

Final Scoping Report
Highgate Route 78 Pedestrian and Bicycle Scoping Study



Prepared for: **Town of Highgate**

Prepared by:



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1. Introduction

The Town of Highgate has identified the need for enhanced pedestrian and bicycle accommodations along Route 78 within the Village limits, focusing on the section beginning at the intersection with VT 207 (Highgate Road) and continuing east to O.C. McCuin & Sons, for a length of approximately 0.5 miles as highlighted in the graphic below. The purpose of this Scoping Study is to investigate and evaluate potential infrastructure improvements that would improve and encourage non-motorized travel along this corridor. The Town is also interested in lowering vehicle speeds to enhance non-motorized movement in this area.



Route 78 Pedestrian and Bicycle Scoping Study Project Area

1.1 Background

The Town of Highgate received a VTrans Bicycle/Pedestrian grant to develop a plan to improve pedestrian and bicycle movements along the half-mile section of Route 78 identified above. The impetus for this project began in 1999 when the Town of Highgate and the Northwest Regional Planning Commission hired DuBois & King, Inc. to prepare the *Bicycle and Pedestrian Facilities Feasibility Study*, which focused on a broader area of Highgate Center and established a number of potential improvements. The outcome of this study found that the community was in favor of improving bicycle and pedestrian facilities, and that the highest priorities were to provide sidewalks along Route 78 near the St. Armand and Gore Road intersections with connections to the Elementary School and community Sports Arena. The 2000 Study recommendations included a primary walk system along portions of the north and south sides of Route 78, as well as along Gore Road, St. Armand Road, and School Street. The current study provides a fresh look at the project area, with a focused effort on Route 78 along the segment shown above.

A sidewalk project is currently under design for Lamkin Street, which includes the segment of Route 78 between the Municipal Office and Mill Hill Road. Conceptual Plans by RSG propose a sidewalk on the south side of Route 78 between the Town Municipal Building and Mill Hill Road, and continuing south along the west side of Mill Hill Road to Lamkin Street and then along the south side of Lamkin Street to the Church. Their proposed design includes a green strip with varying width separating the sidewalk from the roadway along Route 78 and a 3-foot green strip along Lamkin Street.

Route 78 is classified as a rural major collector by VTrans and is owned and maintained by the State. VTrans Traffic Research data indicates the VT 78 Average Annual Daily Traffic (AADT) west of Gore Road (the center of the project area) was 5,700 vehicles per day (vpd) in 2012. This volume dropped to 2,400 vpd on VT 78 east of this intersection. This indicates a heavy turning movement at the Route 78 and VT 207 north intersection.¹

1.2 Project Development Process

The funding for this Bicycle and Pedestrian Scoping Study is through the Vermont Agency of Transportation (VTrans) Bicycle and Pedestrian Program, therefore this project follows the Municipal Assistance Bureau (MAB) process. This ensures that the project goes through a public process in order to gain insight from residents and that the alternatives being presented are appropriate solutions for the given problem and address, as best as possible, local concerns.

The following is a summary of the process followed for this project:

- **Project Kick-Off meeting** – Review project scope and parameters
- **Local Concerns Meeting** – Gather local input on local issues
- **Document Existing Conditions** – Site visit to note potential constraints
- **Develop Conceptual Alternatives** – Town Administrator and VTrans review conceptual alternatives
- **Evaluation Of Alternatives** – Identify impacts and develop conceptual cost estimates
- **Alternatives Presentation Meeting** – Present alternatives to public for input
- **Scoping Study Report** – Summarize above steps and provide preferred alternative

Prior to the Alternatives Presentation Meeting a meeting was held between the Town, VTrans, and VHB to review potential alternatives. At this time there was consensus to change the proposed shoulder width from 3-feet to 4-feet in order to provide additional space for bicyclists. It was also decided to not include official 5-foot bike lanes as the primary non-vehicular movements at this time here are pedestrians, with a special focus on improving safety for school children walking to and from school as well as the daycare located along Route 78.

1.3 Study Goals

Safety is always a paramount issue for projects of this nature. As stated in the RFP, the project corridor is not perceived to be a safe route for pedestrians. Potential factors for this perception include narrow shoulders, high travel speeds (as noted in the 2000 Feasibility Study), and high volume/percentage of truck traffic.

Promoting a village setting is important on a multitude of levels for any small Vermont village. Sidewalks are a common feature which make drivers feel like they are in a village setting, and this is currently missing from the Highgate project area. Signage, stamped/colored crosswalks, street trees, and traffic calming measures are additional features that can promote this village setting atmosphere to drivers. The Town has

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¹ This traffic volume information is based on an automatic traffic recorder (ATR) approximately 0.4 miles west of the project area (ATR #S6F325) and another approximately 2.7 miles east of the project area (ATR # S6F322).

expressed its concern with travel speeds through the area, and providing traffic calming measures could assist with slowing traffic by making drivers feel that they are entering a Village area.

Appropriate crosswalk locations are important in order to help pedestrians reach prominent local destinations. The Town identified the desire for connections from Route 78 to the Post Office and to the existing path to the Elementary School. Neither of these destinations are directly within the project area, but keeping in mind popular destinations outside the project area will be important to assess appropriate crosswalk locations. The design consultant should discuss and finalize crosswalk locations early in the design phase to ensure that these are placed in locations that will receive VTrans approval.

