modify traffic signal - modernization/replacement	1	Numbers	$30000	$30000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	9,800	40	State Highway Agency	Spot	Intersections	Improve Operations
WILLISTON STP 5500(17) - Development	Roadway	Roadway widening - add lane(s) along segment	0.706	Miles	$125000	$125000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	0		State Highway Agency	Spot	Lane Departure	Improve Geometry
WILLISTON STP HES 5500(12) - Construction	Intersection traffic control	Modify traffic signal - miscellaneous/other/unspecified	0.47	Miles	$804123.57	$804123.57	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	18,900	40	State Highway Agency	Spot	Intersections	Improve Operations
WILLISTON-ESSEX STPG SGNL(46) - Complete	Intersection traffic control	Modify traffic signal - modernization/replacement	4.494	Miles	$655001.95	$655001.95	Penalty Funds (23 U.S.C. 164)	Urban	Principal Arterial-Other	1,000	35	State Highway Agency	Spot	Intersections	Improve Operations

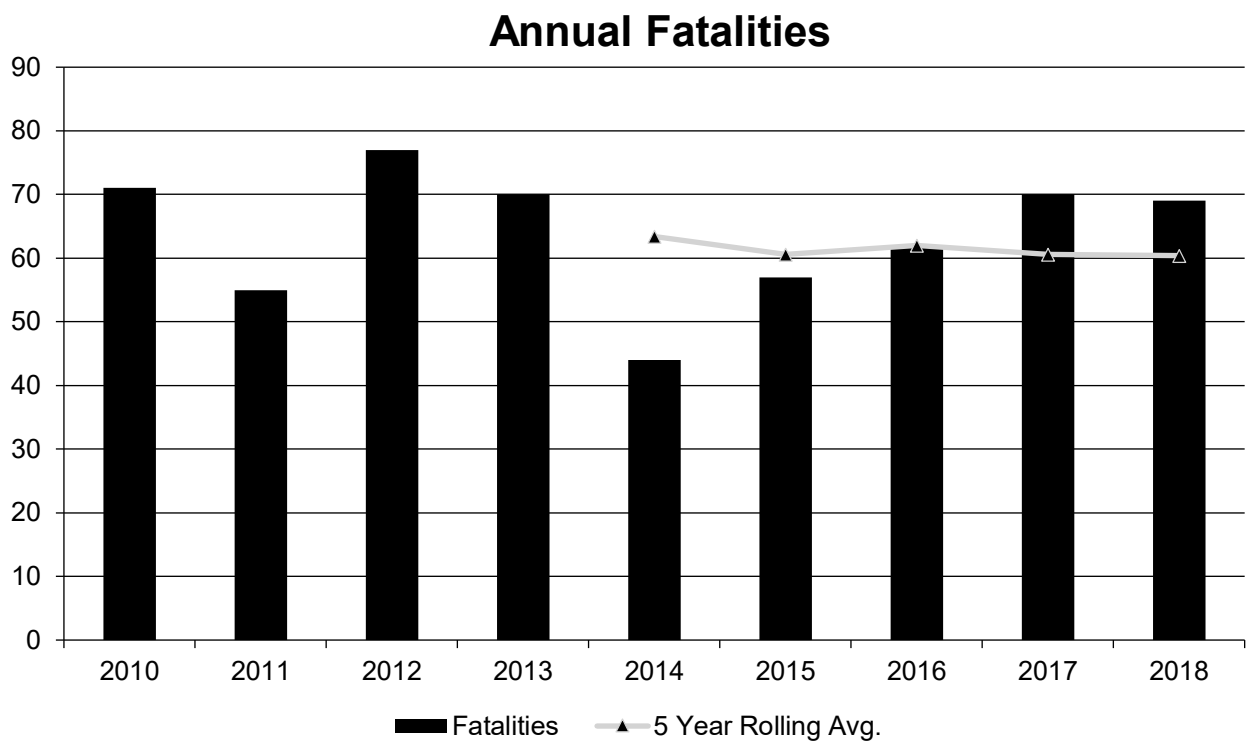
All of the projects in the HSIP report were obligated between 7/1/18 to 6/30/19. This list does not include projects obligated prior to that.

