

Vermont

STRATEGIC HIGHWAY SAFETY PLAN 2022-2026



March 2022

Thank You to All Highway Safety Partners

The Vermont Agency of Transportation (VTrans) would like to thank its public and private sector partners for their contributions and dedication to the development and implementation of the State's Strategic Highway Safety Plan (SHSP). The stakeholders and subject matter experts from around the State contributed greatly to the quality and thoroughness of the plan. The VTrans Operations and Safety Bureau, State Highway Safety Office, Vermont highway safety advocates, and the Vermont Highway Safety Alliance (VHSA) members work collaboratively for the good of public safety, focusing on the goal of *Toward Zero Deaths (TZD)* on Vermont highways. By targeting Vermont's most critical emphasis areas for improving highway safety and implementing effective strategies and action plans, Vermont has made progress in improving safety on its highways, but more work is needed for future reductions. The 2017-2021 SHSP has helped to advance transportation safety; however, the onset of the COVID-19 pandemic has presented additional challenges. The tireless efforts of the following organizations and their members, listed below, have helped Vermont achieve successes and they are greatly appreciated.

Partners

- › 3M
- › AAA of Northern New England
- › AARP Driver Safety
- › Addison County Regional Planning Commission
- › Associated General Contractors of Vermont and Project Road Safe
- › AT&T
- › Bennington County Regional Commission (BCRC)
- › Central Vermont Regional Planning Commission (CVRPC)
- › Chittenden County Regional Planning Commission (CCRPC)
- › Co-Operative Insurance Companies
- › Community Justice Network of Vermont
- › Education and Safety Unit at the Department of Motor Vehicles (DMV)
- › F.R. Lafayette
- › Federal Highway Administration (FHWA)
- › Federal Motor Carrier Safety Administration (FMCSA)
- › Green Mountain Transit
- › Hallstrom Motor Sports
- › Impaired Driving Rehabilitation Program (Formerly known as CRASH)
- › Lamoille County Planning Commission (LCPC)
- › Local Motion
- › Mount Ascutney Regional Planning Commission (MARC)
- › National Highway Traffic Safety Administration (NHTSA)
- › Northeastern Vermont Development Association (NVDA)
- › Northwest Regional Planning Commission (NRPC)
- › Operation Lifesaver
- › Private Driver Education Schools
- › Ride Safe Vermont
- › Rutland Regional Planning Commission (RRPC)
- › Sp!ke Advertising
- › Text Less Live More
- › Town of Barre
- › Two Rivers-Ottawaquechee Regional Commission

- › TXT U L8R (UVM Medical Center and the Clinical Simulation Laboratory at the UVM College of Medicine)
- › University of Vermont Medical Center
- › University of Vermont, Transportation Research Center
- › Vermont Agency of Transportation Operations and Safety Bureau
- › Vermont Association of Chiefs of Police (and member departments)
- › Vermont Automotive Distributors Association
- › Vermont Department of Health
- › Vermont Department of Liquor Control
- › Vermont Department of Tourism and Marketing
- › Vermont Driver and Traffic Safety Education Association
- › Vermont Forensic Laboratory
- › Vermont Insurance Agents Association
- › Vermont Judicial System
- › Vermont League of Cities and Towns
- › Vermont Local Roads
- › Vermont Office of Emergency Medical Services
- › Vermont Sheriffs' Association (and member departments)
- › Vermont State Highway Safety Office
- › Vermont State Police (VSP)
- › Vermont Truck and Bus Association (and member companies)
- › Volunteer Citizens
- › Windham Regional Commission
- › Worksafe Traffic Control Industries
- › Youth Safety Council of Vermont

Improving safety in our local communities is a shared goal, and everyone—municipalities, local organizations, private companies, and the community at large—can help Vermont build on the remarkable progress made to date. Stakeholders play a role in advancing Vermont's SHSP by participating in the working groups who proactively promote a safety culture, and we look forward to your continued support with the implementation of this plan.



Message from VTrans Secretary Flynn:

It is an honor and a privilege to be leading the Agency of Transportation (VTrans) in Vermont. More than any other state agency, VTrans affects the lives of every Vermonter as well as those who visit our beautiful state. Our work is essential to growing the economy and improving the quality of life for all Vermonters, and we can see the results of that work in our own communities every day. Our VTrans mission is to provide the safe and efficient movement of people and goods and the Operations and Safety Bureau helps us in achieving that mission.

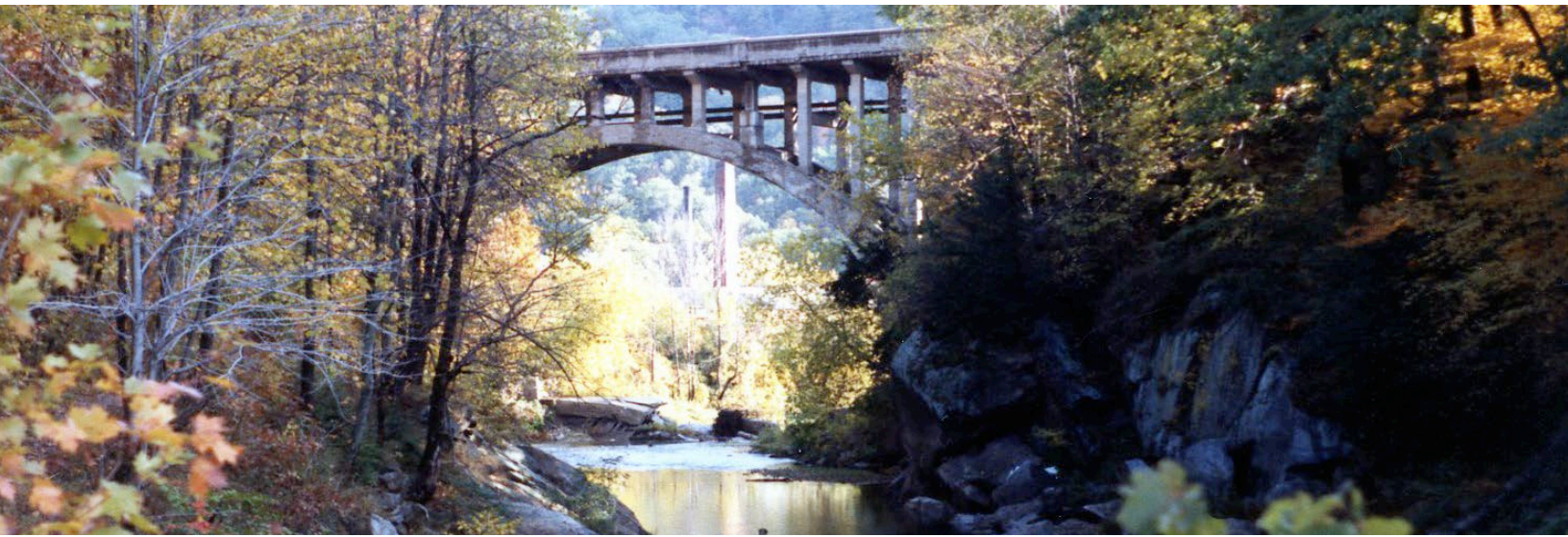
The Vermont Agency of Transportation promotes the TZD philosophy, as we believe that one death on Vermont roads is too many. The 2022-2026 Strategic Highway Safety Plan highlights the work of our many valued partners through the traffic safety initiatives and countermeasures. We are proud of all the work performed by our partners, and we are thankful for their contributions toward promoting safe driving in Vermont. We further appreciate all the support provided by our federal partners at the Federal Highway Administration as well as our regional partners at the National Highway Traffic Safety Administration (NHTSA). On behalf of all the staff at VTrans, we pledge to strive toward ensuring Vermont's roads are safe for travel.

~ Joe Flynn, Secretary of Transportation



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Introduction

By focusing our efforts on critical areas, Vermont highway safety advocates have a unique opportunity to improve safety on the roadways over the next five years. A comprehensive approach of education, enforcement, engineering, and emergency services is our best plan to make change and it requires community involvement for proactive and effective measures. Ultimately, success is dependent upon everyone's willingness to take personal responsibility for safely using the transportation system and demanding others do the same.

The State's Strategic Highway Safety Plan (SHSP), a requirement of the Highway Safety Improvement Program (HSIP) under 23 U.S.C. § 148, is the framework for reducing major crashes on the State's public highways. Major crashes are defined by the Vermont Agency of Transportation (VTTrans) as any crash that results in a fatality or serious injury. Through a data-driven process, the SHSP identifies the Critical Emphasis Areas (CEAs) and safety needs for the State and identifies the strategies for implementation that have the most potential to save lives and prevent injuries. This multi-year comprehensive Plan takes a holistic and integrated approach in establishing statewide goals by embracing the use of the four Es of highway safety as outlined by the Federal Highway Administration (FHWA): Education, Enforcement, Engineering, and Emergency Services.¹

A key element of this Plan update is to incorporate the elements and principles of the Safe System approach as outlined by FHWA.² The updated SHSP will shift focus from the traditional crash prevention strategies described in the previous Plan, acknowledging that incidents will occur, and will concentrate on managing crash characteristics and mitigating the severity of

1 https://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm

2 https://safety.fhwa.dot.gov/zerodeaths/zero_deaths_vision.cfm

incident outcomes. This SHSP will incorporate safe road users, safe vehicles, safe speeds, safe roads, and post-crash care—the elements of a Safe System.

The SHSP incorporates elements from the other individual safety plans prepared for the State of Vermont, including:

- › Highway Safety Plan
- › Highway Safety Improvement Program
- › Motor Carrier Safety Assistance Program Commercial Vehicle Safety Plan
- › Vermont State Police Strategic Plan
- › VTrans Bicycle and Pedestrian Strategic Plan
- › Traffic Records Strategic Plan

The following report documents the progress made to date since the adoption of the 2017 - 2021 SHSP, evaluates the needs moving forward with the updated Plan, and sets new (aggressive, yet attainable) goals and objectives for the next five years. VTrans is proud to present this updated 2022 to 2026 SHSP and once again reaffirms its commitment to working TZD on Vermont highways.

The VHSA

A key organization for Vermont's efforts is the Vermont Highway Safety Alliance (VHSA). The VHSA was formed in 2012 to formalize an integrated, statewide highway safety program focused on the best use and sharing of resources to accelerate the advancement of highway safety in the State. The VHSA is an independent nonprofit alliance comprised of a diverse group of public and private organizations, as well as volunteer citizens who represent all users of Vermont's highway system. Their mission is to work together to collect, share, and apply data in a unified effort to develop and implement strategies that improve highway safety using the SHSP as the guide.

Our Vision

To minimize the occurrence and severity of highway crashes, and related injuries and fatalities.

Our Mission

Working together, we use data to improve highway safety by integrating engineering; enforcement; education and outreach; and emergency medical services (EMS) initiatives.

Our Promise

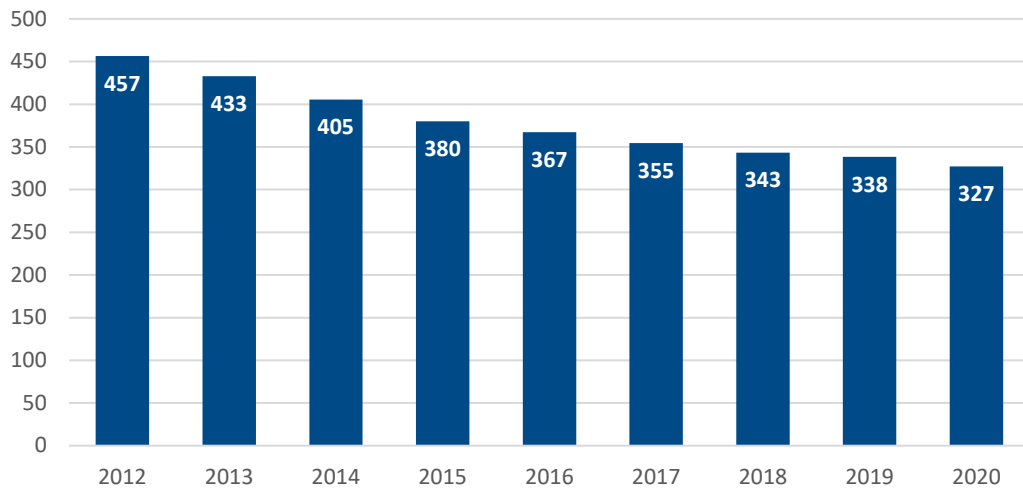
To make and keep our highways safe.



