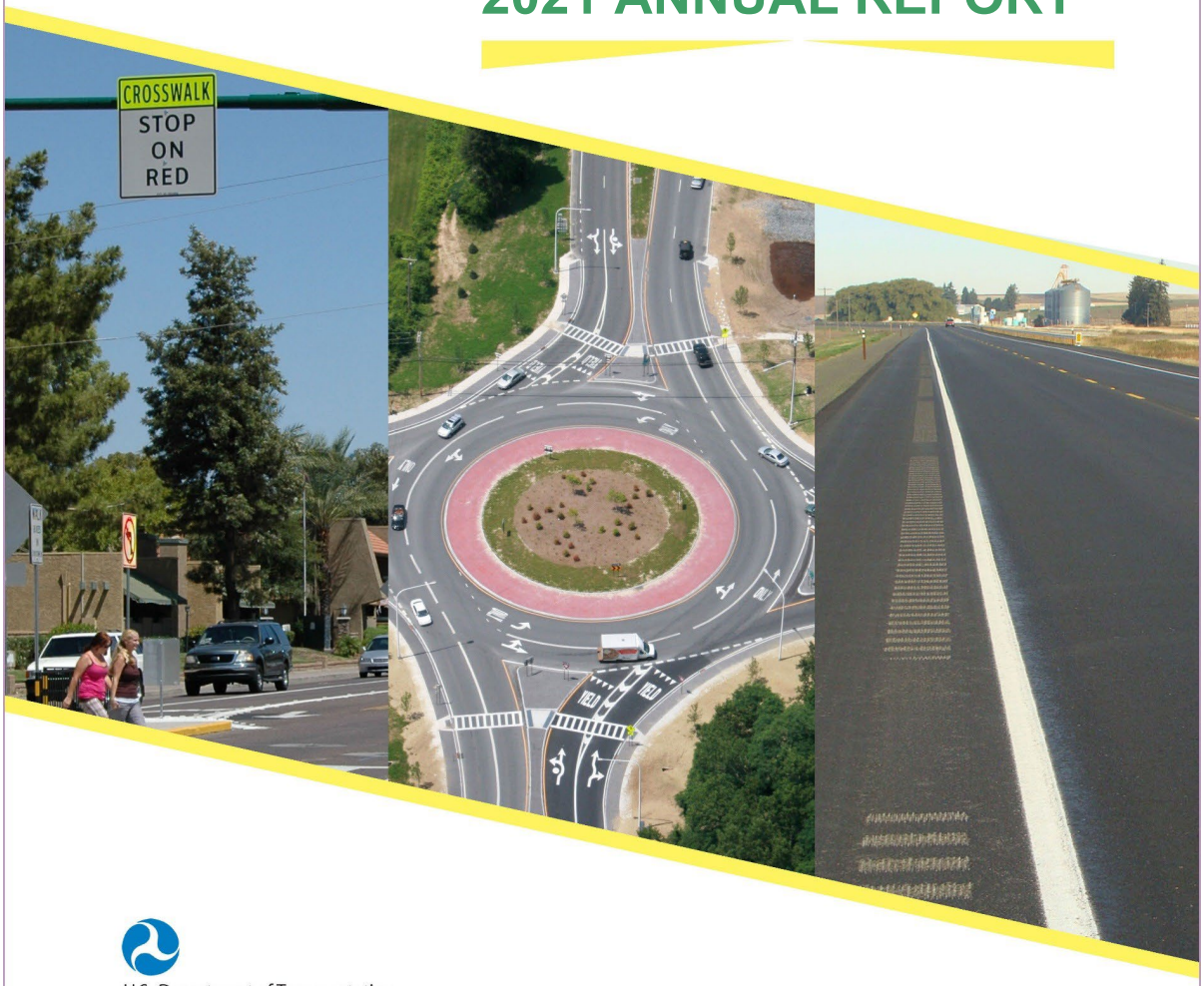
VERMONT

# HIGHWAY SAFETY IMPROVEMENT PROGRAM

## 2021 ANNUAL REPORT




U.S. Department of Transportation
**Federal Highway Administration**

Photo source: Federal Highway Administration

Table of Contents

Disclaimer ..... 3
Protection of Data from Discovery Admission into Evidence ..... 3
Executive Summary ..... 4
Introduction ..... 5
Program Structure ..... 5
Program Administration ..... 5
Program Methodology ..... 8
Project Implementation ..... 18
Funds Programmed ..... 18
General Listing of Projects ..... 20
Safety Performance ..... 25
General Highway Safety Trends ..... 25
Safety Performance Targets ..... 31
Applicability of Special Rules ..... 34
Evaluation ..... 35
Program Effectiveness ..... 35
Effectiveness of Groupings or Similar Types of Improvements ..... 36
Project Effectiveness ..... 39
Compliance Assessment ..... 41
Optional Attachments ..... 45
Glossary ..... 46

# Disclaimer

## *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. 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, 2020 to June 30, 2021), VTrans worked on the development of 12 projects and on the construction of 14 projects to remediate hot spot and corridor locations. VTrans further continued to work with local municipalities on systemic safety to address lane departure crashes at horizontal curves and installed signs in ten towns.

For the state fiscal year, the total amount of funding that was obligated during the reporting period was $17,630,733. Of this amount, $13,089,681 was obligated from HSIP Section 148 and $4,541,052 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 from the 2008-2012 baseline period for the current Strategic Highway Safety Plan. This five-year average is now down to 273.2 major crashes for the 2016-2020 period from 375.6 major crashes for the 2008-2012 period.

The five-year averages of the number of fatalities and serious injuries went down as well when compared to the Strategic Highway Safety Plan baseline period. For the same periods, the five-year average of the number of fatalities went from 70.0 fatalities to 61.4 while the five-year average of the number of serious injuries went from 384.8 to 275.6 serious injuries.

During the reporting period, VTrans has been working with a consultant to review its HSIP structure and processes. While no changes have been made during this reporting period, it is expected that changes will be implemented during the next reporting period.

# 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 incorporates the SafetyEdge and centerline rumble stripes on all paving projects according to Agency guidelines.

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

VTrans is currently reviewing its HSIP based on best practices from other states and modifications to the overall structure will be made during the next reporting period.

### Where is HSIP staff located within the State DOT?

Operations

HSIP staff is located within the Operations and Safety Bureau and is part of the Traffic Operations and Mobility team.

High Crash Locations, which are currently used as a basis for the identification of HSIP sites, are generated by staff located within the Data Unit of the Operations and Safety Bureau.

The programming of HSIP projects is performed by staff located within the Asset Management Bureau.

## How are HSIP funds allocated in a State?

- Other-Central Office via High Crash Location Reviews

VTrans does not have a competitive HSIP process and the districts at VTrans are maintenance districts and are not responsible for designing projects.

Funds are currently distributed to projects by the central office based on a project being a high crash location and being related to one of the critical emphasis areas in the SHSP.

A set aside is used for a systemic safety program on local roads.

VTrans is currently in the process of reviewing and developing a new allocation method.

## 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 Systemic Local Road Safety Program (SLRS) to enhance highway safety on local roads by implementing signage, beacon and marking improvements. The SLRS program addresses rural and or urban roads that are locally maintained by a municipality and focuses on risk factors rather than primarily on crash history to identify sites for improvements. Based on the analysis of crash data and contributing factors such as road alignment and intersection control, VTrans has determined that the focus of the SLRS program for this year should be on paved rural roads at curves with radii of less than 750 feet since these have the greatest risk for single motor vehicle crashes and since single motor vehicle crashes represent a large proportion of fatal and serious injury crashes.

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 suggestions is provided to the municipality. The municipality is responsible for implementing the suggestions at its discretions.

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

- Design
- Districts/Regions
- Governors Highway Safety Office
- Local Aid Programs Office/Division

- Maintenance
- Operations
- Planning
- Traffic Engineering/Safety
- Other-Programming

In Vermont, the Governor's Highway Safety Office is called the State Highway Safety Office and is part of VTrans.

## Describe coordination with internal partners.

Depending on the characteristics of the site to be reviewed, Design, Operations and Maintenance staff as well as the State 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.

Once countermeasures are identified through the general HSIP planning process, major design projects are discussed by a committee of senior management. The projects that are selected by the committee are then programmed by the Asset Management Bureau .

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 visits 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 HSIP program administration practices that have changed since the last reporting period.

During the reporting period, VTrans has been working with a consultant to update the SHSP and to perform an evaluation of the HSIP. While there have been no changes in current practices during this reporting period, it is anticipated that new practices will be implemented during the next reporting period.

### 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 identified through the HSIP planning process in that they follow the same design process as every other road and bridge projects and that there is no priority put on HSIP projects compared to other projects. While it is to be understood that the complexity of a project can affect the length of time it takes to complete the project, the current practice naturally leads to long implementation periods in some cases.

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 Municipal Assistance, 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 on local roads, such as the installation of signs, markings and beacons (via HRRR or SLRS programs) has been an issue. While, since 2012, VTrans has 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 five years). VTrans has been working on developing an alternative contracting process to accelerate the delivery of these low-cost projects using the Indefinite Delivery Indefinite Quantity (IDIQ) model. VTrans has been using the IDIQ process for a few years now but did not have the IDIQ category for sign work. VTrans has worked to set up and advertise an RFP for that scope of work. The first solicitation in spring 2020 received no proposals. The solicitation was re-advertised but did not provide an adequate number of qualified bidders for the sign category.

During this reporting period, VTrans has been working with a consultant to review its HSIP and assessed best practices to remediate the issues mentioned above. It is expected that new processes will be put in place during the next reporting period.

## *Program Methodology*

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

Yes

### Select the programs that are administered under the HSIP.

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

The HRRR program refers to the applicability of the High Risk Rural Roads Special Rule under 23 USC 148(g)(1) and is in effect only if Vermont triggers the Special Rule.

The Local Safety program refers to the general reviews of rural local roads and the construction of low-cost measures.

The Horizontal Curves program refers to the systemic review of curves on local rural roads.