1.4 Local Concerns Meeting

A Local Concerns Meeting was held at the Highgate Elementary School on September 8, 2014 to gather input from local and regional officials as well as the public. The VTrans and District representatives were not able to attend, but there was a representative from the local transit service, Green Mountain Transit. The intent of the meeting was to guide the study team in understanding the concerns and desires of the community for bike and pedestrian accommodations. It was also a useful step in the data gathering phase. A majority of the attendees were in support of the project to improve bicycle and pedestrian mobility in the village center. During this meeting VHB polled the audience with a number of questions regarding the project. The following are some general results of this polling:

- Frequency of participants walking the project area was split almost equally between those that walk frequently and those that rarely or never walk along this corridor. All but one of those polled indicated they would walk or bike more frequently if ped/bike facilities were provided.
- 11 of 13 polled either strongly agree or agree that pedestrian and bicycle improvements are needed in this area. One person polled strongly disagreed.
- During development of this study a paving project was in the process of being constructed along Route 78, with proposed 3-foot shoulders. We polled the audience to ask whether they felt that pedestrian and bicycle improvements will still be needed when shoulders are widened to 3 feet. There was strong support for additional improvements.
- For those walking and bicycling along the area, there were widespread purposes of these trips. The most common were personal errands, recreation, required for their job, and to/from school.
- There was not a clear consensus as to which side of the road they felt improvements should be made.
- Residents mentioned they would like to look into traffic or pedestrian signal option(s) and/or traffic calming.
- There was a general consensus that there are currently safety concerns with walking along the project area.

See Appendix A for Meeting Notes from the Local Concerns Meeting and polling question results.

1.5 *Project Purpose and Need*

Purpose

The purpose of this study is to improve Bicycle and Pedestrian mobility and safety while reducing vehicle speeds and heightening awareness of the Village Center context within the study area. The study will seek to address local concerns resulting from the high volume and large size of vehicles traveling along VT 78 through the Village center. This traffic volume, along with the perceived excessive speed and noise, is felt to have an adverse impact on local bicycle and pedestrian mobility within the Village. By addressing these concerns the Town seeks to improve non-motorized vehicle access within the village as well as the overall sense of place and quality of life in the community.

Need

In the study area VT 78 is classified as a rural major collector and it is also heavily used by trucks. The VT 78 average annual daily traffic (AADT) in 2012 was reported to be 5,700 vehicles per day (vpd) between Highgate Falls Road (VT 207 South) and Gore Road (VT 207 North). The AADT volume on VT78 drops to 2,400 vpd to the east of this intersection.

A 12-hour turning movement count was conducted on VT 78 by VTrans in July 2012. The data showed that the average percentage of trucks (including both medium and heavy) along the project area was 10%. One of the local concerns is that VT 78 has minimal paved shoulders within the study area and this is of particular concern due to the observed truck volumes. This 12 hour count was not conducted during the school year therefore pedestrian count information is not considered to be representative for the area, particularly since there is an elementary school located nearby on Gore Road. A long term goal of the Town is to improve bicycle and pedestrian access to the School. Access must be improved along the project corridor in order to achieve this goal. In addition, this project supports another Town goal of improving non-motorized access to the transit bus stop within the Village.

A recently completed VTrans roadway construction project increased the overall paved roadway width to provide 11 foot travel lanes and 3 foot paved shoulders through the project area. However, that project did not separate pedestrians and/or bicyclists from vehicular traffic.

With regards to crash data within the study area, VTrans crash summaries indicate five crashes occurred between 2008 and 2012 within the project area, and an additional four crashes occurred within approximately 0.1 miles of the project area. Excessive speed and inattentive driving were repeatedly identified as contributing factors.

In 2013 the Town of Highgate made a formal request to VTrans for a speed study to be conducted along Route 78 east of the Village, between the end of the existing 35 mph speed limit zone and the Franklin Road intersection. As a result of this study, the 35 mph speed limit at the eastern end of this area was extended 0.2 miles, and a legal no passing zone to include all of the 35 mph zone was extended easterly 0.7 miles. This area is in the vicinity of the eastern terminus of this study. The Town would like a similar study conducted on VT 78 west of the Village in hopes that the 35 mph speed zone would be moved farther west of the Highgate Falls road intersection. There is a strong sense from the community that excessive speeds cause residents to feel unsafe walking along VT78 within the study area.

Need

This current Scoping Study falls within the Highgate Village limits and as a result there are numerous businesses which would benefit from improved multi-modal connections. The village currently lacks some of the compact pedestrian friendly feel that bicycle and pedestrian facilities could add. Lastly, incorporating bicycle and pedestrian accommodations will promote the “village setting” characteristic of the area. An additional benefit of introducing non-motorized infrastructure is the likely tendency for drivers to become aware that they should slow down when approaching the Village because of the potential for bike and pedestrian activity.

2. Existing Conditions

Prior to developing potential improvement strategies it was first necessary to document the existing physical and environmental conditions within the study area. This involved gathering record data, reviewing relevant correspondence, and conducting field-based observations and measurements.

2.1 Data Collection

Data collection consisted of a field visit, inquiries to the Town and VTrans District Operations personnel for any relevant information, and collection of paving project plans being constructed during this project. The following is a summary of information collected during the site visit, and from the Town and VTrans for this project:

<p><i>Land Use</i></p> <ul style="list-style-type: none"> • Project area is within the Village limits of the Town of Highgate • Mix of residential, municipal, and commercial parcels • Park and ride on the north side of the road near the western terminus of the project. The Town is working with GMATA transit service to have a bus stop at this location. • Town park on the south side of VT 78. 	<p><i>Utilities</i></p> <ul style="list-style-type: none"> • Overhead utility lines along the length of the north side of VT 78 and along the south side between approximately Gore Road and O.C. McCuins. • Underground gas line on south side of VT 78.
<p><i>Travel Lanes and Shoulders</i></p> <ul style="list-style-type: none"> • At the time of the field visit travel lanes were generally 11 feet wide with varying narrow shoulders. • VTrans paving project constructed fall 2014 included 3’ shoulders along the project area. 	
<p><i>Right of Way</i></p> <ul style="list-style-type: none"> • VTrans has indicated that Route 78 within the project area has a 4-rod (66’) right of way (ROW). 	

2.2 Environmental and Cultural Resources Review

2.2.1 Environmental Resources

A review of the GIS environmental resource mapping for the project area revealed only one Class II wetland near the western terminus of the project on the north side of VT 78. A field reconnaissance was also conducted in addition to review of GIS information for determining environmental resources. During a field reconnaissance it was found that this wetland drains through a culvert under VT 78 and to the southern side of the road. The graphic below shows a zoomed in area of the natural resource mapping at this wetland.



