

## VT 22A Corridor Analysis



### Introduction:

VT 22A traverses the western border of Vermont from the New York State line in Fair Haven to the intersection of US 7 in Ferrisburgh. VT 22A has approximately 45 miles through nine towns and is classified as a rural minor arterial. During the first 10 months of 2021 there have been 2 fatal crashes in West Haven. The Vermont Agency of Transportation Operations & Safety Bureau – Data Analysis Section reviewed crashes, traffic volumes, and traffic speeds to look at causal factors and identify areas with elevated crash rates.

Through this analysis we reviewed all crashes by crash type breaking the road into three sections: Segment 1 - US 4 (Fair Haven) to VT 73 (Orwell); Segment 2 - VT 73 (Orwell) to VT 17 (Addison); Segment 3 - VT 17 (Addison) to US 7 (Ferrisburgh). Between the years 2016 and 2020, inclusive, there have been a total of 3 fatal crashes and currently in 2021 there are two within Segment 1. Segment 2 and Segment 3 have a combined 3 fatal crashes in the 2016 – 2020 period.

Segment 1 and Segment 2 both have over 30 injury crashes, while Segment 3 only has 14. The majority of the crashes in all three segments are property damage or non-reportable, which are lower damage crashes that do not meet a reporting threshold for law enforcement to engage in a full investigation.

### Key Takeaways:

- VT 22A has relatively high truck traffic compared to other rural minor arterials in Vermont. The percentage of the statewide annual average of daily traffic of single unit trucks on a minor arterial is 6% and the average combination unit trucks is 2%, as compared to about 8% single and 8% combination on VT 22A.
- Traffic volume is higher at the intersection with US 4 in Fair Haven and West Haven in the south and in Panton, Vergennes, and Ferrisburgh in the north, and is more evenly distributed in between.
- Vergennes has the highest number of crashes per 100 million vehicle miles travelled (280), followed by Benson (131).

### Crash Data Breakdown by Segment:



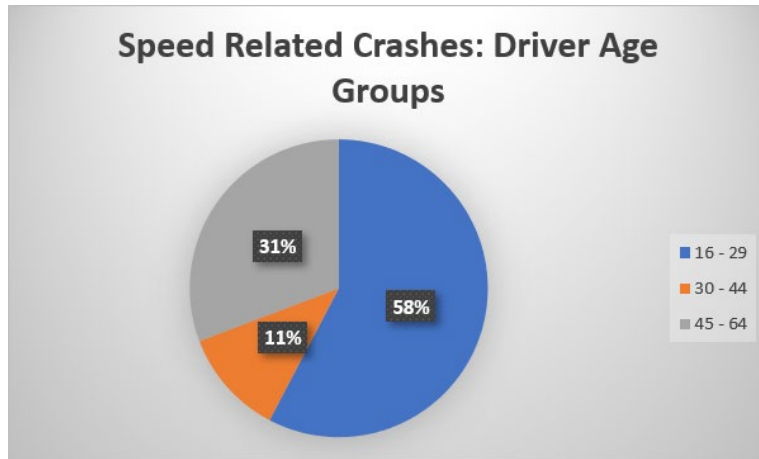
VT 22A Segment 1: US 4 Fair Haven - VT 73 Orwell					
Year	Fatal Crashes	Injury Crashes	Property Damage Only Crashes	Non-Reportable Crashes	Total by Year
2016	1	7	10	8	26
2017	1	7	12	2	22
2018	0	8	8	0	16
2019	0	8	9	12	29
2020	1	2	2	5	10
2021	2	1	2	4	9
Grand Total	5	33	43	31	112

VT 22A Segment 2: VT 73 Orwell - VT 17 Addison					
Year	Fatal Crashes	Injury Crashes	Property Damage Only Crashes	Non-Reportable Crashes	Total by Year
2016	1	8	9	4	22
2017	1	9	16	1	27
2018	0	6	11	0	17
2019	0	4	6	6	16
2020	0	3	7	9	19
2021	0	4	2	6	12
Grand Total	2	34	51	26	113

