

Highway Safety @ AOT

a briefing for

Senate Transportation Committee



Josh Schultz
Chief
Operations & Safety Bureau (OSB)

Agenda

- Safe Systems Approach - 5 min (Schultz)
- Strategic Highway Safety Plan – 5 min (Schultz)
- Data Driven Decision-making – 7 min (Shatney)
- Behavioral (NHTSA) – 7 min (McFarlane)
- Engineering (FHWA-HSIP) – 7 min (Degutis)
- Smuggs Chicane Update – 7 min (Schultz)



Safe Systems and SHSP

Josh Schultz

The Safe Systems Approach

- Advocated by both FHWA and NHTSA
- Inspired by European Successes
- Holistic Approach to Highway Safety
- Proactively plans a series of redundant countermeasures
- Emphasizes minimizing the risk of injury or fatality to road users



Safe System Approach

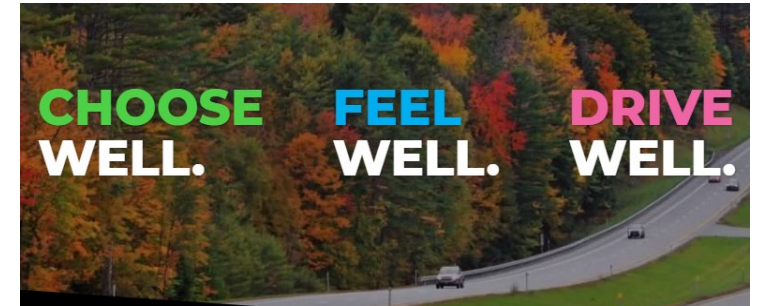
The “Swiss Cheese Model” of redundancy creates layers of protection

Death and serious injuries only happen when all layers fail





**Vermont Strategic
Highway Safety
Plan
2022-2026
Five Year Plan**

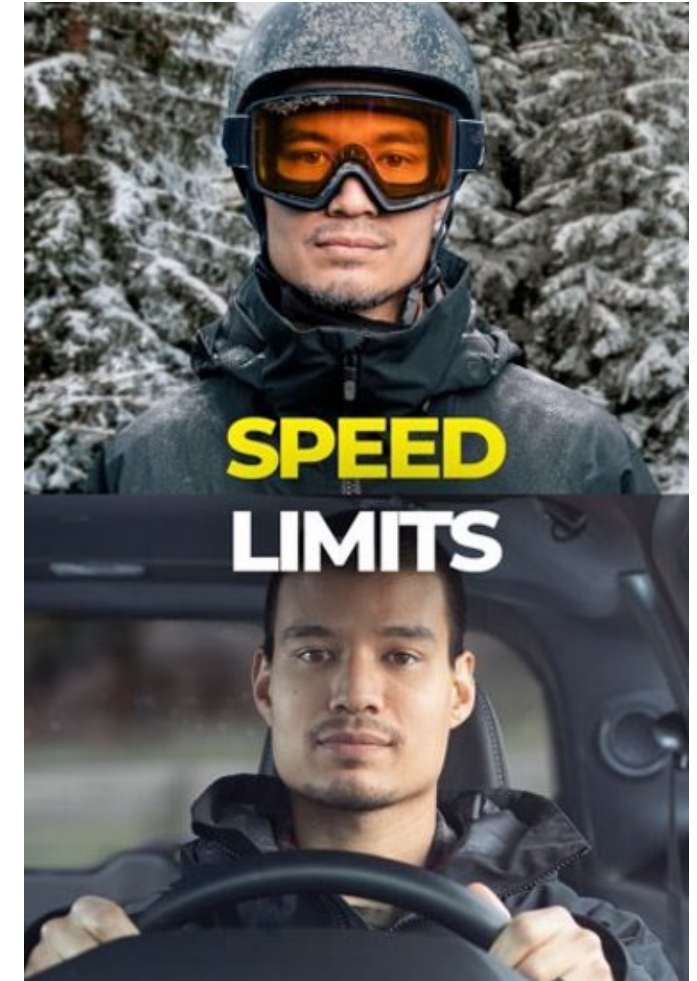


Objective: Reduce fatalities and serious injuries in Vermont by 10% by 2026














Strategic Highway Safety Plan (SHSP) 2022-2026

- Framework for reducing major crashes on the State's public highways
- Requirement of the Highway Safety Improvement Program (HSIP)
- 11 x Critical Emphasis Areas
- Metrics established for CEAs
- FHWA Division Office Reviews



Critical Emphasis Areas (SHSP)

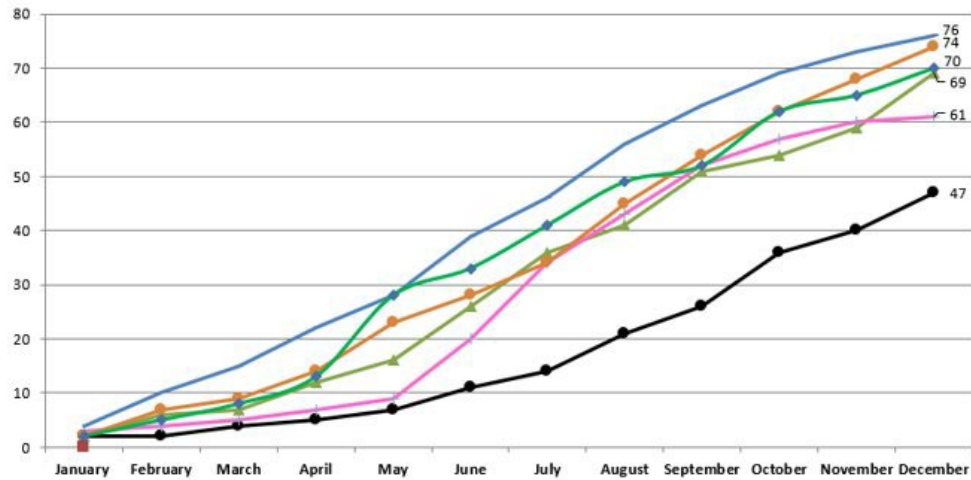
Focus Area	Critical Emphasis Area	Fatal+Serious Injury Reduction Objective
Infrastructure	 Lane Departure	10%
	 Intersections	15%
	 Speed and Aggressive Driving	5%
Behavioral	 Occupant Protection	15%
	 Impaired Driving	15%
	 Distracted Driving and Alertness	10%
Vulnerable Users and Roadway Users	 Pedestrians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

Source: Vermont Agency of Transportation SHSP

Data Driven Decision Making

Mandy Shatney

Monthly Cumulative Totals



Data Source: FARS and VTrans database.
VTrans, MW

2018 2019 2020 2021 2022 2023 2024

Fatal Crash Data	2024*	2023	2022	2021	2020	2019
Total Fatal Crashes	0	64	74	69	58	44
Total Fatalities (People)	0	70	77	74	62	47
Double Fatality Crashes	0	4	3	5	4	3
Triple Fatality Crashes	0	1	0	0	0	0
Quadruple Fatality Crashes	0	0	0	0	0	0
Operators Suspected as Driving under the Influence of Alcohol Only	0	8	11	10	11	5
Operators Suspected as Driving under the Influence of Drugs Only	0	20	20	18	14	15
Operators Suspected as Driving under the Influence of both Alcohol & Drugs	0	5	13	12	6	2
Active Cannabis - Delta 9 THC Confirmed**	0	14	15	25	14	13
Operators Suspected of Speeding	0	18	21	33	15	14
Operators with Suspended License/ No License	0	9	12	7	13	5
Junior License Operators involved in fatal crashes	0	1	2	5	2	1
"Older Drivers" involved in fatal Crashes (Older Driver is defined as any person age 65 or older.)	0	24	25	19	15	16
Crashes involving a Large Truck/Bus	0	5	11	4	3	10
Motorcyclist Fatalities	0	18	14	16	10	8

*2024 data is as of the date of this report. These numbers are subject to change.