See Appendix B for the Environmental Resources Map for the project area

2.2.2 Cultural Resources

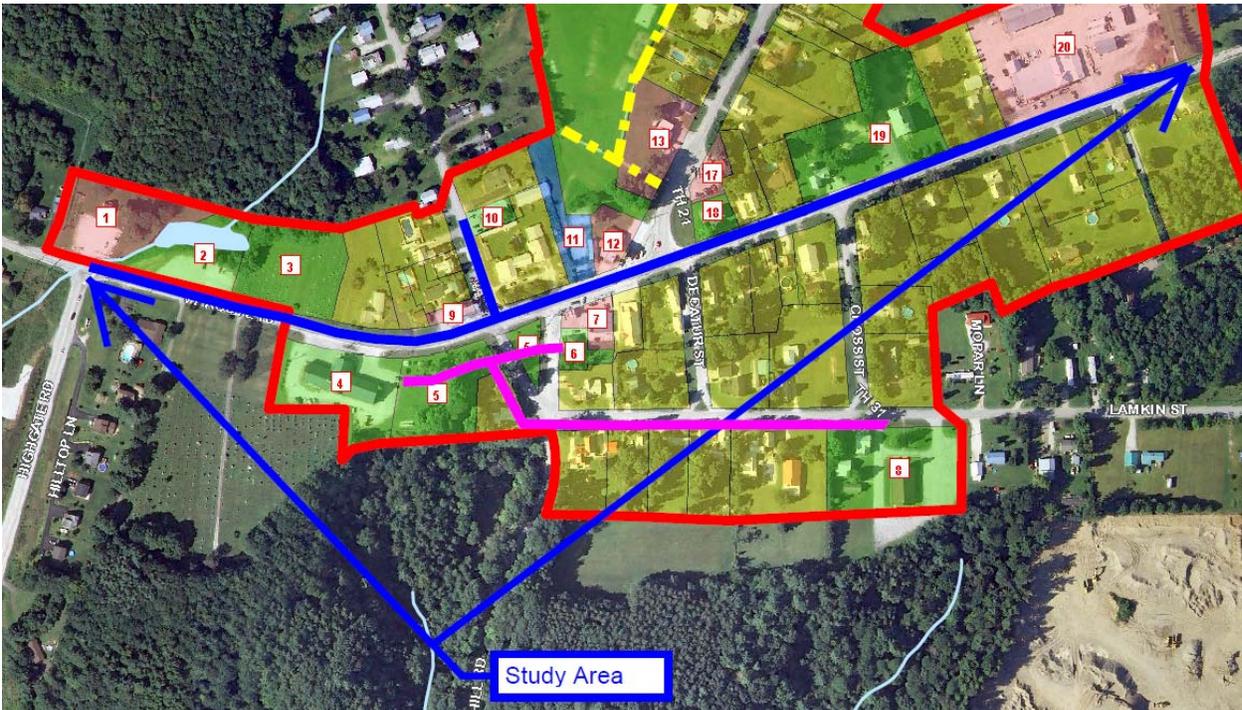
The 2000 Feasibility Study included a preliminary assessment of historic resources over a broader study area. The Scope of Work for this current project stated that if an off alignment alternative is evaluated, then VHB would engage its Historic Preservation Specialist to review the alignment. All alternatives developed for this Study are along the roadway and/or separated by a four-foot grass strip. Therefore, additional cultural reviews were not included as part of our reviews. The alternatives are within areas that can generally be considered historically disturbed for construction of the roadway and adjacent development. The 2000 Study noted that there are historic sites and structures within the vicinity of the project, and noted that these would not be directly impacted if alternatives are constructed along the existing roadway facility (i.e. within the existing roadway right of way).

Based on the location of the alternative alignments in this study and the assumption, based on VTrans input, that the roadway right of way is 4 rods through this area, we assume at this time that there will be no impacts to these historic sites and structures. The assumption of 4 rod ROW was obtained from Derek Kenison, Right of Way Agent for VTrans. This was based off two historic road surveys in the area, one dated 1831 and the other dated 1856, both claiming a 4 rod ROW.

A detailed review of ROW will be completed during the next phase of this project, as well as development of the Categorical Exclusion document. Findings from these reviews in the next phase will provide the required documentation for cultural resource reviews.

2.2.3 Origins and Destinations

The RFP for this project provided the following graphic to show destinations along the project area the community identified as important to them:



- | | | |
|---|------------------------------|------------------------|
| 1. Joey's Junction Bakery (currently closed) | 6. Public Library | 12. Paws for Thought |
| 2. Park and Ride | 7. Irving Gas Station | 13. M & H Gun Shop |
| 3. Cemetery | 8. Catholic Church | 17. Quick Stop |
| 4. Municipal Office, Fire Department
and Public Works Garage | 9. Desorcie's Market | 18. Historical Society |
| 5. Memorial Park | 10. Post Office | 19. Methodist Church |
| | 11. Town Owned (former café) | 20. O.C. McCuin & Sons |

Additional origins and destinations nearby include the following:

6. Highgate Elementary School – (Gore Road)
7. Lamoille Valley Rail Trail – east of project area on Route 78
8. Highgate Hockey Arena – (Gore Road)

The number of origins and destinations within the relatively small area along with the community's desire to enhance the village setting combine to make the Highgate project area a strong candidate for pedestrian and bicycle improvements. Construction of these type of improvements could greatly improve the walkability within the village as well as promote multimodal access to local businesses. In addition, the close proximity of the school and connection to the daycare at the Methodist Church could improve the visibility of school children walking in this area.

See Appendix C for the full Highgate Village Study Map developed by the Town

2.2.4 Constraints

There are a number of potential constraints within the project area. The extent of potential impacts these constraints has on the design varies for each alternative. The following is a summary of constraints within the project area.

