# Office of Highway Safety

Road Safety Audit Review

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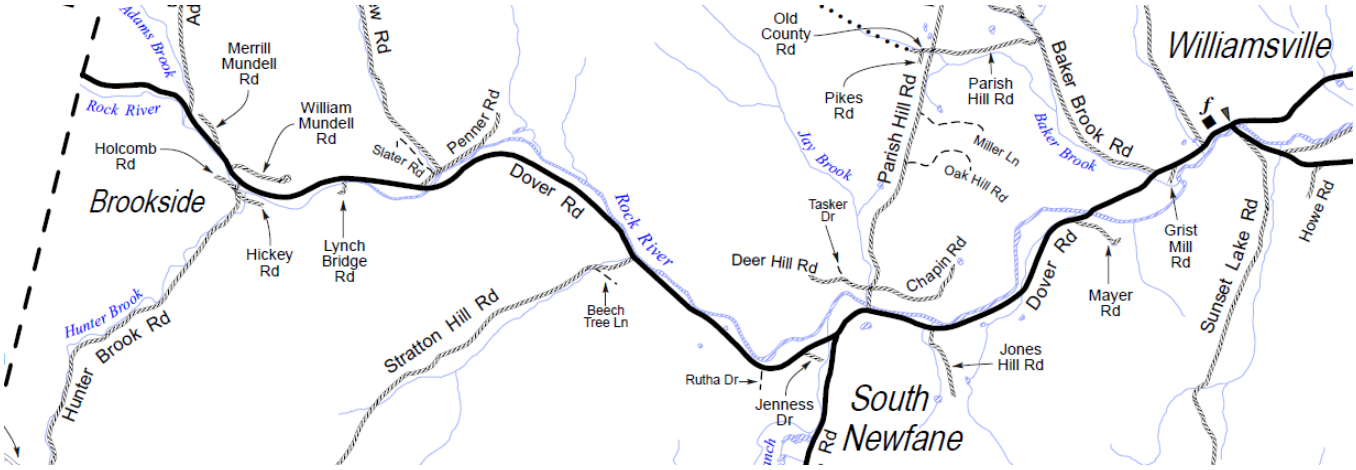
|---|---|---|---|
| **Town:** | Newfane | **Date Reviewed:** | November 29, 2018 |
| **Route:** | Dover Rd | **Mile points:** | S0106 MM 0.00-5-55 |

## ***Location Map***



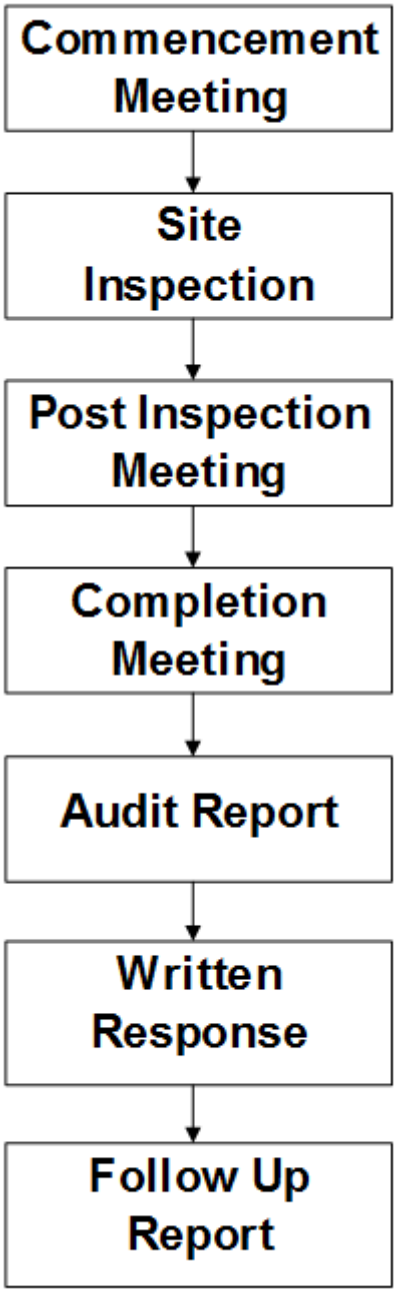

## ***RSAR Process***

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 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.

**Figure 1 -** Road Safety Audit Process



## ***Location***

The location of this RSAR is the entire length of Dover Road in Newfane with emphasis on the villages of Williamsville, South Newfane and Brookside.

## ***Purpose of the RSAR***

This RSAR was conducted at the request of the Town of Newfane.

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:

| | |
|---|---|
| Tyler Birchmore, | Dist 2, VTrans |
| Meghan Brunk, | Dist 2, VTrans |
| William Jerkins, | GHSP, VTrans |
| Jon Kaplan, | Bike/Ped, VTrans |
| Joe Kelly, | TMSO, VTrans |
| Pat McManamon, | DMV, VTrans |
| | |
| Shannon Meckle, | Town of Newfane |
| Chris Williams, | Town of Newfane |
| Jay Wilson, | Town of Newfane |
| | |
| Chris Campany, | WRC |