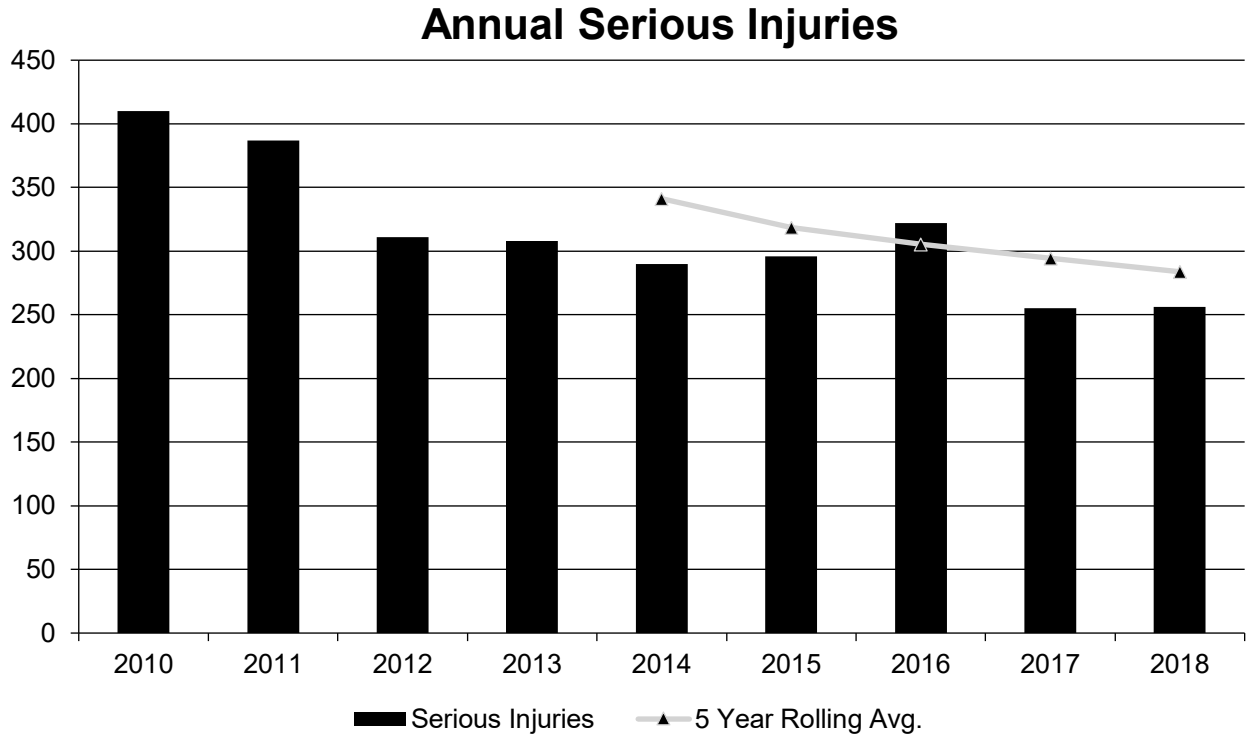
Safety Performance

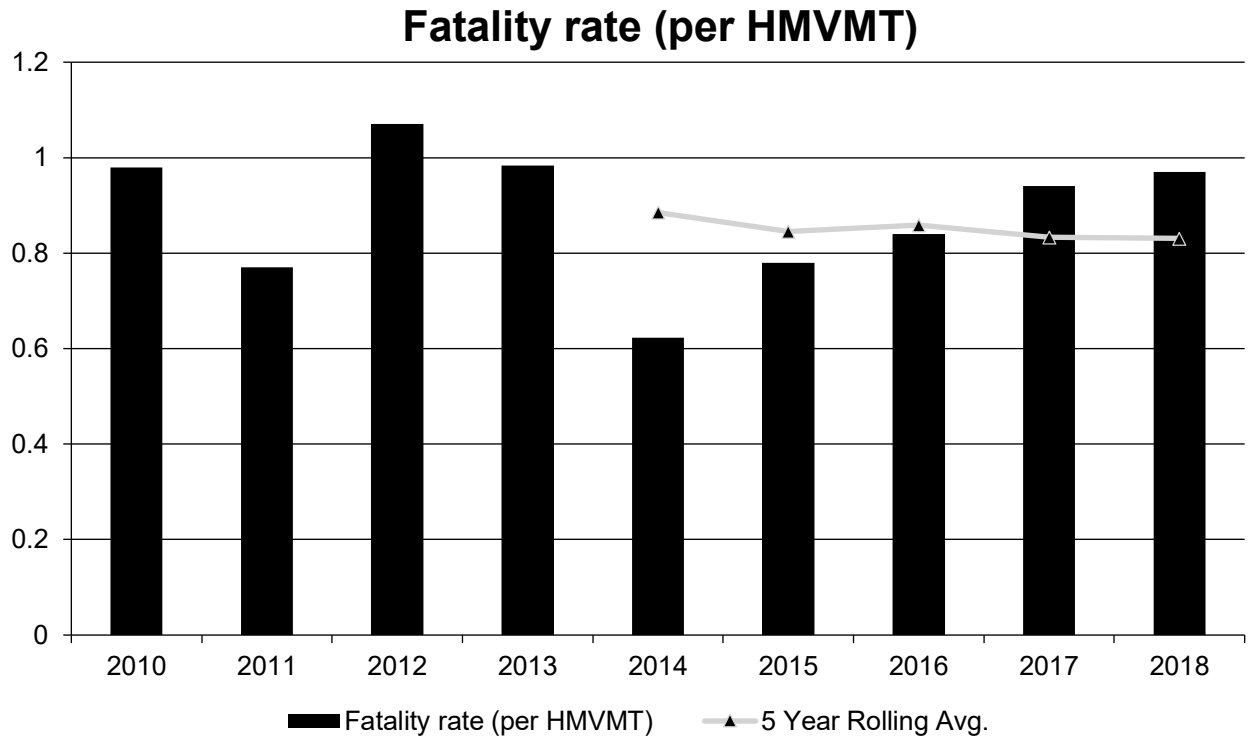
General Highway Safety Trends

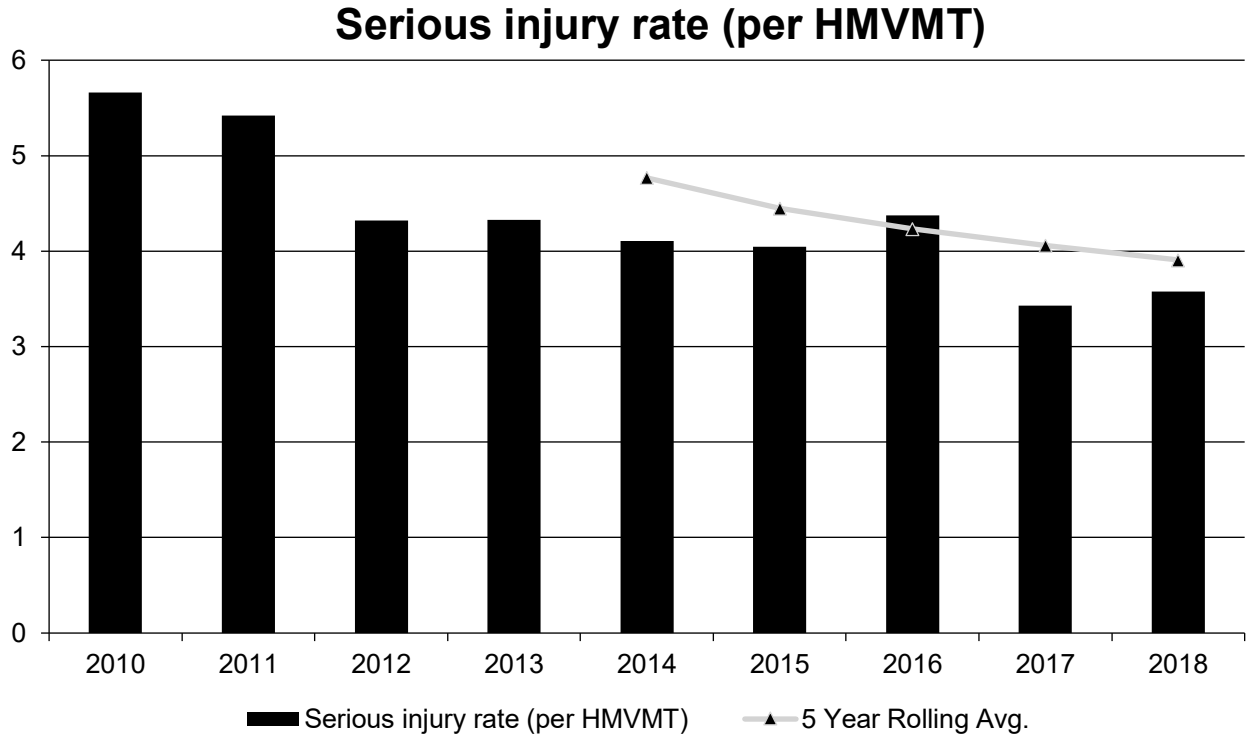
Present data showing the general highway safety trends in the State for the past five years.

