VT-15 / Underhill Flats Sidewalk Feasibility Study Update

Town of Underhill, Vermont

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Submitted by
Resource Systems Group
Prepared for:

The Town of Underhill, VT

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Section 1 Introduction

1.1 Overview

Resource Systems Group, Inc. (RSG) has been contracted by the Chittenden County Regional Planning Commission (CCRPC) and the Town of Underhill to update the Route 15 Sidewalk Feasibility Study originally completed by Hamlin Consulting Engineers in 2007. The purpose of this study update is to address additional existing features that have been constructed since the original study was completed and to analyze two new potential bicycle and pedestrian alignments.

As part of this update, the Town is particularly interested in addressing the following items:

- Identification and incorporation of changes to existing conditions, including the installation of gas lines within the VT 15 right-of-way;
- Exploration of an off road alignment behind the fire station and gas station along the east side of VT-15;
- Consideration of a multi-use path along VT 15;
- Recommendations for the most appropriate sidewalk or path surface;
- Ensure coordination with the Jericho sidewalk plans;
- Development of updated cost estimates, including an option that is managed and funded locally.

This report will focus on the six items identified above. For discussion on the project background, existing conditions, and sidewalk alternative analysis, please refer to the 2007 Town of Underhill Route 15 Sidewalk Feasibility Study included in this study as Attachment A.

1.2 Summary of the Previous Study Effort

The 2007 Town of Underhill Route 15 Sidewalk Feasibility Study documented the project goals, environmental and cultural constraints, and developed a preferred sidewalk alignment. The conclusions of this previous report as they relate to the sidewalk alternative remain valid and are summarized in this section.

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**Purpose and Need**

**Project Purpose:**
VT-15 serves as a primary vehicle travel corridor within the Underhill Flats village area, consisting of mixed use commercial and residential development along the highway, with primarily residential dwellings along Meadow Lane and the adjacent roadways. The purpose of this feasibility study is to propose enhancements to this corridor in support of the goals and objectives of the Town of Underhill to enhance bicycle and pedestrian access in this area, connecting adjacent residential areas to an existing sidewalk network along VT-15, Park Street, and River Road to the south, and to promote connectivity to the existing schools along River Road.

**Project Need:**
- An existing sidewalk in poor condition exists along the east side of VT-15 from Park Street north to Meadow Lane. No sidewalk or other bicycle and pedestrian infrastructure exists along VT-15 north of Meadow Lane.
- The large residential communities along VT-15, Meadow Lane, and Dumas Road have little connectivity to the Underhill Flats village center and nearby schools.
- VT-15 is a heavily traveled corridor with a 2010 Average Annual Daily Traffic (AADT) volume of approximately 7,000 vehicles per day (vpd).
- Safe and convenient connections for bicycle and pedestrian travel are needed between and within the residential communities to the north and the destinations to the south.

**Project Area and Existing Conditions**
The project area is located on the east side of Vermont Route 15 (VT-15) between Park Street and Dumas Road in the Town of Underhill. The project study area within the state of Vermont and Town of Underhill is illustrated in Figure 1 and Figure 2.

*Figure 1: Project location within the State of Vermont.*
The following features were noted in the previous study:

- VT-15 is state highway classified as a minor arterial, with a typical cross section consisting of an 11-foot lane and 4-foot shoulder in both directions. Several informal on-street parallel parking spaces supporting the adjacent commercial building are present directly north of the Park Street intersection.

- An existing 4-foot wide sidewalk extends from Park Street to the Fire Station on the east side of VT-15 separated from the roadway shoulder by variable width grass strip. The sidewalk is heaved in sections, partially filled with soil, and overgrown with grass, reducing the effective width of the usable sidewalk to less than 2-feet in some areas.

- The adjacent land use is mixed commercial and residential. There are several large driveway openings, particularly at the fire station and service station entrances.

- There are several catch basins located in the grass strip between the shoulder and existing sidewalk along the corridor.

- Overhead utilities and poles exist on the west side of the roadway, with several poles located on the east side for utility crossings.

- Fire hydrants and an 8-inch water main are located on the east side of the road.

- The highway right-of-way (ROW) is reported by the Vermont Agency of Transportation (VTrans) to be 4-rods (66-feet) along the corridor. The highway is offset to the east within this ROW.