## ***Information Reviewed***

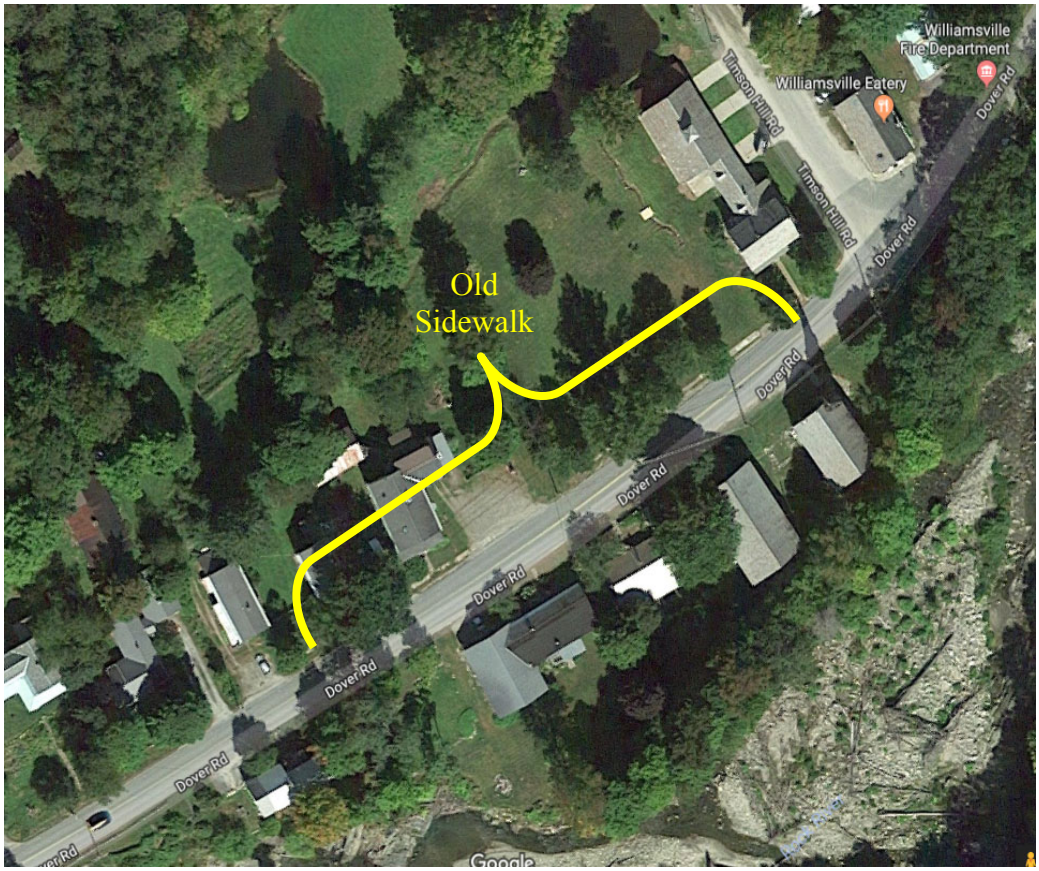
### *Geometry*

Dover Road is a two-lane rural road with about a twenty-two to twenty-four foot road surface.

It is a Class 2 highway, major collector, and a major route between Brattleboro and West Dover. It is the most direct way to Mount Snow.

There are villages along Dover Road in Williamsville, South Newfane and Brooksville. The houses in the villages are close to the road.

There is an old and short section of sidewalk in Williamsville on the north side of Dover Road that extends from across the church westward for about 440 feet. This sidewalk is on private property and is not maintained by the Town. It is also not ADA compliant from many standpoints, such as width, surface condition and proper curb ramps.




There is a covered bridge with an eleven-foot two-inch height limit approximately 1/3 mile west of Baker Brook Road.

*Speed Limit*

The most recent Traffic Ordinance document that was signed by the Selectboard in 2013 enumerates the following speed limit boundaries.

- The maximum speed of 35 mph shall be posted on Grimes Hill Road (TH#5) from the intersection with Vermont Route 30 to one-tenth of a mile before the intersection with Dover Road (TH#2).

- The maximum speed of 25 mph shall be posted on Dover Road (TH#2) from one- tenth of a mile west of the Covered Bridge (CB#17) through the village to the intersection with Depot Road (TH#2).

- The maximum speed of 35 mph shall be posted one-tenth of a mile west of the Covered Bridge (CB#l 7) on Dover Road (TH#2) to one-tenth of a mile east of the Green Iron Bridge (BR#49).

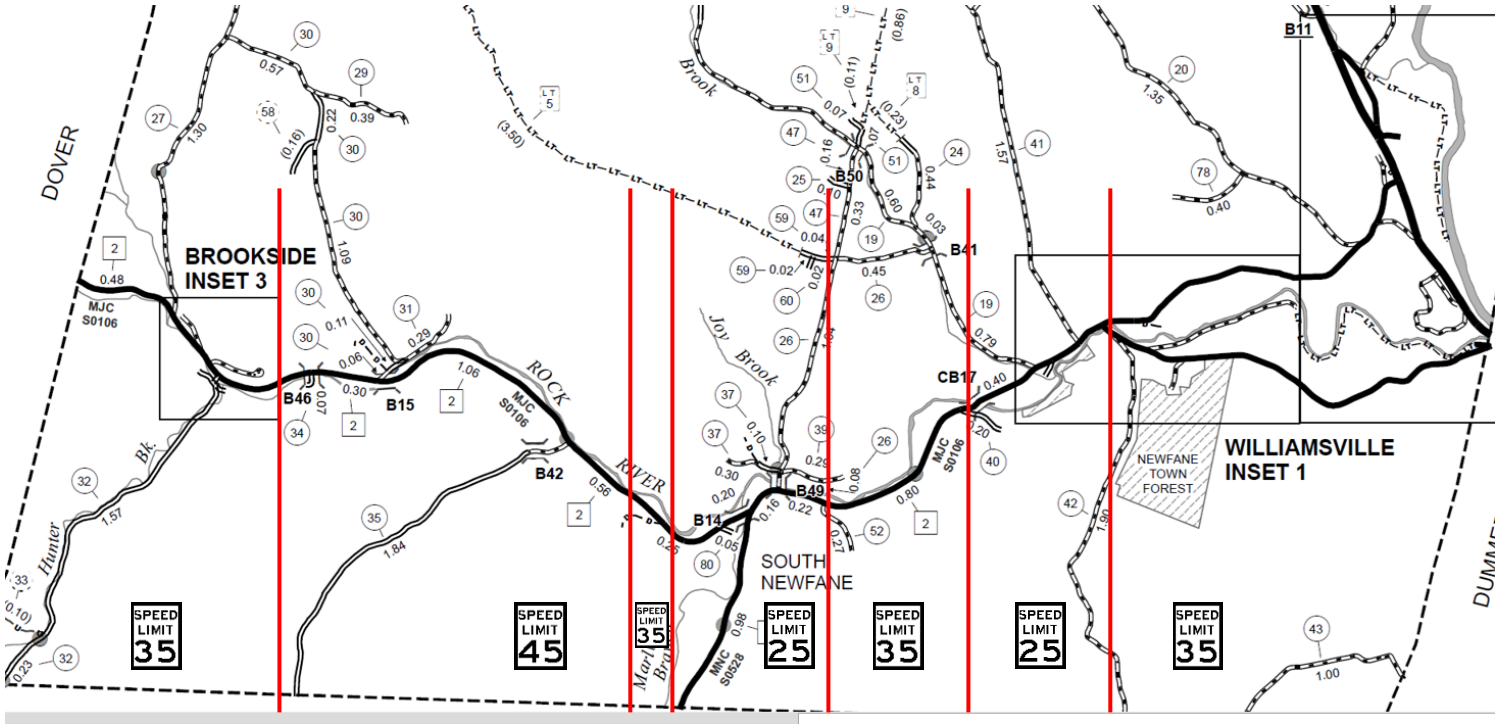
- The maximum speed of 25 mph shall be posted on Dover Road (TH#2) from one- tenth of a mile east of the Green Iron Bridge (BR#49) to four-tenths of a mile west of the east side of Bridge #14.

- The maximum speed of 45 mph shall be posted on Dover Road (TH#2) from four- tenths of a mile west of the east side of Bridge #14 to three-tenths of a mile east of the intersection with Hunter Brook Road (TH#32).

- The maximum speed of 35 mph shall be posted on Dover Road (TH#2) from three-tenths of a mile east of the intersection with Hunter Brook Road (TH#32) to the Newfane/Dover town line.

The Traffic Ordinance does not reference the 35 mph stretch on Dover Road between the 45 mph zone and the 25 mph one approaching South Newfane from the west. This 35 mph area is currently marked by speed limit signs on Dover Road.

The map below shows the various speed zones as they are currently signed on Dover Road.