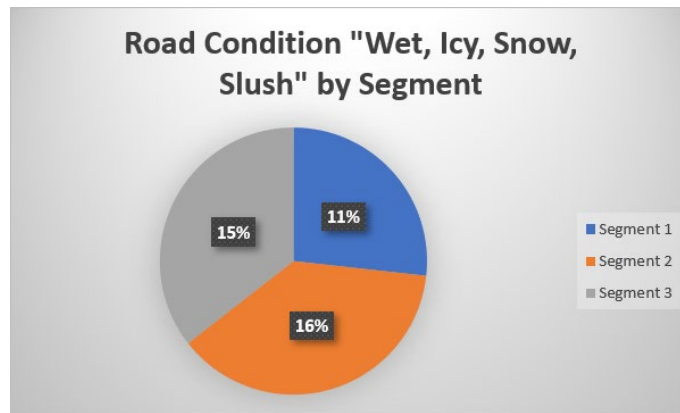
VT 22A Segment 3: VT 17 Addison - US 7 Ferrisburgh					
Year	Fatal Crashes	Injury Crashes	Property Damage Only Crashes	Non-Reportable Crashes	Total by Year
2016	0	4	19	2	25
2017	0	1	11	0	12
2018	0	4	19	0	23
2019	1	2	12	12	27
2020	0	3	9	12	24
2021	0	0	3	8	11
Grand Total	1	14	73	34	122

**Speed Related Crashes:** There have been 25 speed related crashes in all three segments over the 5.75 years (2016-2021), representing 7% of all crashes. The number of crashes where the driver was between 16 – 29 was the highest in Segments 1 & 3 at 80% and 75% respectively.

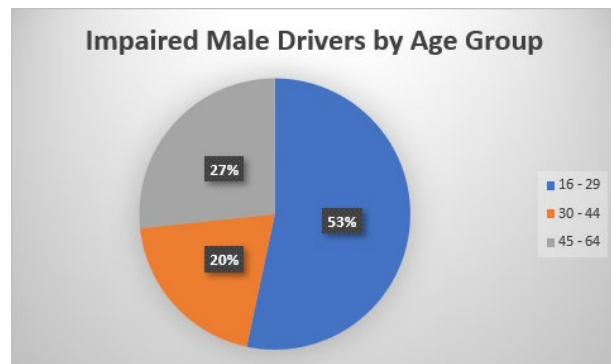
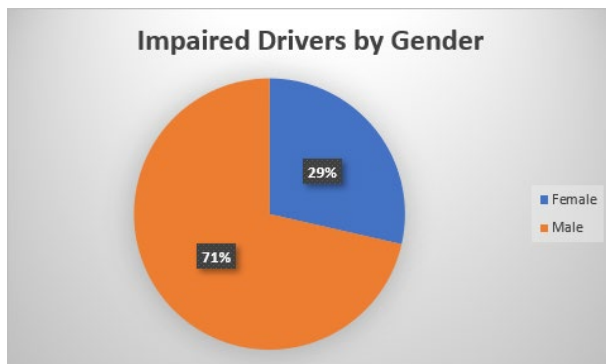




**Weather and Road Surface Condition Related Crashes:** During this period, there were 18 crashes that listed “Rain” as the weather condition at the time of the crash in all three segments. This is 5% of all crashes on VT 22A combined. The road surface condition being wet, icy, snow, slush, etc. is listed in 51 crashes through all segments making that 14% of all crashes.