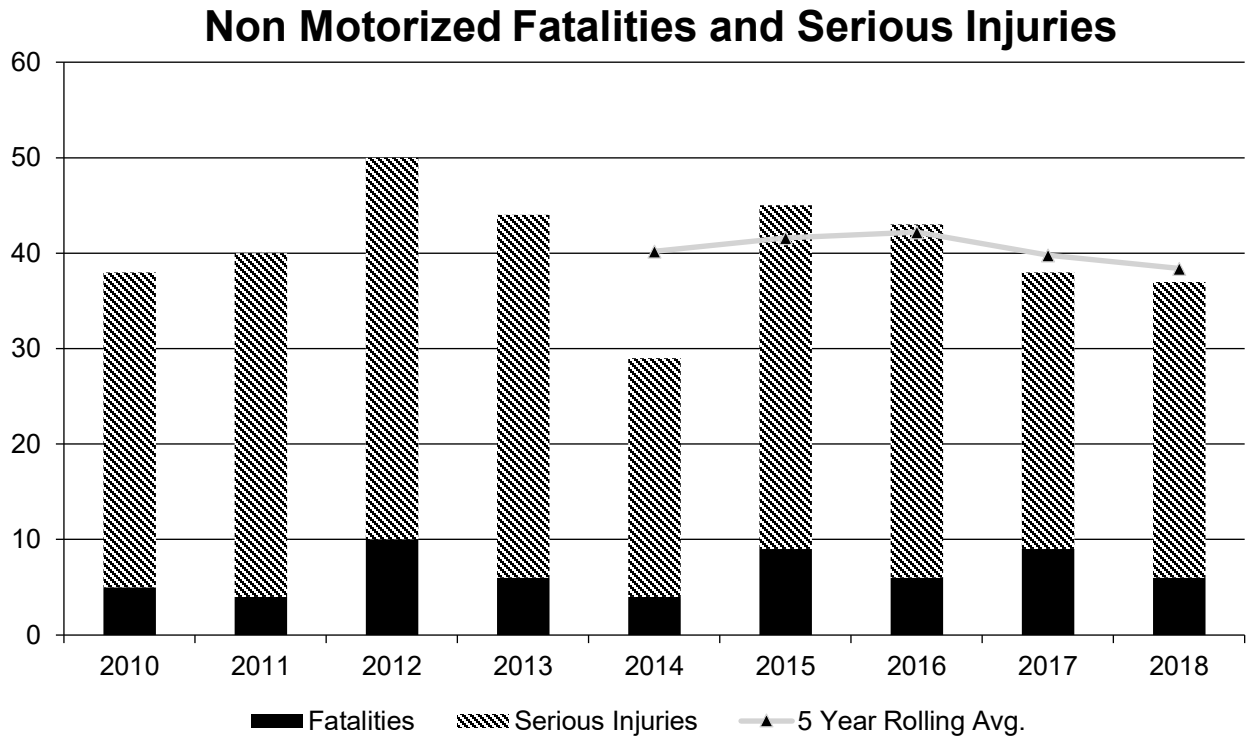
PERFORMANCE MEASURES	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fatalities	71	55	77	70	44	57	62	70	69
Serious Injuries	410	387	311	308	290	296	322	255	256
Fatality rate (per HMVMT)	0.980	0.770	1.070	0.983	0.623	0.780	0.840	0.940	0.970
Serious injury rate (per HMVMT)	5.660	5.419	4.322	4.327	4.108	4.049	4.372	3.430	3.580
Number non-motorized fatalities	5	4	10	6	4	9	6	9	6
Number of non-motorized serious injuries	33	36	40	38	25	36	37	29	31


Annual Fatalities
90
80
70
60
50
40
30
20
10
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
450
400
350
300
250
200
150
100
50
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.2
1
0.8
0.6
0.4
0.2
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
6
5
4
3
2
1
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



Describe fatality data source.