Speed Studies

Speed data was obtained from a speed feedback radar sign for the seven-day period covering July 21 to July 27, 2018. The sign was installed at a location in Brookside where the speed limit is 35 mph. The results showed that the 85th percentile speed varied between 42 and 45 mph depending on the day (meaning that 85% of the traffic travels at a speed of between 42 and 45 mph or less). For four of the days, the 85th percentile speed was 42 or 43 miles per hour. The data also showed that about 9% of the traffic would travel above 46 mph.

WRC conducted speed studies along this road in 2009 and 2014.

In 2009, tubes were installed 0.26 mile west of Grimes Hill Road/Depot Road in late August. The speed limit at this location is 25 mph. The 85th percentile speed at this location was found to be 35 mph with 69.1% of the traffic traveling between 26 mph and 35 mph.

In 2014, tubes were installed between Jenness Drive and Augur Hole Road. The speed limit is 25 mph at this location. The study was done between September 11 and September 18. The 85th percentile speed was found to be 37 mph.

*Enforcement*

The Town of Newfane contracts with the Vermont State Police for enforcement on its roads. The Town recently asked the State Police to increase enforcement in Williamsville, South Newfane and Brookside.

*Traffic Calming Devices*

The Town has two radar speed feedback signs that are being moved around along Dover Road (one was recently purchased by the Town in fall 2018).

*Traffic and Pedestrian Volumes*

According to 2017 daily two-way counts, there are approximately 1,190 vehicles west of Stratton Hill Road and 1,514 vehicles east of Jones Hill Road.

The Town representatives indicated that there were important pedestrian activities at times in the areas of the Williamsville Eatery, the parking lot across from the Williamsville Eatery, the Church Building, the Williamsville Hall and the house across the Williamsville Eatery.

*Past Projects*

The Town of Newfane received, in 1994, a Transportation Planning Grant to study Dover Road with emphasis of the two historic villages of South Newfane and Williamsville as well as the covered bridge, to identify safety issues and solutions. The final report was completed in March 1995.

In FY 2010, the Town of Newfane received a Class II Highway Grant to resurface a mile-long section of Dover Road from Mayer Road to Auger Hole Road.

Project NEWFANE BRF 0106(3)S was for the replacement of Bridge no.14 and roadway work along its approaches. As part of this project, the intersection of Dover Road and Auger Road was converted from a two-way stop controlled intersection to a multi-way stop controlled intersection (a stop sign was added on Dover Road westbound). Stop bars and STOP word markings were also installed. This project was substantially completed in November 2012 and accepted in June 2013.

In FY 2017, the Town of Newfane received a Class II Highway Grant to resurface Dover Road from the Dover town line to about Penner Road.

STATEWIDE - SOUTH REGION STP HRRR(23) was for the installation of signs on Dover Road from the Dover town line to the 45 mph zone east of Jenness Drive. This project was substantially completed by July 11, 2018. The is project did not address the curve near Adams Hill Road.

*Future Projects*

Project NEWFANE BF 0106(6) is for the replacement of bridge no. 12 on Dover Road over the Rock River. This project will modify the traffic control operation at the end of the bridge on Dover Road. It will remove the yellow diamond “Yield to Bridge Traffic” sign on the west approach and replace it with a stop sign. Traffic will have to stop on Dover Road as well as on Grimes Hill Road. There will be no stop sign on Depot Road. It is anticipated that this project will be constructed during the summer 2021.

*Crash History*

Crashes were reviewed for the period ranging from 2010 to November 2018 (with the understanding that not all crash data was available for 2018). During this period, Dover Road was not a high crash location.  Collision diagrams can be found in Appendix A.

*From Grimes Hill Road to Baker Brook Road*

There were four crashes from 2010 to about November 2018 between Depot Road and Baker Brook Road.

Of these four crashes, three took place at the intersection with Depot Road. These crashes were broadside crashes with a vehicle on eastbound Dover Road and a vehicle northbound on Depot Road. In two of the cases, the motorists on Dover Road failed to see the yellow warning sign (Yield to Bridge Traffic).

The other crash in this section took place near the Baker Brook Road intersection. It was a single vehicle crash in which the driver who was westbound fell asleep and missed staying on Dover Road.

*From Baker Brook Road to Jones Hill Road*

There were six crashes from 2010 to about November 2018 between Baker Brook Road and Jones Hill Road.

Most of the crashes are concentrated in the area of the covered bridge. Three crashes were directly caused by the presence of the bridge. In one case, a tractor trailer driver reached the bridge and discovered that he would not be able to continue. He tried to turn around and backed into a pole.

In one of the other cases specifically related to the bridge, one of the driver did not yield to oncoming traffic. In the other case, the vehicle sideswiped each other (but the cause was unknown).

There was an instance of a driver falling asleep in this section of road and another one for which speed may have be a contributing cause.

*From Jones Hill Road to just past Stratton Hill Road*

There were thirteen crashes from 2010 to about November 2018 between Jones Hill Road and Stratton Hill Road.

Four of these crashes happened when the road was closed following the aftermath of Irene (9/2011) or when the westbound lane was closed due to erosion (11/2017). There were two crashes in each of these time periods.

In the case of Irene, the crash narratives indicate that there were signs at each end of the road to tell drivers that the road was closed. However, the narrative does not specify the conditions of the signs at the time of the crash or if local traffic was allowed to use the road.

In the case of the emergency closure, from the narrative of the first crash, it appears that the Town felt that the existing delineation was insufficient to alert drivers of the presence of a jersey barrier as the highway crew added later on orange cones. In the second crash (which happened a week later), the motorists stopped suddenly as a vehicle was coming in the other direction.

Of the other nine crashes, seven happened between the hours of midnight and 06:00 am, when the light conditions were dark.

For those nine crashes, the most important crash pattern is a single vehicle crash (six cases). For these same nine crashes, the most recurring crash cause is falling asleep (three cases).

*From just pass Stratton Hill Road to the Dover town line*

There were four crashes in this section of road between 2010 and up to about November 2018. Of these, three of them involved a vehicle that went off the travel lane. In two cases, this resulted in a head-on crash.

Both of the head-on crashes happened southbound, in the downhill curve before Brookline. A third non-reportable crash also occurred in this area.

The road surface was wet or slushy for two of the crashes.

*Current Local Concerns*

Walking is perceived to be hazardous in the villages of Brookside, South Newfane, and Williamsville along Dover Road.

In Williamsville, winter conditions affect walking and access to the Eatery, the hall, the church and the post office.

There is a lack of parking in Williamsville when events are going on. People are parking across from the Williamsville Eatery and also along the road by the church and event area. This parking situation limits vehicle traffic and generates pedestrian crossings of the road.
Dover Road is used as an alternate route to VT 9 by daily commuters and seasonal skiers going to Mount Snow. Vehicles are reported as flying through.

In Williamsville by the post office, many motorists are said to be speeding around the horizonal curve while traveling eastbound.

In South Newfane, the curve to the west of the Parish Hill Road intersection is a concern. Sight distance is short and there is very little space for pedestrians to walk.

In Brookline, the downhill grade to the north of the village is a problem.

The covered bridge has paused a problem for some truckers who are unfamiliar with the road.