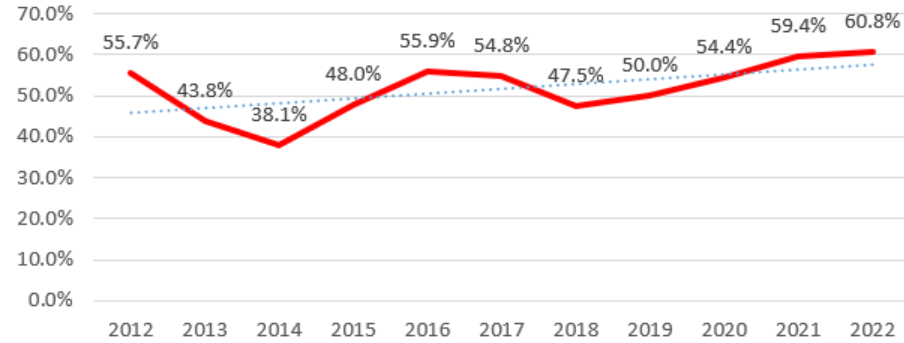
**Active Cannabis - Delta-9 THC Confirmed is counted in the number of operators that had drugs only or alcohol & drugs.

***None of the identified groups above are implicated as being "at fault"

2022 – 2023 Comparison*

- Overall Fatalities: 9% Decrease
- Impaired Fatalities: Decrease – Unknown % at this time.
- Unbelted Fatalities: 28% Decrease
- Speed Related Fatalities: 14% Decrease
- Pedestrian Fatalities: 16% Decrease
- Motorcyclist Fatalities: 28% **Increase**
 - 2023 is highest percentage of fatalities since we started tracking in 2004

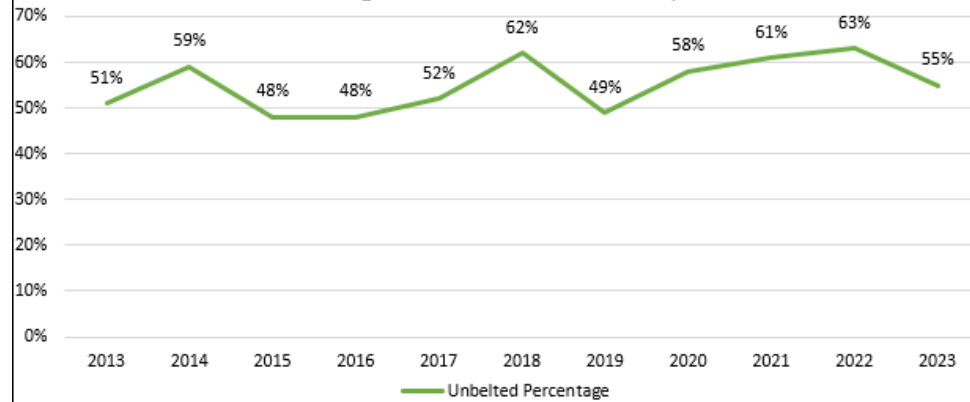
Percentage of Fatal Crashes where Driver Impaired



Fatal Crashes with Impairment 2012-2022												
Categories	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Alcohol Only (0.08+)	13	9	3	4	14	7	4	5	11	10	11	8
Alcohol (0.08+) & Delta-9 THC	4	5	0	5	7	3	6	1	2	7	5	2
Alcohol & Other Drugs (inc. Delta-9 THC)	6	5	3	4	3	6	2	1	6	6	7	2
Drug: Delta-9 THC Only	5	3	5	3	5	8	7	6	4	3	4	3
Drug: Other* (includes Delta-9 THC)	11	6	5	8	4	10	10	9	8	15	18	18
Total Impaired Fatal Crashes	39	28	16	24	33	34	29	22	31	41	45	33
Total Fatal Crashes	70	64	42	50	59	62	61	44	57	69	74	64
Impaired Percentage of Fatal Crashes	55.7%	43.8%	38.1%	48.0%	55.9%	54.8%	47.5%	50.0%	54.4%	59.4%	60.8%	51.6%