FARS

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

Year 2018

Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial (RPA) - Interstate	5.8	24.8	0.47	2.05
Rural Principal Arterial (RPA) - Other Freeways and Expressways				
Rural Principal Arterial (RPA) - Other	8.2	27.8	1.14	3.82
Rural Minor Arterial	11.6	50.2	1.2	5.17
Rural Minor Collector	2.2	9.2	1.05	4.41
Rural Major Collector	13.2	57.2	267.55	954.05
Rural Local Road or Street	10	35.6	1.06	3.78

Functional Classification	**Number of Fatalities (5-yr avg)**	**Number of Serious Injuries (5-yr avg)**	**Fatality Rate (per HMVMT) (5-yr avg)**	**Serious Injury Rate (per HMVMT) (5-yr avg)**
Urban Principal Arterial (UPA) - Interstate	1.6	5.4	0.3	0.98
Urban Principal Arterial (UPA) - Other Freeways and Expressways	0.8	1.6	1.39	2.72
Urban Principal Arterial (UPA) - Other	3.8	24.8	0.57	4.84
Urban Minor Arterial	1	17	0.28	4.8
Urban Minor Collector			0	0
Urban Major Collector	1.4	12.4	1.94	15.25
Urban Local Road or Street	0	5.6	0	1.68

Year 2018

Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency	40.8	179		
County Highway Agency				
Town or Township Highway Agency	13.4	62.6		
City or Municipal Highway Agency	5.8	36.4		
State Park, Forest, or Reservation Agency				
Local Park, Forest or Reservation Agency				
Other State Agency				
Other Local Agency				
Private (Other than Railroad)				
Railroad				
State Toll Authority				
Local Toll Authority				
Other Public Instrumentality (e.g. Airport, School, University)				
Indian Tribe Nation				

Vehicle miles traveled are not available by ownership levels.

Provide additional discussion related to general highway safety trends.

A unique element of safety implementation in Vermont is the collaborative effort of a group of public and private organizations under the Vermont Highway Safety Alliance (VHSA). The efforts of the VHSA are led by the Strategic Highway Safety Plan (SHSP).

Another uncommon aspect of safety implementation in Vermont is that VTrans not only manages the Highway Safety Improvement Program but it also operates the Governor's Highway Safety Program. This has facilitated the coordination and implementation of behavioral countermeasures targeted at the Critical Emphasis Areas listed in the SHSP.

Over the years, leaving the road and crashes taking place at intersections have been the two crash types that have typically accounted for a large proportion of major crashes (fatal plus serious injury crashes) and those that are more readily addressed by the HSIP.

For several years, VTrans has been implementing statewide policies related to the inclusion of centerline rumble stripes and the SafetyEdge on all paving projects. The most recent Highway Safety Plan prepared by the Governor's Highway Safety Program includes projects that are targeted at driver behaviors that lead to the occurrence of leaving the roadway including reducing impaired driving, reducing speeding and reducing distracted driving.

In spring 2019, VTrans continued its safety corridors effort and identified four new safety corridors (two along the interstate and two along two-lane rural roads) where high speeds are an issue. Education and enforcement efforts include message boards along with radar speed feedback signs and increased enforcement.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2020 Targets *

Number of Fatalities:58.0

Describe the basis for established target, including how it supports SHSP goals.

The trend line used for this performance measure utilizes a linear model to establish the 2020 target. This trend suggests a decrease in traffic fatalities by 3% from the five-year average of 62.0 in 2014 - 2018 to a five-year average of 58 by the end of calendar year 2020. The 2017-2021 Strategic Highway Safety Plan measures success in term of overall crash reduction in serious and fatal crashes with a goal of 10% reduction by 2021. The percentage reduction in fatalities expected by this target supports the goal of the SHSP by providing a 3% reduction in the five-year average over two years.

Number of Serious Injuries:275.0

Describe the basis for established target, including how it supports SHSP goals.

The trend line used for this performance measure utilizes a 2nd degree polynomial model to establish the 2020 target. This trend suggests a decrease in serious injuries by 2.9% from the five-year average of 283.2 in 2014 - 2018 to a five-year average of 275 by the end of calendar year 2020. The 2017-2021 Strategic Highway Safety Plan measures success in term of overall crash reduction in serious and fatal crashes with a goal of 10% reduction by 2021. The proposed target reduces the number of serious injuries by 2.9% in the five-year average over two years and supports the goal of the SHSP.

Fatality Rate:0.820

Describe the basis for established target, including how it supports SHSP goals.

The trend line used for this performance utilizes a logarithmic model to establish the 2020 target. This trend suggests a decrease in the fatality rate per 100 million VMT by 1.2% from the five-year average of 0.83 in 2014 - 2018 to a five-year average of 0.82 by the end of calendar year 2020. This proposed

target is downwards and supports the overall reduction in fatal and serious crashes presented in the 2017-2021 Strategic Highway Safety Plan.

Serious Injury Rate:3.700

Describe the basis for established target, including how it supports SHSP goals.

The trend line used for this performance measure utilizes a 2nd degree polynomial model to establish the 2020 target. This trend suggests a decrease in the injury rate per 100 million VMT by 5.1% from the five-year average of 3.9 in 2014 - 2018 to a five-year average of 3.7 by the end of calendar year 2020. The proposed target is a reduction in the 5-year serious injury rate, which support the overall reduction in fatal and serious crashes presented in the 2017-2021 Strategic Highway Safety Plan.

Total Number of Non-Motorized Fatalities and Serious Injuries:36.0

Describe the basis for established target, including how it supports SHSP goals.

The trend line used for this performance measure utilizes a 3rd degree polynomial model to establish the 2020 target. This trend suggests a decrease in the number of bicyclist/pedestrian fatalities and serious injuries by 5.8% from the five-year average of 38.2 in 2014 - 2018 to a five-year average of 36 by the end of calendar year 2020. The 2017-2021 Strategic Highway Safety Plan considers pedestrians and bicyclists as two separate emphasis areas with their own sets of strategies. The reduction goal for each of these two emphasis areas in the 2017-2021 Strategic Highway Safety Plan is a 10% reduction if fatal and serious injury crashes. The proposed target is downward and contribute to the overall goal of the Strategic Highway Safety Plan.

The target for the number of serious injuries in this HSIP report is different from the one submitted for the HSP. The reason is that an error was detected and the wrong number was provided in the HSP. A revised target for the HSP will be provided to NHSTA by the State Highway Safety Office.