***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: It is not evident who has the right-of-way at the Dover Road, Grimes Hill Road and Depot Road intersection

Crashes at the intersection of Dover Road, Grimes Hill Road and Depot Road suggest that eastbound motorists do not see the existing signage or are confused by it. The upcoming bridge project, NEWFANE BF 0106(6), will change the traffic control at this intersection. Traffic will

have to stop at both Grimes Hill Road and Dover Road approaches instead of stopping at Grimes Hill Road and yielding to the bridge traffic on Dover Road. The project will also relocate the eastbound One Lane Bridge sign further west on Dover Road.

Safety Enhancements:

Short to Mid Term

- Change the traffic control at this intersection as shown in the plans for project NEWFANE BF 0106(6)[1].
- Add a supplemental arrow (W16-6p) below each One Lane Bridge sign to indicate that if a motorist continues straight on, he or she will not go over the bridge.

Concern: Vehicles are reported to be traveling at a high rate of speed, especially through the villages

The audit team observed that most of the existing Reduce Speed Ahead signs were located too far from the beginning of the speed zones. For deceleration from 45 mph to 35 mph and from 35 mph to 25 mph, Table 2.C4 of the MUTCD indicates that the placement for this sign would be adequate if it was between 100 to 200 feet in advance of the speed limit sign.

The audit team feels that in some cases, the speed limits do not match the character of the road and that lower speed limits are sometimes set too far in advance of the areas that they truly area suited for.

The audit team also observed that many of the existing signs that are informing motorists of an upcoming change in speed limits were the older Reduced Speed Ahead regulatory signs (R2-5A). This sign is no longer in use in the current edition of the MUTCD and has been replaced with the Reduced Speed Limit Ahead warning sign (W3-5). This sign is a yellow diamond shaped warning sign which displays the upcoming speed limit on it.

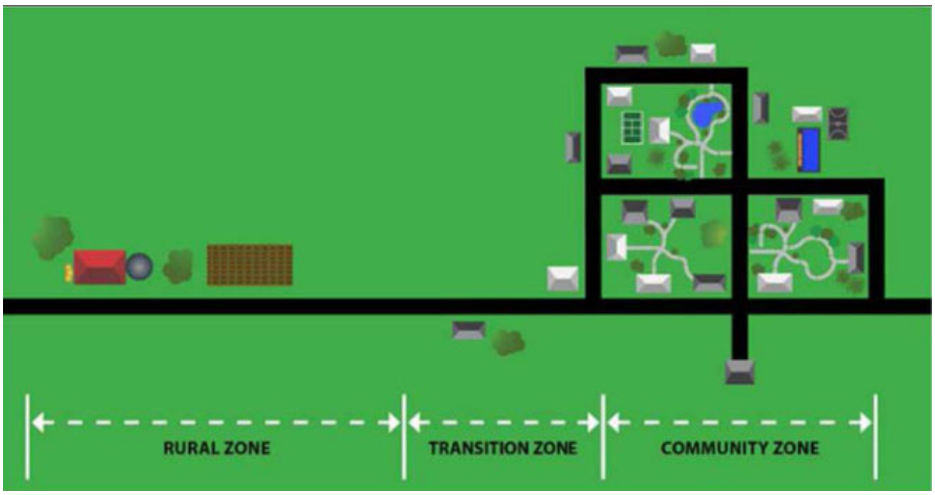
[1] The Town will have to adopt a new traffic ordinance when the new stop sign is installed.

Safety Enhancements:

*Speed Limit Related*

Mid Term

- Relocate all the Reduce Speed Ahead/Reduced Speed Limit Ahead signs to 100 feet to 200 feet in advance of the beginning of the corresponding speed zones.
- Replace all the “regulatory” Reduce Speed Ahead signs with Reduced Speed Limit Ahead warning signs.
- Review the locations of intermediate speed limit signs within each speed zone. Ensure that intermediate signs are present following major intersections in each direction and that there are intermediate signs every 0.3 to 0.4 miles for 25 to 30 mph speed zones and every 0.5 to 0.8 miles for 35 to 45 mph zones.
- Ensure that all speed limit signs are 24” x 30” and that all Reduced Speed Limit Ahead warning signs are 36” x 36”. Consider using an oversized (30” x 36”) speed limit sign for the first speed limit sign at the beginning of a zone.




- Conduct speed studies and review the exiting speed limits along the entire corridor to provide speed limits that are appropriate for the character of the road in the various

sections. Apply the transition zone and community zone concepts explained in FHWA's Speed Management ePrimer for Rural Transition Zones and Town Centers[2].

*Traffic Calming Related*

FHWA's Speed Management ePrimer for Rural Transition Zones and Town Centers

| Traffic Calming Measure | Applicable Area within Small Rural Community | | Acceptibility by Critical Function | |
|---|---|---|---|---|
| | Transition Zone | Within Community | Winter Maintenance | Agricultural Equipment |
| **Horizontal Deflection** | | | | |
| Lateral Shift | 5 | 5 | 5 | 5 |
| Chicane | 3 | 5 | 3 | 3 |
| Mini-Roundabout | 1 | 5 | 3 | 3 |
| Modern Roundabout | 3 | 3 | 3 | 3 |
| **Vertical Deflection** | | | | |
| Speed Hump, Cushion, Table | 1 | 3 | 1 | 3 |
| Raised Crosswalk | 1 | 3 | 1 | 3 |
| Raised Intersection | 1 | 3 | 1 | 3 |
| **Roadway Changes** | | | | |
| Median Island | 3 | 5 | 3 | 3 |
| Road Diet | 3 | 5 | 3 | 3 |
| Lane Narrowing | 3 | 5 | 3 | 3 |
| **Traffic Control** | | | | |
| Horizontal Signing | 5 | 5 | 5 | 5 |
| Speed Feedback Signs | 5 | 5 | 5 | 5 |
| **Gateway Treatments** | | | | |
| Gateway Signing | 5 | 5 | 5 | 5 |
| Landscaping | 5 | 5 | 5 | 5 |

[2] https://safety.fhwa.dot.gov/speedmgt/ref_mats/rural_transition_speed_zones.cfm

provides an evaluation of the appropriateness of traffic calming treatments in rural areas. The table above summarizes this evaluation. In this table, a traffic calming measure coded as 1 is inappropriate, one coded as 3 may be inappropriate and one coded as 5 is appropriate.

Short Term

- Abstain from using stop signs to control speeds as this practice is not allowed by the MUTCD (Section 2B.04).
- Continue the use of speed radar feedback signs.
- Consider using gateway signs to make it clear that motorists are entering a different land use area in the villages.

Long Term

- Consider suitable longer-term measures based on the table to physically force motorists to slow down.

Concern: Many eastbound motorists are said to be speeding around the horizonal curve by the Williamsville post office

The audit team observed vehicles traveling around this curve at what seemed to be inappropriate speeds.

Safety Enhancements:

Short Term

- Determine the advisory speed for this curve and what type of signage, if any, it should have.
- Install a permanent speed radar feedback sign for EB traffic at the speed limit sign before Baker Brook Road.

- Consider the installation of 25 MPH word pavement markings at the location of the eastbound 25 mph speed limit sign that is just before the Baker Brook Road intersection to create additional emphasis[3]. This type of treatment is referred to as horizontal signing.