Progress on the 2017–2021 Plan

Vermont set aggressive safety goals and objectives in previous SHSPs, having achieved considerable crash reductions over the past decade. The 2012 and 2017 updates both called for 10-percent reductions in major crashes defined by VTrans as fatal or serious injury crashes. To align with performance goals in this SHSP update, the number of persons killed or seriously injured is used to determine progress in addressing major crashes. In most CEAs and across the State in general, Vermont has made significant gains in highway safety. For instance, the five-year rolling average of total fatalities and serious injuries decreased by 11 percent between 2016 and 2020 and is on track for meeting the ambitious goals and objectives laid out in the previous Plan.

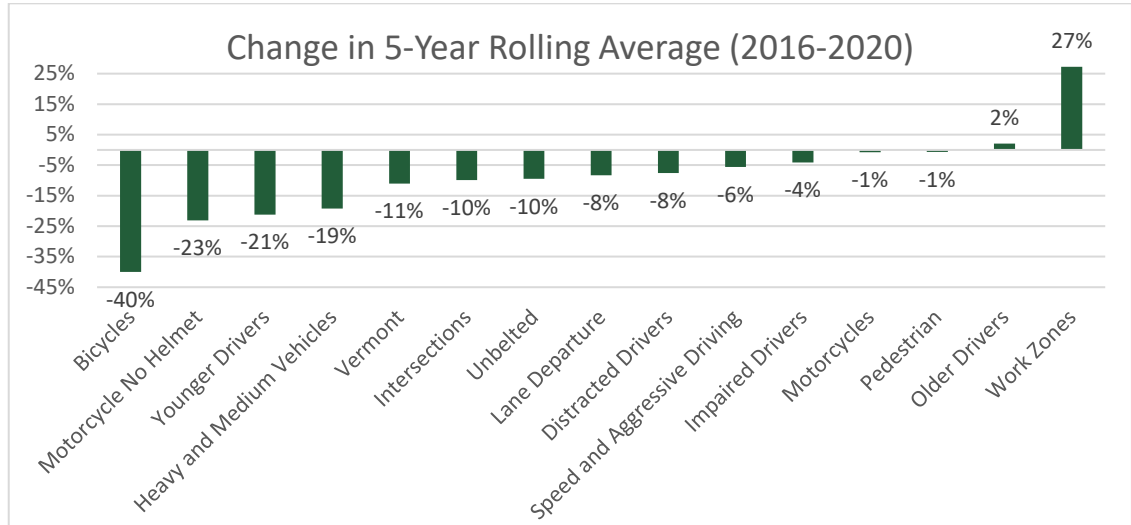
Five-Year Rolling Average of Fatalities and Serious Injuries from Major Crashes



Source: Vermont Agency of Transportation, 2021

Several of the supporting CEAs and Significant Emphasis Areas (SEAs) also noted significant declines in fatalities and serious injuries in the past five years. Although only the Bicyclist and Younger Drivers (Under 25) CEAs currently meet the 2017 Plan's goals and objectives, most CEAs saw large reductions year over year, and many (Lane Departure, Intersection Safety, and Restraint Use) saw at least an eight-percent reduction in the running five-year rolling average of fatalities and serious injuries. Only Older Drivers and Work Zone-related fatalities and serious injuries saw an increase over the course of the last five years since the last SHSP update.

Change in Five-Year Rolling Average of Fatalities and Serious Injuries from Major Crashes by Crash Type



Source: Vermont Agency of Transportation, 2021.

Vermont's success can be attributed to its multi-disciplinary approach to safety. This emphasis on the four Es of Engineering, Enforcement, Education, and Emergency Medical Services, has allowed Vermont to make great strides in its safety management approach, including how it collects and monitors trends in the State. The Youth Risk Behavior Survey (YRBS) and the Behavioral Risk Factor Surveillance System (BRFSS) monitor trends in younger and older populations and can help tailor age-related strategies. The Vermont Judicial Bureau is in the process of updating the State's citation system, and the new VALCOUR computer-aided dispatch and records management system should streamline access to citation data. Both projects will allow safety stakeholders to understand risk that may not be present in crash data.

These data also supplement traditional crash, roadway, and traffic information that supports typical safety engineering and planning activities. Vermont has collected Federally mandated Model Inventory of Roadway Elements (MIRE) on State highways over the past five years and has worked collaboratively with Regional Planning Commissions on collection of fundamental data elements on paved local roads for the last two years. These data elements support core safety analyses outlined in the Highway Safety Manual, as well as systemic approaches that focus on risk rather than on historic crash hot spots alone.

Progress on Crash Reduction Goals and Objectives from the 2017-2021 SHSP Fatalities and Serious Injuries (F+SI) from Major Crashes

Critical Emphasis Areas		Major Crash Reduction Objective	2016 F+SI 5-Year Average	2020 F+SI 5-Year Average	% Change
Improve Infrastructure	Lane Departure	10%	265.6	243.8	-8.2%
	Intersections	10%	75.2	67.8	-9.8%
Curb Speeding and Aggressive Driving		20%	114.8	108.4	-5.6%
Increase Use of Occupant Protection	Unrestrained	20%	90.4	81.8	-9.5%
	Unhelmeted	N/A	7.8	6	-23.1%
Vulnerable Users & Motorcyclists Safety	Pedestrians	10%	29	28.8	-0.7%
	Bicyclists	10%	13	7.8	-40.0%
	Motorcyclists	10%	52.6	52.2	-0.8%
Age-Appropriate Solutions	Younger Drivers (Under 25)	15%	115	90.6	-21.2%
	Older Drivers (65 and Over)	5%	68.8	70.2	2.0%
Reduce Impaired Driving		10%	83.6	80.2	-4.1%
Curb Distracted Driving and Keep Drivers Alert		10%	68.4	63.2	-7.6%
Significant Emphasis Areas					
Reduce Medium and Heavy Vehicle Crashes		N/A	20.8	16.8	-19.2%
Improve Work Zone Safety		N/A	2.2	2.8	27.3%

Source: Vermont Agency of Transportation, 2021

Although Vermont saw some progress over the past five years in its goal to reduce fatalities and suspected serious injuries toward zero, the State has several challenges to overcome with many of its Emphasis Areas not meeting the objectives identified in the last SHSP update. The events of 2020 were challenging for many in Vermont and the United States, and national highway safety was challenged as well.³ Many States saw sharp increases in fatalities on public roads during stay-at-home conditions. Although this was an exceptional period, it is unclear if many of the trends observed in 2020 and early 2021 will continue.

This SHSP update is an opportunity for all safety stakeholders to reflect on progress to date and target the highest priority needs for near- and long-term activities. This document highlights key takeaways from Vermont's multi-disciplinary focus and the future Safe System approach.

3 <https://www.nhtsa.gov/press-releases/2020-fatality-data-show-increased-traffic-fatalities-during-pandemic>














Goals and Objectives for the 2022–2026 Plan

The effects of fatal and serious injuries from crashes are far-reaching and include the loss of human life. Despite progress made during the 2017-2021 SHSP, an average of 61 deaths and 266 serious injuries still occurred annually in Vermont during this period. For this reason, targeting the reduction of these fatalities and serious injuries will continue to be the primary goal of the SHSP for 2022-2026. During this timeframe, Vermont safety stakeholders **will seek to reduce fatalities and serious injuries in Vermont by 10 percent**. This carefully considered goal reflects the likelihood that the effectiveness of some of the successful crash-reduction strategies currently in use may change over time as demographic, technological, and cultural shifts in the State may affect how well these strategies target the motoring public. An aging population, changes in vehicle technology, and adherence to safe road user behavior are among factors that influence how well Vermont meets its goal. In addition, the development and implementation of this SHSP is a major component and requirement of the federal HSIP (23 U.S.C. § 148) with a focus on reducing highway fatalities and serious injuries on all public roads.

Cascading down from this primary goal are a series of objectives for each CEA. The CEAs are listed in their respective sections as shown in the table on the following page. Achieving the objectives for the 2022-2026 SHSP will require collecting, using, and sharing data to inform strategies, prioritize efforts, and measure performance. The Plan is intended to follow the objectives of FHWA's national effort to improve highway safety, known as TZD and incorporate the Safe System approach. A successful 2022-2026 SHSP depends on continued dedication and hard work from Vermont safety partners in each of the private, local, State, and federal sectors. The strategies and associated action plans selected for the SHSP will directly impact highway safety through the four Es of highway safety, as well as policy, public health, communications, data integration, and other efforts.

CEA Objectives for 2022-2026

Focus Area	CEA	F+SI Reduction Objective
Infrastructure	 Lane Departure	10%
	 Intersections	15%
	 Speed and Aggressive Driving	5%
Behavioral	 Occupant Protection	15%
	 Impaired Driving	15%
	 Distracted Driving and Alertness	10%
Vulnerable Users and Roadway Users	 Pedestrians	10%
	 Bicyclists	5%
	 Motorcyclists	5%
	 Younger Drivers (Under 25)	10%
	 Older Drivers (65 and Over)	5%

Source: Vermont Agency of Transportation, 2021



Update Process

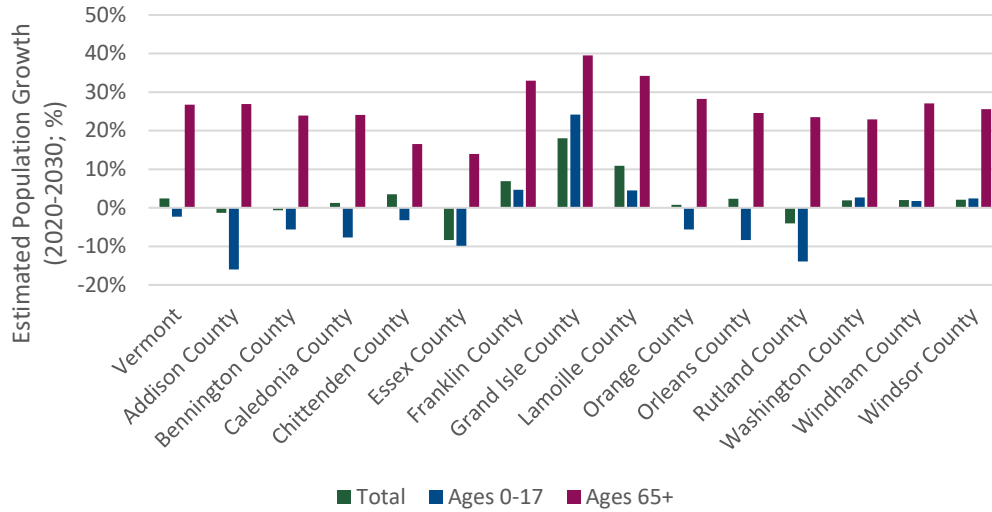
Vermont is a unique place. It is home to over 600,000 residents and over 13 million visitors who can enjoy the State's natural beauty and recreational opportunities. The SHSP, with its goal of reducing fatalities and serious injuries on Vermont's roadways, helps to provide a safe and reliable transportation system for both its residents and its visitors. To understand how the SHSP can support Vermont in the future, it is important to understand where Vermont has been and the trends that will affect transportation safety.

Vermont's population is growing, but it is also aging. The State's population over the age of 65 is expected to grow by over 25 percent by 2030; meanwhile, the total number of children 17 and under is expected to decline slightly (~two percent). This trend has significant implications for the transportation needs of Vermont's residents.

While winter weather is a key contributor to traffic safety issues with more crashes occurring during this period, Vermont experiences its highest number of traffic fatalities during the summer (July through September). This correlates with higher recreational travel in Vermont by both its residents and its visitors.