Describe efforts to coordinate with other stakeholders (e.g. MPOs, SHSO) to establish safety performance targets.

In Vermont, the “State Highway Safety Office” is part of the Vermont Agency of Transportation. The “State Highway Safety Office” and the unit that is responsible for the HSIP reporting are managed by the same individual.

The three safety performance measures that are common to both the NHTSA’s Highway Safety Plan and FHWA’s Highway Safety Improvement Program (Number of fatalities, Fatality rate, Number of serious injuries) were developed initially by the highway safety data analyst using trend lines. The resulting measures were then reviewed between HSP and HSIP staff for appropriateness.

The other two measures (Serious injury rate and Pedestrian & Bicycle Fatalities and Serious Injuries) are required only for FHWA’s Highway Safety Improvement Program. These two measures were also originally determined by the data analyst and further reviewed by HSIP staff.

The 2020 target measures were sent to the Chittenden County MPO for their concurrence.

In future reporting, VTrans will send draft targets to the Chittenden County MPO before submitting them to NHTSA and FHWA for review and comments in order to improve the collaboration between the two entities in setting these targets.

Does the State want to report additional optional targets?

No

Vermont does not wish to establish separate targets for the urbanized areas.

Describe progress toward meeting the State's 2018 Safety Performance Targets (based on data available at the time of reporting). For each target, include a discussion of any reasons for differences in the actual outcomes and targets.

Vermont has determined to have made significant progress towards meeting its 2018 targets. 4 out of the 5 safety performance targets were met and the actual outcome for the other target was better than the baseline performance.

- The number of fatalities target (58.0) was not met, but the actual performance in 2014-2018 (60.2) was better than the 2012-2016 baseline (62.0). The number of fatalities in 2014 was 44. It was historically low and much lower than the typical number of yearly fatalities that are occurring in Vermont and would explain why Vermont did not meet the 2018 target for the number of fatalities.
- The fatality rate target (0.830) was met. The actual performance in 2014-2018 (0.820) was also better than the 2012-2016 baseline (0.859).
- The number of serious injuries target (290) was met. The actual performance in 2014-2018 (283.2) was also better than the 2012-2016 baseline (305.4).
- The rate of serious injuries target (4.3) was met. The actual performance in 2014-2018 (3.901) was also better than the 2012-2016 baseline (4.230).
- The number of non-motorized fatalities and non-motorized serious injuries target (40.1) was met. The actual performance in 2014-2018 (38.2) was also better than the 2012-2016 baseline (42.2).

Applicability of Special Rules

Does the HRRR special rule apply to the State for this reporting period?

No

Provide the number of older driver and pedestrian fatalities and serious injuries 65 years of age and older for the past seven years.

PERFORMANCE MEASURES	2012	2013	2014	2015	2016	2017	2018
Number of Older Driver and Pedestrian Fatalities	10	12	14	7	14	16	14
Number of Older Driver and Pedestrian Serious Injuries	26	28	35	27	42	39	45

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

- Change in fatalities and serious injuries
- Other-Change in fatal and serious injury crashes

Based on the measures of effectiveness selected previously, describe the results of the State's program level evaluations.

The overall effectiveness of the HSIP is measured by changes in the number of fatalities and serious injuries as well as by changes in the number of fatal and serious injury crashes (referred to as major crashes in the Strategic Highway Safety Plan).

The trend in the five-year average of the number of fatal crashes has been down from the 2010-2014 period to the 2014-2018 period passing from 57.4 fatal crashes to 55.8 fatal crashes.
Similarly, the five-year average of the number of serious injury crashes has also been going down passing from 281.6 serious injury crashes to 232.8.

The five-year averages of the number of fatalities and serious injuries went down for these same periods as well. The five-year average of the number of fatalities went from 63.4 fatalities to 60.4 while the five-year average of the number of serious injuries went from 341.2 to 283.8 serious injuries.

What other indicators of success does the State use to demonstrate effectiveness and success of the Highway Safety Improvement Program?

- # RSAs completed
- Increased awareness of safety and data-driven process

Six road safety audits were conducted during the reporting period.

The level of awareness of safety while developing other types of projects within VTrans continues to increase. For example, the Pavement Management Unit has been requesting crash data and has been seeking input from the HSIP group when developing paving projects.

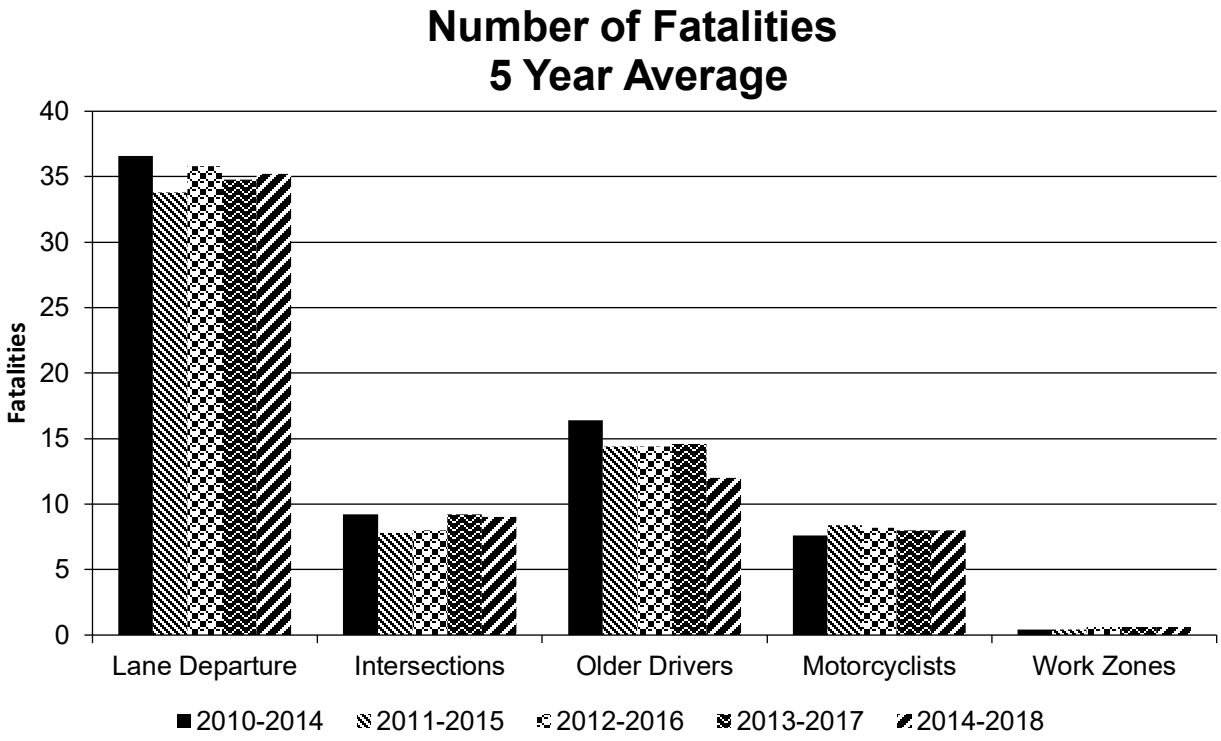
Effectiveness of Groupings or Similar Types of Improvements