<p><i>Access Management</i></p> <ul style="list-style-type: none"> • The following have driveway widths exceeding State standards: <ul style="list-style-type: none"> ○ Municipal Office / Fire Department (two driveways) ○ O.C. McCuins ○ Irving Gas Station • Access management will need to maintain access, taking vehicle types into consideration 	<p><i>Drainage</i></p> <ul style="list-style-type: none"> • Drive culverts and swales between Highgate Road and the Municipal Office building complex. • Catch basins located periodically between the St. Armand Street and O.C. McCuins intersections.
<p><i>Utilities</i></p> <ul style="list-style-type: none"> • Utility poles along the length of the southern side of the road within the project area. There is also a utility pole approximately 240' east of the Gore Street intersection on the north side of the road. • Underground gas line. 	
<p><i>Physical Barriers</i></p> <ul style="list-style-type: none"> • There are fences along the north side of the road at the cemetery, just east of the St. Armand Street intersection, along the east side of Gore Street at the Route 78 intersection, approximately 200' east of the Gore Street intersection, and to the east of the O.C. McCuins driveway. • There is a concrete feature at the Irving gas station on the south side of the road. • The design phase should take these constraints into consideration as well as where they are in relation to the ROW limits. Illegal signs (those within ROW) shall also be a consideration. 	

See Appendix D for additional Existing Conditions information

3. Project Alternatives

Information obtained in the above steps helps to shape the alternatives that will be possible or necessary to satisfy the project Purpose and Need Statement. There are no proposed sidewalk sections on the south side of Route 78 between the Municipal Office Building and Mill Hill Road because there is a sidewalk that has already been scoped as part of the Lamkin Street Sidewalk Project located along this section.

See Appendix E for Conceptual Alternative Layouts with typical sections

See Appendix F for Alternative Cost Estimates

See Appendix G for Alternatives Presentation Meeting Notes and Comments

3.1 Alternative 1: No-Build Alternative

Alternative 1 is the No-Build alternative in which no new facility will be constructed for pedestrian and bicycle use.

Advantages:

- **No construction or maintenance cost for bicycle or pedestrian improvements**

Disadvantages:

- **Does not improve accommodations for pedestrians or bicyclists in the project area.**
- **Does not meet the Purpose and Need for the project.**

3.2 Alternative 2: Curbed Sidewalk

Alternative 2 proposes a five-foot wide concrete sidewalk separated from the roadway shoulder by a curb on both the north and south sides of Route 78. Some key notes regarding this alternative are as follows:

- Widen existing shoulder from 3-feet to 4-feet to improve conditions for bicyclists. This does NOT constitute an official bike lane, but it does provide additional space for bicyclists to travel outside of the travel way.
- New crosswalks are proposed at major street intersections (see layout sheet in Appendix E for locations).
- Proposed improvements for access management at the existing Park and Ride lot, Municipal Building, and residential building located just to the east of Irving Gas. If this alternative is selected, it is important that adequate maneuverability is maintained for vehicles entering and exiting these locations.

Based on field observations, there are no formal parking accommodations for Desorcie's store along Route 78. However, it is apparent that vehicles do park here. The typical section proposed in the vicinity of this building (approximately 85-feet in length) is reduced to provide a 3' shoulder and 4' sidewalk. This reduction is proposed to allow a paved area between the building and sidewalk which could be used for off-street loading.

This alternative would also impact the 50-foot buffer of the Class II wetland near the western terminus of the project. Impacts are anticipated to be less than 3,000 square feet, therefore this project would likely qualify for a State of Vermont General Wetland Permit.

Advantages:

- **Alternative meets the Purpose and Need Statement.**

Disadvantages:

- **Will need property owner coordination at Desorcie's regarding parking and loading accommodations.**
- **Mailbox relocations needed.**
- **New drainage structures would be needed due to the introduction of curbing. New catch basins would require future maintenance. An outlet for the drainage would be needed and since this would likely be outside of the VT 78 ROW; future maintenance would be the Town's responsibility.**
- **Due to upcoming permitting changes (TS4 permit) this alternative is likely to have more drainage challenges than alternative 3 due to retrofitting of drainage into the existing collection system, and/or potential mitigation measures.**
- **Alternative as shown includes a new sidewalk adjacent to a cemetery on the western end of the project area. Detail should be given to ensuring that there are no impacts to the cemetery parcel. If the cemetery fence is within the road ROW, the project should avoid any impacts to and beyond the fence.**

3.3 Alternative 3: Sidewalk with Green Strip

Alternative 3 includes a five-foot wide paved sidewalk separated from the roadway shoulder by a four-foot green strip on the north and south sides of Route 78. Some key notes regarding this alternative are as follows:

- Widen existing shoulder from 3-feet to 4-feet to increase space available to bicyclists. This does NOT constitute an official bike lane, but it does give bicyclists an increased shoulder to use.
- New crosswalks to be proposed at major street intersections.
- No sidewalk is proposed on the north side of the VT 78 from the western end of the project area to Gore Road due to potential impacts to the adjacent cemetery, businesses, and fences in close proximity to the roadway. If a sidewalk is desired in this area, a curbed sidewalk could be constructed for this section.
- Proposed improvements for access management at the Municipal Building and residential building located just to the east of Irving Gas should be further investigated. If this alternative is selected, once field survey has been obtained for conceptual design, it is important that adequate maneuverability is evaluated and the access management treatments designed for vehicles entering and exiting these locations.

Advantages:

- **Alternative meets Purpose and Need Statement.**
- **Project does not impact wetland buffer.**
- **Better access to mailboxes for mail deliverers than Alternative 2.**

- **Green strip can be used for snow storage.**
- **Unlikely to need new drainage infrastructure. Water quality benefits and low maintenance needs of water being able to sheet flow over vegetated ground is significant, as compared to a curbed sidewalk with closed drainage.**
- **Less anticipated future maintenance than Alternative 2.**
- **Preferred alternative of the local VTrans District Maintenance office from an operations and roadway maintenance perspective.**

Disadvantages:

- **Potential relocation of drive culverts on south side of the road west of the Municipal building.**
- **Increased construction impact width beyond the existing paved roadway edge of pavement.**

3.4 Alternative 4: Traffic Calming (Medians)

There was strong public opinion voiced at the Local Concerns Meeting (LCM) for the need to reduce vehicle speeds on VT 78 through the village. Traffic calming is a common measure to address this issue. There was discussion at the LCM regarding the potential for medians as well as pedestrian signalization or rectangular rapid flashing beacons (RRFBs) to address the perceived high speeds in the study area. If the Town would like to pursue pedestrian signalization, additional analysis and evaluations beyond the scope of this study would be required. The Town could make a request to the VTrans Traffic Safety division that an evaluation be completed to determine if such measure is warranted. Based on a review of the pedestrian demand along with the vehicle volume and speeds it can be determined if pedestrian signs or flashing beacons are warranted in this area.

