

# Office of Highway Safety

## Road Safety Audit Review

<b>Town:</b>	Marshfield	<b>Date Reviewed:</b>	August 22, 2017
<b>Route:</b>	VT 215 (Cabot Road)	<b>Mile points:</b>	VT 215 MM 0.0 – 0.26

### Location Map



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### RSAR Process

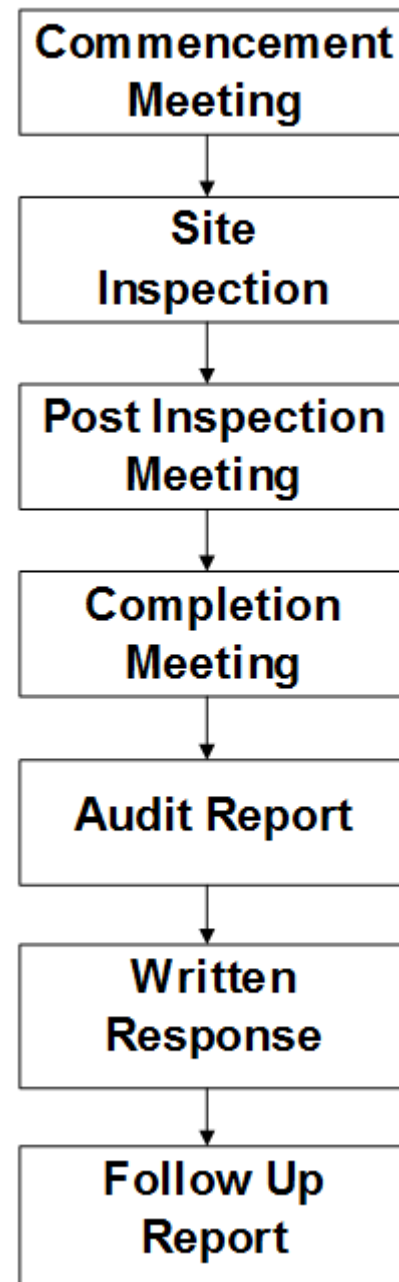
A Road Safety Audit Review (RSAR) is a formal examination of an existing road in which an independent, multi-discipline team (the Audit Team) reports on potential safety issues.

According to the Federal Highway Administration (FHWA), the purpose of a RSAR is to determine which elements of the road may present a safety concern, to what extent and under what circumstances as well as to identify opportunities to mitigate the identified safety concerns.

The RSAR process is composed of several steps as shown in Figure 1. The process starts with a Commencement Meeting during which the Audit Team reviews data and gathers community concerns. A Site Inspection is then performed by the Audit Team. The site visit involves the identification of safety deficiencies as seen in the field. The Audit Team will usually drive through the location of interest to “get a feel” for the area, traveling through each approach in the case of intersections. The team is to then drive at a slower speed to make observations. If needed, the team will also walk the location. Following the site inspection, the Audit Team holds a Post Inspection Meeting. It is during this meeting that the team members discuss their observations and identify safety issues. The team is to reach a consensus on the importance of each safety issue mentioned. Only those issues for which a consensus is reached are included in the RSAR findings. A RSAR report (Written Report) is prepared.

The Written Report identifies safety concerns and proposes guidance. These issues and solutions are presented in a tabular format associated to each Responsible Entity for

**Figure 1 - Road Safety Audit Process**



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ease of reporting. The Responsible Entities are any groups who own a roadway feature or who are responsible for making an improvement or for initiating further studies. These could include for example, the VTrans design section, the local town, the local police or the local RPC.

### **Location**

The primary location of this RSAR is the portion of VT 215, in the Town of Marshfield, that runs from the US 2 intersection to the end of the 25 mph speed zone at mile point 0.26. This a state numbered town highway that is locally known as Cabot Road.

### **Purpose of the RSAR**

This RSAR was conducted at the request of the Town of Marshfield to document pedestrian safety concerns as a result of vehicular travel speeds in excess of the posted speed limit and to propose countermeasures.