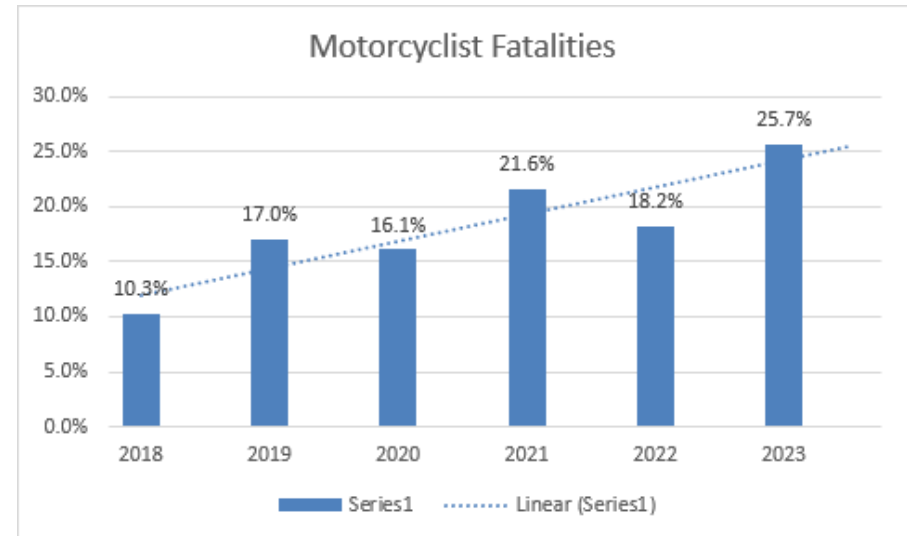
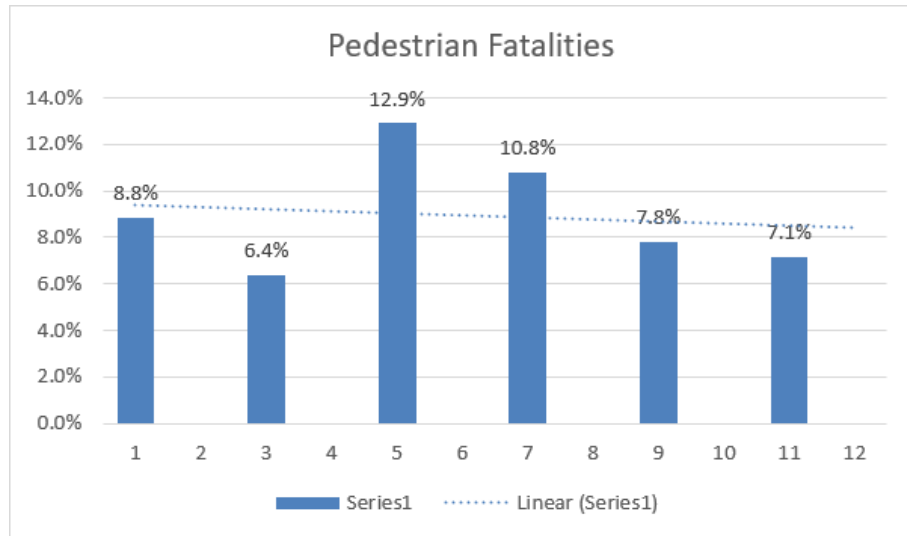
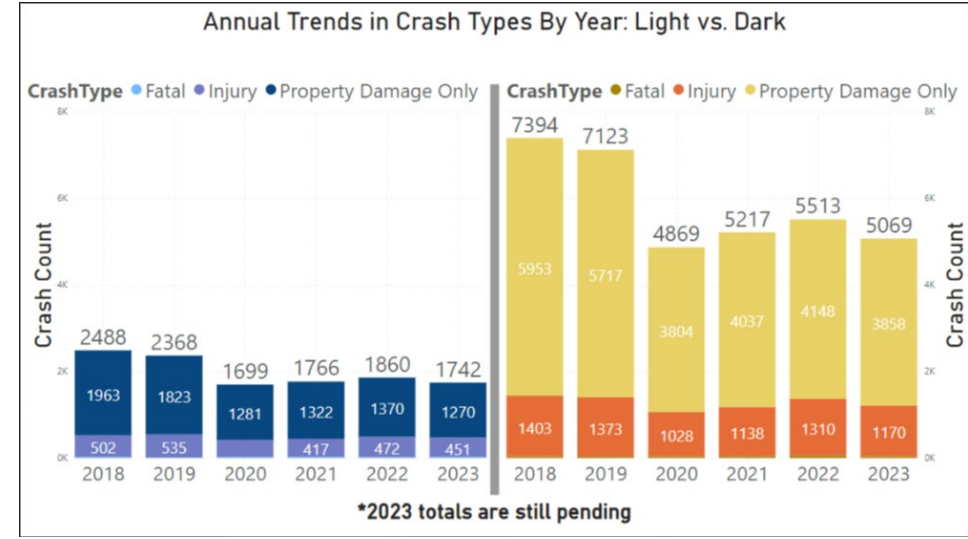
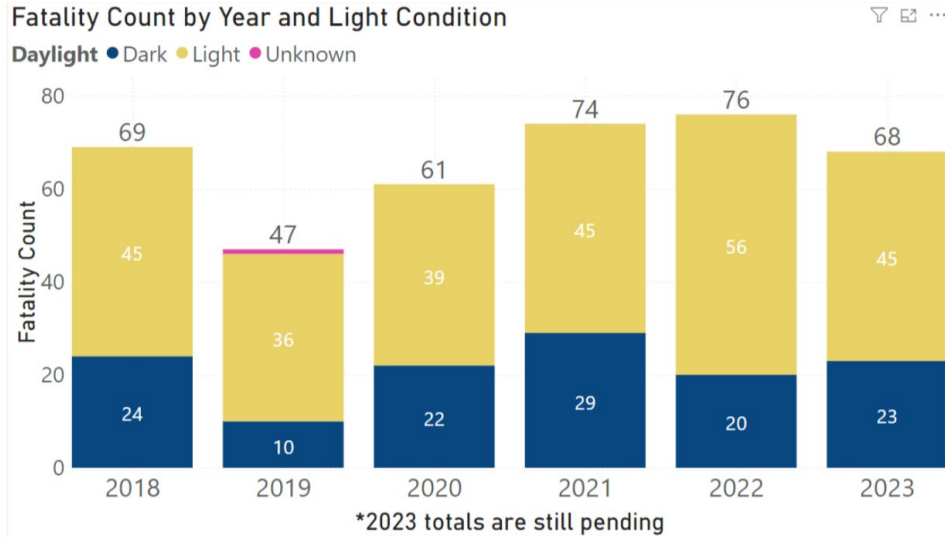
*Other Drug categories include: Central Nervous System Depressants, Central Nervous System Stimulants, Hallucinogens, Dissociative Anesthetics, Narcotic Analgesics, Inhalants, & Cannabis.

Unbelted Percentage for Motor Vehicle Occupant Fatalities



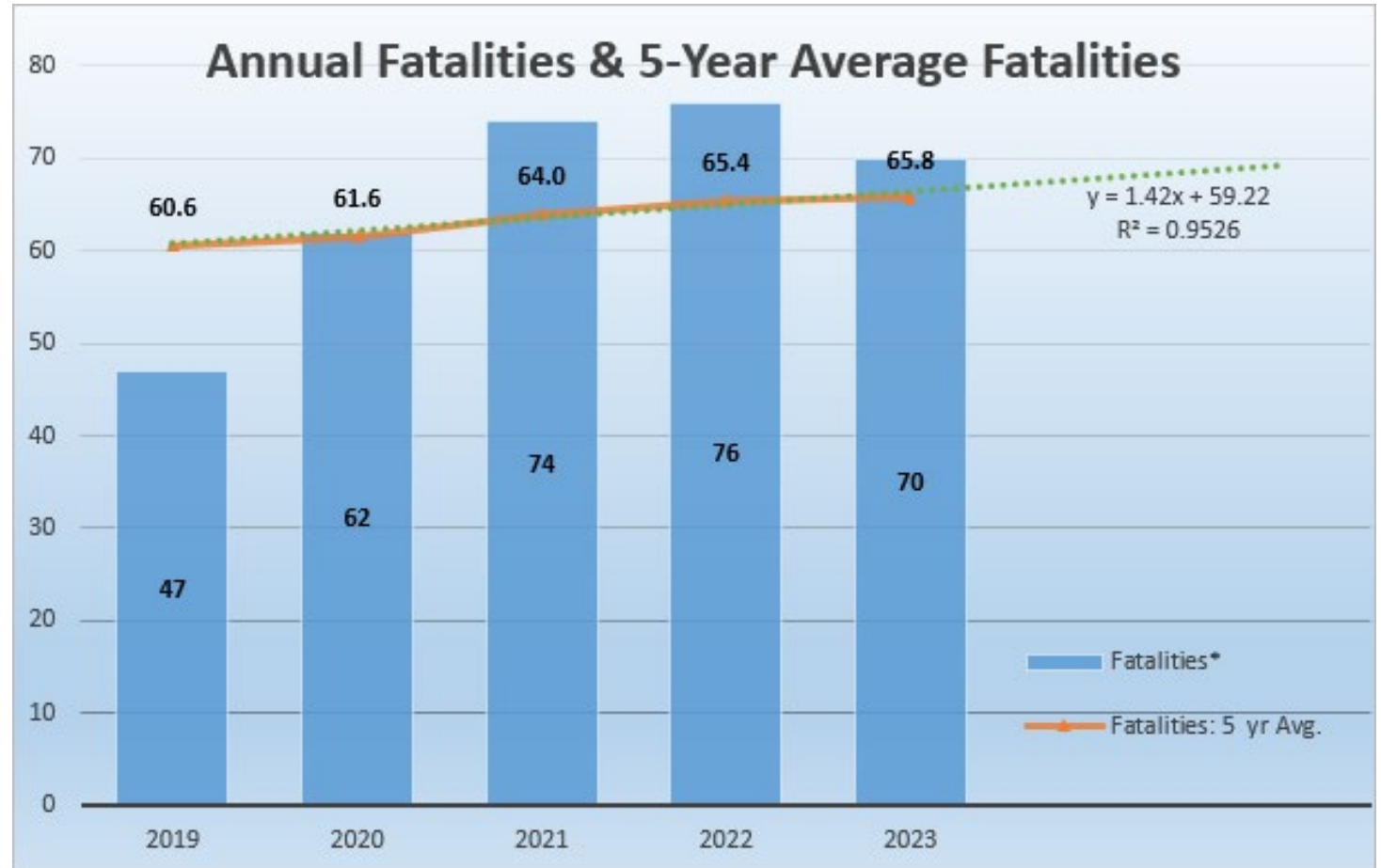
Fatalities by Vehicle Type and Restraint/Safety Equipment Used							
Road User Type	Restraint/Safety Equipment	2024	2023	2022	2021	2020	2019
Motor Vehicle Occupant	Unbelted	0	22	31	28	24	17
	- Driver	0	16	25	25	19	15
	- Passenger	0	6	6	3	5	2
	- UTV Driver	0	0				
	Belted	0	17	18	18	17	18
	- Driver	0	14	17	13	12	14
- Passenger	0	3	1	5	5	4	
	Improper Belt Use/Child Restraint	0	1	1		0	0
Motorcyclist/ATV	Wearing Helmet	0	13	14	13	10	5
	Non-DOT Compliant Helmet/Improper	0	3		2	0	1
	No Helmet	0	1	2	2	2	2
Vulnerable Users	Pedestrians	0	5	6	8	8	3
	Bicyclists	0	1	1		1	0
Unknown	Unknown Belt/Helmet Use	0	7	3	3	0	1
% Unbelted*		0%	55%	62%	61%	59%	49%
Total Fatalities		0	70	76	74	62	47