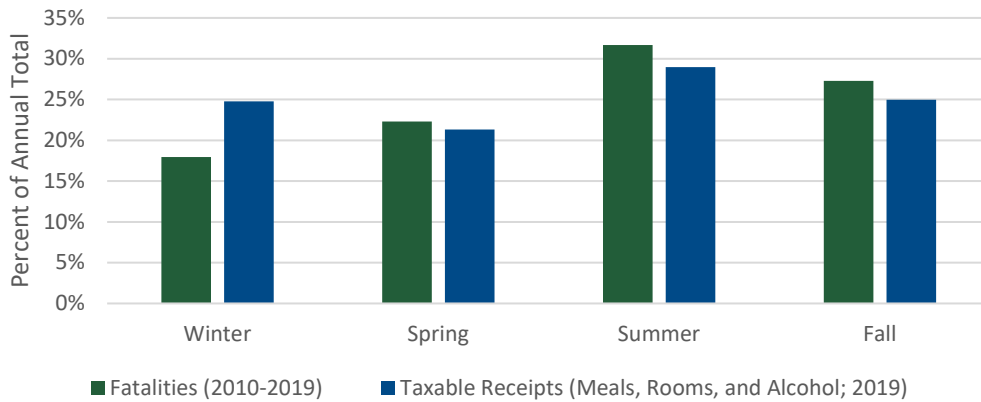
Data analysis demonstrates two key insights for updating the SHSP: 1) the update should be informed by a data-driven process and 2) it takes cooperation from many different stakeholders to address interrelated factors that contribute to safer roads.

Estimated Percentage Population Growth (2020-2030) by County



Source: Vermont Agency of Transportation, 2021

Seasonal Comparison between Road Fatalities and Taxable Receipts as a Proportion of Annual Totals



Source: Vermont Agency of Transportation, 2021

The process to update the SHSP from 2017-2021 included a review and analysis of available data and an extensive stakeholder engagement process. Data analysis helped to inform the most prominent crash types and the factors that contributed to these incidents including driver factors, roadway features, vehicle factors, environmental conditions, and systemic risk factors. Trends discovered during data review helped guide stakeholders throughout the engagement process to identify the most appropriate CEAs.

Notable Fact

73% of fatalities and serious injuries involve lane departure; lane departure is also involved in 90 percent of unrestrained and 89 percent of impaired driver fatalities and serious injuries.

Stakeholder Engagement Process

Stakeholder engagement was key to Vermont’s SHSP update process. Stakeholders collaborated and updated the Plan during two virtual safety partner workshops and through working group meetings. Stakeholders included representatives from the four Es of highway safety, as well as members of the State Traffic Records Coordinating Committee, and Regional Planners who provided diverse perspectives and creative approaches to improve highway safety.

A kickoff workshop brought together multidisciplinary stakeholders to review data trends and gather feedback and insight on the existing plan. Stakeholders were introduced to the purpose of the SHSP which is to identify and analyze problems and opportunities with highway safety and to establish statewide goals, objectives, and key emphasis areas. Stakeholders understood that the SHSP is used to guide efforts and to reduce the number of fatal and serious injuries on the State’s roadways. The goal of the initial workshop was to review the CEAs and determine what changes were needed to update the previous Plan. Following this initial workshop, stakeholders were organized into smaller working groups to develop strategies and implementation plans for more focused and manageable CEAs. In the Fall of 2021 stakeholders convened for a final workshop where they discussed the draft SHSP.

Working Groups

The stakeholders were organized into four smaller working groups, each with a common topic area or focus area—Infrastructure, Behavioral, Vulnerable Users and Roadway Users, and Data and Emerging Topics. Stakeholders were assigned to these working groups based on expressed interest and individual responsibilities. The distribution of stakeholders provided representation from each of the four Es. The working groups were assigned responsibility for the overarching focus area and corresponding CEAs as follows:

- › **Infrastructure**

- Lane Departure
- Intersections
- Speed and Aggressive Driving

- › **Behavioral**

- Occupant Protection
- Impaired Driving
- Distracted Driving and Alertness

- › **Vulnerable Users and Roadway Users**

- Pedestrians and Bicyclists
- Motorcyclists
- Younger Drivers
- Older Drivers

- › **Data and Emerging Topics**

- Data Analysis and Integration

Throughout the course of the Spring and Summer of 2021 the focus area working groups met three times each. During those meetings, stakeholders defined the CEAs, set objectives, and developed the strategies for the CEAs. During the initial workshop, participants expressed a need for more data and discussion on each of the CEAs. The first working group meeting for each focus area provided an opportunity to review the data to gain a thorough understanding of the trends. Stakeholders reviewed the strategies outlined in this updated Plan. For each strategy, the group considered the implementation progress, policy, technology, and societal shifts that affect the strategy, and whether the strategy should be retained or revised for the updated Plan. During the second working group meeting, stakeholders cultivated the strategies by refining those retained from the previous Plan and adding new strategies where appropriate. The stakeholders met for a third and final working group meeting to create an Action Plan and prioritize the strategies. For each strategy, the CEA Action Plan identified contributing agencies responsible for implementation, timelines, overlapping CEAs, and Safe System considerations.

Safe System Considerations

The Safe System approach is a framework for road safety that represents a significant shift from traditional approaches. As described by FHWA, applying the Safe System approach involves anticipating human mistakes by designing and managing road infrastructure to keep the risk of a mistake low; and when a mistake leads to a crash, to mitigate the impact on the human body to help reduce fatalities and serious injuries. Road design and management should encourage safe speeds and manipulate appropriate crash angles to reduce injury severity. In other words, the principles of the Safe System approach recognize that humans make mistakes, but that death and serious injury are unacceptable outcomes. Because the human body is vulnerable and has limits for tolerating crash forces, those forces must be managed to not exceed certain limits. The responsibility to create such a Safe System is shared among all transportation stakeholders, from transportation system users to managers, roadway designers, to vehicle manufacturers. This effort must occur proactively, identifying and mitigating risks as opposed to waiting for crashes to happen before reacting. Finally, it is imperative that redundancy is built into the transportation system so that safety is never fully dependent on one facet of the system.

A Safe System is comprised of five elements:

1. **Safe Road Users**
2. **Safe Vehicles**
3. **Safe Speeds**
4. **Safe Roads**
5. **Post-Crash Care**

These elements address the different aspects of crash risk from different angles, promoting a holistic approach to road safety. They also overlap with each other in different ways, enabling the redundancy that is so crucial to the approach.

Stakeholders in the SHSP update process were encouraged to adopt the Safe System approach when identifying effective strategies to decrease fatalities and serious injuries across Vermont. Like the four Es mentioned previously, the Safe System approach promotes collaboration among stakeholders and provides a framework for developing well-rounded and complete strategic

approaches across the different areas of the SHSP. Developing strategies that address the five Safe System elements and working toward the vision laid out in the Safe System principles position Vermont to continue to advance toward its safety goals and the ultimate realization of a Safe System for all road users.

The presence of a Safety Culture is intertwined with the Safe System approach. The culture of a group includes the values, attitudes, and actions of that group. When all the values, attitudes, and actions are directed toward promoting safety above all, that group has achieved a Safety Culture.



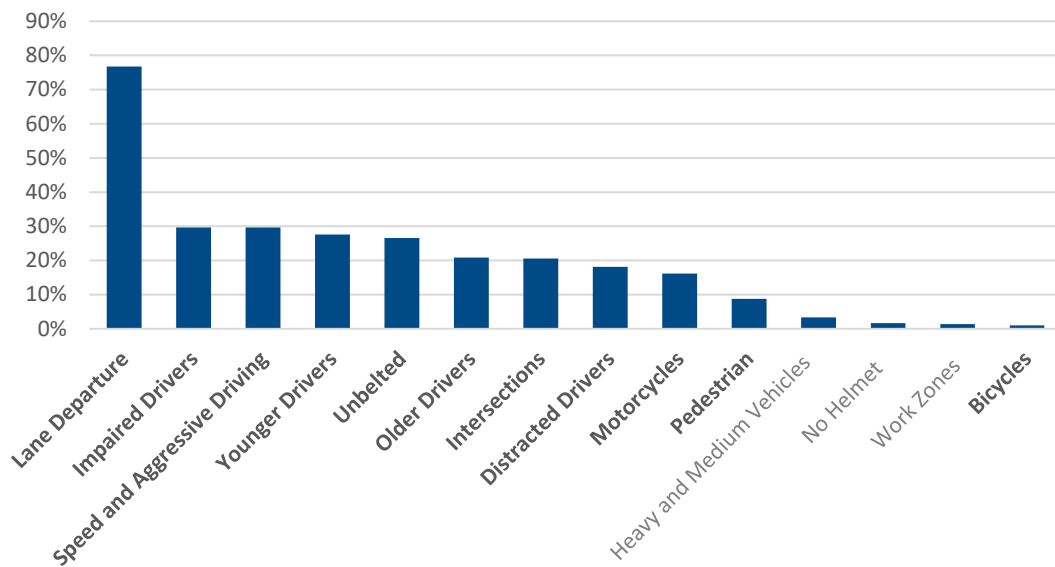


Critical Emphasis Areas (CEAs)

Eleven CEAs have been identified for this Plan. Stakeholders identified and prioritized the CEAs through a data-driven crash analysis approach supplemented with other information such as the Census and tax receipts. The chart below summarizes the analysis results based on data from 2016 through 2020. The chart provides a graphical comparison of the five-year major crash trends for Emphasis Areas based on the number of major crashes associated with each, facilitating the prioritization and selection of the 11 CEAs for the updated Plan.

Comparison Between Emphasis Areas as A Percentage of Fatalities and Serious Injuries from 2016-2020












Source: Vermont Agency of Transportation



The chart below expands upon the CEAs presented in the 2017-2021 SHSP. Many of those identified in the updated SHSP were retained from the previous Plan and have been regrouped under different focus areas. While the essence of these CEAs remains much the same, some have been redefined, modified, expanded, or reduced during the update process. In this updated Plan, CEAs are regrouped into four focus areas defined by the function of the potential strategies—Infrastructure, Behavioral, Vulnerable Users and Roadway Users, and Data and Emerging Topics.

The chart below shows the 11 CEAs selected for the 2022-2026 SHSP:

Emphasis Areas for the 2022-2026 SHSP

Infrastructure		Lane Departure
		Intersections
		Speed and Aggressive Driving
Behavioral		Occupant Protection
		Impaired Driving
		Distracted Driving and Alertness
Vulnerable Users and Roadway Users		Pedestrians and Bicyclists
		Motorcyclists
		Younger Drivers
		Older Drivers
Data and Emerging Topics		Data Analysis and Integration

Infrastructure Focus Area



The Infrastructure focus area includes CEAs with strategies that primarily consist of roadway infrastructure or engineering improvements, although all four Es are important in the strategies. This focus area includes the following

CEAs: **Lane Departure**, **Intersections**, and **Speed and Aggressive Driving**. Some innovative engineering solutions such as traffic calming, advisory shoulders, roundabouts, and diverging diamond interchanges, have been proven to work best when combined with behavioral changes that are achieved through education and enforcement strategies. Through the update process, Lane Departure and Intersections were redefined and Speed and Aggressive Driving explored the Safe System approach to recognize the responsibility of crash prevention lies not only with drivers to drive at appropriate speeds, but also the designers, managers, and users of the road network. The Infrastructure focus area is connected to other plans including the annual Vermont HSIP and addresses efforts related to work zone safety.

Behavioral Focus Area



The Behavioral focus area includes CEAs with strategies designed to reduce high-risk behaviors that increase the probability of a crash, the instances of injury or fatality, and the occurrence of errors in judgement. This includes the

following CEAs: **Occupant Protection**, **Impaired Driving**, and **Distracted Driving and Alertness**. The Behavioral focus area relies heavily on education and enforcement. Education and policies that discourage or prevent making unsafe choices and reinforce making safe choices are effective tools in reducing incidents related to driver behavior. To complement education and enforcement strategies, engineering solutions that reduce the number of conflict points, such as protected left-turn phases at signalized intersections, roundabouts, diverging diamond interchanges, and others can also reduce overall crash frequency and severity. The updated Plan focuses on proactive approaches to keep drivers' attention, such as training law enforcement how to spot and handle driver inattention, and infrastructure improvements to increase driver alertness. The Behavioral CEAs are connected to other plans including the Occupant Protection Plan, the annual Vermont HSIP, the annual Vermont HSP, the Observational Seat Belt Use Survey, the Attitudinal Survey, and the Impaired Driving Plan.