The RSAR herein has sought to identify potential safety hazards and physical features which may affect road user safety. However, it is possible that not every deficiency has been identified. It should further be recognized that the implementation of the guidance in this report might contribute to improve the level of safety of the facility reviewed but not necessarily remove all the risks.

### **RSAR Participants**

Mario Dupigny-Giroux from the Office of Highway Safety, VTrans, was the RSAR coordinator.

The other participants were:

Justin LaPerle,	OHS, VTrans
Pat McManamon,	DMV, VTrans
Chris Mercon,	TSMO, VTrans
Paul White,	GHSP, VTrans
Rebecca Wigg,	Cabot Road Resident
Daniel Currier,	CVRPC

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### Information Reviewed

#### Geometry

VT 215 is a two-lane, Class II rural road that runs south to north.

VT 215 intersects US 2 at a “Y” type intersection that is controlled with stop signs on the VT 215 approaches.

This section of VT 215 has houses on both sides of the roads for a distance of about 800 feet from the US 2 intersection, then houses are only located on the west side of the road for about 300 more feet.

Houses are set back a very short distance to the road.

The paved road surface width on VT 215 is 25 feet. The paved surface is divided by a double yellow centerline.



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### Speed Limit

The posted speed limit on VT 215 from the US 2 intersection to about mile point 0.26 is 25 mph. From there, the posted speed limit then increases to 35 mph from about the end of the village to the Cabot Town Line. In Cabot, the posted speed limit becomes 50 mph.

CVRPC conducted a speed study in July 2017. Data was collected in both directions at two sites. As shown on the next map, one of the sites was located 0.2 mile north of the McCrillis Rd intersection in the 35 mph speed limit zone while the other site was located in the 25 mph zone, about 860 feet north of the US 2 intersection.



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The data for each location is summarized in the table below.

Of particular interest for this road safety audit are the statistics for site #1 in the section of road in which the speed limit is 25 mph speed.

The results show that the 85<sup>th</sup> percentile speed of the traffic traveling in the southbound direction was 48 mph (meaning that 85% of the traffic travels at a speed of 48 mph or less as it approaches the village). The 85<sup>th</sup> percentile speed of the traffic traveling in the northbound direction (coming out of the village) was 53 mph.

The results of this study also show that the 10-mph pace, which is defined as the range of speeds that encompasses the highest proportion of vehicles, was between 36 and 45 mph for southbound traffic with about fifty-two percent of all southbound vehicles. In the northbound direction, the range of the 10-mph pace was between 41 and 50 mph with a proportion of about fifty-four percent of all northbound vehicles.

### Site #1: Cabot Rd 860 feet north of the US 2 intersection

#### Southbound

Average Speed:	41 mph
85 <sup>th</sup> percentile speed:	48 mph
10 MPH Pace Speed:	36-45 mph, Percent in Pace 51.9%
Percent of vehicles > 25 mph:	97.6%

#### Northbound

Average Speed:	46 mph
85 <sup>th</sup> percentile speed:	53 mph
10 MPH Pace Speed:	41-50 mph, Percent in Pace 53.5%
Percent of vehicles > 25 mph:	97.0%

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### Site #2: Cabot Rd, 0.2 mile north of the McCrillis Rd intersection

#### Southbound

Average Speed:	46 mph
85 <sup>th</sup> percentile speed:	52 mph
10 MPH Pace Speed:	41-50 mph, Percent in Pace 61.0%
Percent of vehicles > 35 mph:	96.7%

#### Northbound

Average Speed:	48 mph
85 <sup>th</sup> percentile speed:	54 mph
10 MPH Pace Speed:	46-55 mph, Percent in Pace 57-4%
Percent of vehicles > 35 mph:	97.0%

#### Traffic Volumes

The 2014 Average Annual Daily Traffic on VT 215 from US 2 to the Cabot Town Line was 1,700 vehicles per day.