Low-Cost Spot Improvements and Major Project Spot Improvements refer to countermeasures implemented at high crash locations.

## Program: Horizontal Curve

### *Date of Program Methodology:7/24/2019*

### *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 | | • Horizontal curvature<br>• Functional classification<br>• Other-Surface Type |

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

- Other-Systemic Approach

### *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-In partnership with volunteer towns

### *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

The regional planning commissions seek volunteer towns from those where high-risk curves identified through a systemic analysis are found. Sites are reviewed and signs are installed.

## 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**

- All crashes

**Exposure**

- Volume

**Roadway**

- 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?*

- Other-Other-In partnership with volunteer towns

### *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

This is VTrans' former HRRR program prior to the establishment of the HRRR Special Rule. This program is being replaced by reviews based on systemic analysis. The program is still active in that there are still projects to be constructed.

The reviews were done on local rural roads with high crash frequency in towns selected by the regional planning commissions.

## 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**

- All crashes

**Exposure**

- Traffic
- Lane miles

**Roadway**

- 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-Opeation & Safety Bureau 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

## 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**

- All crashes

**Exposure**

- Traffic
- Lane miles

**Roadway**

- 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?

13.8

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

- Horizontal curve signs

VTrans implements the systemic approach for signage on high-risk horizontal curves on town-maintained roads (the Systemic Local Roads Safety Program– SLRS). A number of sign projects were constructed during the reporting period.

Other improvements are implemented by policy or systematically:

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

Shoulder widening is also considered on paving projects based on physical and cost constraints.

VTrans has sign projects and pavement marking projects that are constructed yearly but systematically , on a statewide basis (and not based on the systemic approach).

## 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

## Does the State HSIP consider connected vehicles and ITS technologies?

No

## 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.

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

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

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

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

VTrans uses the predictive equations presented in Part C of the HSM when conducting some site impacts analysis. A research project to calibrate the predictive equations for two-lane rural roads found in Chapter 10 of the HSM was completed in September 2019 by the UVM Transportation Center.

VTrans will be hiring a consultant during the next reporting period to recommend a process for incorporating Safety Performance Functions and the utilization of the Empirical Bayes (EB) method into the safety management process.

## Describe program methodology practices that have changed since the last reporting period.

Program methodology practices used to implement the HSIP since the last reporting period have not changed specifically for this reporting period but are expected to change in the next.

Vermont did not meet or make significant progress towards meeting its annual safety performance targets for the end of 2019, and as such had to comply with the provisions set forth in 23 U.S.C. 148(i) and develop an annual HSIP Implementation Plan for the following fiscal year (FFY22).

While the plan was not due to FHWA until the beginning of the next reporting and is not reflected in the list of projects shown in this report, the plan was mostly developed during this reporting period. The planning approaches for allocating funds based on crash priorities (critical emphasis areas, urban vs rural, state vs local) will carry in future implementations of the HSIP.

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

VTrans currently performs network screening and generates high crash locations using the critical rate method.

Our in-house algorithm is rigid and does not allow for specifying crash types or manner of crashes. As a result, our HSIP network screening is based on all crashes and cannot single out fatal and serious injury crashes or certain manner of collision, like single vehicle crashes.

The main concern about our HSIP ranking methodology for spot improvements continues to be that it only addresses roads or intersections that are Federal Aid System roads or intersections and does not include all local roads.

Another ongoing challenge with our current spot 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. This results in the identification of sites that do not necessarily have the potential for their safety performance to be improved as they either do not display crash patterns in the case of sites with a low number of crashes or conditions are such that even if a crash pattern is observed, there are limitations in what additional improvements could be implemented.

VTrans has been working towards implementing the use of Safety Performance Functions and the Empirical Bayes (EB) method within the HSIP process to better identify hot spot locations. To this end, VTrans completed in September 2019, as part of a Traffic Records Committee Grant, the collection of MIRE data for all intersections on the Federal Aid System to further support the development of more advanced network screening methodologies. VTrans currently has an ongoing parallel project with the regional planning commissions for the collection of the FDE’s at intersections on local roads with a two-to-five-year completion horizon. Until the last reporting period, VTrans had been working at implementing AASHTOWare with the AASHTOWare consultant in creating a SafetyAnalyst data set. However, this effort came to a halt once it was learned that SafetyAnalyst would be sunset by 2022. VTrans will be evaluating new ways of implementing the use of Safety Performance Functions in the next reporting period with the use of a consultant.

Given that Vermont is a rural state with crashes that tend to be dispersed for specific crash types such as lane departure crashes and certain intersection crashes, high risk sites for these crash types are not captured by the usual hot spot network screening as they are not clustered. There is a need to supplement the traditional networking tools with systemic analyses.

VTrans has performed a systemic analysis of curves on local and state roads in past years as part of FHWA's Every Day Count 5 program. VTrans received TRCC funding for FFY22 and will expend on systemic lane departure analyses during the next reporting period.

# 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)** | $13,089,681 | $13,089,681 | 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)** | $4,541,052 | $4,541,052 | 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** | $17,630,733 | $17,630,733 | 100% |

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

7%

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

7%

77% of the funding is programmed to state owned and operated projects and 16% of the funding is programmed to projects that have both state and local ownerships (i.e., statewide projects that contain some roads owned by the state and some roads owned by local municipalities.

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

2%

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

2%

## 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.

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.

A consultant has been hired by VTrans to review its HSIP during this reporting period. A preliminary analysis shows that Vermont's crash history (in terms of SHSP emphasis area, area type, functional class, and roadway ownership) and HSIP funding decisions have not been in alignment.

VTrans and its consultant will be identifying ways, during the next reporting period, to better apportion HSIP funds to target fatal and serious injury crashes and locations where high risks are present.

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

The consulting firm that has been hired by VTrans to review its HSIP during this reporting period recognized that HSIP funds had been used by other VTrans business units (other than by section responsible for the HSIP) to develop and implement safety projects and that the tracking of projects that uses HSIP funds had been difficult.

VTrans and its consultant are currently developing a process to better select and track projects.

## *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 TOWN STP HES 0169(8) - Construction | Intersection geometry | Intersection realignment | 0.01 | Miles | $203430.25 | $203430.25 | HSIP (23 U.S.C. 148) | Rural | Major Collector | 5,200 | 35 | State Highway Agency | Spot | Intersections | Improve Geometry |
| BENNINGTON HES 1000(19) - Development | Miscellaneous | Miscellaneous - other | 0.3 | Miles | $-67728.22 | $-67728.22 | HSIP (23 U.S.C. 148) | Urban | Minor Collector | 0 | 35 | State Highway Agency | Spot | Intersections | Improve Infrastructues for all Users |
| BRATTLEBORO STP 2000(29) - Development | Pedestrians and bicyclists | Pedestrians and bicyclists – other | 1.25 | Miles | $475203.64 | $475203.64 | HSIP (23 U.S.C. 148) | Urban | Principal Arterial-Other | 0 | 40 | State Highway Agency | Spot | Pedestrians | Bicycle or Pedestrian Improvement |
| BRIDPORT-MIDDLEBURY HES RMBL(5) - Construction | Roadway | Rumble strips – center | 7.354 | Miles | $98905 | $98905 | Penalty Funds (23 U.S.C. 164) | Rural | Major Collector | 0 | 50 | State Highway Agency | Systemic | Lane Departure | Improve Driver Compliance |
| BURLINGTON HES 5000(18) - Construction | Intersection traffic control | Intersection traffic control - other | 0.317 | Miles | $1020000 | $1020000 | HSIP (23 U.S.C. 148) | Urban | Principal Arterial-Other | 6,300 | 25 | City or Municipal Highway Agency | Spot | Intersections | Improve Operations |
| BURLINGTON STP 2035(15)C/1 - Construction | Railroad grade crossings | Railroad grade crossings - other | 1 | Locations | $381604.5 | $381604.5 | HSIP (23 U.S.C. 148) | Urban | Local Road or Street | 0 | | City or Municipal Highway Agency | Spot | Intersections | Improve Infrastructues for all Users |
| CHARLOTTE NHG SGNL(49) - Complete | Intersection traffic control | Modify traffic signal – modernization/replacement | 0.055 | Miles | $-22494.67 | $-22494.67 | HSIP (23 U.S.C. 148) | Rural | Principal Arterial-Other | 0 | 50 | State Highway Agency | Spot | Intersections | Improve Operations |
| ESSEX STP 5400(7) - Complete | Intersection traffic control | Modify traffic signal – modernization/replacement | 0.25 | Miles | $-16192.9 | $-16192.9 | HSIP (23 U.S.C. 148) | Urban | Minor Arterial | 0 | 35 | State Highway Agency | Spot | Intersections | Improve Operations |
| FAIR HAVEN-RUTLAND TOWN NHG SIGN(70) - Construction | Roadway signs and traffic control | Roadway signs (including post) - new or updated | 37.658 | Miles | $150000 | $150000 | Penalty Funds (23 U.S.C. 164) | Rural | Principal Arterial-Other | 0 | | State Highway Agency | Systematic | Older Drivers | Improve Signs and Markings |
| HARTFORD HES 0113(77) - Complete | Intersection traffic control | Intersection traffic control - other | 2.15 | Miles | $-24277.05 | $-24277.05 | HSIP (23 U.S.C. 148) | Rural | Major Collector | 0 | | State Highway Agency | Spot | Intersections | Improve Infrastructues for all Users |
| HARTFORD NHG SGNL(60) - Development | Intersection traffic control | Modify traffic signal – modernization/replacement | 3 | Locations | $50000 | $50000 | HSIP (23 U.S.C. 148) | Urban | Minor Arterial | 0 | | State Highway Agency | Spot | Intersections | Improve Infrastructues for all Users |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HINESBURG HES 021-1(19) - Construction | Intersection geometry | Add/modify auxiliary lanes | 0.403 | Miles | $3296157.25 | $3296157.25 | Penalty Funds (23 U.S.C. 164) | Rural | Minor Arterial | 8,600 | 40 | State Highway Agency | Spot | Intersections | Improve Geometry |
| MORRISTOWN STP HES 030-2(28) - Complete | Intersection geometry | Intersection realignment | 0.01 | Miles | $-85636.4 | $-85636.4 | HSIP (23 U.S.C. 148) | Rural | Minor Arterial | 7,200 | 40 | State Highway Agency | Spot | Intersections | Improve Geometry |
| NORWICH STPG SGNL(57) - Development | Intersection traffic control | Modify traffic signal – modernization/replacement | 3 | Locations | $90000 | $90000 | Penalty Funds (23 U.S.C. 164) | Urban | Major Collector | 0 | | State Highway Agency | Spot | Intersections | Improve Operations |
| PLAINFIELD NH 028-3(41) - Development | Intersection traffic control | Intersection traffic control - other | 0.11 | Miles | $250000 | $250000 | HSIP (23 U.S.C. 148) | Rural | Principal Arterial-Other | 0 | 30 | State Highway Agency | Spot | Intersections | Improve Operations |
| RUTLAND TOWN NHG SGNL(59) - Development | Intersection traffic control | Modify traffic signal – modernization/replacement | 1 | Locations | $25000 | $25000 | HSIP (23 U.S.C. 148) | Rural | Principal Arterial-Other | 25,291 | 40 | State Highway Agency | Spot | Intersections | Improve Operations |
| SHELBURNE-SOUTH BURLINGTON NHG SGNL(51)C/1 - Construction | Intersection traffic control | Systemic improvements – signal-controlled | 2.962 | Miles | $2260000 | $2260000 | HSIP (23 U.S.C. 148) | Urban | Principal Arterial-Other | 0 | 40 | State Highway Agency | Systemic | Intersections | Improve Operations |
| SHELBURNE-SOUTH BURLINGTON NHG SGNL(51)C/2 - Construction | Intersection traffic control | Modify traffic signal – modernization/replacement | 1.212 | Miles | $762102 | $762102 | HSIP (23 U.S.C. 148) | Urban | Principal Arterial-Other | 0 | | State Highway Agency | Spot | Intersections | Improve Infrastructues for all Users |
| SOUTH BURLINGTON-COLCHESTER IM 089-3(79) - Complete | Advanced technology and ITS | Congestion detection / traffic monitoring system | 5.6 | Miles | $-34656.56 | $-34656.56 | Penalty Funds (23 U.S.C. 164) | Urban | Principal Arterial-Interstate | 32,600 | 55 | State Highway Agency | Spot | Data | Speed Management with ITS and Infrastructure |
| SOUTH HERO STP HES 028-1(22) - Development | Intersection geometry | Add/modify auxiliary lanes | 0.01 | Miles | $300600 | $300600 | HSIP (23 U.S.C. 148) | Rural | Minor Arterial | 7,922 | 35 | State Highway Agency | Spot | Intersections | Improve Geometry |
| SPRINGFIELD STP 016-2(23) - Complete | Intersection traffic control | Intersection traffic control - other | 0.32 | Miles | $24831.01 | $24831.01 | HSIP (23 U.S.C. 148) | Rural | Major Collector | 0 | 40 | State Highway Agency | Spot | Intersections | Improve Operations |
| ST. ALBANS TOWN STPG SGNL(61) - Development | Intersection traffic control | Modify traffic signal – modernization/replacement | 2 | Locations | $25000 | $25000 | HSIP (23 U.S.C. 148) | Urban | Minor Arterial | 0 | | State Highway Agency | Spot | Intersections | Improve Infrastructues for all Users |