- Increase enforcement at this location.

Concern: Walking is perceived hazardous in the villages of Brookside, South Newfane, and Williamsville along Dover Road

The lack of pedestrian facilities and traffic traveling at high speeds contributes to this issue. In addition, in Williamsville, winter conditions affect walking and access to pedestrian generators (the Williamsville Eatery, the hall, the church and the post office).

Safety Enhancements:

Immediate to Short Term

- Apply for a VTrans grant for the conduct of a pedestrian facilities scoping study (for sidewalks and crosswalks in the villages along Dover Road)[4].

[3] This type of markings has been found to reduce the number of vehicles that travel 5 or more mph over the speed limit by 30% to 44%. (Speed Management ePrimer)

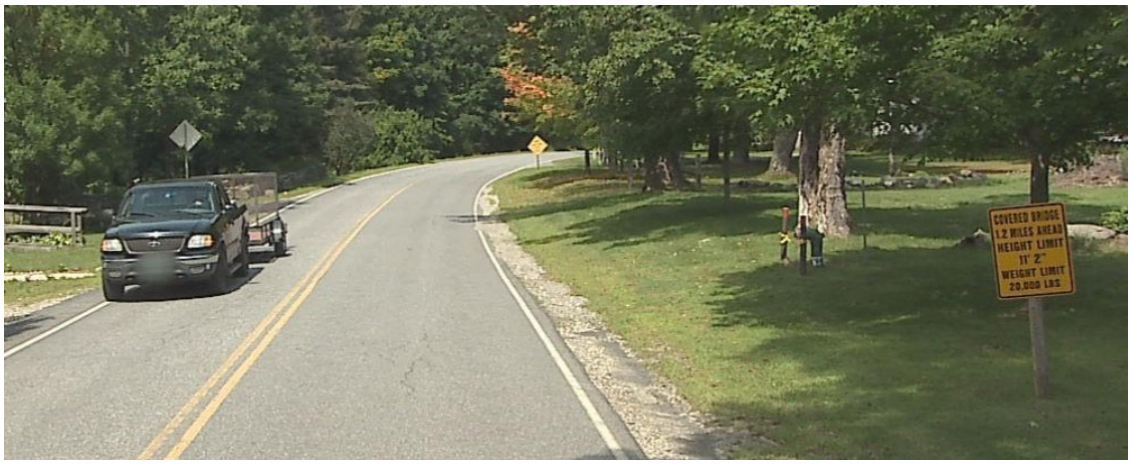
Short Term

- In Williamsville, warn motorists that pedestrian activity and crossings are to be expected on Dover Road from the Williamsville Eatery to the post office. Accomplish this by installing at each end of the zone a Pedestrian sign (W11-2) with a Next XX FT plaque (W16-4P). One assembly would be before the post office for eastbound traffic and one assembly would be before the fire station for westbound traffic. The approximate length of the pedestrian zone is 1300 feet.

Concern: There is an 11'-2" height restriction at the covered bridge over the Rock River

There have been reported issues of tractor trailer operators approaching the bridge and realizing that it was impassable.

The audit team noticed that there were signs warning of the height restriction in both directions but that these signs were unconventional and that they were installed on short posts and were not very visible.




[4] Grants will be awarded in July 2019. Contact Jon Kaplan for more information on how to apply (jon.kaplan@vermont.gov).

Safety Enhancements:

Short Term

- In the westbound location in Williamsville, replace the existing rectangular height limit sign with a Low Clearance sign (W12-2) and a 1/2 mile Distance Plaque (W16-3aP).
- In the eastbound direction, remove the existing rectangular height limit sign and find a location for a Low Clearance sign (W12-2) and a XX miles Distance Plaque (W16-3aP) near a location where a tractor trailer could turn around.
- Potentially install a second Low Clearance sign (W12-2) eastbound before the covered bridge parking area with a 600 FEET Plaque (W16-2P).

Concern: In South Newfane, the curve to the west of the Parish Hill Road intersection is a concern as are the downhill grade and horizontal curves in Brookside

For the South Newfane curve, the sight distance is short and there is very little space for pedestrians to walk.

Safety Enhancements:

Short Term

- Review these horizontal curves and determine the appropriate advisory speed for each curve in each direction and what type of signage each curve should have.

Long Term

- Widen the outside of the curve in South Newfane.

## ***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.

In this table, time frames and costs are qualified as follows: short term, < 1 year; mid-term 1-3 years; long term > 3 years; low cost, < $15,000; medium cost, $15,001 - $75,000; high cost, > $ 75,001.

The safety concerns discussed previously are referred to in the table by the numbers shown here:

1. It is not evident who has the right-of-way at the Dover Road, Grimes Hill Road and Depot Road intersection

2. Vehicles are reported to be traveling at a high rate of speed, especially through the villages

3. Many eastbound motorists are said to be speeding around the horizonal curve by the Williamsville post office

4. Walking is perceived to be hazardous in the villages of Brookside, South Newfane, and Williamsville along the Dover Road

5. There is an 11’-2” height restriction at the covered bridge over the Rock River

6. In South Newfane, the curve to the west of the Parish Hill Road intersection is a concern as are the downhill grade and horizontal curves in Brookside

| Potential Safety Enhancements Summary Table | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Safety Concerns** | | | | | | **Potential Responsibility** | **Safety Payoff[5]** | **Time Frame** | **Cost** |
| **Safety Enhancement** | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| Change the traffic control at Dover/Depot as shown in the plans for project NEWFANE BF 0106(6) | X | | | | | | Town or via project NEWFANE BF 0106(6) | | Short to Mid | Low |
| Add a supplemental arrow (W16-6p) below each One Lane Bridge sign | X | | | | | | Town or via project NEWFANE BF 0106(6) | | Now to Short | Low |

[5] The CMF Clearinghouse explains that the star quality rating indicates the quality or confidence in the results of the study producing the CMF. The star rating is based on a scale (1 to 5), where a 5 indicates the highest or most reliable rating. The review process considers five categories for each study: study design, sample size, standard error, potential bias, and data source.