**Environmental and Cultural Constraints**

The Roaring Brook was identified as a nearby river. No wetlands, floodplains, significant habitat, or other cultural or environmental resources were identified. No impacts to these or other resources were identified.

**Previously Proposed Alignments**

The previously proposed sidewalk improvement consisted of removing the existing section of sidewalk along the east side of VT-15 between Park Street and the fire station and replacing it with a 5-foot wide concrete sidewalk offset from the edge of the shoulder with a 5-foot grass buffer. The new sidewalk would extend from Park Street to Dumas Road. The alignment had the following notable features:

- Three existing parallel parking spaces would be maintained near the Park Street intersection, requiring granite curbing.
- The proposed concrete sidewalk shall extend through all driveways, including the fire station.

- Bulb-outs and textured concrete will be constructed at the service station driveway. Due to the proximity of the gasoline pumps, the sidewalk will be shifted closer to VT-15 adjacent to the pumps. The sidewalk will be separated from VT-15 with flexible post delineators.

- A new crosswalk and stop bar will be installed at the Meadow Lane intersection.

- The sidewalk will continue north offset 5-feet from the VT-15 edge of shoulder. At Dumas Road, the sidewalk will continue offset 5-feet from the roadway, terminating at the first driveway along Dumas Road.

- The proposed sidewalk will likely be 1-foot inside of the existing right of way. Construction easements will likely be required along the length of the corridor.

- One new catch basin and several adjustments to the existing catch basin rims will be required. One utility pole and one fire hydrant will likely need to be relocated.

These improvements, including a detailed discussion on the existing conditions, natural and cultural resources, and the identification of the proposed features are illustrated in the conceptual plans of the previous study provided in Attachment A.
Section 2 Existing Conditions Update

As discussed earlier, the existing conditions presented in the 2007 Sidewalk Feasibility Study remain valid. This section updates the various existing information that has changed since the original study was produced.

2.1 Construction of Natural Gas Pipeline

Vermont Gas has constructed new gas distribution and service lines through the Underhill Flats village area. The primary gas distribution line is offset 5 to 8-feet east from the VT-15 edge of shoulder. Smaller gas lines service the individual properties from this main gas line. This gas main will likely be very near any proposed walkway on the eastern side of VT-15. The relocation or installation of catch basins, hydrants or other infrastructure in the green strip may not be possible due to this gas line.

2.2 Crash Analysis

The crash data for the most recent five year period available were reviewed. From 2007 – 2011, there have been 4 collisions involving only vehicles resulting in 1 injury along the corridor during that period. One collision happened close to the intersection of VT-15 and Park Street, one in front of the Fire Station, and the remaining two near the service station. These collisions are illustrated in Figure 3.

Figure 3: Reported collisions in project area from 2007 - 2011.
Of these four collisions, two were single vehicle crashes, with contributing circumstances noted in the police reports as "fatigued, asleep". A reported collision at the service station was a rear-end crash type. The fourth collision was a broadside crash at the Park Street / VT-15 intersection. None of these crashes indicate that the corridor has any unsafe operating characteristics. None of the collisions involved bicycles or pedestrians. A detailed description of the reported collisions from 2007 – 2011 is presented in Table 1.

Table 1: Reported crash data from 2007 - 2011 through study area.

<table>
<thead>
<tr>
<th>MM</th>
<th>Date</th>
<th>Time</th>
<th>Weather</th>
<th>Contributing Circumstances</th>
<th>Type of Collision</th>
<th>Injuries</th>
<th>Fatalities</th>
<th>Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05</td>
<td>11/2/2007</td>
<td>7:55</td>
<td>Clear</td>
<td>No improper driving, Failed to yield right of way</td>
<td>No Turns, Thru moves only, Broadside ^&lt;</td>
<td>0</td>
<td>0</td>
<td>E</td>
</tr>
<tr>
<td>0.18</td>
<td>7/7/2009</td>
<td>17:19</td>
<td>Cloudy</td>
<td>Fatigued, asleep</td>
<td>Single Vehicle Crash</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>0.25</td>
<td>9/30/2008</td>
<td>16:42</td>
<td>Clear</td>
<td>No improper driving, Followed too closely, Inattention</td>
<td>Rear End</td>
<td>0</td>
<td>0</td>
<td>E</td>
</tr>
<tr>
<td>0.25</td>
<td>3/21/2010</td>
<td>12:01</td>
<td>Snow</td>
<td>Fatigued, asleep</td>
<td>Single Vehicle Crash</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

2.3 Right of Way Review

Discussion with the Vermont Agency of Transportation's Right-of-Way (ROW) section indicated that the ROW through the project area is 4 rods (66 feet) in width based on town records (Book 1, Page 6) and a legislative act from 1902. Additionally, it was discussed that the ROW is not centered along the existing road.