| 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 REGION STPG MARK(314) - Construction | Roadway delineation | Longitudinal pavement markings - remarking | 1630.722 | Miles | $2000000 | $2000000 | HSIP (23 U.S.C. 148) | Rural | Major Collector | 0 | | State & Town | Systematic | Lane Departure | Improve Signs and Markings |
| STATEWIDE - NORTHEAST REGION STPG SIGN(66) - Complete | Roadway signs and traffic control | Roadway signs (including post) - new or updated | 43.435 | Miles | $-4204.15 | $-4204.15 | HSIP (23 U.S.C. 148) | Rural | Minor Arterial | 0 | | State Highway Agency | Systematic | Older Drivers | Improve Signs and Markings |
| STATEWIDE - NORTHWEST REGION STPG MARK(307) - Complete | Roadway delineation | Longitudinal pavement markings - remarking | 1 | Locations | $-43607.02 | $-43607.02 | HSIP (23 U.S.C. 148) | Multiple/Varies | Multiple/Varies | 0 | | State & Town | Systematic | Lane Departure | Improve Signs and Markings |
| STATEWIDE - NORTHWEST REGION STPG MARK(311) - Complete | Roadway delineation | Longitudinal pavement markings - remarking | 1 | Locations | $6618.65 | $6618.65 | HSIP (23 U.S.C. 148) | Multiple/Varies | Multiple/Varies | 0 | | State & Town | Systematic | Lane Departure | Improve Signs and Markings |
| STATEWIDE - NORTHWEST REGION STPG MARK(315) - Construction | Roadway delineation | Longitudinal pavement markings - remarking | 1581.322 | Miles | $1500000 | $1500000 | HSIP (23 U.S.C. 148) | Urban | Minor Arterial | 0 | | State & Town | Systematic | Lane Departure | Improve Signs and Markings |
| STATEWIDE - NORTHWEST REGION STPG SIGN(65) - Complete | Roadway signs and traffic control | Roadway signs (including post) - new or updated | 46.304 | Miles | $-51745.92 | $-51745.92 | HSIP (23 U.S.C. 148) | Rural | Major Collector | 0 | | State Highway Agency | Systematic | Older Drivers | Improve Signs and Markings |
| STATEWIDE - NORTHWEST STPG SIGN(63) - Complete | Roadway signs and traffic control | Roadway signs (including post) - new or updated | 52.918 | Miles | $-48255.9 | $-48255.9 | HSIP (23 U.S.C. 148) | Rural | Principal Arterial-Other | 0 | | State Highway Agency | Systematic | Older Drivers | Improve Signs and Markings |
| STATEWIDE - SOUTH REGION STPG MARK(316) - Construction | Roadway delineation | Longitudinal pavement markings - remarking | 1447.313 | Miles | $1500000 | $1500000 | HSIP (23 U.S.C. 148) | Multiple/Varies | Multiple/Varies | 0 | | State & Town | Systematic | Lane Departure | Improve Signs and Markings |
| STATEWIDE - SOUTH REGION STPG MARK(316) - Construction | Roadway delineation | Longitudinal pavement markings - remarking | 1447.313 | Miles | $152281.25 | $152281.25 | Penalty Funds (23 U.S.C. 164) | Multiple/Varies | Multiple/Varies | 0 | | State & Town | Systematic | Lane Departure | 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 - SOUTHEAST REGION STPG SIGN(67) - Closing | Roadway signs and traffic control | Roadway signs (including post) - new or updated | 40.155 | Miles | $-17630.97 | $-17630.97 | HSIP (23 U.S.C. 148) | Rural | Major Collector | 0 | | State Highway Agency | Systematic | Older Drivers | Improve Signs and Markings |
| STATEWIDE - SOUTHWEST STPG SIGN(64) - Complete | Roadway signs and traffic control | Roadway signs (including post) - new or updated | 31.121 | Miles | $27179.07 | $27179.07 | HSIP (23 U.S.C. 148) | Multiple/Varies | Multiple/Varies | 0 | | State Highway Agency | Systematic | Older Drivers | Improve Signs and Markings |
| STATEWIDE HES HRRR(25) - Development | Roadway signs and traffic control | Curve-related warning signs and flashers | 95 | Miles | $3830.26 | $3830.26 | HSIP (23 U.S.C. 148) | Rural | Local Road or Street | 0 | 45 | Town or Township Highway Agency | Systemic | Roadway Departure | Improve Signs and Markings |
| STATEWIDE HES HSIP(7) - Complete | Roadway signs and traffic control | Roadway signs and traffic control - other | 42.023 | Miles | $-2280.43 | $-2280.43 | Penalty Funds (23 U.S.C. 164) | Rural | Principal Arterial-Other | 0 | | State Highway Agency | Spot | Intersections | Improve Signs and Markings |
| STATEWIDE HES SHSP(19) - Planned | Miscellaneous | Miscellaneous - other | 1 | SHSP/HSIP Evaluation Program | $93774.6 | $93774.6 | HSIP (23 U.S.C. 148) | | | 0 | | State Highway Agency | N/A | Data | Improve Data Quality |
| STATEWIDE HWCR(330) - Planned | Miscellaneous | Data collection | 1 | Crash Program | $272400 | $272400 | HSIP (23 U.S.C. 148) | | | 0 | | State Highway Agency | N/A | Data | Improve Data Quality |
| STATEWIDE IMG MARK(117) - Construction | Roadway delineation | Longitudinal pavement markings - remarking | 339.098 | Miles | $729301.3 | $729301.3 | Penalty Funds (23 U.S.C. 164) | Multiple/Varies | Multiple/Varies | 0 | | State Highway Agency | Systematic | Lane Departure | Improve Signs and Markings |
| STATEWIDE STP 2030(13) - Development | Roadway signs and traffic control | Roadway signs (including post) - new or updated | 1 | Locations | $61344.13 | $61344.13 | Penalty Funds (23 U.S.C. 164) | Multiple/Varies | Multiple/Varies | 0 | | State & Town | Systematic | Intersections | Improve Signs and Markings |
| STATEWIDE STP HRRR(24) - Development | Roadway signs and traffic control | Roadway signs (including post) - new or updated | 1 | Locations | $15314.45 | $15314.45 | HSIP (23 U.S.C. 148) | Rural | Local Road or Street | 0 | | State Highway Agency | Systemic | Roadway Departure | Improve Signs and Markings |
| STATEWIDE STP HRRR(24) - Development | Roadway signs and traffic control | Roadway signs (including post) - new or updated | 1 | Locations | $59685.55 | $59685.55 | HSIP (23 U.S.C. 148) | Rural | Local Road or Street | 0 | | State Highway Agency | Systemic | Roadway Departure | Improve Signs and Markings |
| STOWE STPG SGNL(52) - Development | Intersection geometry | Add/modify auxiliary lanes | 1 | Locations | $135000 | $135000 | HSIP (23 U.S.C. 148) | Rural | Minor Arterial | 0 | 30 | State Highway Agency | Spot | Intersections | Improve Geometry |
| WALLINGFORD -RUTLAND NHG SIGN(68) - Construction | Roadway signs and traffic control | Roadway signs (including post) - new or updated | 20.834 | Miles | $1479880 | $1479880 | HSIP (23 U.S.C. 148) | Urban | Principal Arterial-Other Freeways & Expressways | 23,300 | 55 | State Highway Agency | Systematic | Older Drivers | Improve Signs and Markings |