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| | **Safety Concerns** | | | | | | **Potential Responsibility** | **Safety Payoff[5]** | **Time Frame** | **Cost** |
| **Safety Enhancement** | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| Relocate all the Reduce Speed Ahead/Reduced Speed Limit Ahead signs to 100/200 ft in advance of speed zones | | X | | | | | Town | | Short to Mid | Low |
| Replace all the "regulatory" Reduce Speed Ahead signs with Reduced Speed Limit Ahead warning signs | | X | | | | | Town | | Short to Mid | Low |
| Review the locations of intermediate speed limit signs | | X | | | | | Town | | Short to Mid | Low |

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| | **Safety Concerns** | | | | | | **Potential Responsibility** | **Safety Payoff[5]** | **Time Frame** | **Cost** |
| **Safety Enhancement** | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| Check that speed limit signs are 24" x 30" and Reduced Speed Limit Ahead signs are 36" x 36" | | X | | | | | Town | | Short to Mid | Low |
| Conduct speed studies and review the exiting speed limits along the entire corridor | | X | | | | | Town with assistance from WRC | | Short to Mid | Low |
| Continue the use of speed radar feedback signs | | X | | | | | Town | 45-73% reduction # of vehicles traveling 5 and 10 mph over the speed limit[6] | On-Going | |
| Consider using gateway signs | | X | | | | | Town | 5 mph reduction in mean speed[7] | Short to Mid | Low |

[6] https://safety.fhwa.dot.gov/speedmgt/ref_mats/rural_transition_speed_zones.cfm
[7] https://safety.fhwa.dot.gov/speedmgt/ref_mats/rural_transition_speed_zones.cfm

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| **Safety Enhancement** | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| Consider suitable longer-term traffic calming measures | | X | | | | | Town | | Long | Mid |
| Determine the advisory speed & the signage needed for this curve (west of Baker Brook) | | | X | | | | Town (VTrans can assist) | | Short | Low |
| Install a permanent speed radar feedback sign at the speed limit sign at the location of the eastbound 25 mph speed limit sign that is just before the Baker Brook Road intersection | | | X | | | | Town | 45-73% reduction # of vehicles traveling 5 and 10 mph over the speed limit[8] | Short to Mid | Low |

[8] https://safety.fhwa.dot.gov/speedmgt/ref_mats/rural_transition_speed_zones.cfm

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| | **Safety Concerns** | | | | | | **Potential Responsibility** | **Safety Payoff[5]** | **Time Frame** | **Cost** |
| **Safety Enhancement** | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| Consider the installation of 25 MPH word pavement markings at the location of the eastbound 25 mph speed limit sign that is just before the Baker Brook Road intersection | | | X | | | | Town | 30% reduction in cars 5 mph over speed limit | Short to Mid | Low |
| Increase enforcement at this location | | | X | | | | Town | High | On-Going | |
| Apply for a VTrans grant for the conduct of a pedestrian facilities scoping study | | | | X | | | Town with assistance from WRC[9] | | Short | Low |

[9] Grants will be awarded in July 2019. Contact Jon Kaplan for more information on how to apply (jon.kaplan@vermont.gov).

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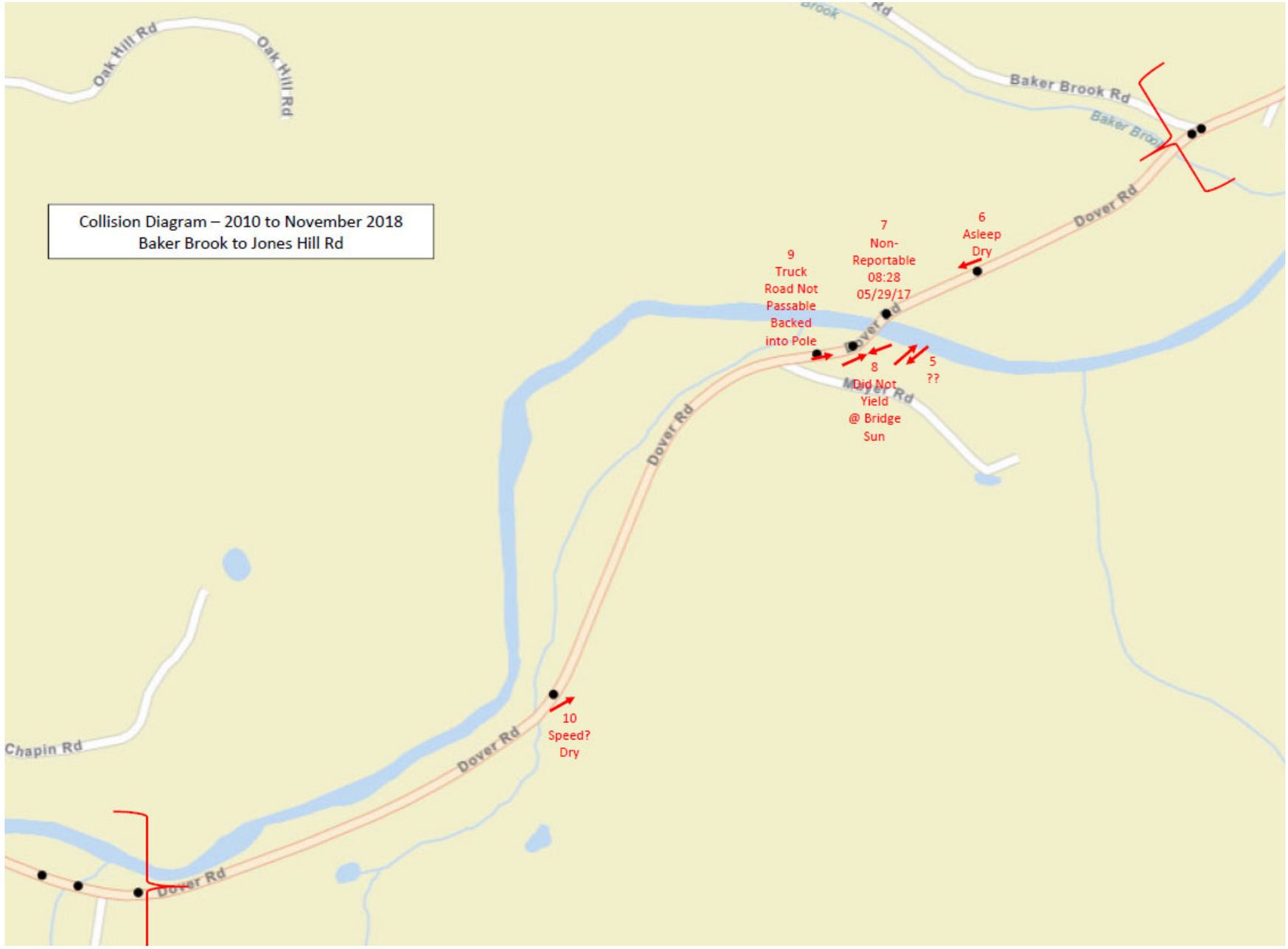
| | **Safety Concerns** | | | | | | **Potential Responsibility** | **Safety Payoff[5]** | **Time Frame** | **Cost** |
| **Safety Enhancement** | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| Install at each end of the pedestrian zone in Williamsville a Pedestrian sign (W11-2) with a Next XX FT plaque (W16-4P) | | | | X | | | Town | | Short | Low |
| WB in Williamsville, replace the existing rectangular height limit sign with a new Low Clearance sign (W12-2) and 1/2 miles Distance Plaque (W16-3aP) | | | | | X | | Town | | Short | Low |