Based on the existing development patterns and the current location of sidewalks and utility poles, the effective highway ROW is closer to 3 rods (49.5 feet). Development beyond this effective width will likely require lengthy right-of-way investigations. It is recommended that the existing right-of-way is documented before additional design is undertaken.
Section 3 Additional Walk Considerations

In addition to the sidewalk alignment considered in the 2007 Sidewalk Feasibility Study, a new path alignment has been proposed, consisting of a 10-foot wide multi-use path along VT-15. A variation of this path alignment proposes that the path shall diverge from VT-15 between the fire station and service station, traveling behind the buildings through this segment of the road.

Generally, the proposed cross section of the path will consist of a 10-foot wide bituminous concrete surface with 2-foot level grass shoulders. Unless otherwise noted, the path shall be offset 5-feet east of the VT-15 edge of shoulder. The maximum cross slope of the path shall not exceed 2%. Whenever feasible, the path shall be sloped to drain away from the road. Catch basins or hydrants may be required towards the property side of the path; in these cases permanent easements may be required to install and maintain the drainage infrastructure.

The proposed path alignment and variation behind the buildings can be found in Attachment B – Conceptual Design. The proposed features along several distinct sections are discussed in the following sections.

3.1 Path Segment 1 – Park Street to VT-15 (250 feet)

The path segment along Park Street to VT-15 is constrained due to the proximity of adjacent structures and several large driveway openings. To best accommodate the width of a path, the path would follow the edge of the shoulder, separated from the roadway with a granite curb. This additional granite curbing would likely require additional stormwater infrastructure, including a new catch basin and piping to tie into the existing stormwater system.

Even with the path directly adjacent to the road, the full width path would likely exceed the available right-of-way (ROW) in several locations, and would impact the building on the northeast corner of the Park Street / VT-15 intersection. This building impact may be avoided if the intersection is realigned to reduce the skew angle of the Park Street approach to VT-15.

Just north of the Park Street / VT-15 intersection, the three parallel parking spaces are maintained under the path alignment, similar to the sidewalk alternative. To account for vehicle door openings adjacent to the parallel parking spaces, the path width was increased to 12-feet. The additional width of the path,
combined with the width of the parking spaces, may necessitate the removal of a 12-inch diameter tree near the northern edge of the parallel parking spaces.

3.2 Path Segment 2 – VT-15 from Park Street to Fire Station (620 feet)

Between Park Street and the fire station, the 10-foot path is shown offset 5-feet from the eastern edge of the VT-15 shoulder. This alignment is expected to be very near or beyond the existing right-of-way, and permanent easements may be required.

In several locations, the alignment of the path impacts several existing catch basins. With the new gas line in the green strip, the path may need to be sloped away from the road and a new catch basin installed beyond the ROW to convey stormwater. These new catch basins will likely require permanent easements to install and maintain the stormwater infrastructure.

Several trees along the corridor will likely be impacted and require removal. The path alignment impacts a private stone wall. Several mailboxes and a fire hydrant have been identified for relocation.

3.3 Path Segment 3 – Fire Station to Service Station (490 feet)

The path alignment will follow a similar typical section as described in the previous path segment. No crosswalk or other treatments are proposed across the fire station driveways. As the path crosses the service station, bulb-outs are proposed similar to the 2007 Sidewalk Feasibility Study alignment; however, due to the width of the path, only a marked crosswalk is proposed through the driveway.

Similar to previous segments, the path alignment will likely be near or beyond the existing ROW. In addition, relocated catch basins will likely be required outside the ROW, increasing the potential permanent easement requirement.

3.4 Path Segment 4 – Service Station to Meadow Lane (690 feet)

Following the same typical section as discussed previously, this segment encounters similar ROW issues as noted. In addition, one utility pole and one hydrant have been identified for relocation, and one tree may be impacted and require removal.