2021 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WILLISTON STP 5500(17) - Development | Roadway | Roadway widening - add lane(s) along segment | 0.706 | Miles | $600000 | $600000 | HSIP (23 U.S.C. 148) | Urban | Minor Arterial | 31,284 | 40 | State Highway Agency | Spot | Lane Departure | Improve Geometry |

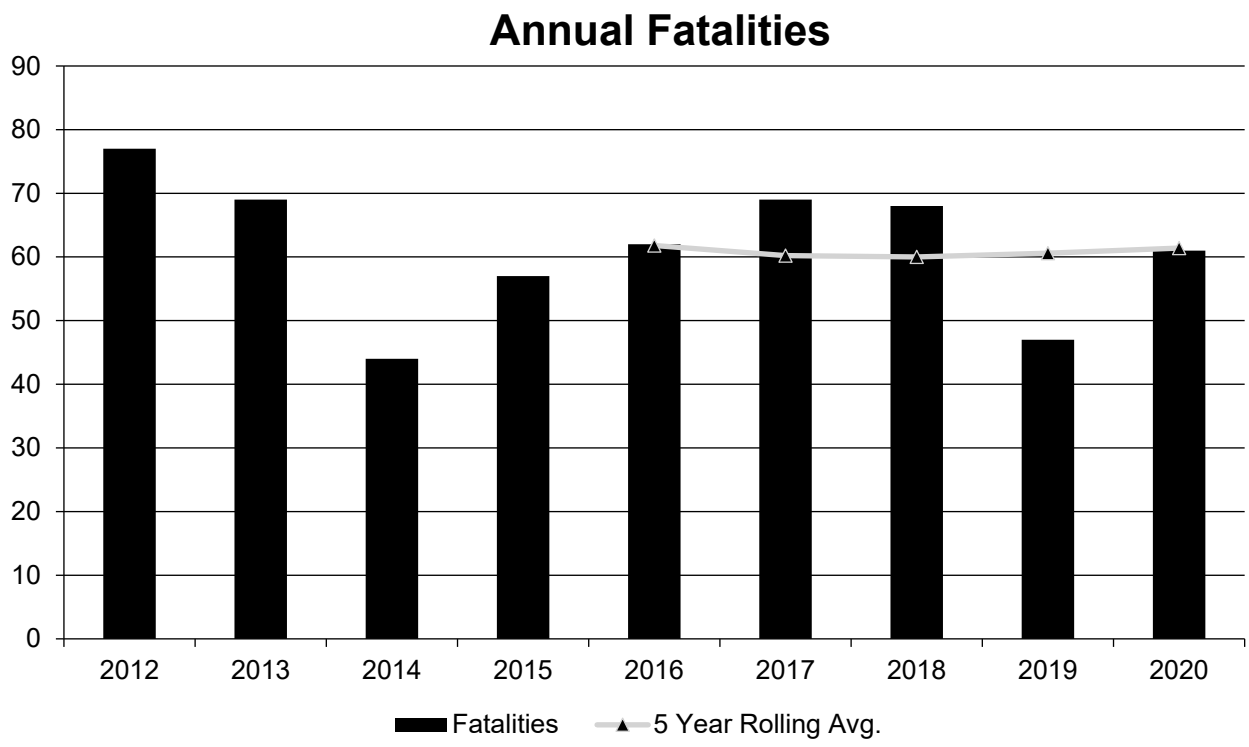
All of the projects listed were obligated between 7/1/20 and 6/30/21. The list does not include projects that were obligated prior to that period.