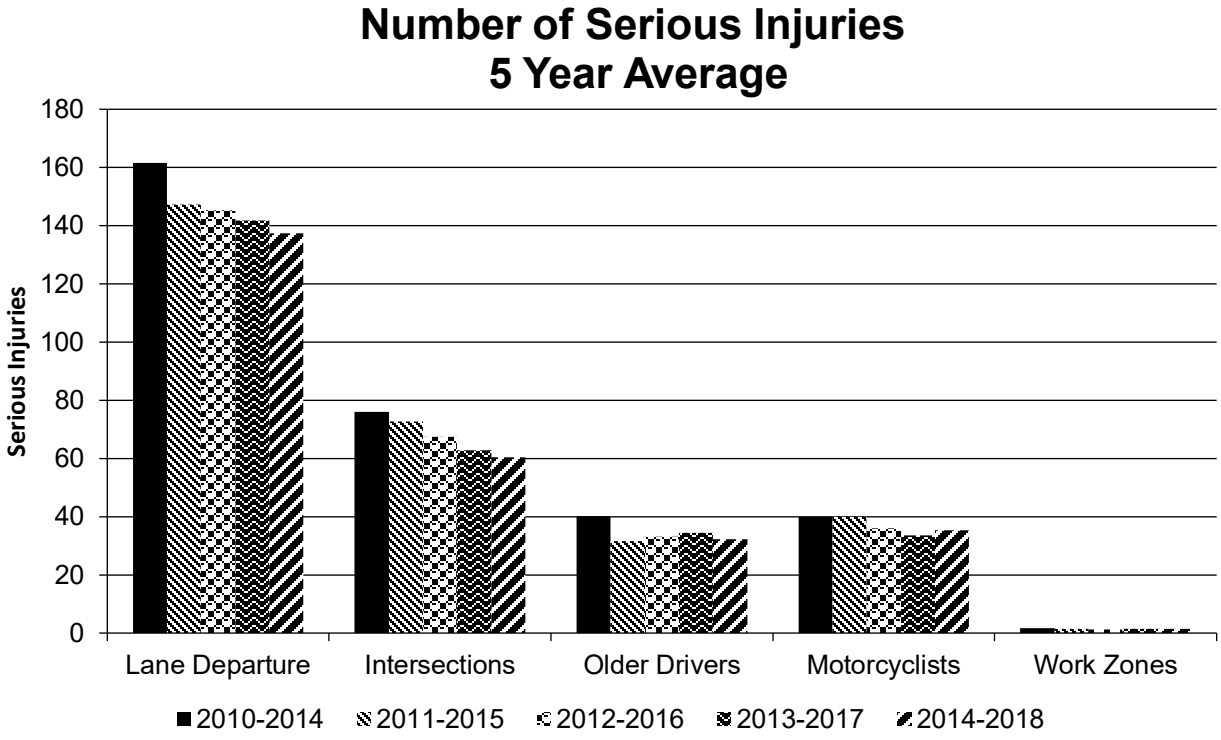
Present and describe trends in SHSP emphasis area performance measures.