*Of all fatalities: only occupants in vehicles equipped with seatbelts are used in the calculation for unbelted percentage. Excludes: motorcycles, ATVs, pedestrians, bicyclists and unknowns. (Sum of Belted" & "Unbelted", divided into sum of "Unbelted" & "Improper Belt/Restraint")



5 Year Rolling Averages

- 5 Year Rolling Averages are a standard national approach.
- Used to control statistical fluctuations.
- Critical Emphasis Areas – SHSP
 - All CEAs use this method.
 - [SHSP Website](#)



NHTSA & Behavioral Interventions

Evelyn McFarlane

Vermont State Highway Safety Office: What We Do

The SHSO awards federal highway safety grant funds to local, state and not-for-profit organizations for projects to improve highway safety and reduce deaths and serious injuries due to crashes.



Law Enforcement

Educational Organizations

Data & Surveys

Media & Public Outreach

Traffic Safety Consultants



NHTSA's National Priorities

Restraint Use/Occupant Protection

Impaired Driving

Distracted Driving

Speed and Aggressive Driving

BEFORE YOU
CAN'T MAKE
THE RIGHT
DECISION,
**MAKE THE
RIGHT
DECISION.**

DriveWell
VERMONT

2023 - 2024 Highlights

Vermont Department of Health: Be Seat Smart new Child Passenger Safety Vehicle & Wrapping



Motorcycle Safety Assessment

Establishment of a Driver Education Advisory Committee

Simulator for the Windham CSD enhanced teen driver safety program



2023 – 2024 Education Highlights

Vermont Principals' Association in partnership with Alliance Highway Safety for educational events for VT High School Students

Vermont Highway Safety Alliance outreach at community events such as the Champlain Valley Fair, National Night Out, and Lake Monster Games



Education Highlights May 2023

AAA Walk to End Distracted Driving, Church Street Burlington Vermont



**#SafeDrive#SaveLives
Annual PSA contest for High School Students**



**Watch for ME Vermont
Vermont Department of Health**

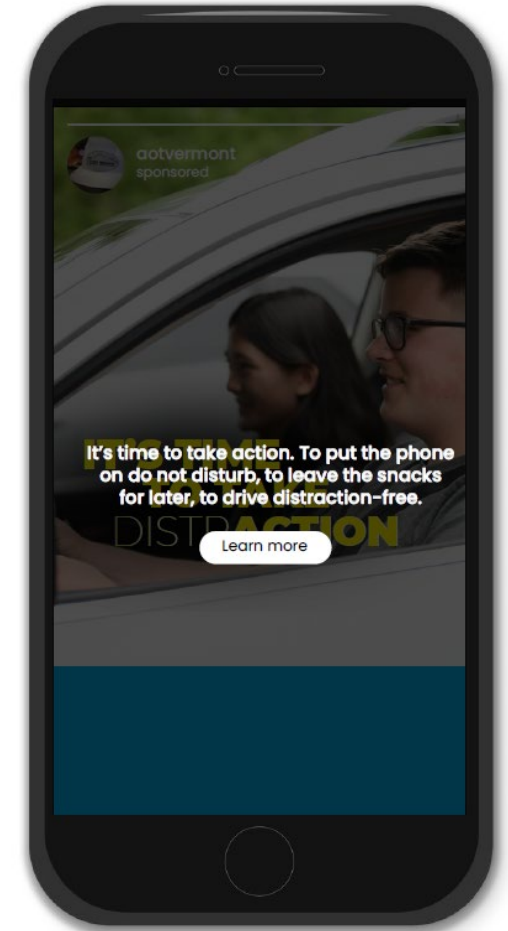
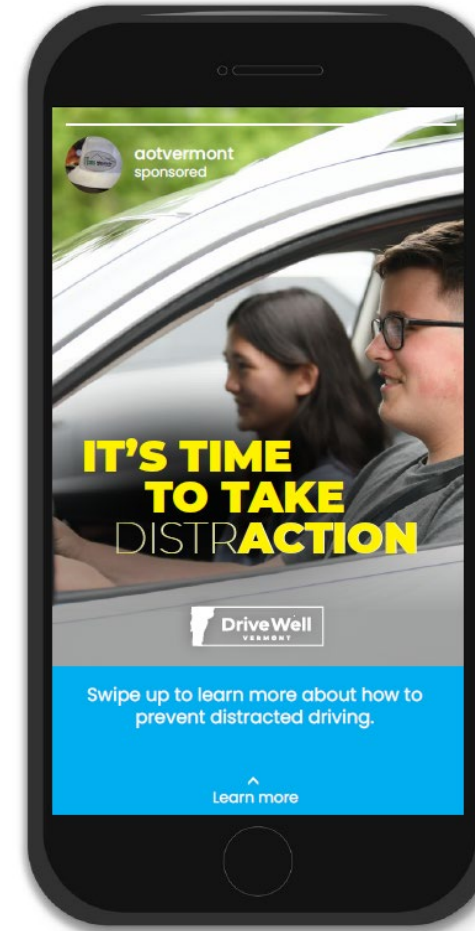
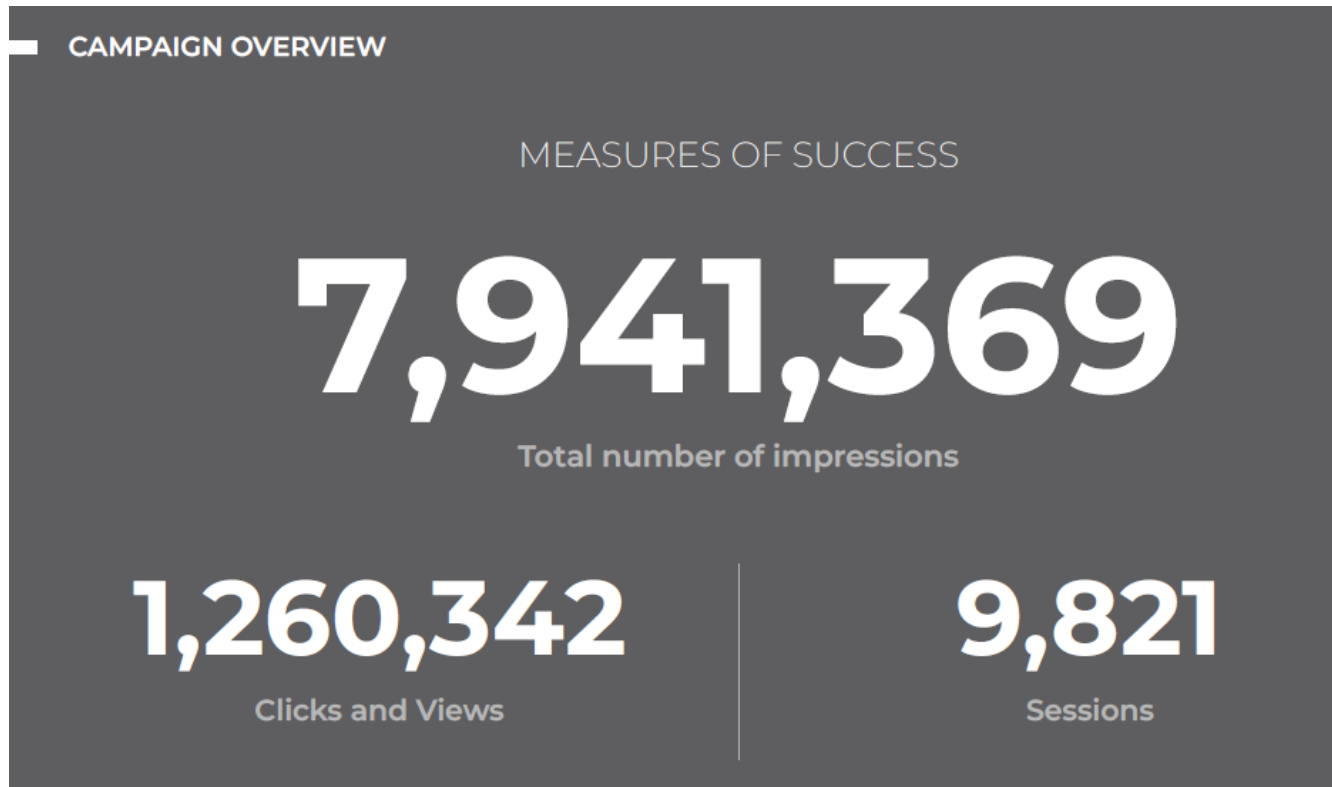