The results of the count that CVRPC performed in July 2017 showed that traffic on this road is composed of about 5% trucks.

#### Pavement Condition

There is no pavement surface information available on VTransparency for VT 215 in Marshfield. However, it is known that VT 215 was last paved in 2012.

#### Past Projects

VT 215 in Marshfield was last paved in 2012 through a district municipal highway grant.

US 2 in the vicinity of VT 215 was last paved in 2006 via project NH 2104 (1)S (PPMS pin 980b90).

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Project NH 028-3(37)SC is for the project scoping of 3-R improvements to US 2 in Plainfield, Marshfield and Cabot (PPMS pin 05B196, VTtrans project manager Bruce Martin). It was programmed for scoping but a report was never generated. This project has not started.

### Future Projects

Project NHG SIGN(59) is for the replacement of signs on US 2 between Berlin and Guildhall. This project will change the stop signs on VT 215 at the US 2 intersection and the legal load limit sign. The anticipated completion date for this project is 2018.

### Crash History

The crash history along VT 215 in Marshfield was reviewed for the six-year period covering the years 2010 to 2016. There were no crashes reported on this road during this period.

Considering calendar year 2017 to date, only one crash has been reported since 2010. This crash occurred in 2017 near the Cabot towline and outside of the area focused by this road safety audit. This crash was considered non-reportable and as such, there is no information about it, including no description of what happened.

### Current Local Concerns

The Town of Marshfield reported the following issues in their original request for the road safety audit:

Residents have expressed concerns about vehicles speeding through this road and endangering pedestrians and bicyclists.

Cabot Road Resident Rebecca Wigg reported the following issues:

She walks every day to catch the Commuter 2 bus at the bus stop on US 2 and perceives that vehicles are traveling too fast for this type of village road.

There are little or no shoulders to walk on.



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Vehicles are honking at her or her husband when they are slowing down in a vehicle to prepare to turn into their driveway.

Pedestrian and bicyclist children can be an issue with following the rules of the road, including walking in the middle of the road.

This road is used heavily by trucks because of the Cabot Creamery.

### **Identified Safety Concerns**

This section lists the areas of safety concern identified by the audit team during the site inspection and from the analysis of available data. This section also reports the potential safety enhancements suggested by the audit team. The concerns are not listed in order of importance.

#### **Concern: Some Youth Pedestrians and Bicyclists are Behaving Irresponsibly**

It was reported by community members and also observed by members of the audit team that some pedestrians and bicyclists were walking or riding in the middle of the road without paying attention to vehicular traffic.

Safety Enhancements:

Short to Mid Term

Conduct a neighborhood education meeting.

#### **Concern: There is Inadequate Area for Walking**

Pedestrians are walking along the narrow roadway.

Safety Enhancements:

Mid to Long Term

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Conduct a pedestrian facility study to explore the possibility of constructing a sidewalk or another type of path, or a wider shoulder (the Town is encouraged to apply for a VTrans Bicycle and Pedestrian Grant<sup>1</sup>).

### Concern: Travel Speeds are Too High for the Character of the Area

Travel Speeds along VT 215, from the US 2 intersection up to about a point a thousand feet north, were observed to be too high for the nature of the area. The road surface is twenty-five feet wide, house set-backs are close to the road and pedestrians are walking on the road with insufficient space to walk on.

#### Safety Enhancements:

##### Short Term

Use a temporary speed feedback trailer and install it in the southbound direction, midway through the current 25 mph speed zone (Town to borrow cart from the county sheriff or the VTrans district if they have one).

##### Short to Mid Term

Relocate the first northbound 25 mph speed limit sign in front of the utility pole (this sign is currently partially behind the pole and may not be fully viewed by the traffic that is turning from US 2 eastbound).

Upgrade the signs related to speed limits and speed reductions to make them more conspicuous (speed limit signs need to be 24" x 30", Reduced Speed Limit Ahead sign need to be 36" x 36").

Revised signage southbound to create a gateway feel and indicate to motorists that they are approaching a village area<sup>2</sup>.