Vulnerable Users and Roadway Focus Area



The Vulnerable Users and Roadway Users focus area includes CEAs with strategies focusing on ways to improve safety for all types of road users throughout their lifespan. This focus area includes the following

CEAs: **Pedestrians and Bicyclists**, **Motorcyclists**, **Younger Drivers**, and **Older Drivers**. The Vulnerable Users and Roadway Users focus area includes strategies and solutions rooted in education. Pedestrians and Bicycles were redefined and combined into one CEA which was integrated, along with Motorcyclists, Younger Drivers, and Older Drivers into this single focus area. The Vulnerable Users and Roadway Users focus area is connected to other plans including the Vermont Bicycle and Pedestrian Strategic Plan and the annual Vermont HSP.

Data and Emerging Topics Focus Area



The previous Plan recognized the importance of data and the need to “Improve Vermont’s Data in the Interest of Safety” through its inclusion as a special CEA. This updated Plan solidifies the importance of **Data Analysis and Integration** by redefining the emphasis area and elevating it to a CEA. Like this Plan, engineers, transportation planners, and researchers use data to make highway safety decisions including identifying deficiencies, creating solutions, justifying improvements, and tracking performance. Funding allocation and policy changes related to transportation and highway safety are also data driven. Data are the foundation of Vermont’s highway safety programs. Therefore, accurate, timely, complete, and accessible data are crucial. Data are paramount to the creation and successful implementation of safety plans. Technology is constantly creating new ways to collect data and presenting opportunities to collect different data. It is vital that the Plan recognizes both the importance of collecting data and of consideration of new technology to collect data that emerges over the coming years. The Data Analysis and Integration CEA is connected specifically to the Traffic Records Strategic Plan, and Safety Data Business Plan that outlines specific key actions for improved data management and governance. The CEA guides highway safety planning efforts in the State.

Changes from Previous Plan

The 2022-2026 plan adds the CEA, Data Analysis and Integration, which relates most closely to the special emphasis area, “Improve Vermont’s Data in the Interest of Safety” in the previous plan. The Plan has a firmer position on Speed and Aggressive Driving with specific language to address this issue through both infrastructure and behavioral strategies. Pedestrian and Bicyclist Safety have been combined into one emphasis area due to commonality in interaction with other roadway users and operations and similarities in safety tactics, while Motorcyclist Safety has unique challenges and strategies and is a standalone CEA. The focus of the updated Plan is to shift from reactive ways to proactive ways to address road safety.

This updated Plan has the following notable changes when compared to the 2017–2021 SHSP:

- › Regrouped Curb Speeding and Aggressive Driving under **Infrastructure** focus area.
- › Grouped Increase the Use of Occupant Protection, Reduce Impaired Driving, Curb Distracted Driving and Keep Drivers Alert under a single focus area—**Behavioral**.
- › Combined Pedestrian and Bicyclist Safety into one CEA and established Motorcyclist Safety as a separate CEA.
- › Regrouped Pedestrian and Bicyclist Safety, Motorcyclist Safety, Improve Younger Driver Safety, and Improve Older Driver Safety under a single focus area—**Vulnerable Users and Roadway Users**.
- › Modified previous Special Emphasis Area focusing on data and elevated to CEA—**Data Analysis and Integration**.
- › Incorporated Work Zone safety as a component of the **Infrastructure** focus area.
- › Revised objectives for 2022–2026 to reduce the five-year rolling average of the combined total number of fatalities and serious injuries. This is a change from the SHSP 2017–2021 objectives that measures total major crashes.

Special Rules

Federal requirements for a SHSP include checking three areas of concern or Special Rules, Older Drivers and Older Pedestrians, High-Risk Rural Roads (HRRR), and Vulnerable Road User Safety. The purpose of these rules is to identify if vulnerable parts of the roadway network or population have an increasing crash trend. If there is an increasing trend, the State has an additional responsibility in the SHSP to address these areas.

Older Drivers and Older Pedestrians

This rule is based on whether traffic deaths and serious injuries per capita for drivers and pedestrians age of 65 and over have increased during the most recent two-year period for which data are available. If there is an increase, the SHSP must include strategies for older drivers and pedestrians. The annual HSIP report VTrans submits to FHWA for funding toward highway safety improvement projects provides the status on Vermont's progress on this rule. Regardless of whether Vermont triggers the rule, this SHSP includes an Older Driver CEA to account for the notable proportion of older residents in the State.

High Risk Rural Roads

VTrans currently defines "significant safety risks" as those roadways with three or more fatal and injury crashes per mile over a five-year period. The HRRR rule is limited to rural major and minor collectors and rural local roads and Vermont has never been subject to the HRRR requirements. If VTrans triggers the HRRR requirements, VTrans will use data analysis tools outlined in Vermont's HSIP manual to determine if current definition is still applicable and obligate funds on eligible roads based the results of the data analysis.

Vulnerable Road User Safety

This rule is based on whether annual fatalities of vulnerable road users in the State represents not less than 15 percent of the total annual crash fatalities in the State in a single year period. If the State exceeds the 15 percent threshold, the State is required to obligate not less than 15 percent of the amounts apportioned to the State for HSIP to address vulnerable road users. Vulnerable road users include pedestrians and bicyclists.

Implementation and Evaluation

Throughout the implementation of the 2022-2026 SHSP, Vermont stakeholders will meet on a periodic basis to review the progress of the CEAs and the implementation of their constituent strategies. VTrans will also use the SHSP to guide the annual HSIP and HSP plans. As needed, VTrans will update strategies to reflect emerging trends or issues as informed by data analyses.



How to Use the Plan

The following section provides an overview of each of the 11 CEAs, along with specific objectives, and strategies for accomplishing goals. A two-page plan is included for each of the 11 CEAs. The first page provides a narrative, the 2026 objective, and strategies to achieve the 2026 objective. The narratives include the definition of the CEA, a summary of the relevant data trends from the 2016–2020 data, and the progress that has been made over the last five years relative to the 2021 objective. The second page contains the action plan to implement measurable strategies to ultimately achieve the objective set forth in this updated Plan outlined previously. The strategies consider proven and effective countermeasures to address road safety as outlined in FHWA’s Proven Safety Countermeasures⁴ and the National Highway Traffic Safety Administration’s Countermeasures That Work⁵.



4 <https://safety.fhwa.dot.gov/provencountermeasures/>

5 https://www.nhtsa.gov/sites/nhtsa.gov/files/2021-09/15100_Countermeasures10th_080621_v5_tag.pdf



Lane Departure

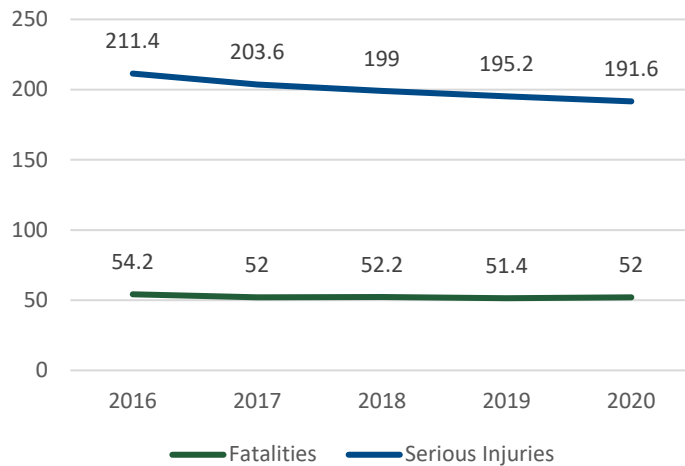
Definition: A crash that occurs after a vehicle crosses an edge line or center line, or otherwise leaves the traveled way.

At an average of 204 crashes per year, lane departures account for over 70 percent of fatal and serious injury crashes. Therefore, the Lane Departure CEA continues to be included in the 2022-2026 SHSP. The objective of the 2017–2021 SHSP was to reduce lane departure crashes by 10 percent between 2017–2021. The five-year rolling average data from 2016 to 2020 shows a decrease of more than eight percent in lane departure-related fatalities or serious injuries.

The 2022–2026 SHSP has modified the definition of a lane departure crash as the previous definition included a list of things with which a vehicle could crash. The revised definition identifies crashes where vehicles left the lane or the traveled way.

The strategies included were designed to continue to reduce the number of lane departure crashes. Care was made to include all users in the definition of the crash type and in the strategies.

Five-Year Rolling Average Lane Departure Fatalities and Serious Injuries



Source: Vermont Agency of Transportation

Objective: **10%** reduction in five-year rolling average lane departure fatalities and serious injuries by 2026.

Strategies

1. Continue programs to systemically implement low-cost safety improvements on all public highways.
2. Improve highway delineation and roadway characteristics.
3. Mitigate events at high crash locations by providing data, analysis, and countermeasure alternatives to planners and designers of improvement implementation.
4. Enhance and support systemic solutions state-wide by providing data, countermeasure alternatives, and other resources to implement improvements.
5. Conduct and/or support engineering, enforcement, and education research and outreach that seeks to reduce run-off-the-road crashes.
6. Design infrastructure to increase the likelihood a vehicle that leaves its lane can get back into the lane of travel and/or reduce the consequences of leaving the roadway.



Lane Departure Action Plan

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
1	Continue programs to implement low-cost safety improvements on all public highways.	VTrans Highway Division, Municipalities, RPC's	Pedestrians/Bicyclists, Younger Drivers, Older Drivers, Motorcyclists, Speed and Aggressive Driving	Ongoing	Safe Roads
2	Improve highway delineation and roadway characteristics.	VTrans Highway Division, Municipalities, RPC's	Pedestrians/Bicyclists, Younger Drivers, Older Drivers, Motorcyclists, Speed and Aggressive Driving	Ongoing	Safe Roads, Safe Speeds
3	Mitigate high crash locations by providing data, countermeasure alternative, and other resources to implement improvements.	VTrans Highway Division, RPC's, Vermont Local Roads	Data Analysis and Integration	Ongoing	Safe Roads
4	Enhance and support systemic solutions state-wide by providing data, countermeasure alternatives, and other resources to implement improvements.	VTrans Highway Division, Vermont Local Roads	Pedestrians/Bicyclists, Younger Drivers, Older Drivers, Motorcyclists, Speed and Aggressive Driving, Data Analysis and Integration	Ongoing, prioritize – 1.5 years for systemic tool	Safe Roads
5	Conduct and/or support research and outreach in the areas of engineering, enforcement, and education that seeks to reduce run-off-the-road crashes.	VTrans Policy, Planning & Research Bureau, VTrans Highway Division, Vermont DMV, FHWA, Northeast Transportation Safety Coalition (NETSC), NHTSA, VHSA	Distracted Driving and Alertness	Ongoing	Safe Roads, Safe Road Users
6	Design infrastructure to increase likelihood a vehicle that leaves its lane can get back into lane and/or reduce the consequences of leaving the road.	VTrans Highway Division, Municipalities, Vermont Local Roads	Speed and Aggressive Driving	Ongoing	Safe Roads, Safe Speeds



Intersections

Definition: An intersection is defined as the area of influence surrounding intersecting roadways or between a roadway and path where users are making through or turning movements.

The 2022-2026 SHSP will continue to include the Intersection CEA as over 20 percent of fatalities and serious injuries occur at intersections. The objective of the 2017-2021 SHSP was to reduce the five-year rolling average number of major intersection crashes by 10 percent between 2017-2021. The five-year rolling average data from 2016 to 2020 shows over a 10 percent decrease in intersection crash fatalities and serious injuries. The number of fatalities increased slightly while the number of injuries reduced significantly.

The 2022-2026 SHSP has modified the definition of an intersection crash to reflect the expansion of intersections to focus less on the intersection configuration (for example, y-type or t-type) and instead more on including crashes at roadways or trails that cross each other.