Alternative 4 proposes the construction of three medians within the project area to heighten motorist awareness that they are entering a village setting and to encourage lower motor vehicle speeds: one at the western end of the project area, one at the Gore Road intersection, and one at the eastern end of the project area. Some key notes regarding this alternative are as follows:

- There are two potential locations for the median at the western end of the project area: (1) west of the Highgate Road intersection, and (2) in vicinity of the park and ride. The option near the park and ride would allow vehicles from Highgate Road entering into the Village to have the opportunity to pass through the median, which serves as a traffic calming measure. Whereas if the median is placed west of the intersection these vehicles from Highgate Road will not pass through if the median is located at the park and ride driveway. However, the location of the park and ride driveway will need to be taken into consideration and will dictate placement of the median so that there is adequate access to the park and ride.
- As shown, the eastern and western medians are shown to be raised medians, and the Gore Road median would be a combination of raised and flush median treatment. The Gore Road median is shown as flush on either end to allow for trucks turning to Gore Road or the Gas Station to track over the median, if needed. Raised medians are recommended to have slope curbing to facilitate plowing and roadway maintenance and reduce impacts to vehicle tires that may come in contact with the curb.

- Medians are recommended to be designed such that there is a deflection in the alignment for vehicles headed towards the Village to encourage a reduction in speed.
- VTrans maintains this road, therefore there must be a minimum of 14 feet from curb to curb. Fifteen-feet, however, is preferred for maintenance reasons (i.e. snow plowing). The typical section is shown as 15 feet from curb to curb (1-foot inside curb, 11-foot travel lane, and 3-foot paved shoulder. The typical section will be finalized during design.

Advantages:

- **Provide a traffic calming measure to reduce vehicle speeds.**

Disadvantages:

- **This alternative alone does not meet the Purpose and Need Statement.**

4. Alternatives Evaluation

A number of factors need to be taken into consideration in determining which alternative not only is a viable solution for the given needs of the project area, but also provides a reasonable balance between the impacts to adjacent properties and the associated project costs. These factors include, but are not limited to, anticipated construction and long term maintenance costs, natural resource impacts, conformance to local and regional plans, potential permits, and meeting the purpose and need statement. Costs for cultural resource reviews assume a reconnaissance level survey for historic reviews and an Archaeological Resources Assessment for archaeological review assessment. Any additional costs (e.g. test pits) are not included in our assumption for Engineering Design. An evaluation matrix summarizing potential impacts associated with each alternative is included on the following page.

To estimate each alternative's impact on adjacent properties VHB contacted VTrans to define the ROW limits on VT 78. Information received from VTrans indicates a four-rod (66-foot) ROW for the project area, therefore ROW impacts are not anticipated. The ROW width will need to be confirmed in conjunction with the field survey and conceptual plan development, and if it is found to be less than four rods, there may be a need for temporary construction easements or other permanent easements or takings.

Conceptual construction cost estimates are included in the evaluation matrix for comparison of alternative to provide an overall order of magnitude guide as well as a way to compare alternatives. These estimates are developed using average linear foot costs for similar bike and pedestrian facilities in Vermont as documented in the *VTrans Report on Shared-Use Path and Sidewalk Unit Costs publication (August 2014)*. These costs are intended to estimate allowances for earthwork, drainage, traffic control, signs, materials, and other necessary items of work for construction. There are no significant obstructions that would cause an increase in the construction cost as compared to similar projects across the State. Without topographical survey it is difficult to get a more accurate construction cost estimate at the Scoping phase for this project. At the conceptual stage, the construction cost estimate should be used as a ballpark figure.

Construction cost for Alternative 3 (sidewalk with grass strip) is lower than Alternative 2 (curbed sidewalk). This is due to (1) the new sidewalk length of Alternative 3 is 1,470 feet shorter than Alternative 2, and (2) the

linear foot cost for a curbed sidewalk is typically higher than a sidewalk with a green strip. The anticipated construction cost per linear foot of sidewalk for Alternatives 2 and 3 are \$250 and \$200, respectively.

The terrain along the project area is relatively flat, though without survey there is no way to accurately define earthworks and other construction costs. There are no apparent design features of this project that would indicate that the construction costs would be higher than average linear foot construction costs. It will not be until subsequent stages of design, permitting and right-of-way negotiations that the costs will be predicted with better certainty. These costs do include assumed costs for engineering, permitting and project oversight, and do not include ROW cost estimates.