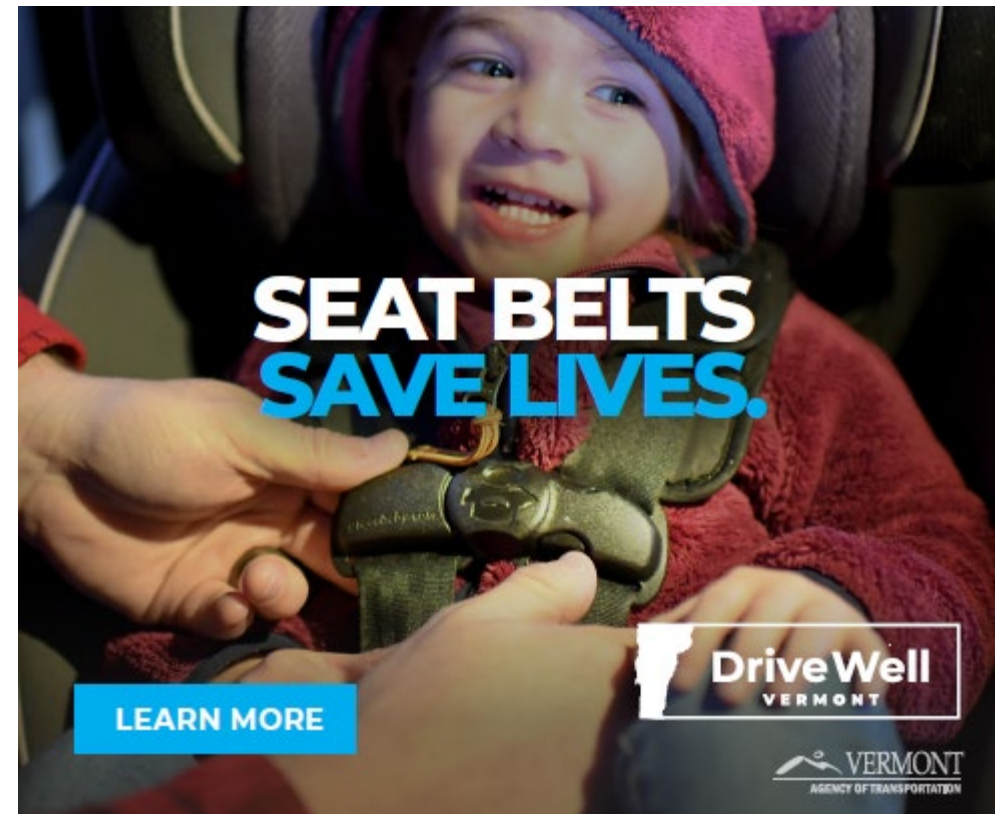
[Drive Well Vermont](#) encourages all Vermonters to take responsibility for their own safe driving behavior.

- Media Library – social media stills, Public Service Announcements
- Sustained, year-round messaging based on NHTSA national mobilizations and state priorities
- VT Crash and NHTSA Data is used to target the audience
- Engagement Data is captured through the interaction – Youtube, gas station TV, spotify, instagram, FB, Snapchat, television, radio, etc.
- DriveWell received national recognition

AOT DRIVE WELL VERMONT 2023: Distracted Driving – Younger Drivers



AOT DRIVE WELL 2023 Occupant Protection



CAMPAIGN OVERVIEW

MEASURES OF SUCCESS

2,256,255

Total number of impressions

<h1>310,507</h1> <p>Clicks, Views and Engagement</p>	<h1>263</h1> <p>Sessions</p>
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HSIP and Engineering Countermeasures