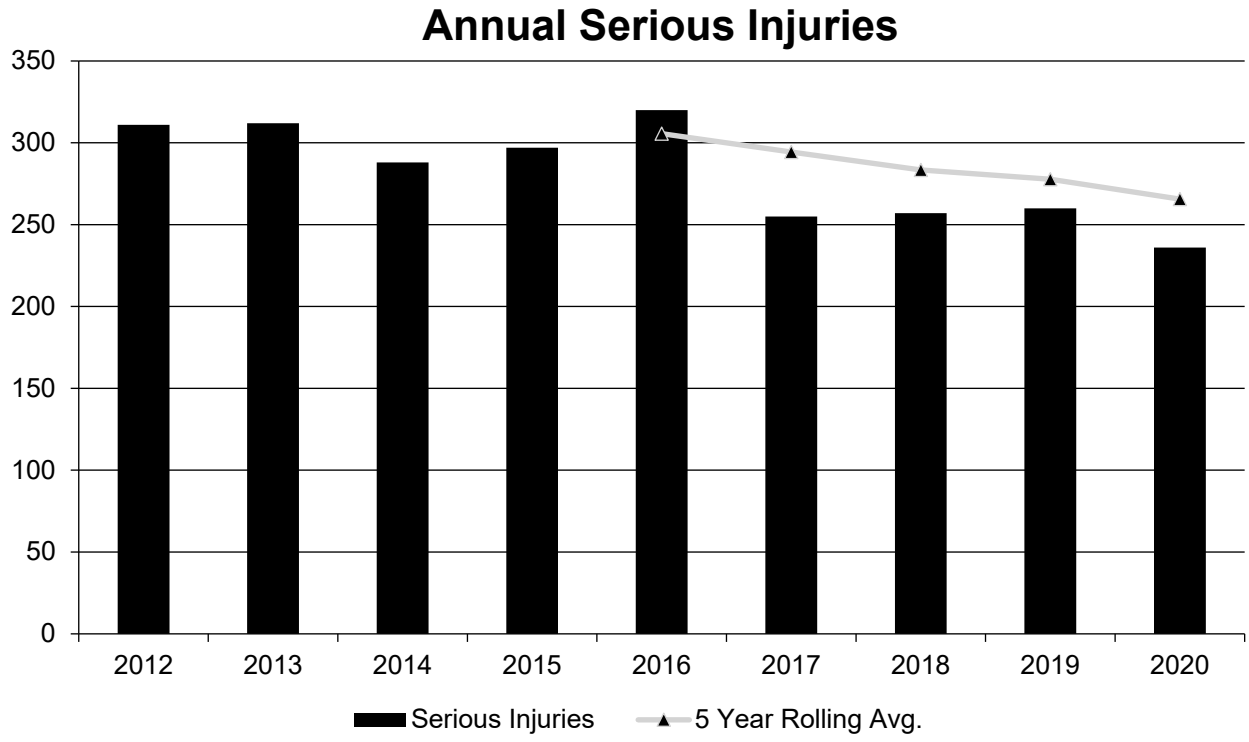
# Safety Performance

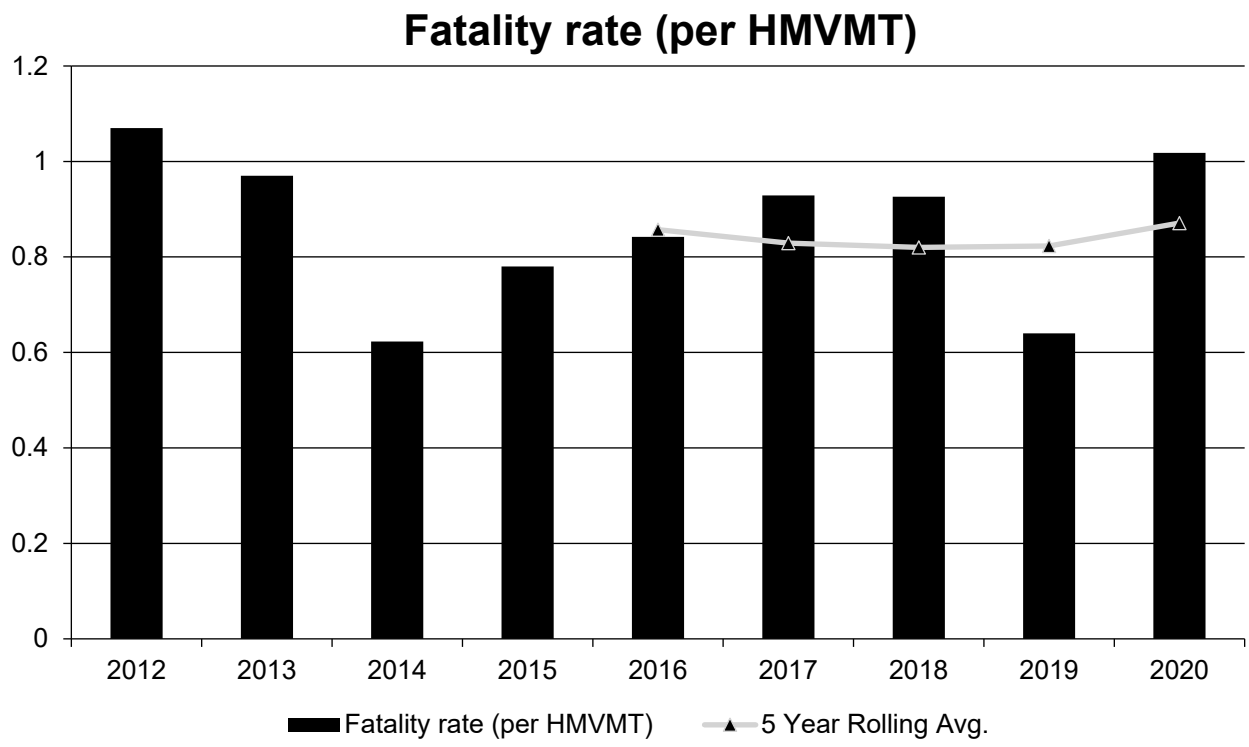
## *General Highway Safety Trends*

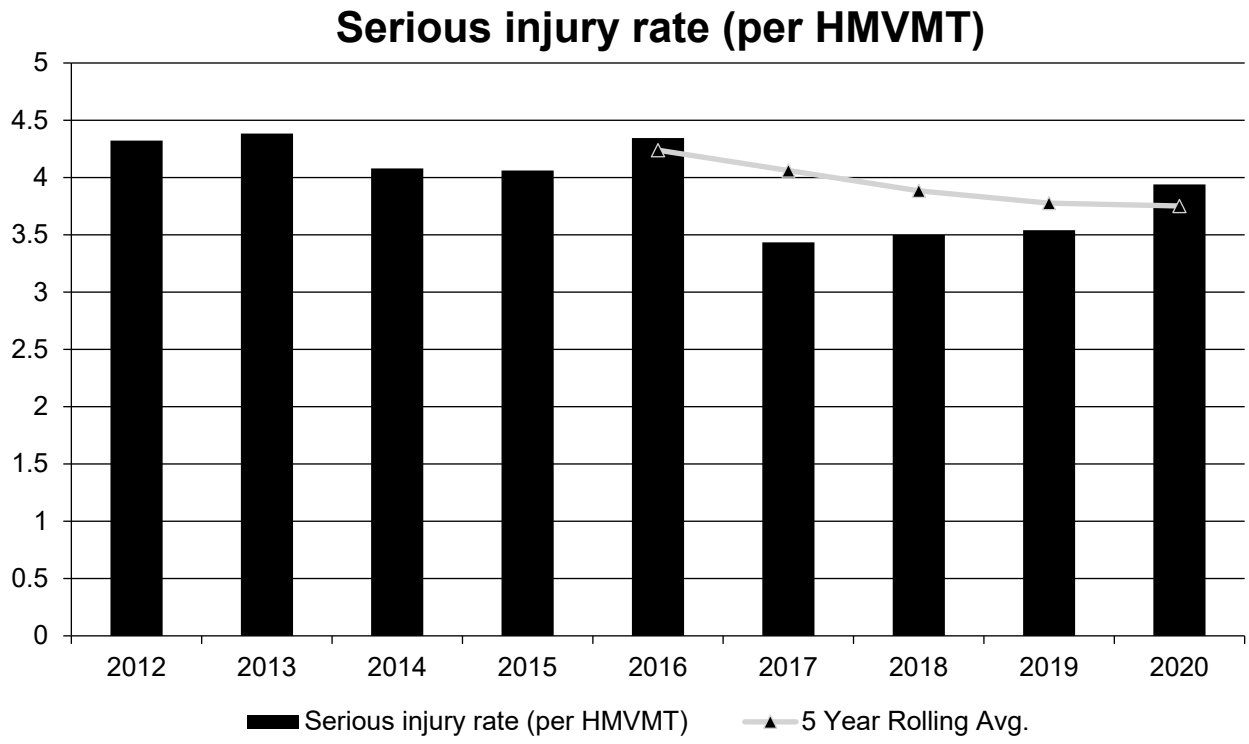
### Present data showing the general highway safety trends in the State for the past five years.

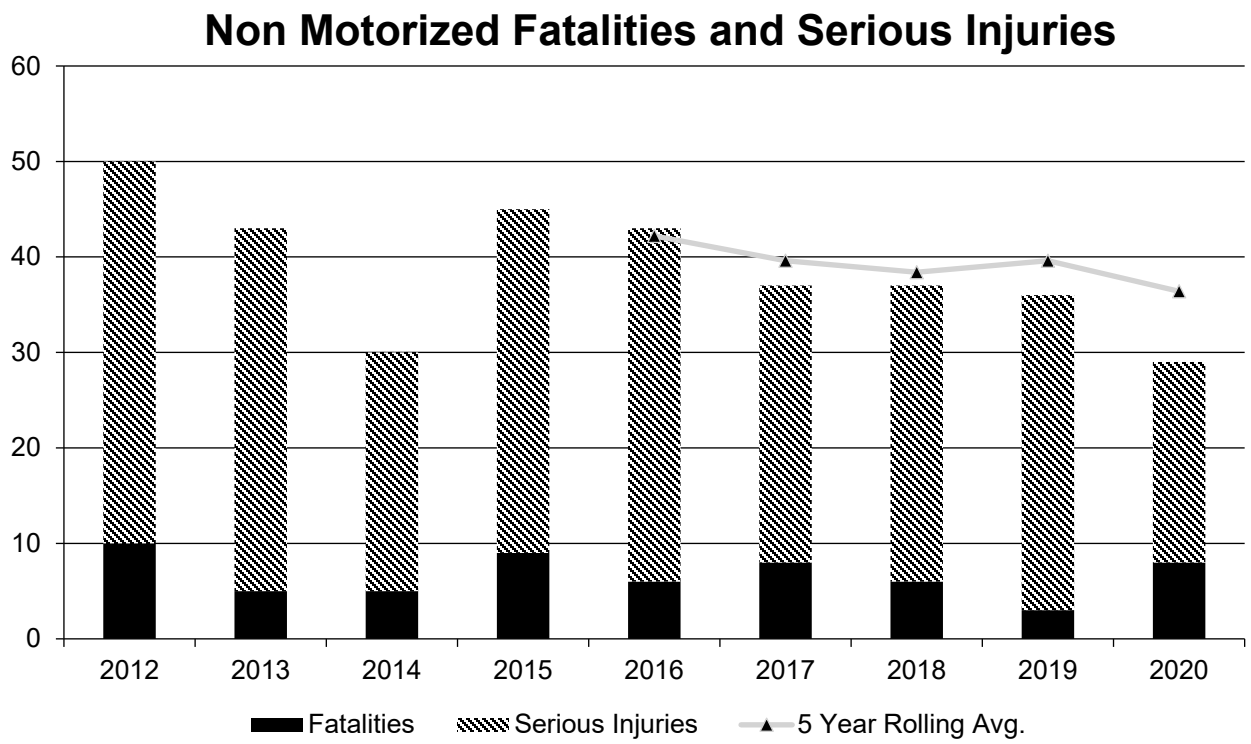
| PERFORMANCE MEASURES | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|
| Fatalities | 77 | 69 | 44 | 57 | 62 | 69 | 68 | 47 | 61 |
| Serious Injuries | 311 | 312 | 288 | 297 | 320 | 255 | 257 | 260 | 236 |
| Fatality rate (per HMVMT) | 1.070 | 0.970 | 0.623 | 0.780 | 0.842 | 0.929 | 0.926 | 0.640 | 1.018 |
| Serious injury rate (per HMVMT) | 4.322 | 4.384 | 4.080 | 4.062 | 4.345 | 3.435 | 3.499 | 3.540 | 3.940 |
| Number non-motorized fatalities | 10 | 5 | 5 | 9 | 6 | 8 | 6 | 3 | 8 |
| Number of non-motorized serious injuries | 40 | 38 | 25 | 36 | 37 | 29 | 31 | 33 | 21 |


Annual Fatalities
90
80
70
60
50
40
30
20
10
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
350
300
250
200
150
100
50
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.2
1
0.8
0.6
0.4
0.2
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
Serious injury rate (per HMVMT)
5 Year Rolling Avg.




## Describe fatality data source.

FARS

Past years for which the sate motor vehicle crash database were used have been changed to FARS numbers.

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

**Year 2020**

| 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 | 6.2 | 20 | | |
| Rural Principal Arterial (RPA) - Other Freeways and Expressways | | | | |
| Rural Principal Arterial (RPA) - Other | 6.6 | 23.4 | | |
| Rural Minor Arterial | 13.4 | 49.8 | | |
| Rural Minor Collector | 1.6 | 9 | | |

| 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 Major Collector | 14.2 | 55.2 | | |
| Rural Local Road or Street | 10.2 | 35.2 | | |
| Urban Principal Arterial (UPA) - Interstate | 0.4 | 6.2 | | |
| Urban Principal Arterial (UPA) - Other Freeways and Expressways | 0.4 | 0.8 | | |
| Urban Principal Arterial (UPA) - Other | 4.6 | 24.2 | | |
| Urban Minor Arterial | 1.4 | 13.4 | | |
| Urban Minor Collector | | | | |
| Urban Major Collector | 1.8 | 15.6 | | |
| Urban Local Road or Street | 0.6 | 6.2 | | |

**Year 2020**

| 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 | 41 | 159 | | |
| County Highway Agency | | | | |
| Town or Township Highway Agency | 14.8 | 60.6 | | |
| City or Municipal Highway Agency | 5.8 | 35.6 | | |
| 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 | | | | |

## Provide additional discussion related to general highway safety trends.

A group public and private entities under the organization of the Vermont Highway Safety Alliance (VHSA) continues to collaborate towards safety efforts in Vermont.

Another uncommon aspect of safety implementation in Vermont is that VTrans not only manages the Highway Safety Improvement Program but it also operates the State Highway Safety Office. 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 or other systematic efforts. 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 State Highway Safety Office 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.

While many states have seen the number of fatalities increase significantly during the pandemic, the number of fatalities in Vermont has remained within the usual range during that period. On-the-other-hand, Vermont has seen a significant decrease in the number of vehicle miles travelled during the pandemic, in the order of 18%. Furthermore, law enforcement presence on Vermont's highways has been scaled back during the pandemic in an effort to limit the transmitting of the corona virus which may have contributed to higher travel speeds during that period.