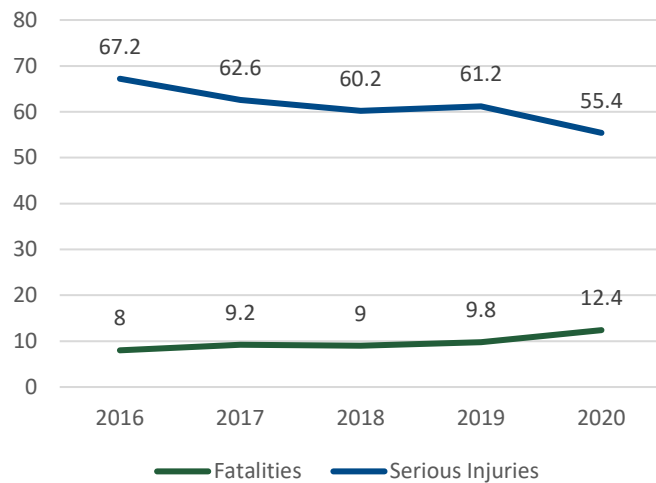
The strategies included here were designed to continue to reduce the number of intersection fatalities and serious injuries. Care was made to include all users in the definition of the crash type and in the strategies.

Objective: 15% reduction in the five-year rolling average intersection-related fatalities and serious injuries by 2026.

Strategies

1. Improve traffic signal operations.
2. Improve roadway user understanding and compliance at intersections with engineering, education, and enforcement programs.
3. Implement physical changes on the approaches to and at intersections to increase the safety of all users.
4. Mitigate high-crash locations by providing data, countermeasure alternatives, and other resources to implement improvements.
5. Conduct and/or support research efforts in the area of intersection safety for all roadway users.
6. Support systemic solutions state-wide by providing data, countermeasure alternatives, and other resources to implement improvements.
7. Implement Intersection Control Evaluation (ICE) policies/procedures including a Safety Performance component (SPICE).

Five-Year Rolling Average Intersection Fatalities and Serious Injuries



Source: Vermont Agency of Transportation



Intersections Action Plan

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
1	Improve Traffic Signal Operations to improve safety for all users.	VTrans Highway Division, RPCs, Municipalities	Pedestrians/Bicyclists, Motorcyclists, Younger Drivers, Older Drivers	Ongoing	Safe Road Users, Safe Speeds
2	Improve roadway user understanding and compliance at intersections with engineering, education, and enforcement programs and efforts.	VTrans Highway Division, Vermont DMV, AARP	Pedestrians/Bicyclists, Motorcyclists, Younger Drivers, Older Drivers	Ongoing	Safe Road Users, Safe Speeds, Safe Roads
3	Implement physical changes on the approaches to and at intersections to increase the safety of all users.	VTrans Highway Division, RPCs, Municipalities	Pedestrians/Bicyclists, Younger Drivers, Older Drivers, Motorcyclists, Speed and Aggressive Driving	Ongoing	Safe Roads
4	Mitigate high crash locations by providing data, countermeasure alternatives, and other resources to implement improvements.	VTrans Highway Division, Municipalities, RPCs, Vermont Local Roads	Data Analysis and Integration	Ongoing	Safe Roads
5	Conduct and/or support research efforts in the area of intersection safety for all roadway users.	VTrans Policy, Planning & Research Bureau, VTrans Highway Division, Vermont DMV, FHWA, Northeast Transportation Safety Coalition (NETSC), NHTSA, VHSA, Vermont Towing Association	Pedestrians/Bicyclists, Younger Drivers, Older Drivers, Motorcyclists	Ongoing	Safe Roads, Safe Road Users
6	Support systemic solutions state-wide by providing data, countermeasure alternatives, and other resources to implement improvements.	VTrans Highway Division, Municipalities, RPCs, Vermont Local Roads	Data Analysis and Integration	Ongoing, prioritize – 1.5 years for systemic tool	Safe Roads
7	Implement Intersection Control Evaluation (ICE) policies/procedures including a Safety Performance component (SPICE).	VTrans Highway Division	Speed and Aggressive Driving, Data Analysis and Integration	Within 3 years	Safe Roads



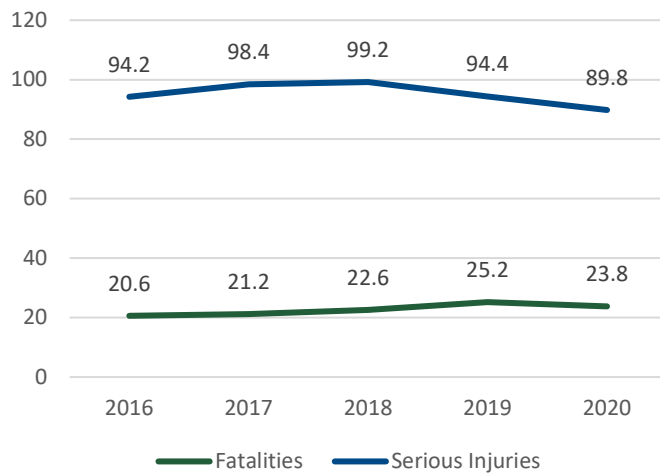
Speed and Aggressive Driving

Definition: Speeding is defined as operating a vehicle at a speed that has exceeded the authorized speed limit or too fast for conditions. Aggressive driving is defined as operating a vehicle in an erratic, reckless, careless, negligent, or aggressive manner.

Due to the importance of addressing speed and aggressive driving, as 34 percent of all fatal and serious injury crashes involve speed or aggressive driving, this CEA will remain exactly as defined in the 2017-2021 SHSP. The 2017-2021 SHSP included an objective of reducing major crashes associated with this CEA by 20 percent. Although a significant reduction in major crashes related to speed and aggressive driving occurred between 2004 and 2015, between 2016 and 2020, the five-year rolling average for fatalities and serious injuries from these crashes decreased by only one percent.

As speeding and aggressive driving behaviors are often associated with other high-risk driving behaviors such as impaired driving and lack of restraint use, the strategies employed to reduce fatalities and serious injuries for the CEAs will also help to reduce speed-related and aggressive driving-related fatalities and serious injuries.

Five-Year Rolling Average Speed-Related and Aggressive-Related Fatalities and Serious Injuries



Source: Vermont Agency of Transportation



Objective: 5% reduction in the five-year rolling average speed-related and aggressive driving-related fatalities and serious injuries by 2026.

Strategies

1. Improve the education of drivers as it relates to the impacts and consequences of speeding and aggressive driving.
2. Promote elements of the Safe System which reduce vehicle speeds and reduce conflict points, particularly where drivers interact with vulnerable users.
3. Increase public awareness of and adherence to speed limits and other roadway regulations regarding aggressive driving.
4. Advance the use of infrastructure techniques and technology to manage and enforce speeds including speed safety cameras.
5. Enhance existing high-visibility enforcement programs and techniques that relate to speeding and aggressive driving.
6. Support targeted behavior education based on crash data.
7. Continue to monitor work zone safety data to identify emerging trends and problem areas and implement actions as needed.

Speed and Aggressive Driving Action Plan

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
1	Improve the education of drivers as it relates to the impacts and consequences of speeding and aggressive driving.	Vermont Driver Educators, VTrans Highway Division, Vermont DMV, Law Enforcement Agencies	Pedestrians/Bicyclists, Younger Drivers, Older Drivers, Motorcyclists, Lane Departure, Intersections	Ongoing, but focus varies by timeframe	Safe Road Users, Safe Speeds
2	Promote elements of the Safe System which reduce vehicle speeds and reduce conflict points, particularly where drivers interact with vulnerable users.	VTrans Highway Division, Vermont DMV	Pedestrians/Bicyclists, Younger Drivers, Older Drivers, Motorcyclists, Lane Departure, Intersections	Ongoing, but focus varies by timeframe	Safe Road Users, Safe Speeds
3	Increase public awareness of and adherence to speed limits and other roadway regulations regarding aggressive driving.	VTrans Highway Division, Law Enforcement Agencies	Lane Departure, Intersections	Ongoing, but focus varies by timeframe	Safe Road Users, Safe Speeds
4	Advance the use of infrastructure techniques and technology to manage and enforce speeds including speed safety cameras.	VTrans Highway Division, VTrans Policy, Planning & Research Bureau	Lane Departure, Intersections	Ongoing	Safe Speeds, Safe Roads
5	Enhance existing high-visibility enforcement programs and techniques that relate to speeding and aggressive driving.	VTrans Highway Division, Law Enforcement Agencies	Younger Drivers, Older Drivers	Ongoing	Safe Road Users, Safe Speeds
6	Support targeted behavior education based on crash data.	VTrans Highway Division, Law Enforcement Agencies	Data Analysis and Integration	Ongoing	Safe Road Users, Safe Speeds
7	Continue to monitor work zone safety data to identify emerging trends and problem areas and implement actions as needed.	VTrans Highway Division	Data Analysis and Integration	Ongoing	Safe Road Users, Safe Speeds

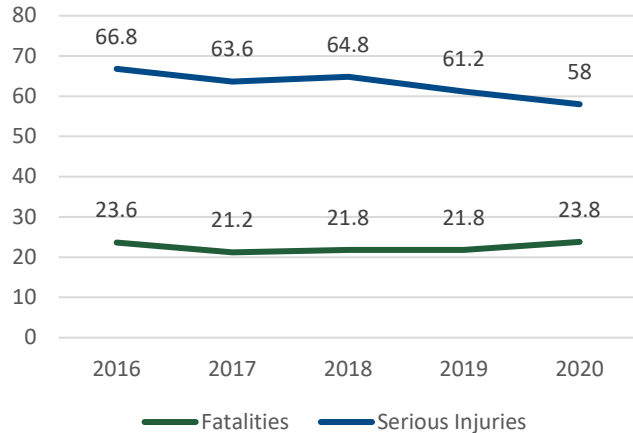


Occupant Protection

Definition: Proper use of seat belts and child passenger restraints.

The State of Vermont has a secondary seat belt law. Nevertheless, the observed seat belt usage rate is on par with other New England States with primary laws.⁶ The five-year rolling average for seat belt usage in Vermont has fluctuated between 85 and 87 percent. One-quarter of the fatalities and serious injuries from 2016 and 2020 reported no seat belt use. This CEA, therefore, remains a high priority as crashes are more likely to result in a fatality or serious injury when improper or no occupant protection is used. Over the last five years, over 80 major crashes involving the lack or improper use of seat belts occurred annually. To continue to raise the seat belt use percentage and to lower the number of unrestrained major injuries, Vermonters must modify behavioral patterns and practices of the motoring public so that seat belt usage becomes the norm while one is a driver or an occupant in a motor vehicle in Vermont.

Five-Year Rolling Average Unbelted Fatalities and Serious Injuries



Source: Vermont Agency of Transportation

Objective: **15%** reduction in the five-year rolling average unbelted fatalities and serious injuries by 2026.

Strategies

1. Raise awareness of and educate the public on the importance of using seat belts and other occupant protection measures for all users.
2. Develop relationships with stakeholders to serve as a conduit for local affiliates to become engaged in supporting local traffic safety programs that will resonate with target audiences.
3. Enhance enforcement of current safety belt laws and work to strengthen Vermont's existing occupant protection laws.
4. Increase proper use and installation of child safety restraints.
5. Conduct data analysis to identify at-risk demographics.
6. Implement education programs to encourage installation of occupant protection devices on school buses and their use.



Photo Credit: NHTSA

⁶ Primary enforcement seat belt laws allow law enforcement officers to stop vehicles if a driver or passenger is not wearing a seat belt. Secondary enforcement seat belt laws require law enforcement officers to have some other reason for stopping a vehicle before citing a driver or passenger for not using a seat belt.