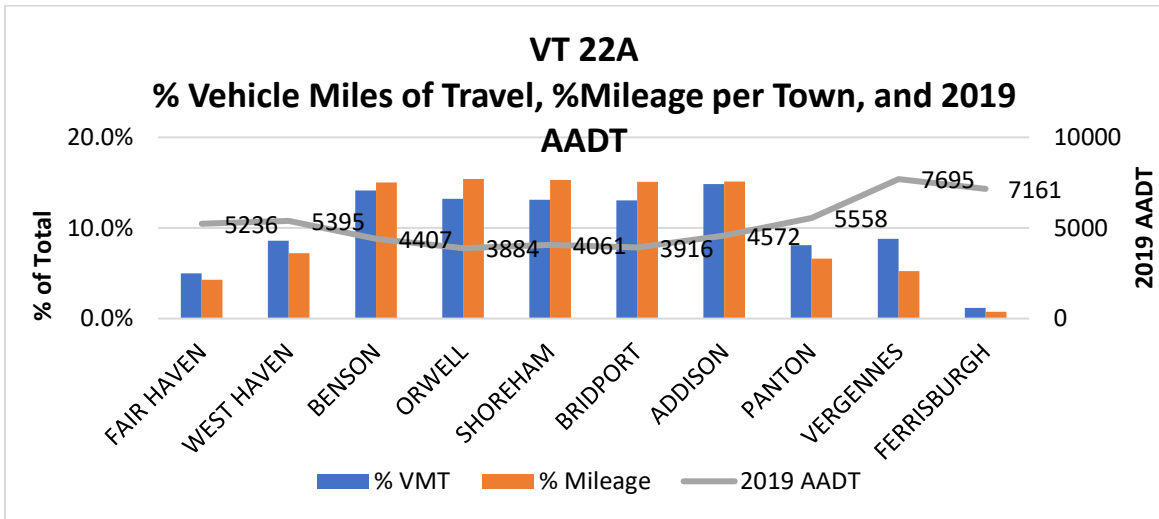


**Impaired Crashes:** During this period, there were 19 crashes where a driver was impaired by alcohol, drugs, or both for all segments. Of these drivers, 71% were male and 53 % were between the ages 16 and 29.