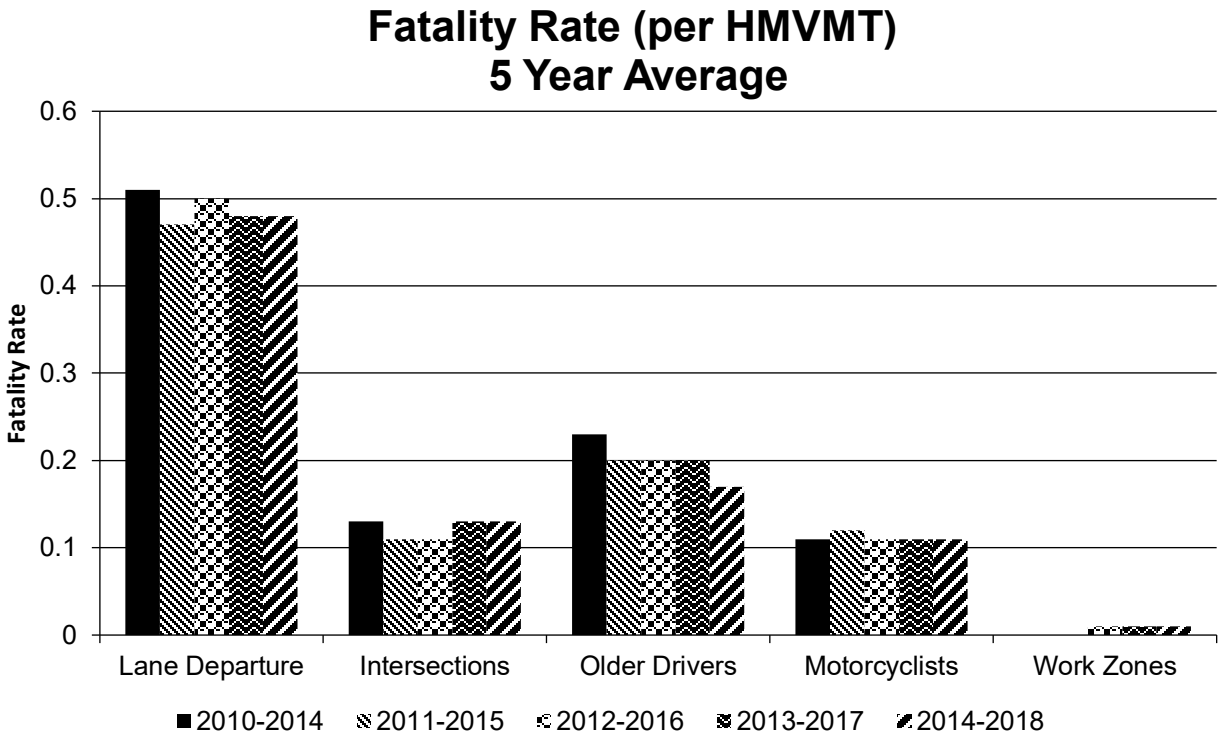
Year 2018

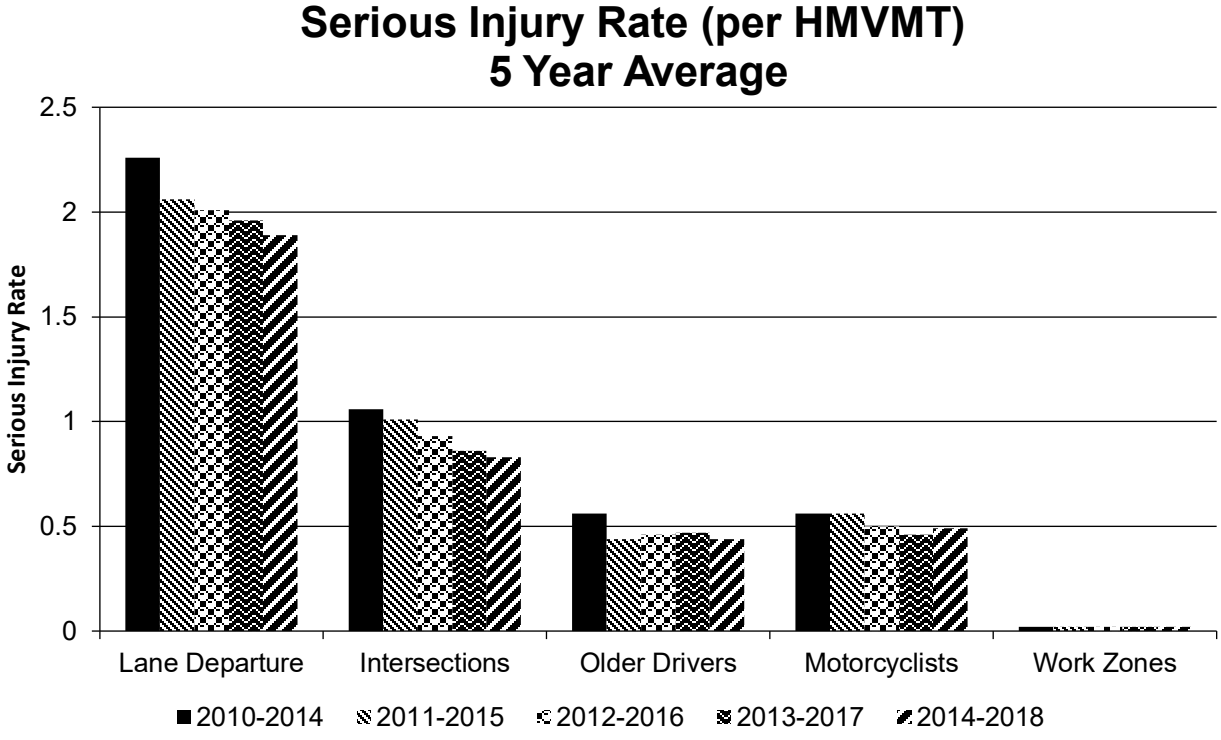
SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Lane Departure		35.2	137.4	0.48	1.89
Intersections		9	60.4	0.13	0.83

SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Older Drivers		12	32.2	0.17	0.44
Motorcyclists		8	35.4	0.11	0.49
Work Zones		0.6	1.4	0.01	0.02


Number of Fatalities
5 Year Average
Fatalities
40
35
30
25
20
15
10
5
0
Lane Departure
Intersections
Older Drivers
Motorcyclists
Work Zones
2010-2014
2011-2015
2012-2016
2013-2017
2014-2018


Number of Serious Injuries
5 Year Average
Serious Injuries
180
160
140
120
100
80
60
40
20
0
Lane Departure
Intersections
Older Drivers
Motorcyclists
Work Zones
2010-2014
2011-2015
2012-2016
2013-2017
2014-2018





Has the State completed any countermeasure effectiveness evaluations during the reporting period?

No

Project Effectiveness

Provide the following information for previously implemented projects that the State evaluated this reporting period.

Describe any other aspects of HSIP effectiveness on which the State would like to elaborate.

Of the seven emphasis areas identified in the SHSP, lane departure crashes and intersection crashes are the two areas that specifically relate to engineering and the HSIP.

The 2017-2021 SHSP has target reductions for intersection and lane departure major crashes that have been set at 10% of 2012 thresholds. In terms of numbers, this represents a five-year target of 72 major crashes for intersection crashes and a five-year average target of 186 major crashes for lane departure crashes.

The latest five-year average (2014-2018) for lane departure crashes is 150 major crashes, which is below the SHSP target of 186 major crashes.