Occupant Protection Action Plan

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
1	Raise awareness of and educate the public on the importance of using seat belts and other occupant protection measures for all users.	VTrans Highway Division, VDH, Law Enforcement Agencies	Distracted Driving and Driver Alertness, Impaired Driving, Speed and Aggressive Driving	Ongoing	Safe Road Users, Safe Vehicles
2	Develop relationships with stakeholders to serve as a conduit for local affiliates to become engaged in supporting local traffic safety programs that will resonate with target audiences.	VTrans Highway Division, VDH, Law Enforcement Agencies	Distracted Driving and Driver Alertness, Impaired Driving, Speed and Aggressive Driving	Long Term	Safe Road Users
3	Enhance enforcement of current safety belt laws, and work to strengthen Vermont's existing occupant protection laws.	VTrans, Vermont DMV, Law Enforcement Agencies, VDH	Data Analysis and Integration	Short-Term	Safe Road Users
4	Increase proper use and installation of child safety restraints.	VDH CPS Program, Law Enforcement Agencies		Ongoing	Safe Road Users, Safe Vehicles
5	Conduct data analysis to identify at-risk demographics.	VTrans Highway Division	Data Analysis and Integration	Ongoing	Safe Road Users
6	Implement education programs to encourage installation of occupant protection devices on school buses and their use.	Vermont DMV		Ongoing	Safe Road Users, Safe Vehicles



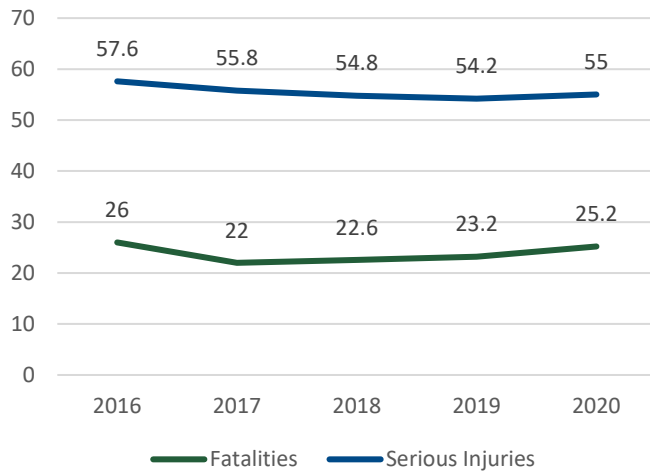
Impaired Driving

Definition: Operating a vehicle under the influence of medication, drugs, and/or alcohol.

Impaired driving is defined as operating a vehicle under the influence of medication, drugs, and/or alcohol. Looking at the last five years, there has been a steady decline in combined fatalities and serious injuries involving impaired driving, with over a five percent reduction in the five-year rolling average during this period. While there has been progress in reducing major crashes in this CEA, impaired driving was still reported in over 20 percent of all fatalities and serious injuries in Vermont between 2016 and 2020. With the continued efforts of various entities, this number can be further reduced.

In addition, data indicates that approximately half of the fatalities in Vermont are substance related. In refining that further, close analysis reveals that alcohol is not the sole impairing substance that is causing death on Vermont highways. Vermont is committed to applying an evidence-based design to all aspects of its impaired driving programs.

5-Year Rolling Average Impaired Fatalities and Serious Injuries



Source: Vermont Agency of Transportation

Objective: **15%** reduction in the five-year rolling average impaired driving fatalities and serious injuries by 2026.

Strategies

1. Improve public awareness of what impaired driving is and its associated dangers.
2. Regularly update and promote programs for consistent education for individuals and organizations charged with addressing impairment issues.
3. Evaluate the effectiveness of impaired driving penalties and their impact on enforcement activities.
4. Continue to train law enforcement officers to assist them in detecting incidents of Driving While Impaired by Drugs.
5. Support the use of roadside drug technology as an additional tool to deter and detect drug impaired drivers.
6. Support expansion of use of Ignition Interlock Devices by all DWI Alcohol offenders.
7. Increase offender accountability and rehabilitation through DWI Courts and other programs.



Impaired Driving Action Plan

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
1	Improve public awareness of what impaired driving is and its associated dangers.	VTrans Highway Division, VDH, Law Enforcement Agencies	Speed and Aggressive Driving, Occupant Protection	Ongoing	Safe Road Users
2	Regularly update and promote programs for consistent education for individuals and organizations charged with addressing impairment issues.	VTrans Highway Division, Vermont Safe Driver Program	Speed and Aggressive Driving, Occupant Protection	Ongoing	Safe Road Users
3	Evaluate the effectiveness of impaired driving penalties and their impact on enforcement activities.	Vermont Criminal Justice Council, Law Enforcement Agencies	Speed and Aggressive Driving	Ongoing	Safe Road Users
4	Continue to train law enforcement officers to assist them in detecting incidents of Driving While Impaired by Drugs.	Vermont Criminal Justice Council, Law Enforcement Agencies	Distracted Driving	Ongoing	Safe Road Users
5	Support the use of roadside drug technology as an additional tool to deter and detect drug impaired drivers.	Vermont Criminal Justice Council, Law Enforcement Agencies	Data Analysis and Integration	Ongoing	Safe Road Users
6	Support expansion of use of Ignition Interlock Devices by all DWI Alcohol offenders.	Vermont DMV		Ongoing	Safe Road Users
7	Increase offender accountability and rehabilitation through DWI Courts and other programs.	Court Administrator's Office	Data Analysis and Integration	Ongoing	Safe Road Users

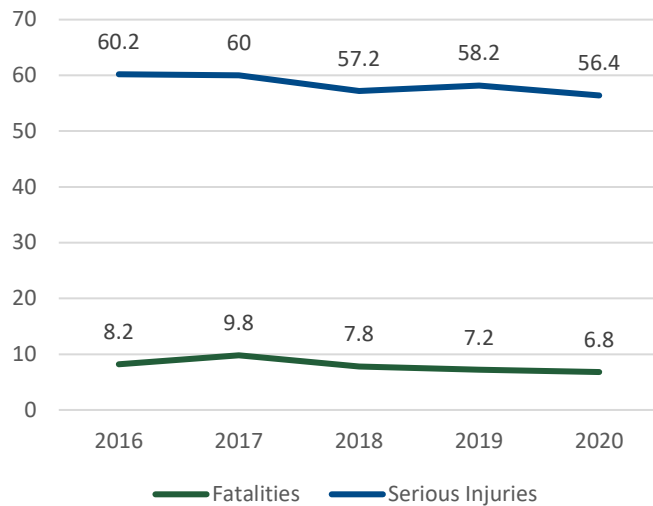


Distracted Driving and Alertness

Definition: Driving while fatigued, drowsy, or while performing any other activity (whether visual, manual, or cognitive) that could divert a person’s attention away from the primary task of driving.

Distracted driving is defined as driving while performing any other activity, whether visual, manual, or cognitive, that could divert a person’s attention away from the primary task of driving. In the age of constant distraction and handheld technology, addressing distracted and inattentive driving has become a heightened priority in Vermont and across the country. Driving while drowsy is also a contributing factor in the crashes that fall under this CEA. Drowsy driving is not just falling asleep at the wheel. Driver alertness, attention, reaction time, judgment and decision-making are all compromised leading to a greater chance of crashing. In 2014, Vermont adopted a law that bans all drivers from using a handheld device while operating a vehicle, with drivers under the age of 18 completely banned from using a cell phone. Distracted and inattentive driving was noted as a contributing factor in 19 percent of the fatalities and serious injuries between 2016 and 2020 with an average of seven fatal crashes per year—accounting for 12 percent of all fatal crashes in the State annually.

5-Year Rolling Average Distracted Driving Fatalities and Serious Injuries



Source: Vermont Agency of Transportation

Objective: **10%** reduction in the five-year rolling average distracted driving fatalities and serious injuries by 2026.

Strategies

1. Improve public awareness on what defines distracted and drowsy driving and its associated laws and dangers.
2. Enhance effectiveness and awareness of countermeasures, such as safety rest stops, safe texting areas, and apps that mitigate texting while driving.
3. Improve coordination between stakeholders to maximize enforcement of distracted driving penalties.
4. Continue to improve and diversify data sources and use research statistics, trends, and attitudes, and strengthen legislation related to distracted driving.
5. Train law enforcement officers on best practices to address distracted and drowsy driving.
6. Use research and incorporate infrastructure elements to address driver alertness.



Photo Credit: NHTSA

Distracted Driving and Alertness Action Plan

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
1	Improve public awareness on what defines distracted and drowsy driving and its associated laws and dangers.	VTrans Highway Division, UVM Medical Center, Vermont Youth Safety Council, Law Enforcement Agencies	Data Analysis and Integration, Younger Drivers, Older Drivers	Ongoing	Safe Road Users
2	Enhance effectiveness and awareness of countermeasures, such as safety rest stops, safe texting areas, and apps that mitigate texting while driving.	VTrans Highway Division	Intersections, Lane Departures	Ongoing	Safe Road Users
3	Improve coordination between stakeholders to maximize enforcement of distracted driving penalties.	VTrans Highway Division, Vermont DMV		Ongoing	Safe Road Users
4	Continue to improve and diversify data sources and use research statistics, trends, and attitudes, and strengthen legislation related to distracted driving.	VTrans Highway Division, Vermont DMV	Data Analysis and Integration	Ongoing	Safe Road Users
5	Train law enforcement officers on best practices to address distracted and drowsy driving.	VTrans Highway Division, Vermont Criminal Justice Training Council, Law Enforcement Agencies	Younger Drivers, Older Drivers	Ongoing	Safe Road Users
6	Use research and incorporate infrastructure elements to address driver alertness.	VTrans Highway Division	Data Analysis and Integration	Ongoing	Safe Road Users

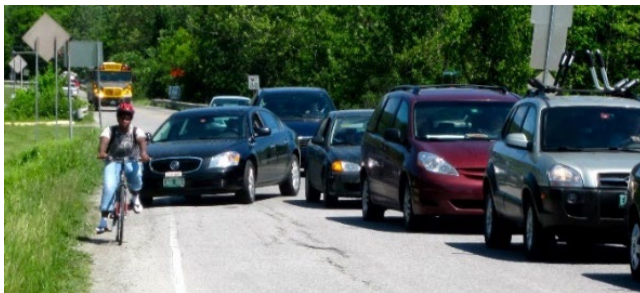


Pedestrians and Bicyclists

Definition: A pedestrian is a person who is traveling on foot or using a wheelchair or other assistive device. A bicyclist is a person who is operating a bicycle or other pedal-powered vehicle, including an electric bicycle.

Due to their vulnerable nature compared to their counterparts traveling in motor vehicles, designing and operating safe transportation facilities for Vermont's pedestrians and bicyclists is a vital part of the State's safety mission. Eleven percent of fatalities and serious injuries in Vermont from 2016 to 2020 involved a pedestrian or a bicyclist. During that time, pedestrian fatalities and serious injuries have declined by under one percent and bicyclist fatalities and serious injuries have declined by 40 percent. As the number of these crashes are low, any change to the numbers results in a noticeable percentage change. These reductions are encouraging, but do not meet the previous SHSP's objectives of reducing each by 10 percent. The majority (64 percent) of Vermont's major pedestrian crashes occur in urban areas. However, 69 percent of pedestrian fatalities from 2016 to 2020 occurred in rural parts of the State. In the case of bicyclist-involved crashes, 56 percent of major crashes occurred in rural areas as did all five fatal crashes.

In addition to the strategies listed below and developed for the SHSP, safety partners are encouraged to look to the VTrans Bicycle and Pedestrian Strategic Plan, published in March 2021, for an extensive and detailed listing of pedestrian- and bicyclist-focused strategies.

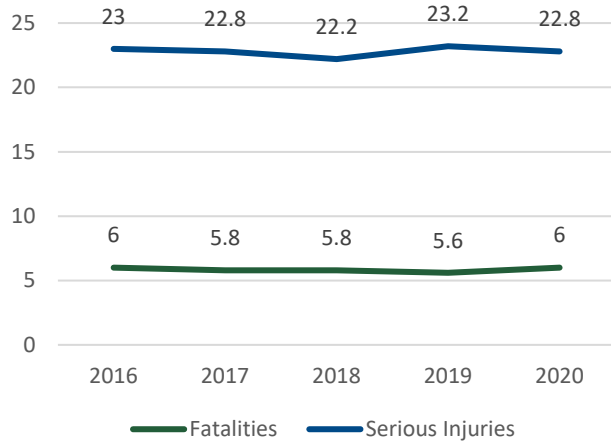


Objective: **10%** reduction in pedestrian and **5%** reduction in bicyclist five-year average fatalities and serious injuries by 2026.