Ian Degutis

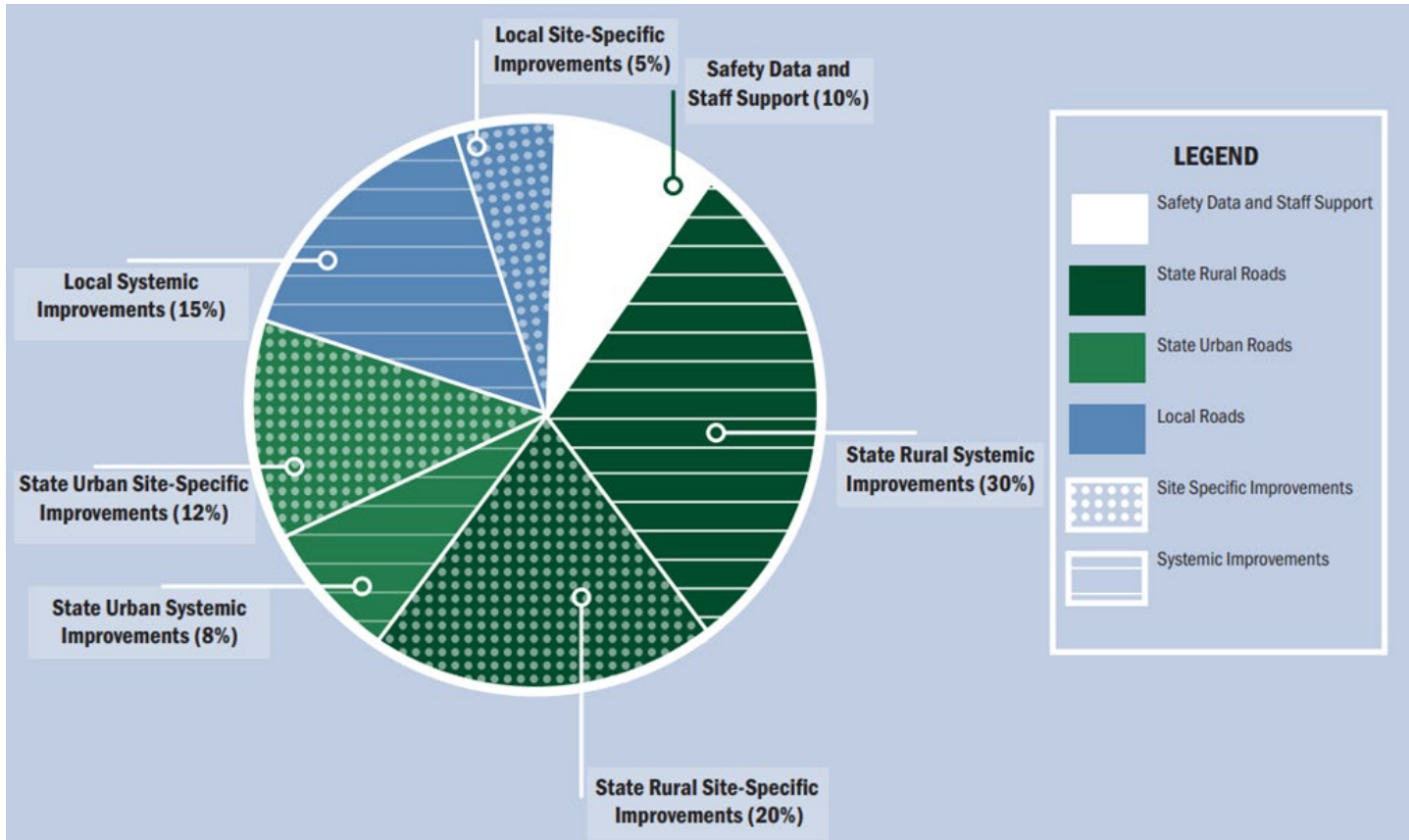
Highway Safety Improvement Program (HSIP)

- Highway Safety Improvement Program (HSIP) is a core Federal-aid program
 - Specific eligibility criteria
 - SHSP-driven, infrastructure focused
 - Data driven

Note: NOT the only safety-related funding source or program



Data Driven Funding Allocation – Long-term Targets



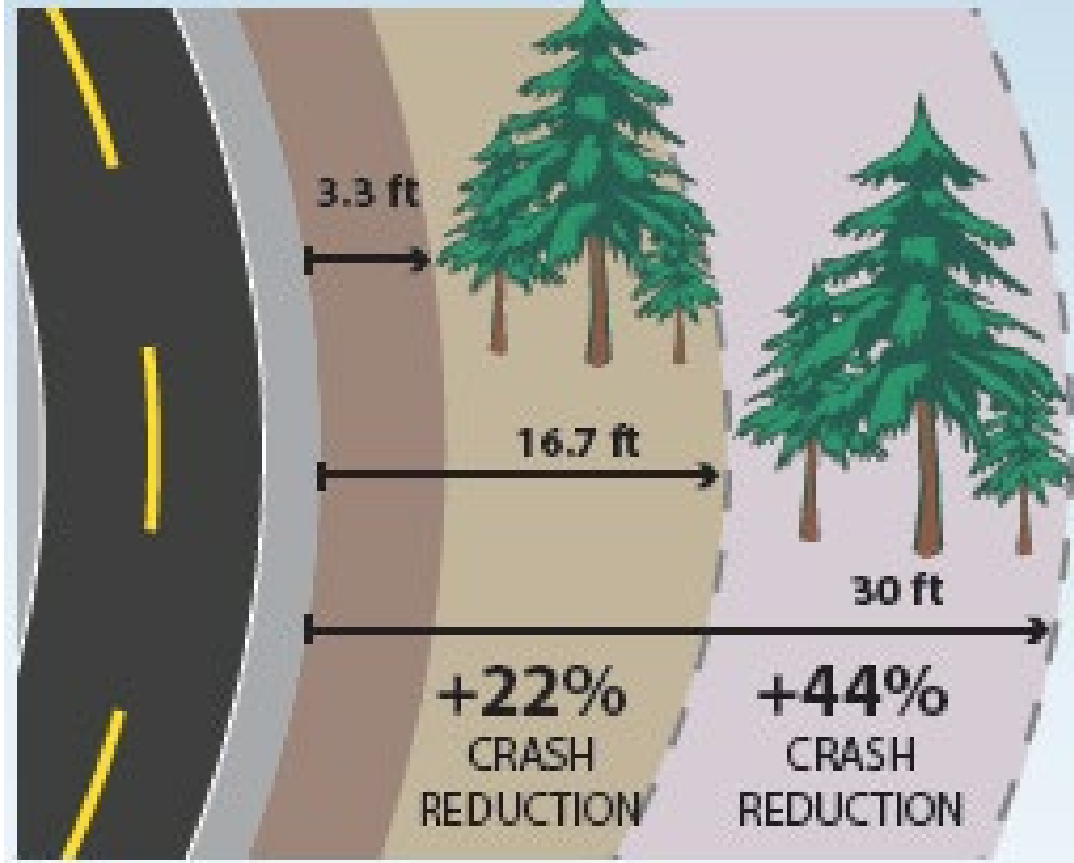
- What does “data-driven” mean? We should be spending money where crashes are happening
- Goal: 90% Construction/ 10% Non-Construction
- Balanced and aligned portfolio of project funding based on crash data
 - Systemic & Site-specific
 - Urban & Rural Split
 - State & Local Split

Site-Specific? Systemic? Systematic?



- Site-specific
 - Based on crash patterns at a particular location
 - Constructs improvements to address the crash pattern at that location
 - Typically bigger construction projects
 - Examples: new roundabout, or slip-ramp removal

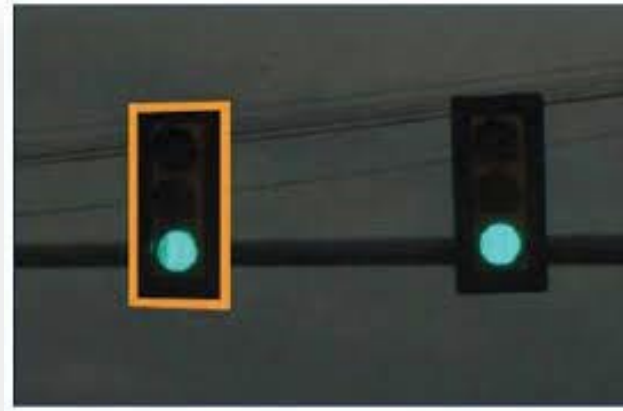
Site-Specific? Systemic? Systematic?