## *Safety Performance Targets*

### Safety Performance Targets

## Calendar Year 2022 Targets *

### *Number of Fatalities:58.0*

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

While the coordinating committee realized that the actual value for this target had plateaued over the years, the committee favored the idea of the 2022 safety target for fatal crashes not to be higher than the one from the previous year (the 2021 target was 58). With this in mind, the committee decided to keep the 2022 target the same as for 2021.

A 2022 target of 58 provides a decrease of 5.5% from the five-year average of 61.4 in 2016–2020 and supports the goal of the SHSP by providing a reduction in the five-year average above 4.0% over two years.

### *Number of Serious Injuries:260.0*

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

Serious injuries have been trending down over the last several years. The Excel trendline proposes that the five-year average will be around 270 serious injuries in 2022. A value below this trendline was selected in order to achieve progress towards the SHSP goal.

The proposed target suggests a decrease of 2.1% from the five-year average of 265.6 in 2016-2020 to a five-year average of 260 by the end of calendar year 2022.

This proposed target is downwards and supports the overall reduction intent of the SHSP.

### *Fatality Rate:0.820*

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

This measure is highly dependent on the number of vehicle miles traveled (VMT). Vermont's 2021 target for the fatality rate five-year average was 0.82. This number is slightly higher than what is estimated (0.80) for a 2% SHSP yearly reduction with 2020 normal conditions and is also lower than what could be obtained for a 2%

SHSP yearly reduction under existing conditions with the lower VMT due to pandemic restrictions (0.84). Vermont is still seeing a 15-18% reduction in traffic volumes as compared to 2019, and VTrans does not expect the VMT to get back to the usual 7.5 billion range in the near future. However, the coordinating committee decided to retain the same rate as for the 2021 target (0.82).

The proposed target suggests a decrease in the fatality rate per 100 million VMT of 5.8% from the five-year average of 0.871 in 2016-2020 to a five-year average of 0.820 by the end of calendar year 2022 and supports the goal of the SHSP by providing a reduction in the five-year average above 4.0% over two years.

### *Serious Injury Rate:3.700*

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

A value of 3.65 was established for the 2021 target for the suspected serious injury rate five-year average. The actual 2020 value was 3.75. A 2020 value would have been around 3.60 to 3.68 with more realistic VMTs and maybe a slightly higher number of injuries. More normal conditions for 2020 suggest that an even lower value of near 3.5 would be needed to keep up with the SHSP. However, the coordinating committee felt that keeping this target near the 2021 value (3.65) would be preferable. This is another target that is dependent on the VMT and as mentioned previously, VTrans does not expect VMT to go back to pre-pandemic levels in the near future.

The proposed target suggests a decrease of 1.4% from the five-year average of 3.752 in 2016-2020 to a five-year average of 3.7 by the end of calendar year 2022.

This proposed target is downwards and supports the overall reduction intent of the SHSP.

### *Total Number of Non-Motorized Fatalities and Serious Injuries:35.0*

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

The 2021 target for the number of non-motorized fatalities and non-motorized suspected serious injuries five-year average was 36. This value is about what is expected to happen from the Excel trend line for 2022. This value is slightly higher than what VTrans calculated as a target that supports the SHSP (34.8). To align with the SHSP, the coordinating committee decided to use a 5-year average of 35.

The proposed target suggests a decrease in the five-year average of 3.3% from the five-year average of 36.2 in 2016-2020 to a five-year average of 35 by the end of calendar year 2022.

This proposed target is downwards and supports the overall reduction goal of the SHSP.

VTrans has attempted to align the 2020 safety performance targets with the overall five-year goal of the SHSP rather than by trend lines. VTrans believes that this approach is more useful for making decisions towards investments.

VTrans endeavored to determine what the safety targets should be in order to make progress towards a 10% SHSP overall reduction in the of fatal and serious injury crashes five-year average over five years (assuming that the 10% goal from the previous SHSP will be continued in the next SHSP update). The year 2022 will be the first year of VTrans' updated SHSP. To keep it simple, VTrans assumed a 2% reduction per year. The 10% reduction should be from the 2021 averages, but because these are unknown for now, VTrans assumed a 4% reduction from the 2020 actual values.

VTrans used Excel trend lines and generated predictions with ARIMA models for the year 2022 for all five five-year average safety targets as reference points.

## 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 both under the Operations & Safety Bureau.

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 Data Unit of the Operations & Safety Bureau 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 Unit and further reviewed by HSIP staff for appropriateness.

A coordination meeting was held with the Chittenden County MPO, the “State Highway Safety Office”, the Data and HSIP Units of the Operations and Safety Bureau as well with the Planning and Policy Bureau to discuss the draft targets and finalize the five measures.

## 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 2020 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.

| PERFORMANCE MEASURES | TARGETS | ACTUALS |
|---|---|---|
| **Number of Fatalities** | 58.0 | 61.4 |
| **Number of Serious Injuries** | 275.0 | 265.6 |
| **Fatality Rate** | 0.820 | 0.871 |
| **Serious Injury Rate** | 3.700 | 3.752 |
| **Non-Motorized Fatalities and Serious Injuries** | 36.0 | 36.4 |

Vermont determined to have made no significant progress towards meeting its 2020 targets as only three out of the five safety performance targets were met or were equal or better than the 2018 baseline performances.

- Vermont did not meet the 2020 target for the number of fatalities. The actual 5-year average performance for 2016-2020 (61.4) was higher than the established target for 2020 (58) and it was also not better than the 2014-2018 baseline (60.0).

The number of fatalities in 2016 was 47. Fatalities in Vermont have been in the 60s in recent years. The number of fatalities in 2016 was much lower than usual and contributed to a lower trend line and lower goal setting.

- Vermont did not meet the 2020 fatality rate target. The actual performance for 2016-2020 (0.871) was higher than the established target for 2020 (0.820). Similarly, it was also not better than the 2014-2018 baseline (0.820).

The number of vehicle miles traveled during 2020 were approximately 18% lower due to the pandemic while the number of fatalities in 2020 did not change significantly as it remained in the typical range.

- Vermont met the number of serious injuries target. The actual performance for 2016-2020 (265.6) was lower than the established target for 2020 (275). The actual performance (265.6) was also better than the 2014-2018 baseline (283.4).

- Vermont made progress towards achieving the rate of serious injuries target. While the actual performance for 2016-2020 (3.752) was higher than the established target for 2020 (3.700), the actual performance (3.752) was better than the 2014-2018 baseline (3.884).

As noted previously, the number of vehicle miles traveled during 2020 were approximately 18% lower due to the pandemic and this contributed to an unusual higher rate in 2020.

- Vermont made progress towards achieving the number of non-motorized fatalities and non-motorized serious injuries target. While the actual performance for 2016-2020 (36.4) was higher than the established target for 2020 (36.0), the actual performance (36.0) was better than the 2014-2018 baseline (38.2).

## *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 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|
| Number of Older Driver and Pedestrian Fatalities | 7 | 11 | 11 | 13 | 13 | 11 | 11 |
| Number of Older Driver and Pedestrian Serious Injuries | 27 | 18 | 31 | 31 | 26 | 30 | 25 |

# 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).

Over the years, the HSIP and other related safety efforts have been efficient at reducing the number of major crashes on Vermont roads

Fatal and Injury Crashes (Major Crashes):

While the trend in the five-year average of the number of fatal crashes has mainly plateaued from the 2012-2016 period to the 2016-2020 period to around 57.0 fatal crashes, the five-year average of the number of serious injury crashes has been going down, passing from 253.6 serious injury crashes to 216.0.

Overall, the trend in the five-year average of the number of major crashes has been downward from 310.4 major crashes to 273.2 major crashes.

Fatalities and Serious Injuries:

The five-year average of the number of fatalities went down when comparing the same two periods, passing from 62.0 to 61.4 fatalities. Similarly comparing the same two period, the five-year average of the number of serious injuries went down from 305.6 to 265.6 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

### Describe significant program changes that have occurred since the last reporting period.

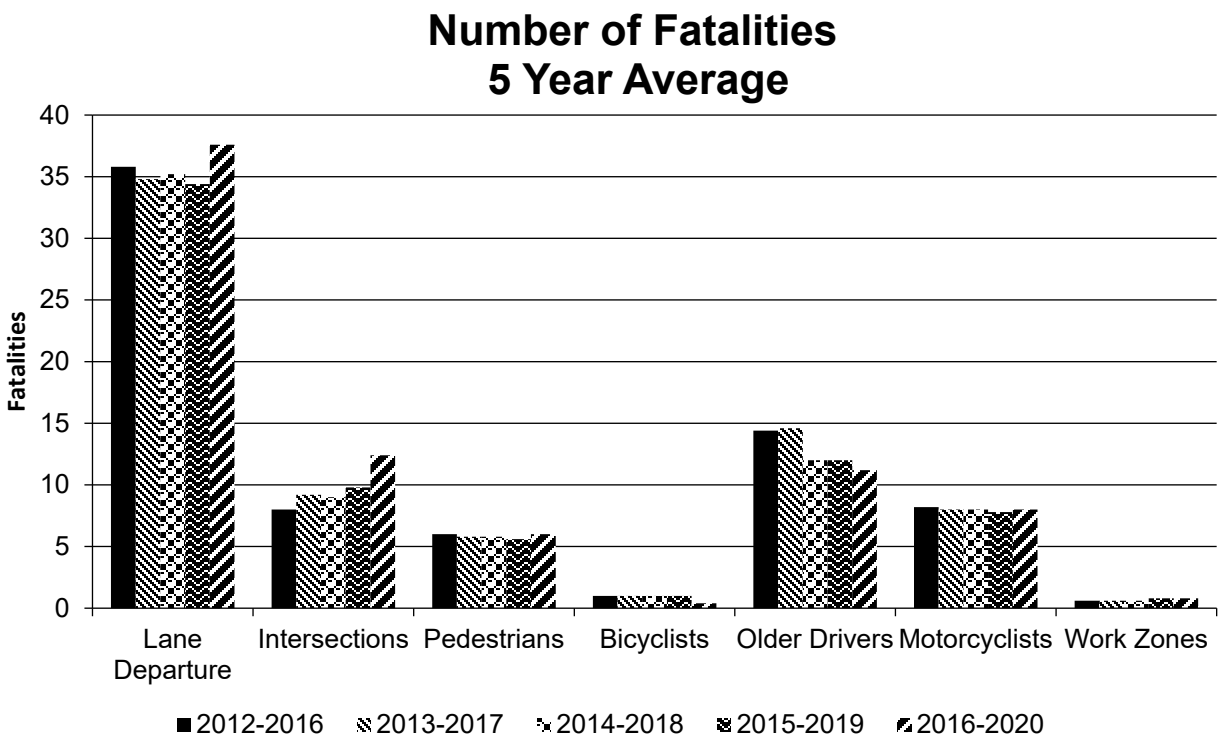
While there have been no significant programmatic changes during this reporting period, VTrans has been evaluating its overall HSIP with the help of a consultant during this reporting period and it is expected that programmatic changes will be implemented in the next reporting period.