Evaluation Matrix

		Alt. #1: No Build	Alt. #2 Sidewalk with curb	Alt. #3 Sidewalk with grass strip	Alt. #4 Traffic Calming (3 medians)
Estimated Costs	Engineering Design	\$0	\$190,000	\$100,000	\$50,000
	Construction (Conceptual Estimate)	\$0	\$950,000	\$480,000	\$240,000
	Resident (Construction) Engineering	\$0	\$150,000	\$80,000	\$40,000
	Total	\$0	\$1,290,000	\$660,000	\$330,000
Engineering	Typical Section	-	5' sidewalk	4' grass - 5' sidewalk	5'-6' max. island
	Bicycle Access	No change	4' shoulder	4' shoulder	No Change
	Safety	n/a	Enhance	Enhance	Enhance
	Utilities	-	Yes	Yes	No
	ROW	-	No	No	No
Impacts	Ag. Lands	-	No	No	No
	Archaeological	-	Unlikely	Unlikely	Unlikely
	Historic	-	No	No	No
	Hazardous Materials	-	No	No	No
	Floodplains	-	No	No	No
	Fish & Wildlife	-	No	No	No
	Rare, Threatened & Endangered Species	-	No	No	No
	Public Lands - Sect. 4(f)	-	No	No	No
	LCWP - Sect. 6(f)	-	No	No	No
	Noise	-	No	No	No
Wetlands	-	Yes (impacts to wetland swale buffer)	No	No	
Stormwater	-	Yes	Yes, < than Alt. #2	No	
Local & Regional	Community Character	No change	Enhance	Enhance	Enhance
	Economic Impacts	No change	Positive	Positive	Positive
	Conformance to Reg. Transp. Plan	N/A	Yes	Yes	Yes
	Satisfies Purpose & Need	N/A	Yes	Yes	Partial
Permits	Act 250	-	No	No	No
	Section 404 - Wetlands (USACOE)	-	No	No	No
	Section 401 Water Quality Certification	-	No	No	No
	State Wetlands Permit	-	Yes	No	No
	Stream Alteration Permit	-	No	No	No
	Construction Phase Storm Water Discharge Permit (General Permit 3-9020)	-	No	No	No
	Operational Phase Storm Water Discharge Permit (General Permit 3-9015)	-	No	No	No
	Lakes & Ponds	-	No	No	No
	Rare, Threatened, and Endangered Species	-	No	No	No
	Section 1111 Permit	-	Yes	Yes	Yes

5. Preferred Alternative

VHB presented the alternatives to the Town Officials and public at a Selectboard meeting on July 9, 2015. It was explained that any one or a combination of alternatives could be chosen, depending on the needs of the Town. The following input was received from the Town:

- Town officials are not in favor of the sidewalk section on the north side of Route 78 in front of Desorcie’s Market.
- Town officials would prefer to avoid a sidewalk at the Irving Gas Station due to hazardous traffic movements.
- Town officials would consider a crosswalk across Gore Road important, especially for people traveling to/from daycare at the Methodist Church to school.

The preferred alternative selected by the Town is as described below and as shown on the following pages:

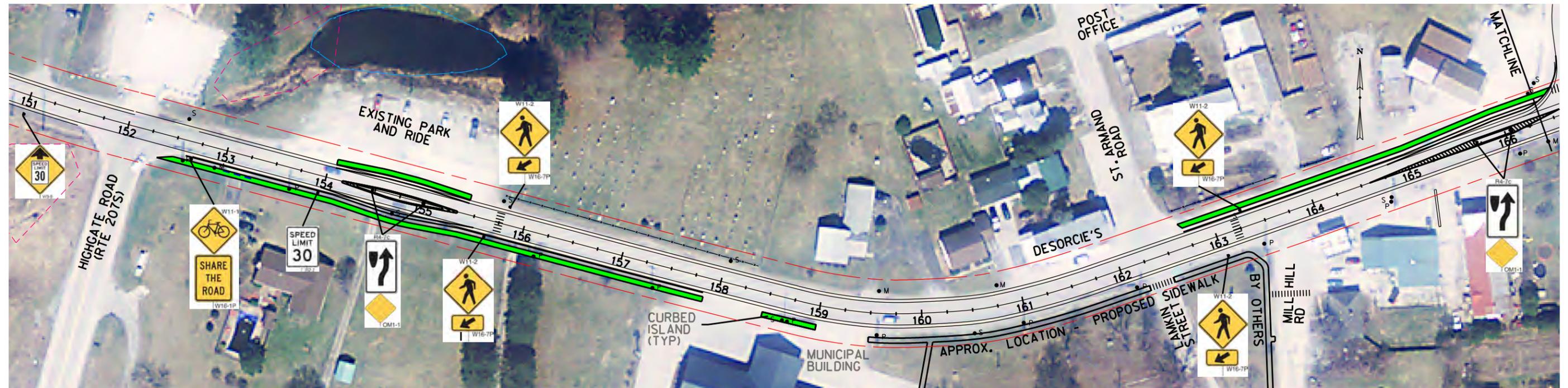
- Sidewalk separated by a green strip on the south side of Route 78 beginning at the intersection with Route 207 south, continuing east to the Municipal Building.
- No sidewalk between Municipal Building and St. Armand Road. There is currently a project underway designing a sidewalk on the south side of the road along this section.
- Sidewalk on the north side of Route 78 separated by a green strip between St. Armand Road and O.C. McCuins.
- Three traffic calming islands: one at each end of the project area and one west of the Gore Road intersection. Two alternate locations are shown for the western traffic calming island.
- New pedestrian signage as needed.
- New crosswalks (to be confirmed in design phase pending VTrans approval):
 - At existing park and ride
 - On Route 78 west side of Mill Hill Road intersection (chosen over St. Armand Road for increased sight distance)
 - Across Gore Road and on Route 78 on east side of Decatur Street
- Approximate cost for design through construction (excluding ROW costs):

Preferred Alternative	Sidewalk	Medians	
Engineering Design	\$70,000	\$50,000	
Construction (Conceptual Estimate)	\$340,000	\$240,000	
Resident (Construction) Engineering	\$60,000	\$40,000	
Total	\$470,000	\$330,000	
	Grand Total:		\$800,000

Note: The above costs are different than in Alternative 3 in the Evaluation Matrix because the overall length of the preferred alternative is shorter than Alternative 3, the preferred alternative