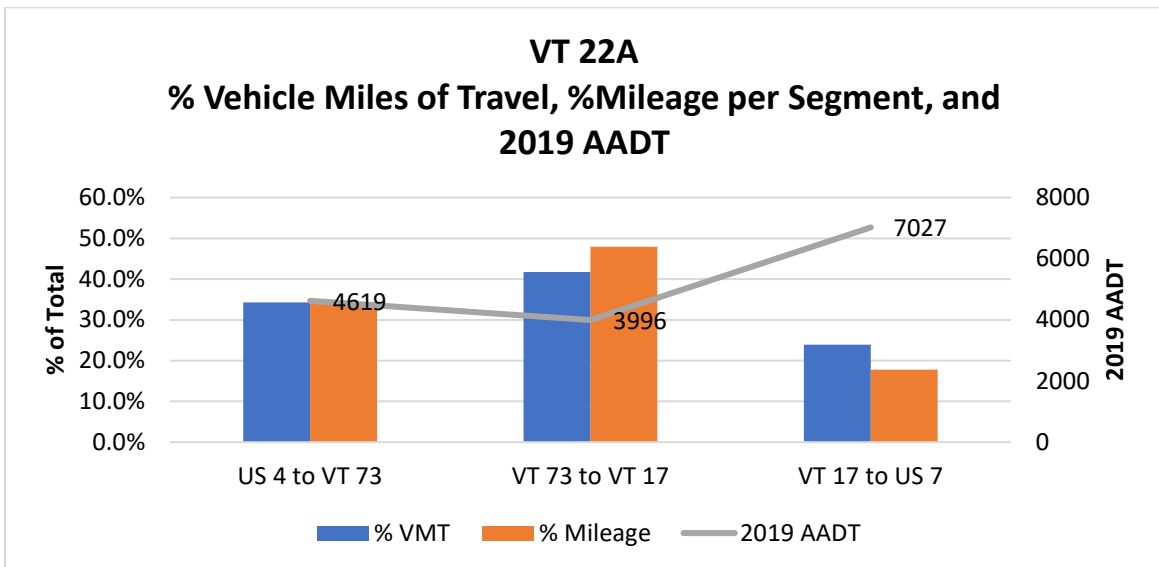


## Traffic Data:

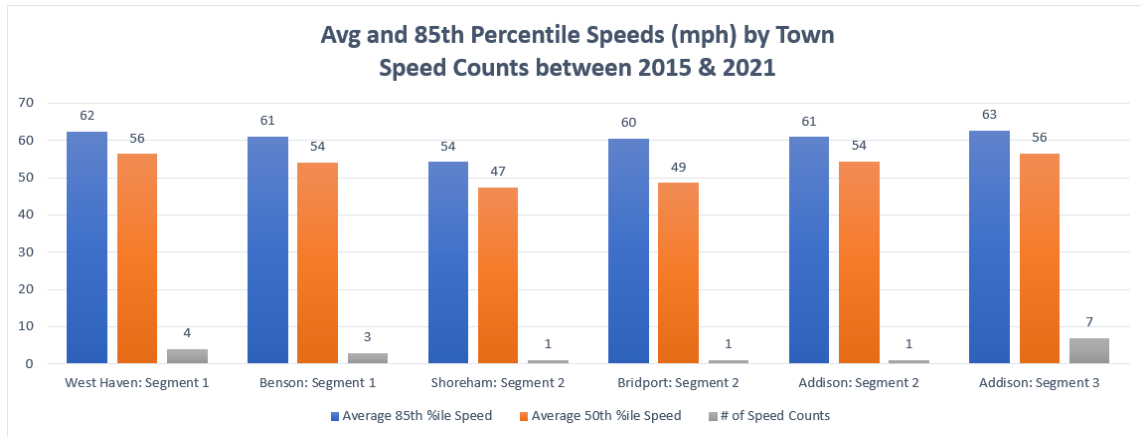
The chart below shows that the percent of Vehicle Miles of Travel (VMT) along VT 22A is similar to the percent of mileage within each town along route. This means that traffic is relatively steady along the route. Where the blue column is higher than the orange, the town is carrying a relatively larger amount of traffic per mile, whereas if the blue column is lower than the orange, the town is carrying relatively less traffic.



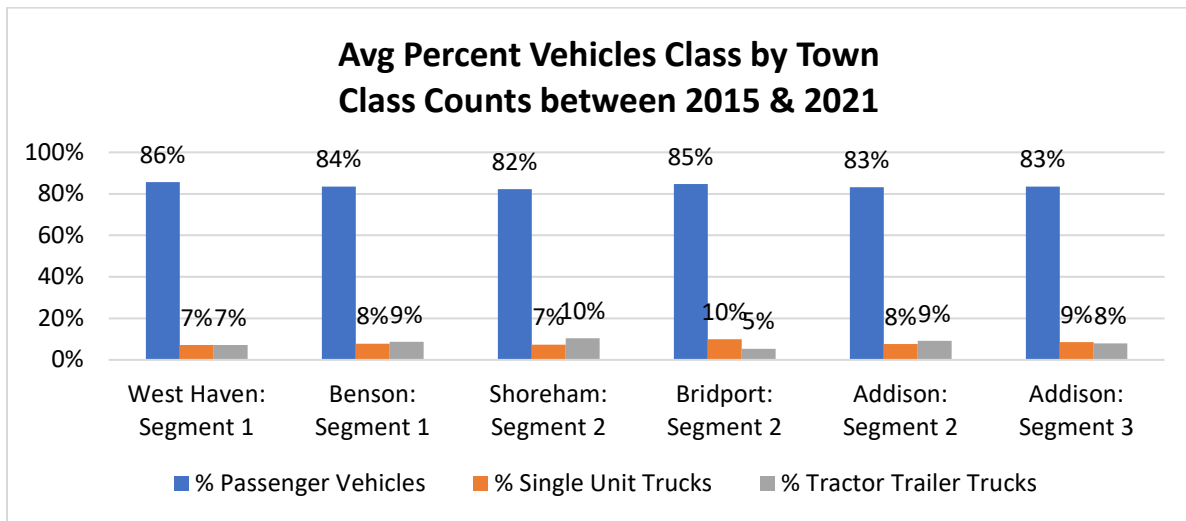
The chart below is similar to the chart above, however, traffic is shown by crash segment rather than by town.