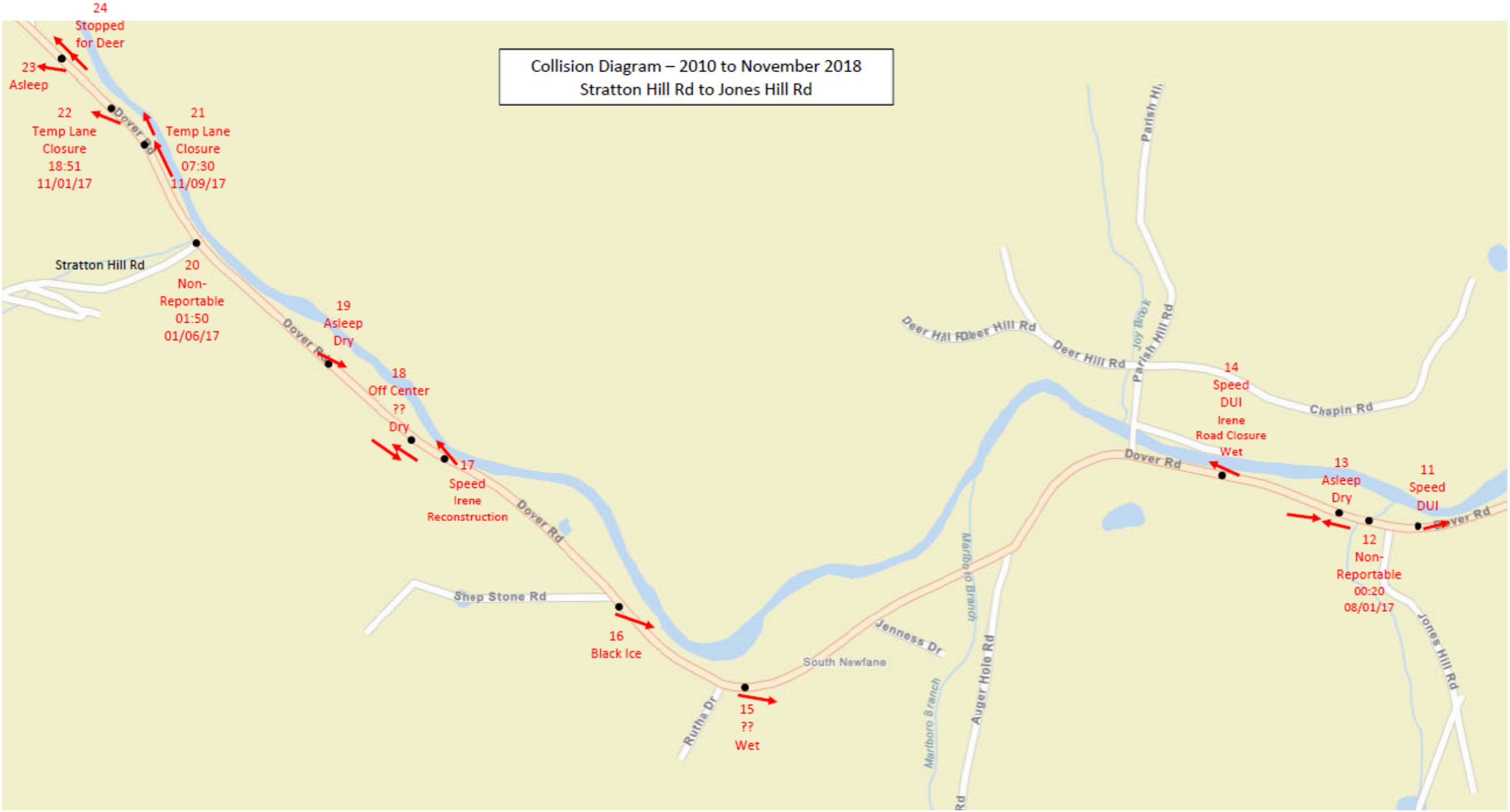
| Potential Safety Enhancements Summary Table | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Safety Concerns** | | | | | | **Potential Responsibility** | **Safety Payoff[5]** | **Time Frame** | **Cost** |
| **Safety Enhancement** | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| EB, remove the existing rectangular height limit sign and find a location for a new Low Clearance sign (W12-2) and a XX miles Distance Plaque (W16-3aP) near a location were a tractor trailer could turn around | | | | | X | | Town | | Short | Low |
| Potentially install a second Low Clearance sign (W12-2) EB before the covered bridge parking area with a 600 FEET Plaque (W16-2P) | | | | | X | | Town | | Short | Low |

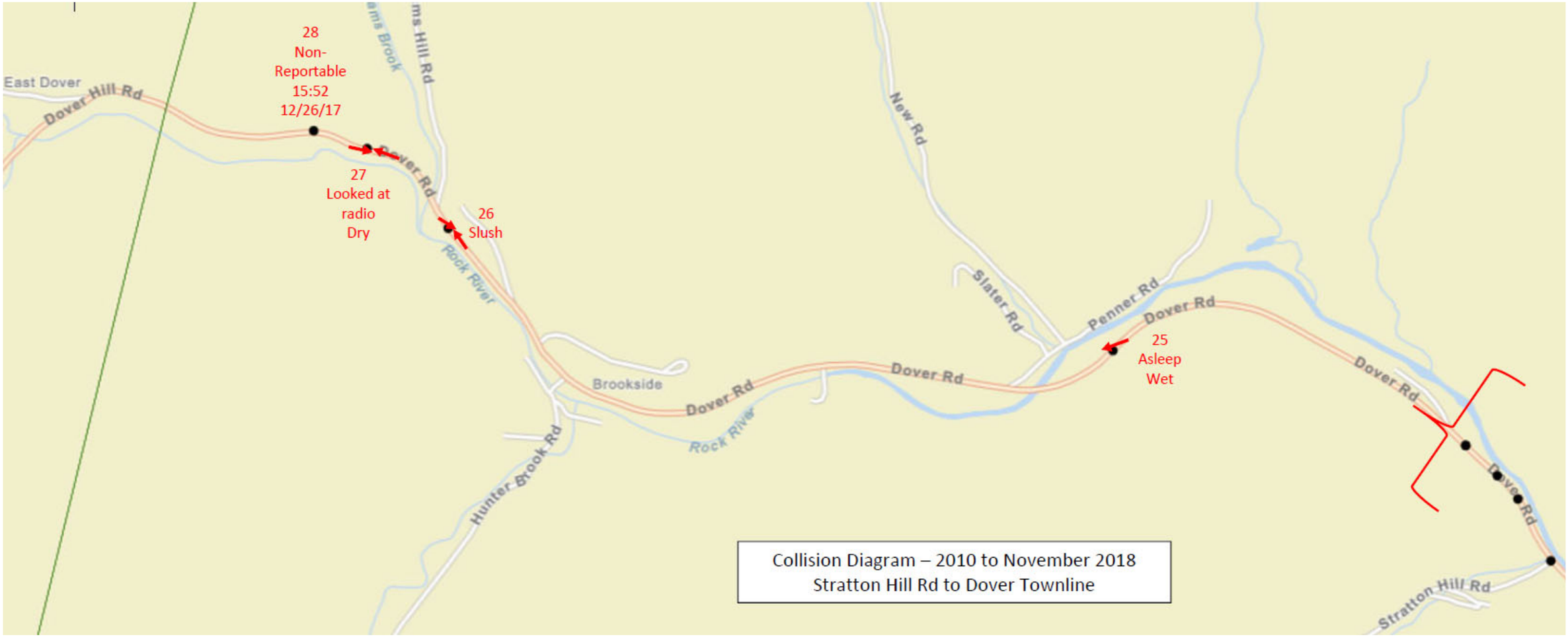
| Potential Safety Enhancements Summary Table | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Safety Concerns** | | | | | | **Potential Responsibility** | **Safety Payoff[5]** | **Time Frame** | **Cost** |
| **Safety Enhancement** | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| Determine the appropriate advisory speed for each curve in each direction and what type of signage (curves near Parish Hill Road and in Brookside) | | | | | | X | Town (VTrans can assist) | | Short | Low |
| Widen the outside of the curve in South Newfane | | | | | | X | Town | | Long | Mid to High |