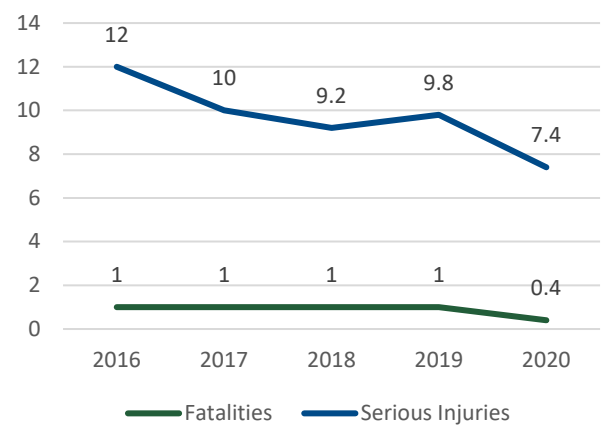
Strategies

1. Explore emerging techniques for supplementary safety measures, near-miss identification, and conflict analysis for analyzing pedestrian and bicyclist safety.
2. Continue to implement 'Complete Streets' policies and infrastructure that consider pedestrians and bicyclists early in the design phase of projects and to encourage driving at appropriate speeds.
3. Educate municipalities, designers, consultants, and other stakeholders on 'Complete Streets' policy, checklist, and philosophy, as well as the other guidelines and opportunities that exist to create safer communities for pedestrians and bicyclists.
4. Implement and promote educational programs for bicyclists regarding proper equipment and safe riding in traffic including commuter programs and Safe Routes to School.
5. Improve and promote understanding and education for pedestrians, bicyclists, and motorists on rules of the road and how to properly share the road; include law enforcement in education and outreach efforts.
6. Support pedestrian advocacy programs and improve awareness of existing programs.
7. Enhance collaboration efforts and partnerships between Federal, State, local, and private agencies to promote communities with walkable infrastructure.

5-Year Rolling Average Pedestrian Fatalities and Serious Injuries



5-Year Rolling Average Bicyclist Fatalities and Serious Injuries



Source: Vermont Agency of Transportation

Pedestrians and Bicyclists Action Plan

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
1	Explore emerging techniques for supplementary safety measures, near-miss identification, and conflict analysis for analyzing pedestrian and bicyclist safety.	VTrans Highway Division	Data Analysis and Integration, Intersections	Mid to Long Term	Safe Roads
2	Continue to implement 'Complete Streets' policies and infrastructure that consider pedestrians and bicyclists early in the design phase of projects and to encourage driving at appropriate speeds.	VTrans Highway Division	Intersections, Speed and Aggressive Driving	Ongoing	Safe Roads, Safe Speeds
3	Educate municipalities, designers, consultants, and other stakeholders on 'Complete Streets' policy, checklist, and philosophy, as well as the other guidelines and opportunities that exist to create safer communities for pedestrians and bicyclists.	VTrans Highway Division VT Local Roads, Local Motion	Intersections, Speed and Aggressive Driving	Ongoing	Safe Roads, Safe Speeds

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
4	Implement and promote educational programs for bicyclists regarding proper equipment and safe riding in traffic including commuter programs and Safe Routes to School.	VTrans Highway Division, Local Motion	Occupant Protection	Ongoing	Safe Road Users
5	Improve and promote understanding and education for pedestrians, bicyclists, and motorists on rules of the road and how to properly share the road, include law enforcement in education and outreach efforts.	VTrans Highway Division, Local Motion, VHD, VHSA, AARP Vermont	Intersections, Speed and Aggressive Driving	Ongoing	Safe Road Users
6	Support pedestrian planning efforts and improve awareness of existing road user safety initiatives.	VTrans Policy, Planning & Research Bureau, VTrans Highway Division VDH, Local Motion, AARP VT		Ongoing	Safe Road Users
7	Enhance collaboration efforts and partnerships between Federal, State, local, and non-governmental organizations to promote planning and implementation of walkable communities.	VTrans Highway Division Local Motion, AARP VT, VDH, RPC's	Intersections, Speed and Aggressive Driving	Ongoing	Safe Roads



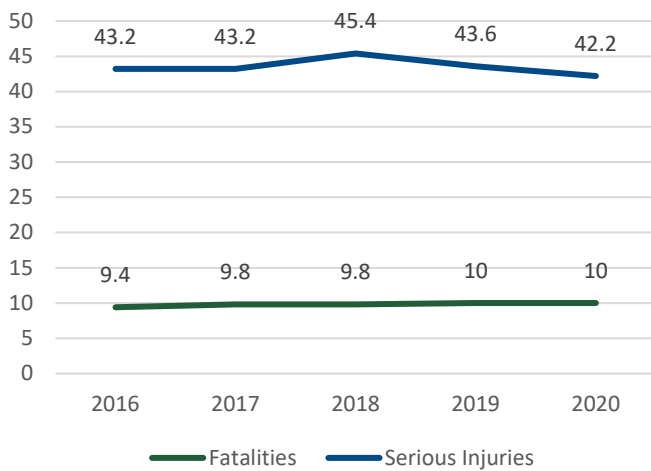
Motorcyclists

Definition: A motorcyclist is a person who is operating a motorcycle, motor-driven cycle, or autocycle.

Between 2016 and 2020, motorcyclists were involved in 16 percent of Vermont’s major crashes. During this period, the five-year rolling average motorcyclist fatalities and serious injuries saw a one percent decrease statewide. While not meeting the previous SHSP’s objective of a 10 percent reduction, this represents some progress.

The strategies identified in this Plan were developed to improve on past progress and meet the future objectives for motorcyclist safety in Vermont, keeping in mind the unique needs of these road users.

5-Year Rolling Average Motorcyclist Fatalities and Serious Injuries



Source: Vermont Agency of Transportation

Objective: 5% reduction in the five-year rolling average motorcyclist fatalities and serious injuries by 2026.

Strategies

1. Improve and promote education for motorcyclists and all other motor vehicle operators on how to properly share the road; include law enforcement in education and outreach efforts.
2. Improve public understanding of what constitutes a USDOT-compliant motorcycle helmet and promote available training to law enforcement on this topic.
3. Continue to promote use of the Vermont Rider Education Program for both novice and advanced riders of motorcycles.
4. Enhance and support enforcement relating to occupant protection, DUIs, speeding, and aggressive operation of a motorcycle.

Photo Credit: NHTSAO



Motorcyclists Action Plan

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
1	Improve and promote education for motorcyclists and all other motor vehicle operators on how to properly share the road; include law enforcement in education and outreach efforts.	Vermont DMV, Law Enforcement Agencies	Speed and Aggressive Driving	Ongoing	Safe Road Users, Safe Speeds
2	Improve public understanding of what constitutes a USDOT-compliant motorcycle helmet and promote available training to law enforcement on this topic.	VTrans Highway Division, Vermont DMV, Law Enforcement Agencies	Occupant Protection	Ongoing	Safe Road Users
3	Continue to promote use of the Vermont Rider Education Program for both novice and advanced riders of motorcycles.	Vermont DMV	Speed and Aggressive Driving, Occupant Protection	Ongoing	Safe Road Users, Safe Vehicles
4	Enhance and support enforcement relating to occupant protection, DUIs, speeding, and aggressive operation of a motorcycle.	Law Enforcement Agencies	Impaired Driving, Speed and Aggressive Driving	Ongoing	Safe Road Users, Safe Speeds



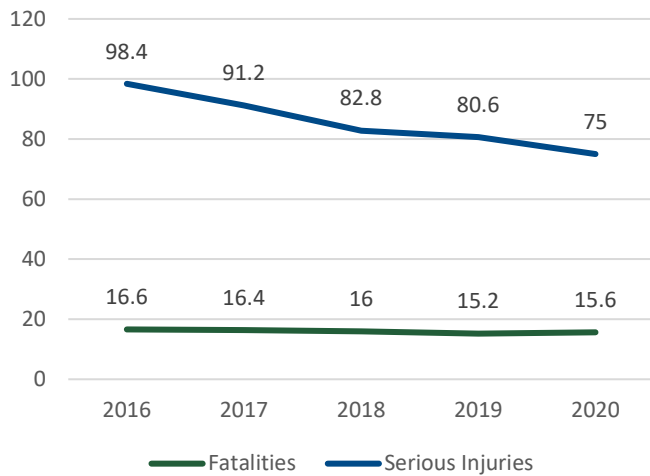
Younger Drivers

Definition: A younger driver is defined as a driver under the age of 25.

This Plan continues the definition of younger drivers as drivers under the age of 25, as established in the 2017-2021 SHSP. From 2016 to 2020, younger drivers were involved in 28 percent of fatalities and serious injuries, despite making up only around 15 percent of the State’s population. Fatalities resulting from crashes involving younger drivers have remained steady, while serious injuries declined 24 percent on average from 2016 to 2020. The previous Plan objective was to reduce major crashes involving younger drivers by 15 percent. The data from 2016 to 2020 shows a 21 percent decrease in fatalities and serious injuries on average, indicating the previous objective was met.

The strategies included here were designed to build on that progress and continue to improve safety for younger drivers.

5-Year Rolling Average Younger Driver Fatalities and Serious Injuries



Source: Vermont Agency of Transportation



Objective: **10%** reduction in the five-year rolling average younger driver fatalities and serious injuries by 2026.

Strategies

1. Expand and incentivize initial driver education and advanced skills training for novice drivers, including education on risk management.
2. Create outreach programs targeting the specific and varied needs of drivers in the 18 to 25 age group through colleges, employers, and other resources.
3. Provide resources and training opportunities to mentors of younger drivers including driver educators.
4. Conduct education and outreach to younger drivers to raise awareness of alternatives to driving.
5. Support and disseminate data to inform statutes and legislation on the VT graduated driver licensing (GDL) law for younger drivers.
6. Use data and analysis to support and coordinate with organizations to promote mandated driver education for all novice drivers under age 25.
7. Continue to research statistics, trends, and legislation that can help improve understanding of how to influence the culture and mindset of younger drivers.

Younger Driver Action Plan

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
1	Expand and incentivize initial driver education and advanced skills training for novice drivers, including education on risk management.	Vermont DMV	Distracted Driving and Driver Alertness, Impaired Driving, Speed and Aggressive Driving, Occupant Protection	Short-Term	Safe Road Users, Safe Speeds
2	Create outreach programs targeting the specific and varied needs of drivers in the 18 to 25 age group through colleges, employers, and other resources.	Youth Safety Council of Vermont, VTrans Highway Division	Distracted Driving and Alertness, Occupant Protection	Short-Term	Safe Road Users
3	Provide resources and training opportunities to mentors of younger drivers including driver educators.	Vermont DMV, VT Driver Educator Association	Distracted Driving and Alertness, Impaired Driving	Ongoing	Safe Road Users
4	Conduct education and outreach to younger drivers to raise awareness of alternatives to driving.	Local Motion	Pedestrian and Bicyclist Safety	Ongoing	Safe Road Users, Safe Vehicles
5	Support and disseminate data to inform statutes and legislation on the VT graduated driver licensing (GDL) law for younger drivers.	VTrans Highway Division, Vermont DMV	Data Analysis and Integration	Mid-Term	Safety is Proactive/ Responsibility is Shared
6	Use data and analysis to support and coordinate with organizations to promote mandated driver education for all novice drivers at or under age 25.	VTrans Highway Division, Vermont DMV	Data Analysis and Integration	Long Term	Safe Road Users
7	Continue to research statistics, trends, and legislation that can help improve understanding of how to influence the culture and mindset of younger drivers.	VTrans Highway Division	Data Analysis and Integration	Ongoing	Safe Road Users



Older Drivers

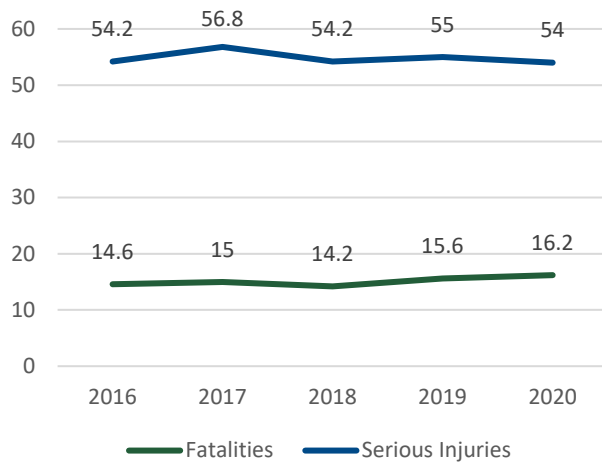
Definition: An older driver is defined as a driver 65 years of age or above.