WEST OF GORE ROAD

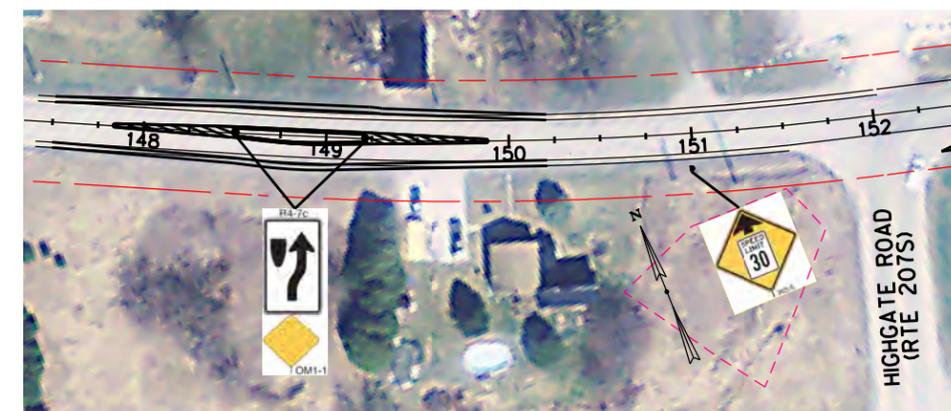
PREFERRED ALTERNATIVE



EAST OF GORE ROAD



ALTERNATE FOR WESTERN-MOST ISLAND



EXISTING CONDITIONS LEGEND

- P - UTILITY POLE
- M - MAILBOX
- S - SIGN
- G - GAS LINE MARKER
- - - FENCE
- - - DRIVEWAY CULVERT
- ☐ CATCH BASIN
- - - CLASS II WETLAND
- - - WETLAND SWALE

NOTES:

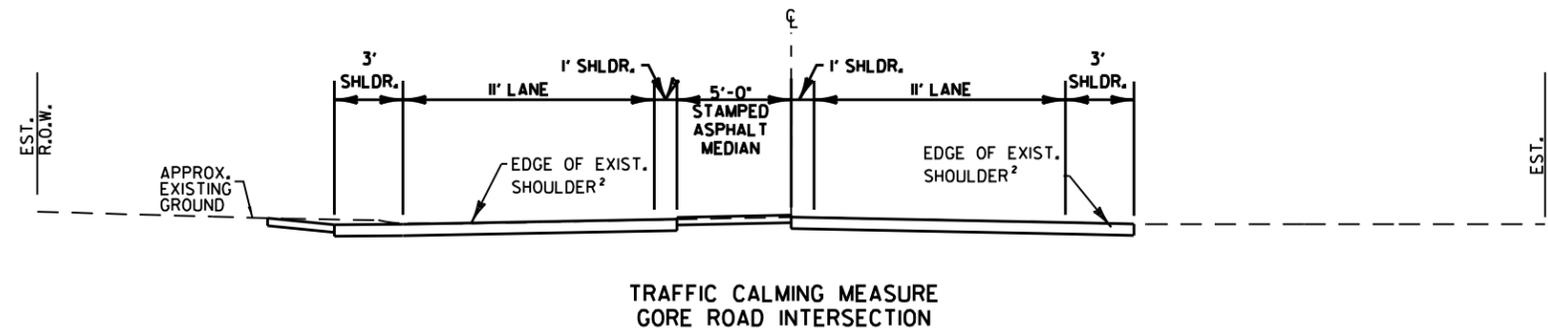
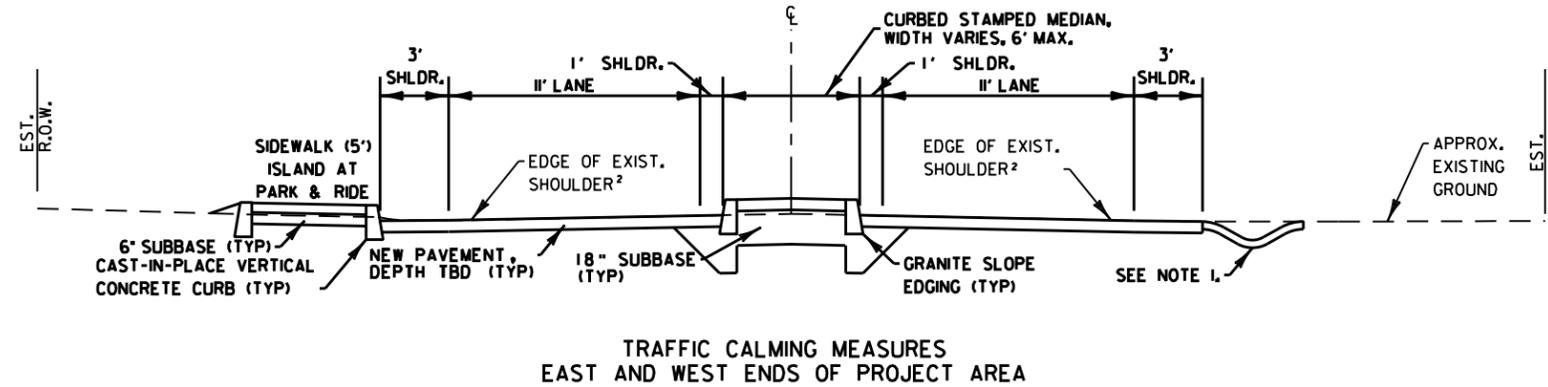
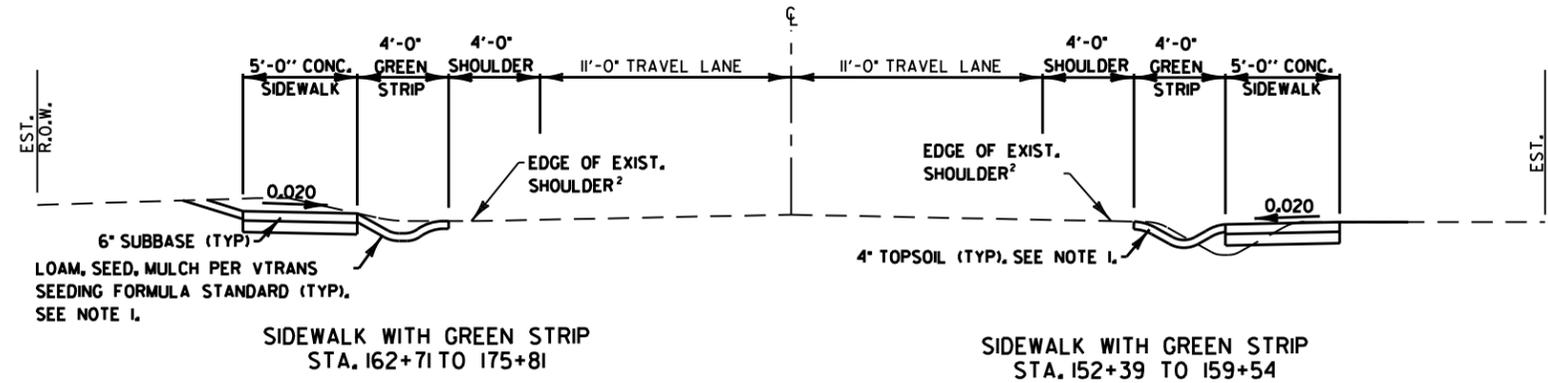
1. THE LOCATION OF THE FEATURES SHOWN ON THIS MAP ARE APPROXIMATE ONLY. FIELD SURVEY WAS NOT CONDUCTED TO VERIFY LOCATIONS. THIS MAPPING IS TO BE USED FOR CONCEPTUAL LEVEL PURPOSES ONLY.
2. RIGHT OF WAY (ROW) WIDTH FOR ROUTE 78 SHOWN AS 4 RODS, AS RECEIVED FROM VTRANS.
3. PEDESTRIAN RELATED SIGNAGE IMPROVEMENTS SHALL COMPLY WITH STATE STANDARDS.
4. ALL CROSSWALK LOCATIONS SHOWN ARE SUBJECT TO REVIEW AND APPROVAL BY VTRANS.
5. AN ENGINEERING STUDY WILL BE REQUIRED AS PART OF THE DESIGN PHASE IN ORDER TO JUSTIFY THE SPEED LIMIT REDUCTION TO 30 MPH. THE SPEED REDUCTION IS SHOWN TO SUPPLEMENT THE MEDIANS.