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<sup>1</sup> <http://vtrans.vermont.gov/highway/local-projects/bike-ped> (Next round is July 2018)

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Reduce the width of the travel lane to 11 feet and install white edge lines on both sides of the road from the US 2 intersection to the Cabot Town Line.

Contract with the sheriff or the state police to provide a number of weekly enforcement hours.

Consider reviewing the speed limit along the entire length of VT 215 to provide reasonably enforceable speed limits. See Appendix B for a proposed scheme.

Long Term

Reconfigure the US 2 intersection from a “Y” to a “T” to reduce the speeds of motorists who are entering VT 215.

Concern: Pavement Edge Drop Off on the Southeast Corner of US 2 Slip Lane Creates a Hazard for Pedestrians

Pedestrians are walking along the road. This drop off presents a hazard.

Safety Enhancements:

Short Term

Backfill the area with materials, groundings if available.



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<sup>2</sup> A sketch of sign improvements is provided in Appendix A.

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### **Summary of Safety Enhancements**

The safety concerns and potential actions that were identified in the previous sections are further summarized in the next table. These potential enhancements will be presented to respective parties for further consideration. The entities listed under the column called “Potential Responsibility” are suggested groups that could possibly implement some of the countermeasures.

A sketch of sign improvements is provided in Appendix A following the summary table.

## Potential Safety Enhancements Summary Table

Safety Concern	Safety Enhancement	Potential Responsibility	Safety Payoff	Time Frame	Cost
Some Youth Pedestrians and Bicyclists are Behaving Irresponsibly	Conduct a neighborhood education meeting	Town, Locomotion, Law Enforcement		Short-Mid	Low
There is Inadequate Area for Walking	Conduct a pedestrian facility study to explore the possibility of constructing a sidewalk or another type of path, or a wider shoulder. Town could apply for VTrans ped grant	CVRPC, Town		Mid-Long	Mid (\$20,000-\$25,000)
Travel Speeds are Too High for the Character of the Area	Use a temporary speed feedback trailer and install it in the southbound direction, midway through the current 25 mph speed zone	Town, via Sheriff or VTrans District?		Short	Low
	Relocate the first northbound 25 mph speed limit sign in front of the utility pole	Town		Short-Mid	Low
	Upgrade the signs related to speed limits and speed reductions to make them more conspicuous	Town		Short-Mid	Low
	Revised signage southbound to create a gateway feel and indicate to motorists that they are approaching a village area	Town		Short-Mid	Low
	Reduce the width of the travel lane to 11 feet and install white edge lines on both side of the road from the US 2 intersection to the Cabot Town Line	Town		Short-Mid	Low (\$1000)
	Contract with the sheriff or the state police to provide a number of weekly enforcement hours	Town		Short-Mid	Mid
	Consider reviewing the speed limit along the entire length of VT 215 to provide reasonably enforceable speed limits. See Appendix B for a proposed scheme	Town		Short-Mid	Low