Traffic count data collected along VT 22A between 2015 and 2020 indicate similar speeds along the route. Excluding the count in Shoreham, the average 85<sup>th</sup> percentile speed is about 61-mph and the average 50<sup>th</sup> percentile speed is about 53-mph. Slightly lower speeds were observed at the one traffic count conducted in Shoreham. This count was located just on the edge of a 40-mph zone.



The chart below shows vehicle classification by town along VT 22A. It does not vary much along the route. VT 22A has relatively high truck traffic compared to other rural minor arterials in Vermont. The percentage of the statewide annual average of daily traffic of single unit trucks on a minor arterial is 6% and the average combination unit trucks is 2%, as compared to about 8% single and 8% combination on VT 22A.



### Crash Rates:

Crashes per 100 million vehicle miles travelled (VMT) was calculated for each town along the VT 22A corridor using the formula below, starting with Fair Haven at end-to-end (ETE) mile point 2.635 and ending with Ferrisburgh at ETE mile point 44.397.

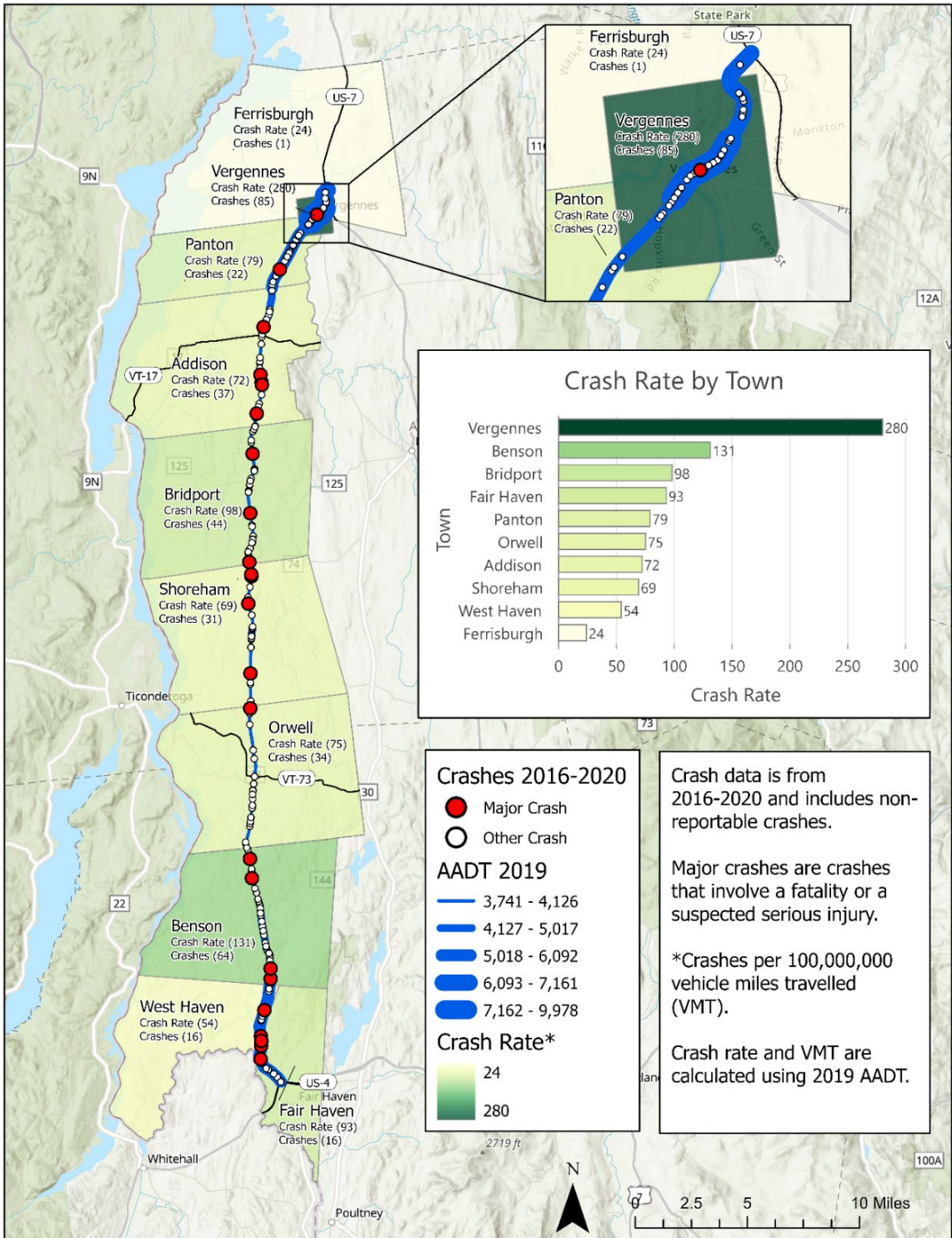


$$R = \frac{C \times 100,000,000}{V \times 365 \times N \times L}$$

C = Crashes  
 V = AADT  
 N = Years  
 L = Segment Length

Map 1 shows crashes for 2016-2020 on VT 22A from ETE mile point 2.635 to 44.397, as well as the 2019 AADT, and crashes per 100 million VMT by town. Crashes are symbolized by major and non-major crash types, where major crashes are those involving at least one fatality or suspected serious injury.

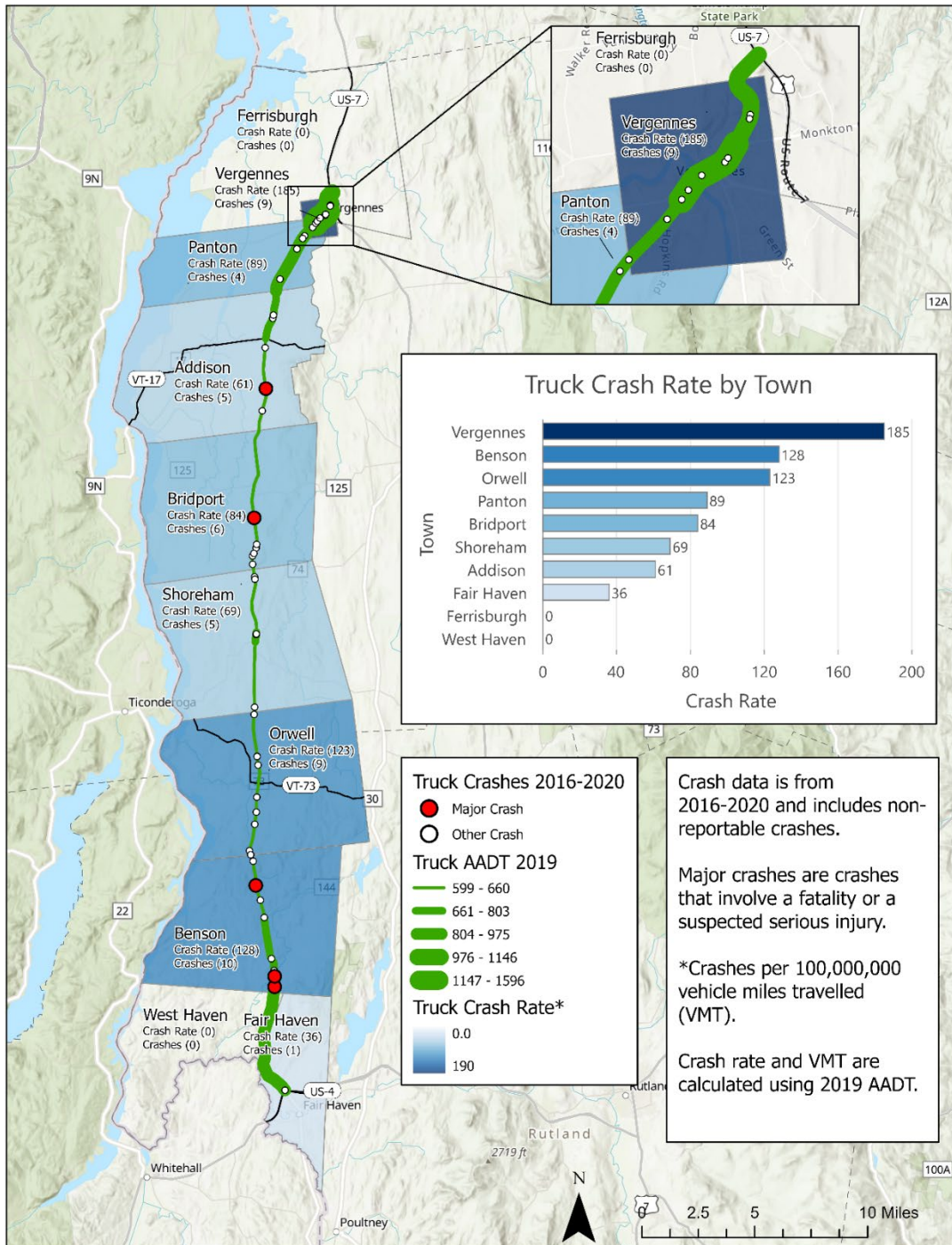
Map 1 shows that Vergennes had the highest crash rate of all the towns by a significant margin, at 280 crashes per 100 million VMT, with Benson and Bridport following behind at 131 and 98 respectively. Traffic volume is higher at the intersection with US 4 in Fair Haven and West Haven in the south and in