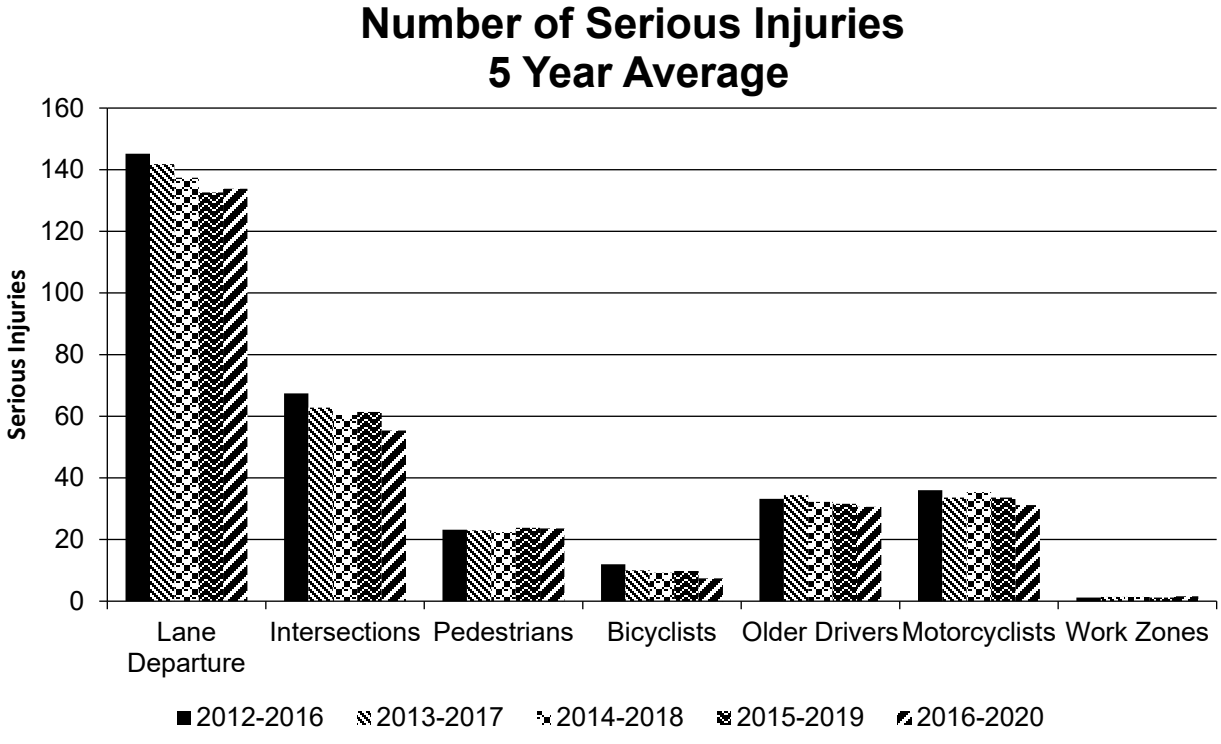
## *Effectiveness of Groupings or Similar Types of Improvements*

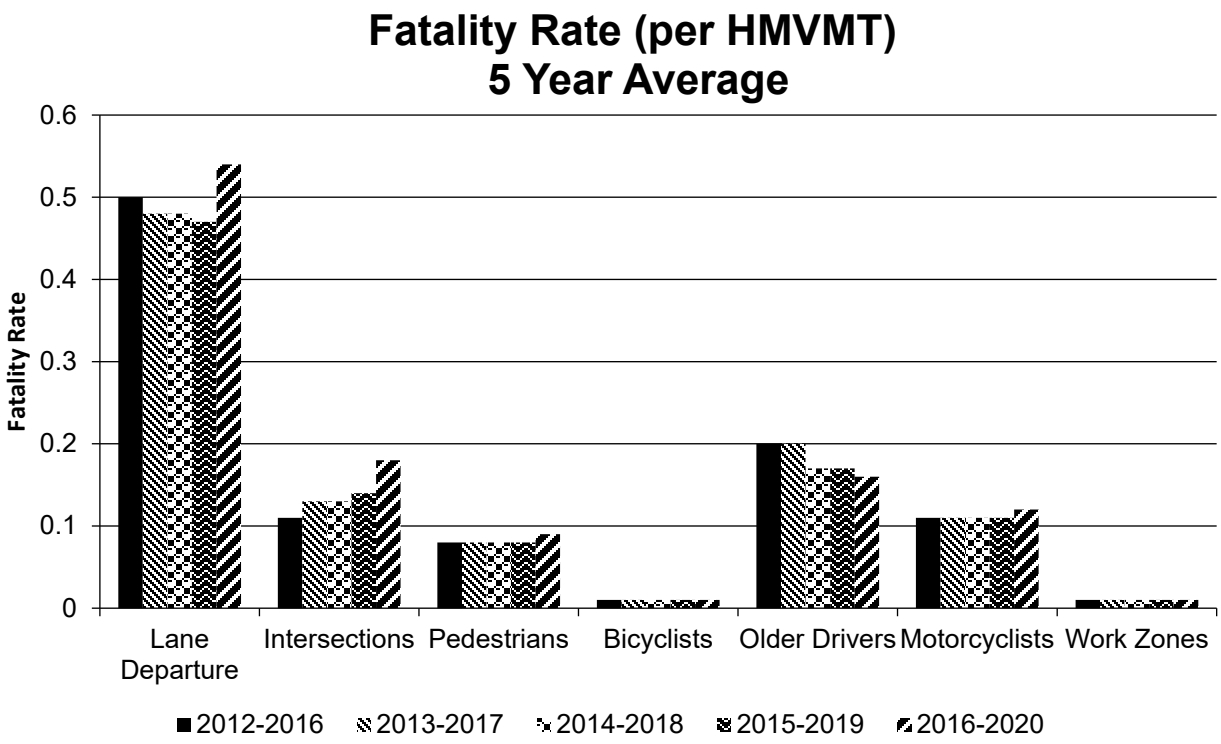
### Present and describe trends in SHSP emphasis area performance measures.

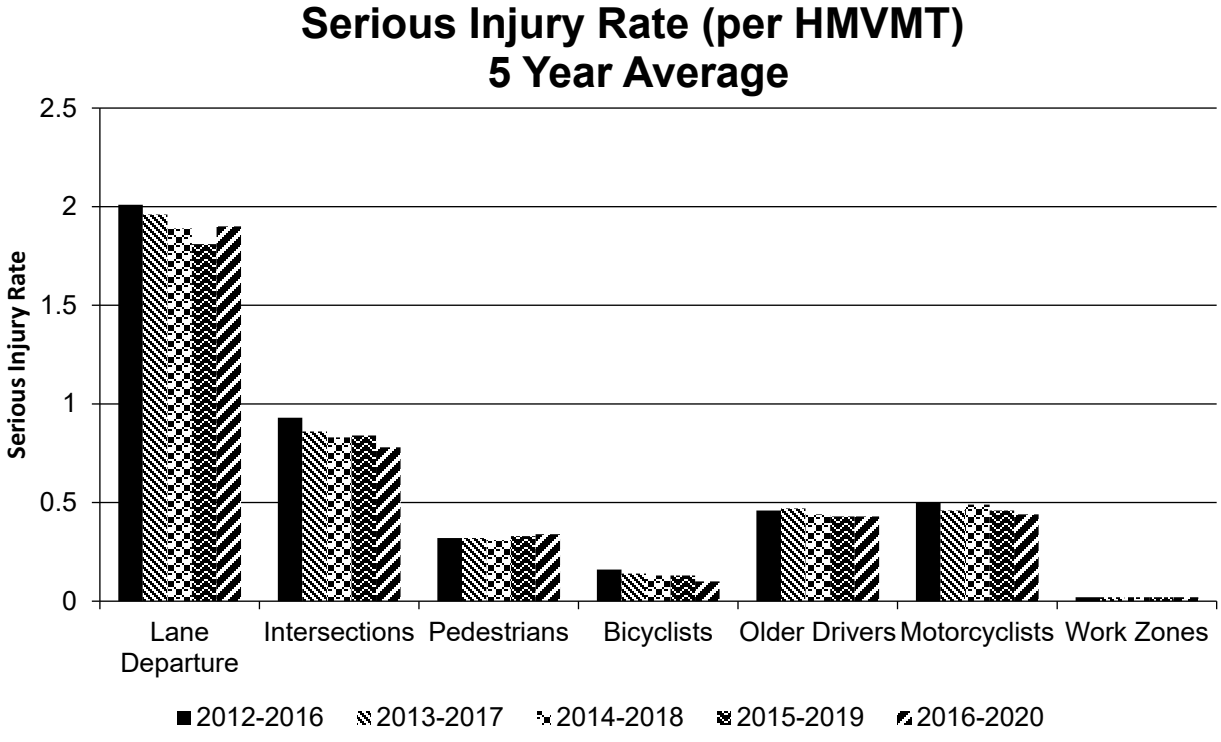
**Year 2020**

| 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 | All | 37.6 | 133.8 | 0.54 | 1.9 |
| Intersections | All | 12.4 | 55.4 | 0.18 | 0.78 |
| Pedestrians | All | 6 | 23.6 | 0.09 | 0.34 |
| Bicyclists | All | 0.4 | 7.4 | 0.01 | 0.1 |
| Older Drivers | All | 11.2 | 30.6 | 0.16 | 0.43 |
| Motorcyclists | All | 8 | 31.2 | 0.12 | 0.44 |
| Work Zones | All | 0.8 | 1.6 | 0.01 | 0.02 |