Vermont has experienced higher-than-expected population growth in recent years. The State anticipates further population growth, and the population is expected to age as the number of older adults outpaces that of younger people. In fact, there are several counties in Vermont that are expected to see declines in younger people over the next 10 years. Also, the risk of being injured or killed in a traffic crash increases as people age. This underscores the importance of Vermont's older driver population in the State's transportation safety landscape.

Older drivers made up approximately 21 percent of fatalities and injuries in Vermont from 2016 to 2020. Major crashes involving older drivers rose two percent from 2016 to 2020. This means that the previous SHSP objective of reducing older driver-involved major crashes by five percent was not met.

These strategies were developed with these trends in mind and are intended to build on ongoing work that has shown promise while identifying new ways to improve safety for older drivers.

5-Year Rolling Average Older Driver Fatalities and Serious Injuries



Source: Vermont Agency of Transportation

Objective: 5% reduction in the five-year rolling average older driver fatalities and serious injuries by 2026.

Strategies

1. Increase education and outreach to older drivers, family members, and caregivers, including programs through healthcare providers to evaluate older driver fitness for driving.
2. Conduct education and outreach to older drivers to raise awareness of alternatives to driving such as walking, bicycling, and using public transit.
3. Promote resources for educating older drivers on vehicle technologies.
4. Continue improving infrastructure with the specific needs of older drivers in mind (such as lighting, conspicuity of signs and markings, wayfinding, etc.), understanding that these measures improve safety for all roadway users.
5. Develop and implement programs to increase public and law enforcement's understanding of driving with diminished skills.
6. Continue to use research on trends and legislation for older drivers to inform strategies and countermeasures for older driver safety.

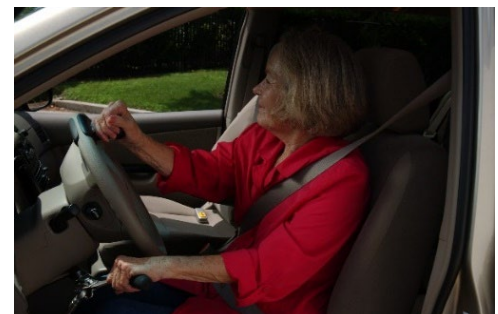


Photo Credit: NHTSA

Older Driver Action Plan

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
1	Increase education and outreach to older drivers, family members, and caregivers, including programs through healthcare providers to evaluate older driver fitness for driving.	VDH, AAA, AARP	Distracted Driving and Alertness, Impaired Driving	Ongoing	Safe Road Users
2	Conduct education and outreach to older drivers to raise awareness of alternatives to driving such as walking, bicycling, and using public transit.	VTrans Highway Division, VDH	Pedestrian and Bicyclist Safety	Ongoing	Safe Road Users, Safe Vehicles
3	Promote resources for educating older drivers on vehicle technologies.	VDH, AARP, AAA	Data Analysis and Integration	Short Term	Safe Vehicles
4	Continue improving infrastructure with the specific needs of older drivers in mind (such as lighting, conspicuity of signs and markings, wayfinding, etc.), understanding that these measures improve safety for all roadway users.	VTrans Highway Division	Lane Departure, Intersections, Data Analysis and Integration	Ongoing	Safe Roads, Safe Speeds
5	Develop and implement programs to increase public and law enforcement's understanding of driving with diminished skills.	Vermont Criminal Justice Training Council, VDH, Law Enforcement Agencies	Distracted Driving and Alertness	Long Term	Safe Road Users
6	Continue to use research on trends and legislation for older drivers to inform strategies and countermeasures for older driver safety.	AARP, VTrans Highway Division, VDH	Data Analysis and Integration	Ongoing	Safety is Proactive



Data Analysis and Integration

Definition: The use of data that is accurate, timely, complete, and accessible, to identify highway safety deficiencies, create projects, justify safety improvements, and track performance is crucial to the successful execution of the Plan and future safety initiatives.

The Data Analysis and Integration CEA is an effort to continue VTrans' progress toward becoming a high-quality data analytic and decision-making organization. This CEA affects all other CEAs in the Strategic Highway Safety Plan (SHSP) and coordinates activities to accomplish three goals:

- » Provide needed countermeasures and strategies for addressing issues in roadway safety for all users.
- » Evaluate safety projects and programs to assess progress toward the SHSP's goals.
- » Identify and prioritize problem areas in highway safety to guide resources and program initiatives.

Accurate and timely data on roadway characteristics, traffic, and crashes are essential for addressing the goals and objectives of all CEAs in the SHSP. Furthermore, these data should be authoritative and accessible to all relevant stakeholders in Vermont. Coordination with the goals and objectives in the State's annual HSIP and HSP will be an essential component of this CEA, as well as the participation of data business managers and stewards across the State to improve data sharing and accessibility. Using the key actions from the Vermont Safety Data Business Plan: Data Management and Governance will help guide data collection, analyses, and governance practices. With high quality and accessible data, resources and funding can be properly allocated, helping the State continue to reduce the number of fatalities and serious injuries on all public roads.

The connections between all CEAs and the effort for improved data gathering and evaluation illustrate how data can be used to support a Safe System approach. By acknowledging that safety is a shared responsibility among users (behavior, infrastructure and engineering, and enforcement of policies), data can highlight dimensions of the transportation system that need improvement. A holistic approach to authoritative and accessible data will help practitioners apply Safe System principles to improve the safety of all users in Vermont.

Strategies

1. Improve quality and timeliness of police reported crash data through improvements to the overall crash database.
2. Improve the diversity and completeness of highway data, including collection of all Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements (FDEs) by 2026.
3. Investigate emerging datasets and resources for applicability for safety analysis.
4. Use Vermont Statewide Incident Reporting Network (SIREN) data to supplement crash data with injury information, patient demographics, restraint-use, medical interventions applied.
5. Use VALCOUR/Judicial Bureau system to access traffic citation data and better understand risks to road users and behavioral trends.
6. Improve crash data analysis to support data-driven decision making (e.g., hot spot, systemic, and predictive methods), as well as support before/after evaluations.
7. Communicate safety data, risks, and other analysis to stakeholders and the public via dashboards or other mechanisms.
8. Explore ways to incorporate qualitative and observational data (e.g., road safety audits and intersection/pedestrian conflict studies) into traditional network and systemic safety screening.
9. Research best practices from around the country with respect to data and data analysis (e.g., peer exchanges, roundtables, pooled fund studies, and national databases).

Some strategies for data and evaluation overlap with the other CEAs of reducing speeding and aggressive driving and improving vulnerable users and motorcyclist safety. For speeding and aggressive driving, systemic methods for tracking speed issues will be investigated. For improving the safety of younger drivers, the Youth Risk Behavior Survey will be used, and for older drivers, the Behavioral Risk Factor Surveillance System will be used to identify target needs for older populations. For motorcyclist, bicyclist, and pedestrian safety, data sources that illustrate these users' travel patterns and exposure will be used to guide strategies and resources.

Data Analysis and Integration Action Plan

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
1	Improve quality and timeliness of police reported crash data through improvements to the overall crash database.	VTrans Highway Division	All	Ongoing	
2	Improve the diversity and completeness of highway data, including collection of all Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements (FDEs) by 2026.	VTrans Policy, Planning & Research Bureau, VTrans Highway Division	All	Ongoing	Safe Roads
3	Investigate emerging datasets and resources for applicability for safety analysis.	VTrans Highway Division	All	Ongoing	
4	Use Vermont Statewide Incident Reporting Network (SIREN) data to supplement crash data with injury information, patient demographics, restraint-use, medical interventions applied.	VDH, VTrans Highway Division	All	Long Term	Post-Crash Care
5	Use VALCOUR/Judicial Bureau system to access traffic citation data and better understand risks to road users and behavioral trends.	VTrans Highway Division, Vermont Judicial Bureau	All	Medium to Long Term	Safe Road Users
6	Improve crash data analysis to support data-driven decision making (e.g., hot spot, systemic, and predictive methods), as well as support before/after evaluations.	VTrans Highway Division	All	1.5 years	
7	Communicate safety data, risks, and other analysis to stakeholders and the public via dashboards or other mechanisms.	VTrans Highway Division	All	Short Term	Safe Road Users

	Strategy	Contributing Agencies	Overlapping CEAs	Timeline	Safe System Consideration
8	Explore ways to incorporate qualitative and observational data (e.g., road safety audits and intersection/pedestrian conflict studies) into traditional network and systemic safety screening.	VTrans Highway Division, VTrans Policy, Planning & Research Bureau, RPCs	All	Medium- to Long-Term	Safe Roads
9	Research best practices from around the country with respect to data and data analysis (e.g., peer exchanges, roundtables, pooled fund studies, and national databases).	VTrans Highway Division, VTrans Policy, Planning & Research Bureau, RPCs	All	Medium- to Long-Term	



Acronym List

AARP	American Association of Retired Persons
BRFSS	Behavioral Risk Factor Surveillance System
CEAs	Critical Emphasis Areas
CPS	Child Passenger Safety
DMV	Department of Motor Vehicles
DPS	Department of Public Safety
FDEs	Fundamental Data Elements
FHWA	Federal Highway Administration
HRRR	High Risk Rural Roads
HSIP	Highway Safety Improvement Program
HSP	Highway Safety Plan
ICE	Intersection Control Evaluation
MIRE	Model Inventory of Roadway Elements
NETSC	Northeast Safety Coalition
NHTSA	National Highway Traffic Safety Administration
OSB	Operations and Safety Bureau
RPC	Regional Planning Commissions
SEAs	Significant Emphasis Areas
SHSO	State Highway Safety Office
SHSP	Strategic Highway Safety Plan
SIREN	Statewide Incident Reporting Network

SPICE	Safety Performance Intersection Control Evaluation
TRCC	Traffic Records Coordinating Committee
TZD	Toward Zero Deaths
VDH	Vermont Department of Health
VDTSEA	Vermont Driver and Traffic Safety Education Association
VHSA	Vermont Highway Safety Alliance
VTrans	Vermont Agency of Transportation
YRBS	Youth Risk Behavior Survey

VTrans Highway Division

The Highway Division of VTrans is organized into four bureaus: Construction & Materials, Operations & Safety, Project Delivery, and Asset Management. Together, the Highway bureaus provide data driven recommendations for investment or asset improvements; engineering design for transportation infrastructure, acquisition of real estate property and minimizing resources impacts for transportation projects; oversight for construction projects; ensure of the quality of materials; provide grants and technical support for municipal projects; provide information to the traveling public on road conditions; and inspect and maintain bridges, culverts, signs, and signals.



VTrans' Operations & Safety Bureau

VTrans' Operations and Safety Bureau (OSB) was created in 2018 to marry safety and mobility concerns on Vermont's state highway network. OSB's mission, in concert with VTrans' overall mission and vision, seeks to improve safety and mobility for all roadway users. The Operations and Safety Bureau is comprised of five main units:

- › Traffic Signals & ITS
- › Traffic Operations & Mobility
- › Transportation Management Center (TMC)
- › Data & Analysis
- › State Highway Safety Office

These five units, working together, provide the tools, expertise, vision, and leadership necessary to bring OSB concepts and strategies into the daily work and culture of VTrans.