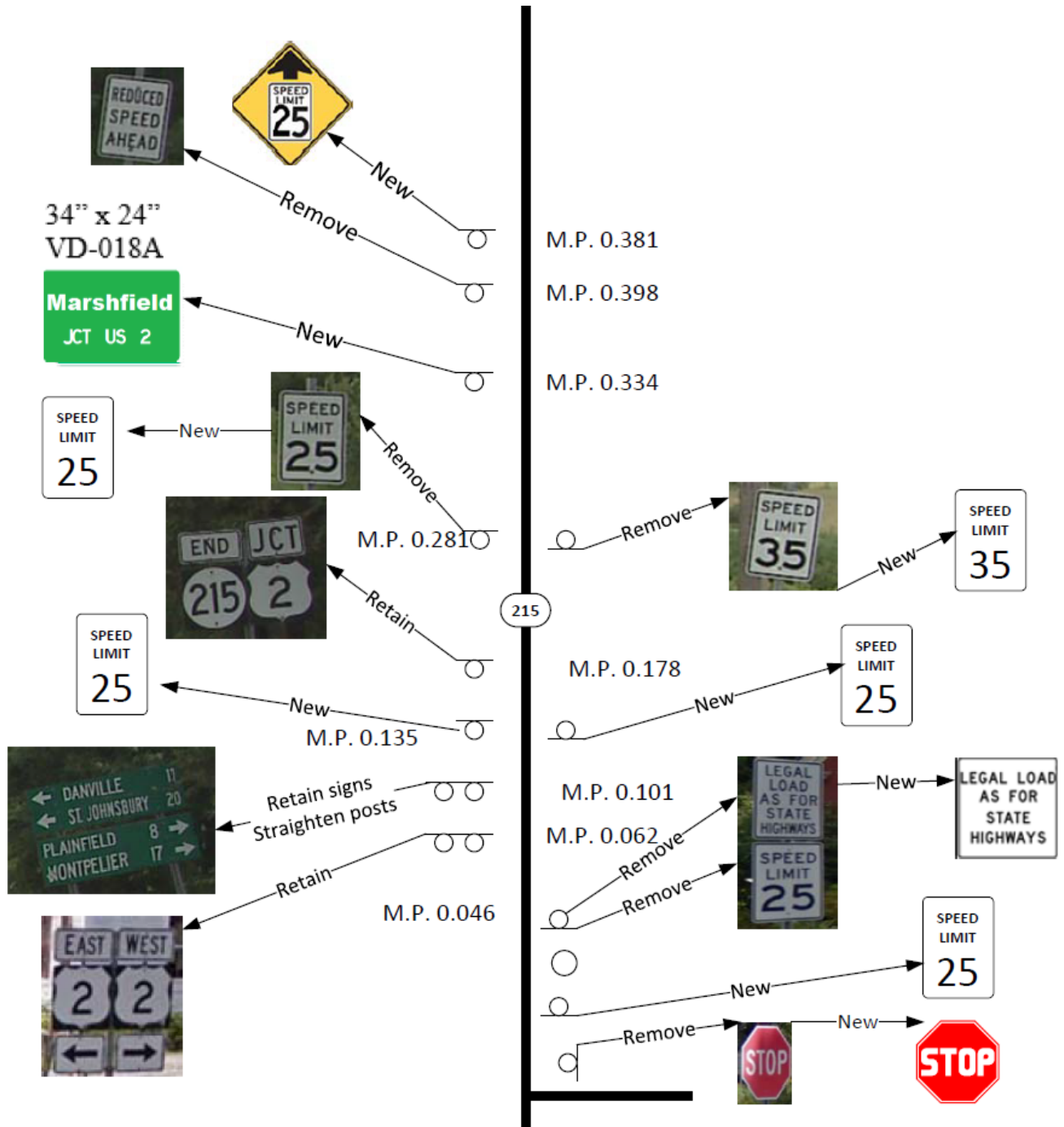
Note: THIS DOCUMENT IS EXEMPT FROM DISCOVERY OR ADMISSION UNDER 23 U.S.C. 409

## Potential Safety Enhancements Summary Table

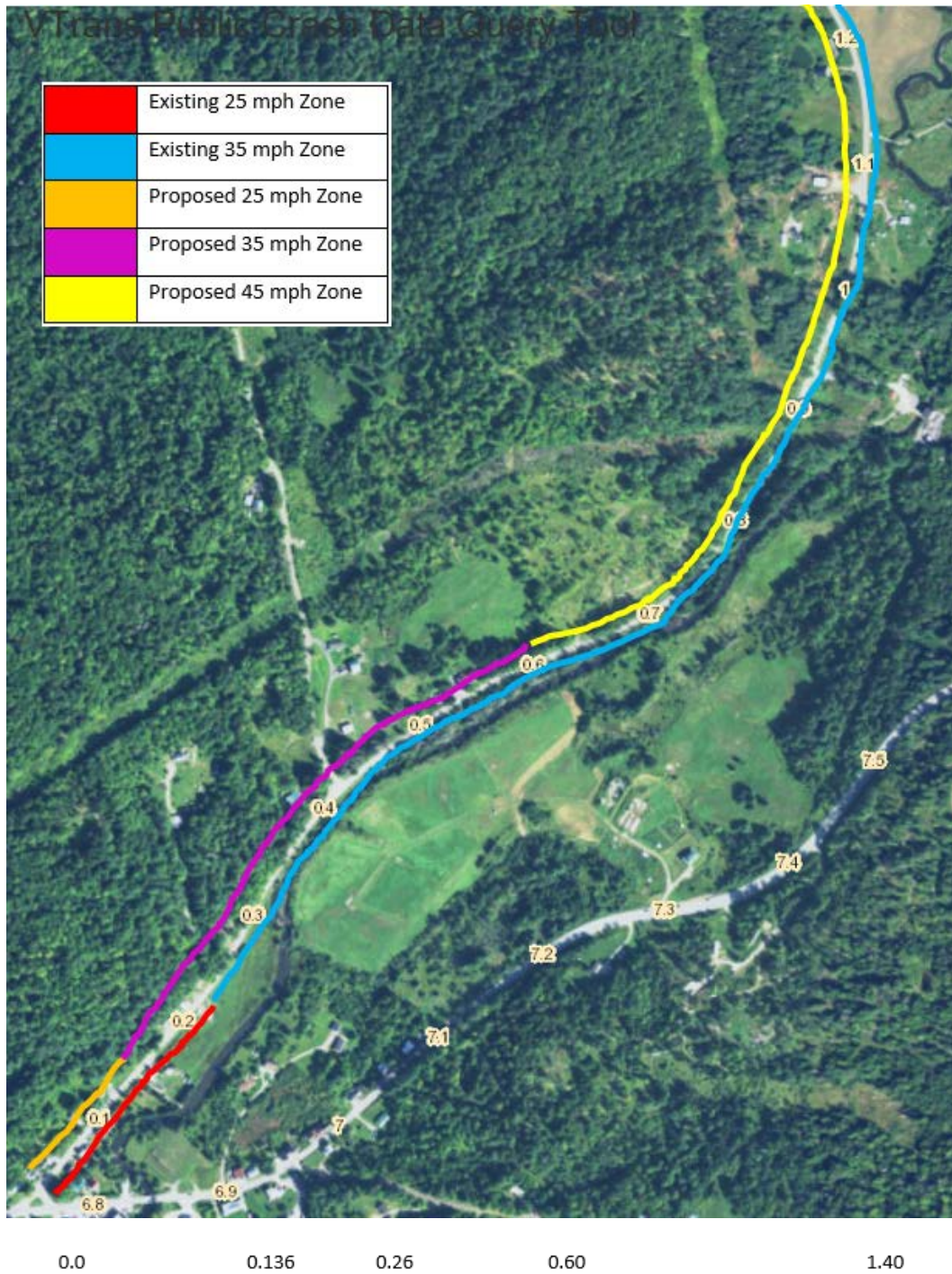
Safety Concern	Safety Enhancement	Potential Responsibility	Safety Payoff	Time Frame	Cost
<i>(continued)</i> Travel Speeds are Too High for the Character of the Area	Reconfigure the US 2 intersection from a “Y” to a “T” to reduce the speeds of motorists who are entering VT 215	VTrans		Long	Mid-High
Pavement Edge Drop Off on the Southeast Corner of US 2 Slip Lane Creates a Hazard for Pedestrians	Backfill the area with materials	Town		Short	Low

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# Appendix A, Proposed Signage



## Appendix B, Potential New Speed Limit Scheme



Existing 25 mph		Existing 35 MPH	
New 25 mph	New 35 mph		New 45 mph
From intersection of US 2 to a 720 feet northward (mile point 0.0 to 0.136)	From mile point 0.136 to about 0.60		From 0.60 to Cabot Townline