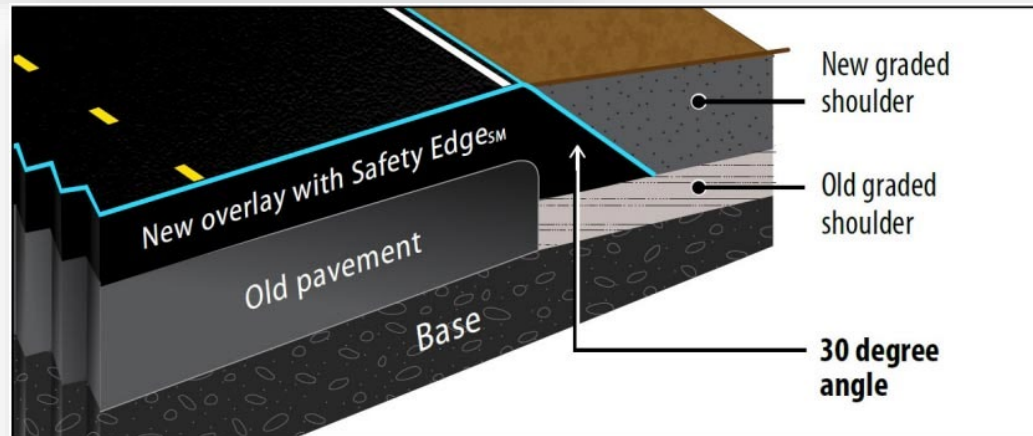
Source: FHWA

- Systemic
 - Acknowledges some crash types have an element of randomness
 - Identifies risk factors common to those crash types (e.g. shoulder width, curve radius, etc.)
 - Constructs countermeasures to address those risk factors at areas where many risk factors are present
 - Examples: clear zone improvements, upgraded curve signage

Site-Specific? Systemic? Systematic?



- Systematic
 - Do it everywhere (that makes sense)
 - Usually relatively low-cost and simple:
 - Signal Backplates
 - SafetyEdge
 - Rumble Stripes



Focused Municipal Grant Program

- Challenges delivering projects on local roads
- Multi-pronged Local support model
 - Countermeasure briefs (quick, low-load)
 - Pre-screening of systemic issues and provision of countermeasure options
 - Environmental and ROW clearances accomplished by state
 - Significant projects requiring more ROW, Enviro analysis
- Some complex projects will still be delivered in-house



Smugglers Notch Chicane Project Update

Josh Schultz



Road Safety Audit Review (RSAR) July 2021



Stakeholders:

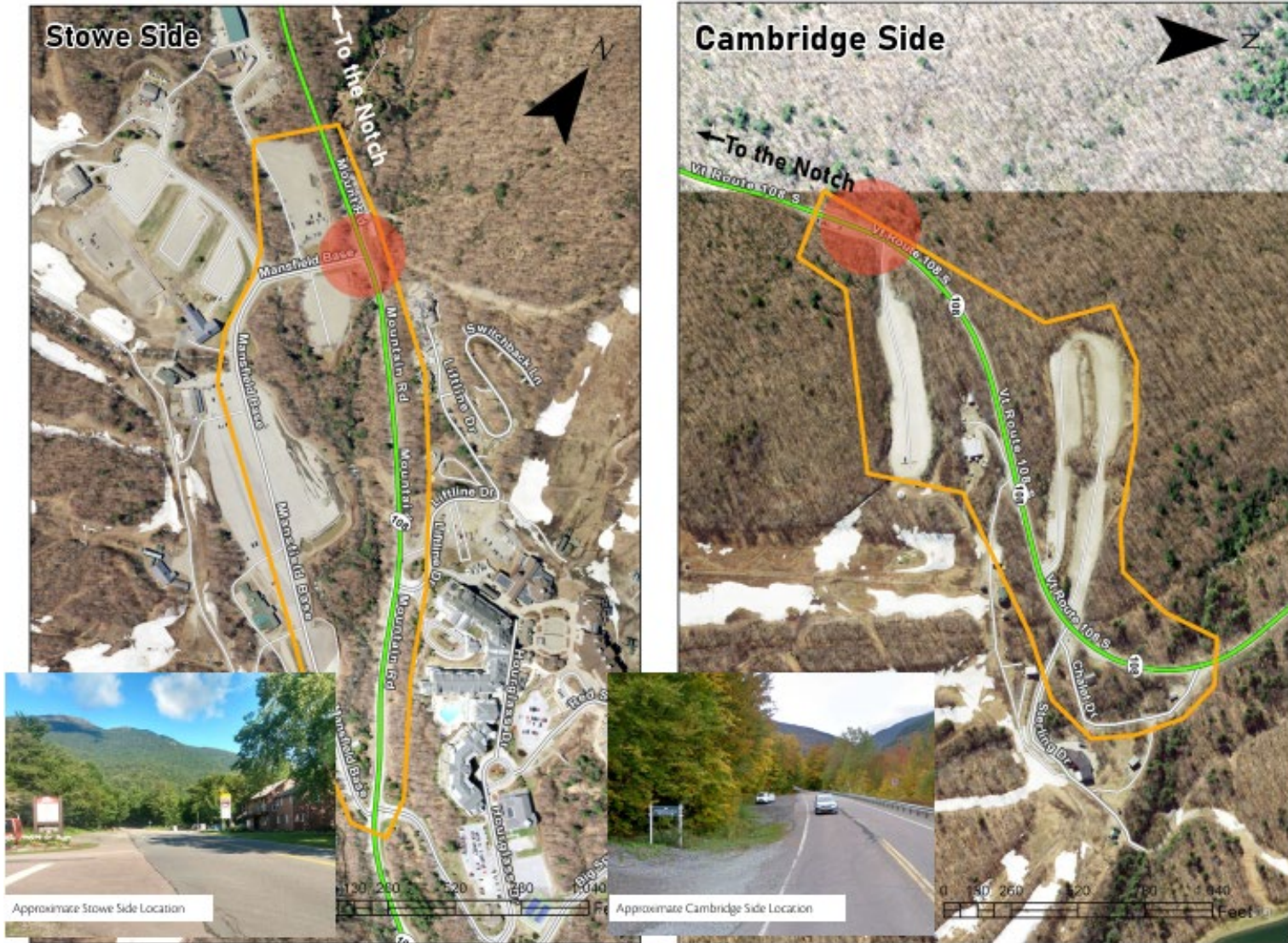
AOT
ANR
Stowe Resort
Smuggs Resort
VSP
DMV
Legislature
LCPC
Cambridge Town Office
Stowe PD

- Scheduling local law enforcement patrols
- Conducting sophisticated terrain assessment
- Changing statutory language
- Revitalizing the local sign architecture
- Increasing outreach to local news and trade outlets
- Working with the various GPS companies
- Conducting an engineering Scoping Study