Number of Fatalities
5 Year Average
Fatalities
40
35
30
25
20
15
10
5
0
Lane Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2012-2016
2013-2017
2014-2018
2015-2019
2016-2020


Number of Serious Injuries
5 Year Average
Serious Injuries
160
140
120
100
80
60
40
20
0
Lane Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2012-2016
2013-2017
2014-2018
2015-2019
2016-2020


Fatality Rate (per HMVMT)
5 Year Average
Fatality Rate
0.6
0.5
0.4
0.3
0.2
0.1
0
Lane Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2012-2016
2013-2017
2014-2018
2015-2019
2016-2020


Serious Injury Rate (per HMVMT)
5 Year Average
Serious Injury Rate
2.5
2
1.5
1
0.5
0
Lane Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2012-2016
2013-2017
2014-2018
2015-2019
2016-2020

## *Project Effectiveness*

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

| LOCATION | FUNCTIONAL CLASS | IMPROVEMENT CATEGORY | IMPROVEMENT TYPE | PDO BEFORE | PDO AFTER | FATALITY BEFORE | FATALITY AFTER | SERIOUS INJURY BEFORE | SERIOUS INJURY AFTER | ALL OTHER INJURY BEFORE | ALL OTHER INJURY AFTER | TOTAL BEFORE | TOTAL AFTER | EVALUATION RESULTS (BENEFIT/COST RATIO) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LYNDON STPG SGNL(48) US 5 @ RED VILLAGE ROAD, LYNDON | Rural Major Collector | Intersection traffic control | Modify control – new traffic signal | 7.00 | 11.00 | | | | | 2.00 | | 9.00 | 11.00 | 0.64 |
| RUTLAND TOWN NHG 019-3(60) US7 & GREEN MOUNTAIN PLAZA & SEWARD ROAD, RUTLAND TOWN | Rural Principal Arterial (RPA) - Other | Intersection traffic control | Modify traffic signal – modernization/replacement | 16.00 | 23.00 | | | | | 4.00 | 3.00 | 20.00 | 26.00 | -0.15 |
| MORRISTOWN STPG SGNL(47) ALTERNATE VT ROUTE 100/VT ROUTE 100/BISHOP MARSHALL DRIVE + ALTERNATE VT ROUTE 100/BRIDGE STREET | Rural Minor Arterial | Intersection traffic control | Modify control – new traffic signal | 9.00 | 3.00 | | | | 1.00 | 3.00 | 1.00 | 12.00 | 5.00 | 0.51 |

Three years of before and three years of after crash data are displayed in the table. The projects shown were constructed between 2016 and 2017.

### 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. 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 (2016-2020) for lane departure and intersection crashes indicates that progress has been made beyond these goals.

The latest five-year average (2016-2020) for lane departure crashes is 160.4 major crashes and is below the SHSP target of 186 major crashes.

Similarly, the latest five-year average (2016-2020) for intersection crashes is 57.0 major crashes and is also 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

VTrans has initiated the process of updating the SHSP. The aim is to have a final draft by December 2021.

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

*Based on Functional Classification (MIRE 1.0 Element Number) [MIRE 2.0 Element Number]

| 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 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE |
| ROADWAY SEGMENT | Segment Identifier (12) [12] | 100 | 100 | | | | | 100 | 100 | 100 | 100 |
| | Route Number (8) [8] | 100 | 100 | | | | | | | | |
| | Route/Street Name (9) [9] | 100 | 100 | | | | | | | | |
| | Federal Aid/Route Type (21) [21] | 33 | 33 | | | | | | | | |
| | Rural/Urban Designation (20) [20] | 100 | 100 | | | | | 100 | 100 | | |
| | Surface Type (23) [24] | 100 | 100 | | | | | 100 | 100 | | |
| | Begin Point Segment Descriptor (10) [10] | 100 | 100 | | | | | 100 | 100 | 100 | 100 |
| | End Point Segment Descriptor (11) [11] | 100 | 100 | | | | | 100 | 100 | 100 | 100 |
| | Segment Length (13) [13] | 100 | 100 | | | | | | | | |
| | Direction of Inventory (18) [18] | 50 | 50 | | | | | | | | |
| | Functional Class (19) [19] | 100 | 100 | | | | | 100 | 100 | 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 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE |
| | Median Type (54) [55] | 44 | 44 | | | | | | | | |
| | Access Control (22) [23] | 100 | 100 | | | | | | | | |
| | One/Two Way Operations (91) [93] | 100 | 100 | | | | | | | | |
| | Number of Through Lanes (31) [32] | 89 | 89 | | | | | 100 | 44 | | |
| | Average Annual Daily Traffic (79) [81] | 100 | 100 | | | | | 100 | 96 | | |
| | AADT Year (80) [82] | 100 | 100 | | | | | | | | |
| | Type of Governmental Ownership (4) [4] | 100 | 100 | | | | | 100 | 100 | 100 | 100 |
| **INTERSECTION** | Unique Junction Identifier (120) [110] | | | 100 | 100 | | | | | | |
| | Location Identifier for Road 1 Crossing Point (122) [112] | | | 100 | 100 | | | | | | |
| | Location Identifier for Road 2 Crossing Point (123) [113] | | | 100 | 100 | | | | | | |
| | Intersection/Junction Geometry (126) [116] | | | 71 | 70 | | | | | | |
| | Intersection/Junction Traffic Control (131) [131] | | | 50 | 50 | | | | | | |
| | AADT for Each Intersecting Road (79) [81] | | | 83 | 83 | | | | | | |
| | AADT Year (80) [82] | | | 83 | 83 | | | | | | |
| | Unique Approach Identifier (139) [129] | | | 100 | 100 | | | | | | |
| **INTERCHANGE/RAMP** | Unique Interchange Identifier (178) [168] | | | | | 100 | 100 | | | | |
| | Location Identifier for Roadway at | | | | | 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 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE |
| | Beginning of Ramp Terminal (197) [187] | | | | | | | | | | |
| | Location Identifier for Roadway at Ending Ramp Terminal (201) [191] | | | | | 100 | 100 | | | | |
| | Ramp Length (187) [177] | | | | | 100 | 100 | | | | |
| | Roadway Type at Beginning of Ramp Terminal (195) [185] | | | | | 20 | 20 | | | | |
| | Roadway Type at End Ramp Terminal (199) [189] | | | | | 20 | 20 | | | | |
| | Interchange Type (182) [172] | | | | | | | | | | |
| | Ramp AADT (191) [181] | | | | | 100 | 100 | | | | |
| | Year of Ramp AADT (192) [182] | | | | | 100 | 100 | | | | |
| | Functional Class (19) [19] | | | | | 100 | 100 | | | | |
| | Type of Governmental Ownership (4) [4] | | | | | 100 | 100 | | | | |
| **Totals (Average Percent Complete):** | | **89.78** | **89.78** | **85.88** | **85.75** | **76.36** | **76.36** | **100.00** | **93.33** | **100.00** | **100.00** |

*Based on Functional Classification (MIRE 1.0 Element Number) [MIRE 2.0 Element Number]

The FHWA Office of Safety performed, in the first half of 2021, a comprehensive assessment of VTrans' data compared to the MIRE data elements. In providing the updated current percent completed of MIRE fundamental data elements, VTrans leveraged the MIRE scorecard from FHWA. Consequently, some of the percentages have gone down compared to the 2020 status update as a result of the scorecard and VTrans' initial assessments, as VTrans was not interpreting the level of completeness the same as FHWA.

### 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.

Over the course of the last several years, VTrans has been working to modify databases to support the MIRE data elements, creating new data, and working with a focus on building out the fundamental data elements (FDEs). Much data for the FDEs exist to support the Highway Performance Monitoring System (HPMS) or other systems within VTrans, but there were some elements that were identified at the beginning of the process that did not exist. There has been significant progress toward meeting the MIRE FDE requirements, but there is still work to be done.

In 2021, the FHWA Office of Safety performed an assessment for the VTrans MIRE data and provided a scorecard. Based on this, VTrans is between 84% and 100% complete on having the coverage and format necessary to meet the MIRE FDE requirements. This assessment identified several areas where attributes at VTrans do not meet the required criteria and there will need to be revisions to the VTrans process for maintaining and reporting these fields. There were also gaps identified in data that need to be filled and some alterations to how data is currently being classified.

One area of success for MIRE is the development of the intersection data, coordination with a vendor early in the process to build out data for the federal aid highways, working with the Regional Planning Commissions (RPCs) to build out local road data, and the integration of processes to pull data from other sources to map to the data elements in the intersection point (nodes) and approach (node legs) data layers. There are still some gaps in this dataset, but there has been a significant amount of work done to date and processes that are in place to allow for the remainder of FDEs to be defined.

Tasks needed to comply with the 2026 deadline include:

- Review of the areas for improvement identified in the FHWA MIRE Assessment.
- Build out some data elements to match MIRE requirements, such as non-NHS highways to have full coverage of the ARNOLD data.
- Incorporate more detailed pavement classification to match MIRE schema
- Perform a rigorous assessment of what exists, identify gaps, and develop a data acquisition plan.
- Continue to develop validation tools and processes to ensure the highest quality of data.
- Expand the technology and methodologies for collecting the MIRE FDEs.
- Develop extract, transform and load (ETL) processes to reformat existing enterprise data to the MIRE data element schema.
- 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.

## Optional Attachments

Program Structure:

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

Project Implementation:

Safety Performance:

Vermont Status Progress Towards Meeting its Safety Targets.pdf

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.