3.5 Path Segment 5 – Meadow Lane to Dumas Road (620 feet)

A striped crosswalk is proposed at the VT-15 / Meadow Lane intersection. The path alignment will follow the same typical section as noted previously. A ramp connecting the path to the Dumas Road / VT-15 intersection with detectable warnings will be provided. The path will continue along Dumas Road at a 5-foot offset from the east shoulder, terminating at the first driveway along Dumas Road.

3.6 Path Variation – Behind Fire Station and Service Station

A potential alignment variation heading east just south of the fire station, heading north behind the fire station and service station, and returning to the VT-15 typical section north of the service station was proposed for further investigation. The primary purpose of this alignment would be to remove the vehicle / pedestrian / bicycle conflict points at the large driveways at these properties. Upon further discussion, it was determined that the path would require too far of a detour for most pedestrians and cyclists and would likely be underutilized. In addition, the proposed alignment would likely have a substantial ROW impact.
3.7 Sidewalk Alignment Update

No changes are proposed to the sidewalk alignment or cross section as discussed in the 2007 Sidewalk Feasibility Study. Several catch basins were identified for relocation in the green strip between the roadway and sidewalk; however, due to the installation of the gas main in this area, these infrastructure components may need to be relocated beyond the sidewalk, requiring additional ROW impacts.

3.8 Selection of a Preferred Walkway Surface Treatment

Discussions with the Planning Commission indicated that a review of the preferred sidewalk surface was desired. In addition to the Portland cement concrete sidewalk explored in the 2007 Sidewalk Feasibility Study, the Commission requested that the advantages and disadvantages of constructing the same alignment with a bituminous asphalt surface are investigated.

The concrete sidewalk and asphalt multi-use path are both proposed on the essentially the same alignment, offset 5-feet from the edge of the shoulder. A potential phasing opportunity exists in constructing the 10-foot wide multi-use path if the 5-foot concrete sidewalk proposed in the 2007 Study were instead constructed of bituminous asphalt. This asphalt sidewalk could be widened to 10-feet as the demand for the additional width is realized. For this potential alignment to be effective, all permanent features, such as signs, drainage inlets, hydrants, and other objects should be placed beyond the future path limits, which will likely require additional rights-of-way the previous sidewalk alignment did not require. When the ultimate path is constructed, particular consideration will need to be given to the interface of the original walkway and widened path so as to minimize differential settling and longitudinal cracking.

In general, bituminous asphalt surfaces have a lower initial cost than Portland cement concrete. However, asphalt is generally a less durable material and the maintenance needs are more common than with Portland cement concrete. An asphalt sidewalk can be expected to maintain sufficient wearing capacity for approximately 15 years before requiring significant maintenance, while a concrete sidewalk would likely be in service for 50 years with minimal maintenance. While maintenance is generally more common on bituminous asphalt surfaces, the maintenance procedures are often relatively simple and inexpensive, consisting of overlays and patches. Portland cement concrete maintenance procedures generally require the complete reconstruction of failed sections of walkway. The costs associated with maintenance during the lifecycle of the walkway are presented in the cost estimates in Section 4.

Lastly, the lighter color of Portland cement concrete sidewalks help define pedestrian walkways through driveways, particularly at wide vehicle access points such as the fire station and service station. Visibility of the bituminous asphalt walkway can be enhanced through these conflict areas through the application of crosswalk markings; however, these painted markings deteriorate with time and would require regular maintenance.

A third alternative has been prepared illustrating the proposed improvements as a bituminous asphalt sidewalk. This alternative is presented in Attachment C. This alignment is similar to the originally selected alternative from the 2007 Feasibility Study.
Section 4 Cost Estimate

The cost estimate for the design and construction of the sidewalk alternative presented in the 2007 Sidewalk Feasibility Study has been updated to reflect recent construction prices. Additionally, a cost estimate for the path alternative presented in this study update has been developed. These cost estimates are presented below, with a detailed analysis of unit costs and quantities in Attachment D.

Cost estimates were developed based on the anticipated quantity of materials for the various project elements identified in the planning study. The unit costs are based on past project experience in similar locations, VTrans bid histories, and engineering judgment. These estimates are meant only as planning tools and include a 20% contingency. A cost has been included for right-of-way services and are meant to cover the research, survey, and administrative costs of obtaining easements, but do not include the cost to purchase temporary or permanent rights. As a preferred alternative is selected and the design developed, additional detail will be used to develop full construction plans and a detailed cost estimate.