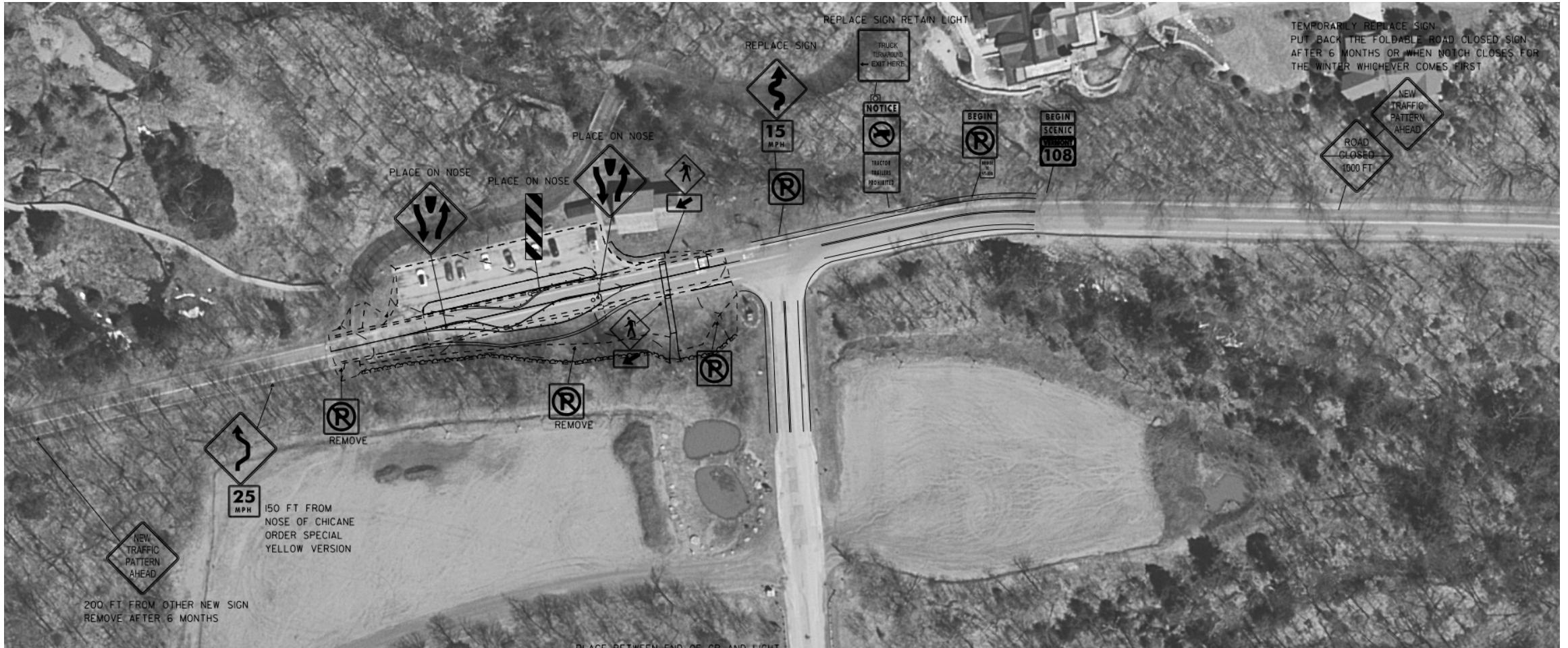
The Bottom Line

- Scoping Study conducted by D&K drove AOT Chicane decision
- “Twin” Chicanes on either side of Notch replicating geometries up-mountain
- Temporary, modifiable, installations for two seasons; permanent if effective
- Layouts rigorously field tested
- Materials: Delineators, rubber curbs, crash attenuator barrels, signs, striping
- Likely 2-day installation
- Start dates contingent on material acquisition and deconfliction w/ other work
- Pending: Turnaround licenses w/resorts, order materials, decide on CCTV COA

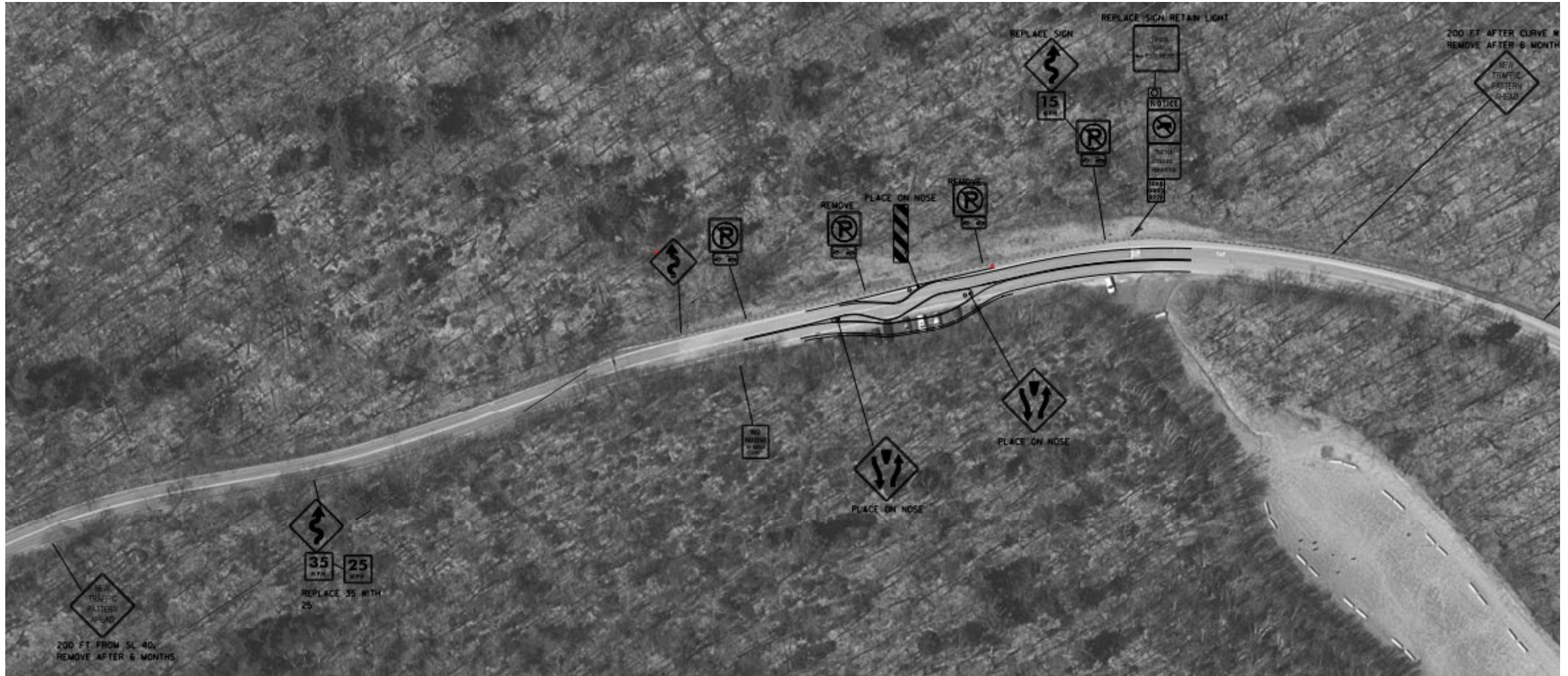
Trial Chicane Locations:



Stowe Side Concept



Cambridge Side Concept



Trial Chicane Components:



Rubber Curb: Defines the inbound travel way and provides a physical “rub” component. Can be adjusted after installation and removed/reinstalled seasonally.

Flexible Delineators: Placed directly behind the curb to clearly delineate the travel way and provide a vertical feature to help slow traffic. Can be adjusted after installation and removed/reinstalled seasonally.

Crash Attenuator Barrels: Placed in strategic locations to provide an additional vertical element and add a physical obstacle that clearly should not be run into or run over.

Signs: Set in advance of and within the chicanes as recommended in the MUTCD.).

Additional Pavement: The chicanes require more pavement width than currently available. Gravel roadside parking areas will be graded and paved to provide the needed width.

Line Striping or Line Striping Targets: Further defines the travel way, especially in advance of the chicane.



Discussion