# Appendix A

# Collison Diagrams


Collision Diagram – 2010 to November 2018
Baker Brook to Jones Hill Rd
Oak Hill Rd
Oak Hill Rd
Baker Brook Rd
Dover Rd
9
Truck
Road Not
Passable
Backed
into Pole
7
Non-
Reportable
08:28
05/29/17
6
Asleep
Dry
8
Did Not
Yield
@ Bridge
Sun
5
??
Dover Rd
Dover Rd
10
Speed?
Dry
Chapin Rd
Dover Rd





| Crash # | Report # | AOT Route | AOT Mile Point | Crash Date | Collision Direction | Address | Time of Day | Weather | Surface Condition | Crash Type | Impairment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15D202747 | DOVER RD | 5.55 | 10/15/2015 17:46 | Left Turn and Thru, Head On ^v-- | FAS-106 Dover Rd | Day | Clear | Dry | Property Damage Only | None |
| 2 | 14D200690 | DOVER RD | 5.55 | 2/28/2014 7:20 | Left Turn and Thru, Broadside v<-- | FAS-106 Dover Road | Day | Clear | Dry | Property Damage Only | None |
| 3 | 16D201124 | DOVER RD | 5.55 | 5/11/2016 20:00 | Left Turn and Thru, Head On ^v-- | Dover Rd | Night | Clear | Dry | Injury | None |
| 4 | 16D201401 | DOVER RD | 5.2 | 6/6/2016 19:29 | Single Vehicle Crash | Dover Rd | Night | Clear | Dry | Injury | None |
| 5 | 12D200410 | DOVER RD | 5.19 | 2/7/2012 19:48 | Opp Direction Sideswipe | FAS-106 Dover Rd | Night | Clear | Dry | Property Damage Only | None |
| 6 | 13D200448 | DOVER RD | 4.98 | 2/18/2013 13:17 | Single Vehicle Crash | FAS-106 Dover Rd | Day | Clear | Dry | Property Damage Only | None |
| 7 | 17B103310 | DOVER RD | 4.9 | 5/29/2017 8:28 | | WILLIAMSVILLE COVERED BRIDGE | Day | | | | |
| 8 | 14D200477 | DOVER RD | 4.86 | 2/10/2014 14:05 | Head On | FAS-106 Dover Road | Day | Clear | Dry | Property Damage Only | None |
| 9 | 11D203063 | DOVER RD | 4.83 | 11/9/2011 0:13 | Single Vehicle Crash | FAS 106 (127 Dover Rd) | Night | Clear | Dry | Property Damage Only | None |
| 10 | 17B101745 | DOVER RD | 4.46 | 3/24/2017 16:40 | Single Vehicle Crash | Dover Road | Day | Clear | Dry | Property Damage Only | None |
| 11 | 17B102275 | DOVER RD | 4.08 | 4/15/2017 20:14 | Single Vehicle Crash | 209 Dover Road | Night | Clear | Dry | Injury | Alcohol |
| 12 | 17B104891 | DOVER RD | 4.03 | 8/1/2017 0:20 | | 300 Block DOVER RD | Night | | | | |
| 13 | 16D004754 | DOVER RD | 4 | 12/28/2016 16:09 | Head On | Dover Road | Day | Clear | Dry | Property Damage Only | None |
| 14 | 11D202453 | DOVER RD | 999.99 | 9/4/2011 20:15 | Single Vehicle Crash | FAS-106 Dover Road | Night | Rain | Wet | Property Damage Only | Alcohol |

| Crash # | Report # | AOT Route | AOT Mile Point | Crash Date | Collision Direction | Address | Time of Day | Weather | Surface Condition | Crash Type | Impairment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 15D203221 | DOVER RD | 3.32 | 12/10/2015 4:00 | Single Vehicle Crash | 443 Dover Road | Night | Cloudy | Wet | Injury | None |
| 16 | 14D200184 | DOVER RD | 3.17 | 1/14/2014 5:52 | Single Vehicle Crash | FAS-106 Dover Road | Night | Freezing Precipitation | Ice | Property Damage Only | None |
| 17 | 11D202498 | DOVER RD | 2.97 | 9/10/2011 17:00 | Single Vehicle Crash | FAS-106 Dover Road | Day | Clear | Sand, mud, dirt, oil, gravel | Property Damage Only | None |
| 18 | 15D202743 | DOVER RD | 2.9 | 10/15/2015 6:05 | Opp Direction Sideswipe | FAS-106 Dover Road | Night | Clear | Dry | Property Damage Only | None |
| 19 | 14D201022 | DOVER RD | 2.79 | 4/10/2014 0:42 | Single Vehicle Crash | FAS-106 (554 Dover Rd) | Night | Clear | Dry | Property Damage Only | None |
| 20 | 17DV00030 | DOVER RD | 2.61 | 1/6/2017 0:50 | | DOVER RD | Night | | | | |
| 21 | 17B107223 | DOVER RD | 2.5 | 11/9/2017 7:30 | Rear End | 594-628 Dover Rd | Day | Clear | Dry | Property Damage Only | None |
| 22 | 17B107070 | DOVER RD | 2.45 | 11/1/2017 18:51 | Single Vehicle Crash | 621 Dover Rd | Night | Clear | Wet | Property Damage Only | None |
| 23 | 16D200207 | DOVER RD | 2.38 | 1/24/2016 22:40 | Single Vehicle Crash | 633 Dover Rd | Night | Clear | Dry | Property Damage Only | None |
| 24 | 18B103304 | DOVER RD | 2.38 | 6/5/2018 7:56 | Rear End | 633-641 Dover Rd | Day | Cloudy | Dry | Property Damage Only | None |
| 25 | 16D200244 | DOVER RD | 1.73 | 1/29/2016 14:26 | Single Vehicle Crash | 768 Dover Rd | Day | Clear | Wet | Property Damage Only | None |
| 26 | 14D203537 | DOVER RD | 0.52 | 12/10/2014 16:43 | Head On | Dover Rd | Day | Freezing Precipitation | Slush | Property Damage Only | None |
| 27 | 17B108407 | DOVER RD | 0.33 | 12/28/2017 13:38 | Opp Direction Sideswipe | 1044 Dover Rd | Day | Clear | Dry | Property Damage Only | None |
| 28 | 17B108352 | DOVER RD | 999.99 | 12/26/2017 15:52 | | DOVER RD | Day | | | | |