<table>
<thead>
<tr>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Sidewalk</td>
<td>Multi-Use Path</td>
<td>Asphalt Sidewalk</td>
</tr>
<tr>
<td>Total Construction Cost</td>
<td>$331,800</td>
<td>$458,600</td>
</tr>
<tr>
<td>Administrative Costs (incl. engineering / inspection)</td>
<td>$129,600</td>
<td>$191,400</td>
</tr>
<tr>
<td>Grand Total Project Cost</td>
<td>$461,400</td>
<td>$650,000</td>
</tr>
</tbody>
</table>

The total estimated cost for maintenance (mowing, plowing, drainage cleaning, etc.) and repairs for each alternative are presented below assuming an inflation rate of 2% per year. The figures presented below represent estimates for all maintenance and repair operations from 2015 through 2065, including asphalt repairs every 15 years and concrete repairs after 50 years.

<table>
<thead>
<tr>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Sidewalk</td>
<td>Multi-Use Path</td>
<td>Asphalt Sidewalk</td>
</tr>
<tr>
<td>Total Maintenance, 2015 - 2065</td>
<td>$131,000</td>
<td>$219,000</td>
</tr>
<tr>
<td>Total Repairs, 2015 - 2065</td>
<td>$189,000</td>
<td>$462,000</td>
</tr>
<tr>
<td>Total Maintenance and Repairs</td>
<td>$320,000</td>
<td>$681,000</td>
</tr>
</tbody>
</table>
Section 5 Alternatives Comparison

5.1 Evaluation Criteria

The following evaluation criteria were developed to identify specific features of the proposed alternatives that impact the selection as a preferred alternative. These criteria as they relate to each alternative are discussed below. Each alternative follows the same overall alignment for a total length of approximately 2,670 feet.

**Conceptual Cost Estimate**

Cost estimates were developed based on the anticipated quantity of materials for the various project elements identified in the planning study. The unit costs are based on past project experience in similar locations, VTrans bid histories, and engineering judgment. These estimates are meant only as planning tools and include a 20% contingency. A cost has been included for right-of-way services and are meant to cover the research, survey, and administrative costs of obtaining easements, but do not include the cost to purchase rights. As a preferred alternative is selected and the design developed, additional detail will be used to develop full construction plans and a detailed cost estimate.

The total estimated maintenance and repairs cost over a 50 year period has been added to the project costs to approximate the total lifecycle cost of each alternative.

<table>
<thead>
<tr>
<th>No-Build</th>
<th>Alternative 1 Concrete Sidewalk</th>
<th>Alternative 2 Multi-Use Path</th>
<th>Alternative 3 Asphalt Sidewalk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Project Cost $0</td>
<td>$461,400</td>
<td>$650,000</td>
<td>$427,800</td>
</tr>
<tr>
<td>Total Maint. &amp; Repairs $0</td>
<td>$320,000</td>
<td>$681,000</td>
<td>$360,000</td>
</tr>
<tr>
<td>Total Lifecycle Cost $0</td>
<td>$781,400</td>
<td>$1,331,000</td>
<td>$787,800</td>
</tr>
</tbody>
</table>

**Satisfying the Purpose and Need**

The no-build alternative does not satisfy the purpose and need; all of the build alternatives have been developed to address the issues identified by the purpose and need.
Constructability

Constructability refers to the complexity of design and construction as well as the traffic interruption that could be expected due to construction activities. The no-build alternative proposes no infrastructure and the constructability criterion is not applicable. The construction of both sidewalk and the path alternatives proposes similar features inside the highway ROW. Both alternatives will require significant traffic control during construction.

Bicycle and Pedestrian Improvements

The Bicycle and Pedestrian Improvements criterion is meant to describe the improvement to the bicycle and pedestrian network in the project area. The sidewalk provides improved pedestrian facilities, however does not address bicycle needs, assuming the existing 4-foot shoulder provides an acceptable bicycle facility through the village area. The path provides facilities for both bicycles and pedestrians.