For the emphasis area concerning intersections, the latest five-year average (2014-2018) is 59 major crashes. This five-year average is below the SHSP target of 72 major crashes at intersections.

Compliance Assessment

What date was the State's current SHSP approved by the Governor or designated State representative?

04/26/2017

What are the years being covered by the current SHSP?

From: 2017 To: 2021

When does the State anticipate completing it's next SHSP update?

2022

Provide the current status (percent complete) of MIRE fundamental data elements collection efforts using the table below.

ROAD TYPE	MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	
ROADWAY SEGMENT	Segment Identifier (12)	100	100					100	100	100	100
	Route Number (8)	100	100								
	Route/Street Name (9)	100	100								
	Federal Aid/Route Type (21)	100	100								
	Rural/Urban Designation (20)	100	100					100	100		
	Surface Type (23)	100	100					100	100		
	Begin Point Segment Descriptor (10)	100	100					100	100	100	100
	End Point Segment Descriptor (11)	100	100					100	100	100	100
	Segment Length (13)	100	100								
	Direction of Inventory (18)	50	50								
	Functional Class (19)	100	100					100	100	100	100
	Median Type (54)	85	85								
	Access Control (22)	100	100								

ROAD TYPE	MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	
	One/Two Way Operations (91)	100	100								
	Number of Through Lanes (31)	100	100								
	Average Annual Daily Traffic (79)	100	100								
	AADT Year (80)	100	100								
	Type of Governmental Ownership (4)	100	100					100	100	100	100
INTERSECTION	Unique Junction Identifier (120)			90	90						
	Location Identifier for Road 1 Crossing Point (122)			35	46						
	Location Identifier for Road 2 Crossing Point (123)			3	5						
	Intersection/Junction Geometry (126)			1	2						
	Intersection/Junction Traffic Control (131)			25							
	AADT for Each Intersecting Road (79)			25	25						
	AADT Year (80)			25	25						
	Unique Approach Identifier (139)			90	90						
INTERCHANGE/RAMP	Unique Interchange Identifier (178)					100	100				
	Location Identifier for Roadway at Beginning of Ramp Terminal (197)					100	100				
	Location Identifier for Roadway at Ending Ramp Terminal (201)					100	100				
	Ramp Length (187)					100	100				

ROAD TYPE	MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	
	Roadway Type at Beginning of Ramp Terminal (195)										
	Roadway Type at End Ramp Terminal (199)										
	Interchange Type (182)										
	Ramp AADT (191)					100	100				
	Year of Ramp AADT (192)					100	100				
	Functional Class (19)					100	100				
	Type of Governmental Ownership (4)					100	100				
Totals (Average Percent Complete):		**96.39**	**96.39**	**36.75**	**35.38**	**72.73**	**72.73**	**77.78**	**77.78**	**100.00**	**100.00**

*Based on Functional Classification

Note that in this table, there are 0% values that should be read as NA, Not Applicable, as percentages do not apply. For example, Local Paved Roads - 0 = NA for state owned facilities (local municipalities own them all).

Since the VTrans has not received the intersection data form its vendor for the data inventory project that is due to be completed by the end of FFY2019, much of the non-local paved numbers are the same to the previous reporting period or only slightly adjusted. Once the intersection data is received in a few months and joined with the master data, these numbers will increased to 100%.

Describe actions the State will take moving forward to meet the requirement to have complete access to the MIRE fundamental data elements on all public roads by September 30, 2026.

There are many MIRE FDEs that already exist on the federal aid system due to HPMS requirements, or existing collection to support other programs within VTrans. These can be updated and process to define the MIRE data schema within the short term. There has been an effort to modify data models to support HPMS and the MIRE data schemas.

Intersection data and other segment data may take time to develop and require medium term, and AADT collection and data on the more rural local roads may be a longer-term process.

Some elements have not been collected on state and municipal highways, but there is coordination with regional planning commissions, who work directly with towns, cities, the gores within Vermont. Funding was received in FFY 2018 and FFY 2019 from the Traffic Records Coordinating Committee to inventory every intersection on the Federal Aid Road Network. Data for the intersection on the federal aid system, which includes all paved state highways and the non-local paved non-state highways has been completed by the vendor and is expected to be delivered in September 2019. This should complete a significant gap in the MIRE FDEs and leave a small number of elements to complete.

With MIRE and the data for Safety Analyst in general, the VTrans Mapping Section has been working with all the Regional Planning Commissions in Vermont to buildout additional intersection data for the remainder of the public road network (over 60,000 intersections) through the Transportation Planning Initiative work program. This effort is currently taking place and will be continued in the next federal fiscal year (2020). This goes beyond the requirements of the MIRE FDEs and creates data on local paved and local un-paved highways.

It is uncertain to what extent the other agencies that own the roads will collect MIRE FDEs at this time and an assessment of this may be done as part of the planning process for the FDEs collection.

Tasks needed to comply with the 2026 deadline include:

- Perform a rigorous assessment of what exists, identify gaps and develop a data acquisition plan.
- Identify the technology and methodologies including GIS technology for collecting the MIRE FDEs.
- Determine a process for data exchange with other agencies that will collect data.
- Estimating the costs, levels of staffing, or resource requirements to collect the MIRE FDEs.
- Identifying funding for the collection, storage, and maintenance of the MIRE FDE data.
- Making the data accessible through the on-line geodata portal through web services.

Did the State conduct an HSIP program assessment during the reporting period?

No

An HSIP review was conducted by FHWA in May 2016.

When does the State plan to complete its next HSIP program assessment.

2021

Optional Attachments

Program Structure:

Systemic Local Road Safety Program.pdf
Vermont HSIP Manual February 19 2016.pdf
Vermont HSIP Low Cost Program October 2016.pdf
Project Implementation:

Safety Performance:

Evaluation:

Compliance Assessment:

Glossary

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

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

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

HMVMT: means hundred million vehicle miles traveled.

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

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

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

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

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

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

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

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

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