SCALE 1" = 50' (FULL SIZE)
SCALE 1" = 100' (1/2 SIZE)

PROJECT NAME:	RTE 78 SCOPING STUDY
PROJECT NUMBER:	57694.00
FILE NAME:	57694 ConcAlt 09-15-14.dgn
PROJECT LEADER:	M.J. SERVETAS
DESIGNED BY:	J.D. AUSTIN
PREFERRED ALTERNATIVE LAYOUT	
PLOT DATE:	9/30/2015
DRAWN BY:	J.D. AUSTIN
CHECKED BY:	M.J. SERVETAS
SHEET	1 OF 2



PREFERRED ALTERNATIVE - TYPICAL SECTIONS



NOTES:

1. NOTE THAT SWALE SHOWN IS SMALLER THAN EXISTING. FURTHER DESIGN MUST ENSURE THAT ADEQUATE DRAINAGE CAPACITY IS PROVIDED. ADDITIONAL CATCH BASIN(S) MAY BE NEEDED. PROMOTE SHEET FLOW WHERE PRUDENT. EVALUATE AND EMPLOY SHEET FLOW SIDESLOPE IN LIEU OF GRASSED DITCHES WHERE FEASIBLE.
2. EXISTING SHOULDERS ARE SHOWN TO BE 3'-0" BASED ON 2014 PAVING PLANS FROM VTRANS THROUGH THE PROJECT AREA.
3. THE LOCATION OF THE FEATURES SHOWN ON ABOVE ARE APPROXIMATE ONLY. FIELD SURVEY WAS NOT CONDUCTED TO VERIFY EXISTING GRADE, UTILITY POLES, FENCES, AND OTHER FEATURES. THIS MAPPING IS TO BE USED FOR CONCEPTUAL LEVEL PURPOSES ONLY.
4. VT 78 ROW THROUGH VILLAGE IS 4 RODS (66 FEET) PER VTRANS REVIEW.

TYPICAL SECTIONS: N.T.S.

PROJECT NAME: RTE 78 SCOPING STUDY
PROJECT NUMBER: 57694.00

FILE NAME: 57694 ConcAlt 09-15-14.dgn PLOT DATE: 1/11/2016
PROJECT LEADER: M.J. SERVETAS DRAWN BY: J.D. AUSTIN
DESIGNED BY: J.D. AUSTIN CHECKED BY: M.J. SERVETAS
PREFERRED ALTERNATIVE TYPICAL SECTIONS SHEET 2 OF 2



includes a new small section of sidewalk in front of the park and ride but does not include a new sidewalk on the south side of Route 78 between Gore Road and M.C. McCuins.

Due to the significant cost for the improvements within the Preferred Alternative, the project could be broken into phases, as follows:

- A. New sidewalk, except for section on north side of road at Park and Ride - \$430,000
 - a. Could be broken down even further to have one phase of funding for Engineering Design (\$70,000) and another for construction (\$360,000).
- B. Three medians and short section on north side of road at Park and Ride - \$380,000
 - a. Could be broken down even further to have one phase of funding for Engineering Design (\$60,000) and another for construction (\$320,000).

6. Summary

Highgate Town Officials believe that providing bicycle and pedestrian facilities along Route 78 would greatly enhance the Village by providing defined infrastructure for multimodal access to and from the many destinations within the Village, and especially for school children walking to school on Gore Road. There was strong support from the public at the Local Concerns Meeting for providing pedestrian improvements along Route 78, with general consensus of safety concerns with walking along the project area.

Alternatives 2 and 3 are the primary alternatives that address the need for pedestrian improvements. Both alternatives have some degree of impacts. Alternative 4 by itself does not meet the Purpose and Need Statement but can be combined with another alternative to address the desire of the Town for lowering travel speeds through the area.

As noted previously, information received from VTrans indicates the roadway right of way is 4 rods. At the Alternatives Presentation Meeting there was one resident who stated they believed it was 3 rods. ROW limits will need to be defined during the design phase in order to determine ROW impacts on adjacent parcels.

The preferred alternative, as described above, is compatible with the Town's goal of providing a multimodal network to addressing the needs of pedestrian traffic within the village. The Town is also in favor of implementing traffic calming measures in the form of islands on each end of the village as well as one at Gore Road.

The primary comments received from the district over the course of the project were related to maintenance. The District representative preferred the sidewalk with green strip alternative from a maintenance (e.g. snow plowing) as well as drainage perspective.