Map 1. VT 22A crashes (2016-2020) with crashes per 100 million VMT by town and 2019 AADT.



Map 2 shows truck crashes per 100 million truck VMT for 2016-2020 by town for the same section of VT 22A, as well as truck crashes by town and truck AADT for 2019 by AADT segment. Again, Vergennes and Benson have the highest and second highest crash rates, at 185 and 128, followed by Orwell at 123.



Map 2. VT 22A truck crashes (2016-2020) with crash rate per 100 million VMT by town and 2019 truck AADT

A comparison with US 4, which also has relatively high truck traffic, showed that VT 22A had a proportionally higher truck crash rate. The crash rate for all crashes is the same on both routes, but the



crash rate for truck crashes is proportionally higher on VT 22A. The percent of trucks on US 4 is 63% of the percent of trucks on VT 22A. The truck crash rate on US 4 is 69% of the truck crash rate on VT 22A.

Route	Annual VMT	Annual VMT Trucks	% Daily Trucks	All Crashes	Truck Crashes	All Crash Rate	Truck Crash Rate
VT 22A	68,907,620	11,025,219	16.0%	315	49	91	89
US 4	196,607,250	19,660,725	10.0%	892	60	91	61
US4/ VT22A	2.85	1.78	0.63	2.83	1.22	0.99	0.69

**Conclusion:**

As stated above, there have been a combined 347 crashes on VT 22A over the past 5.75 years. Of those crashes 7% were major crashes. Segment 1 (US 4 to VT 73) has the most fatal crashes 5 fatal. We reviewed the speed related crashes as well as weather related crashes for each segment. We found that speed related crashes were higher in segment 1 and 3 with males under 30 making up most of the drivers in these crashes. Weather was listed as “Rain” in only 5% of the crashes, not making this a significant factor. Impairment was a contributing factor in 5% of the crashes with 16–29-year-old males making up more than half of the drivers. Crash rates for all vehicle types as well as crash rates for trucks only were calculated for each town along the three segments. The crash rates show that Vergennes and Benson have the highest and second highest number of crashes per 100 million vehicle miles travelled and that truck crash rates are in line with the total crash rates along the analyzed segments. A comparison with US 4, which also has relatively high truck traffic, showed that VT 22A had a proportionally higher truck crash rate.