Allows for Future Path Widening

The Planning Commission indicated that a multi-use path would be desirable along the VT-15 corridor, either as a result of this study or at some point in the future. This criterion identifies the ability of the alternative to be easily reconstructed to a full width, multi-use path. The no-build alternative proposes no infrastructure and constructing the full width path would take the effort as identified in this report. The concrete sidewalk could be widened with asphalt or concrete to 10-feet, but the control joints found in concrete surfaces is generally not suitable for multi-use paths. The asphalt sidewalk could be widened to a 10-foot path with some impacts to trees and drainage infrastructure; however care would need to be exercised in preparing the subgrade and base materials to avoid excessive settling and longitudinal cracking.

Durability

Typically, a concrete sidewalk is a more durable material with a more consistent surface than asphalt. However, repairs to concrete, while less common, are generally more expensive and complicated than repairs to asphalt.

Potential for Improving Community Character

The concrete sidewalk alternative provides a traditional walkway common in many village settings. The wider multi-use path will likely impact several large, established trees along the corridor. Additionally, the asphalt surface of the path will not be differentiated in paved driveways and is often considered not as aesthetically pleasing as concrete.

Right of Way Impacts

The no-build alternative proposes no new infrastructure and consequently, ROW impacts are not applicable. The concrete and asphalt sidewalk alternatives will likely require temporary easements during construction and potentially several permanent easements for the installation and maintenance of drainage infrastructure. The multi-use path alternative may require permanent easements along the entire path alignment, plus additional takings for the drainage infrastructure similar to the concrete sidewalk as discussed above. Both build alternatives will require substantial ROW research and easements.

Environmental and Cultural Impacts / Permitting

The no-build alternative does not propose any new infrastructure and the potential impacts and permits are not applicable. As described in the 2007 Sidewalk Feasibility Study, the remaining build alternatives
are expected to have few to no impacts on any resources, and the potential permitting requirements are all expected to be similar. A highway access permit from VTrans will be required for work within the highway ROW for all build alternatives. No other permits are anticipated.

5.2 Comparison Matrix

The comparison matrix in Table 2 was prepared to summarize the conclusions of the Evaluation Criteria discussion. Green shading and a plus sign indicates a positive attribute; red shading and a minus sign indicates a negative characteristic.

Table 2: Alternatives comparison matrix for the VT-15 / Underhill Flats Sidewalk Feasibility Study Update.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>No Build</th>
<th>Alternative 1 - Concrete Sidewalk</th>
<th>Alternative 2 - Multi-Use Path</th>
<th>Alternative 3 - Asphalt Sidewalk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual Cost Estimate</td>
<td>$0</td>
<td>$461,400</td>
<td>$650,000</td>
<td>$427,800</td>
</tr>
<tr>
<td>Estimated 50-Year Lifecycle Cost</td>
<td>$0</td>
<td>$781,400</td>
<td>$1,331,000</td>
<td>$787,800</td>
</tr>
<tr>
<td>Satisfies Purpose and Need</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Constructibility</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicycle and Pedestrian Improvements</td>
<td>None</td>
<td>+</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>Allows for Future Path Widening</td>
<td>No</td>
<td>No</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>Durability</td>
<td>N/A</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Character</td>
<td>N/A</td>
<td>+</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>ROW Impacts</td>
<td>N/A</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Environmental / Cultural Impacts</td>
<td>None</td>
<td>Minimal</td>
<td>Minimal</td>
<td>Minimal</td>
</tr>
<tr>
<td>Permitting Issues</td>
<td>None</td>
<td>Minimal</td>
<td>Minimal</td>
<td>Minimal</td>
</tr>
</tbody>
</table>

5.3 Compliance with Complete Streets Legislation

The CCRPC, in collaboration with its member municipalities, state and local partners, have historically taken a multimodal approach to transportation planning. The Vermont Legislature sought to further encourage these best practices with the passing of Complete Streets Legislation (Act 34) which became effective on July 1, 2011. Its purpose is to ensure the needs of all transportation users, regardless of their age, ability or preferred mode of transportation, be considered in all transportation projects. By developing a range of alternatives that would improve conditions for walkers and bikers, this project is in compliance with the complete streets legislation. A Complete Streets reporting form is provided in Attachment F.
Section 6 Preferred Alternative

Alternative 3, the 5-foot asphalt walkway, was selected by the Underhill Planning Commission as the initially preferred alternative at the January 2, 2013 Planning Commission Meeting. This alternative was selected following a discussion that highlighted several critical issues:

- The smooth asphalt surface was preferred to the potential heaving of concrete slabs.
- While repairs may be more common, cold-mix asphalt could be placed by Town crews to repair the asphalt surface, rather than concrete repairs requiring a concrete contractor.
- The lower initial price of the asphalt sidewalk was preferred.
- The asphalt surface provided the Town the option of widening the 5-foot sidewalk to a 10-foot path in the future, recognizing that the subgrade and base materials will require consideration to minimize longitudinal cracking that is possible where the existing and new segments of asphalt meet.
- The Planning Commission requested that crosswalk striping is placed at particularly vulnerable driveway crossings, specifically at the wide fire station crossing and at the service station.
- The Planning Commission agreed that the existing demand for the 10-foot multi-use path does not justify the expected expense, landscape impact, right-of-way, and connectivity requirements of the alternative. The Commission was interested in maintaining the ability to widen to a full width multi-use path should the demand exist and a network of path connections has been planned.

![Figure 4: Typical section illustrating the initially preferred asphalt sidewalk alternative. ROW shown for illustrative purposes only.](image-url)
The initially selected preferred alternative, Alternative 3 – Asphalt Walkway, is illustrated in Attachment C. The following potential impacts have been identified:

- **Right-of-Way (ROW):** As described previously in the report, the ROW through the project area is unclear. The ROW has been reported to be 4-rods (66 feet) wide, however roadside development indicates the ROW is closer to 3-rods (49.5 feet). Additionally, the ROW may not be centered along the highway. In any case, additional ROW research will need to be done to determine the highway ROW width and determine the extent of any ROW impacts.

- **Utility Poles:** Three utility pole impacts were identified, including:
  - One pole on Park Street with aerial and underground service to private residences,
  - One support pole along VT-15 north of the service station, and
  - One pole along VT-15 north of Meadow Lane with aerial service to a private residence.

  The utility company has indicated that the poles may be relocated at their expense within the highway right-of-way.

- **Drainage Infrastructure:** Three new catch basins are proposed with the associated stormwater piping. Any new infrastructure proposed beyond the sidewalk is recommended to be placed the limits of the potential future multi-use path widening.

- **Water Service:** Several valve boxes and fire hydrants were identified for adjustment and relocation along VT-15.

- **Signs:** Several signs along VT-15 were identified for relocation. The signs should be upgraded to the latest VTrans retroreflectivity standards at this time. New “Pedestrian Ahead” (W11-2) signs may be installed in advance of the service station and fire station sidewalk segments.

- **Mailboxes:** Many mailboxes along VT-15 will require relocation due to the sidewalk construction, but these impacts should not impact the overall feasibility of the project.

- **Gas Service:** Overall, the gas service should not be impacted by the construction of the sidewalk. Gas lines are typically at least 3.5 feet below grade, and the excavation for sidewalk construction should not exceed 1.5 feet. Several valve boxes may be impacted and adjusted to match grade with the final sidewalk surface.

- **Treatment through Long Drives:** It is recommended that the sidewalk material is considered to be changed to concrete through the fire station and service station drives. The lighter colored material will provide increased visual contrast through these drives and further define the pedestrian walkway. In the center of the service station drive, mountable granite curbs are proposed adjacent to the VT-15 shoulder and gas pumps. These mountable curbs will provide a vertical separation from the highway and allow for a 7-foot access aisle to the gas pumps.

The Draft Report and initially selected preferred alternative have been submitted to the Agency of Transportation Bicycle and Pedestrian Program and District Maintenance divisions for review and comment. The comments that were received are presented in Attachment G.

The only anticipated permit resulting from this alternative is the VTrans Highway Access Permit (1111 Permit) resulting from the construction activities within the State Highway ROW. No stormwater permits are anticipated. If federal funds are used for the design and construction of the selected alternative, the environmental document required will be a Categorical Exclusion (CE).
Section 7 Potential Phasing

To ease the immediate burden of construction cost, phased construction of the sidewalk is possible. Based on geography, existing conditions, and the origins and destinations examined in the 2007 study, the initially preferred alternative can be separated into four distinct segments. From south to north, these segments include:

A. Park Street,
B. VT-15 from Park Street to the end of the existing sidewalk,
C. VT-15 from the end of the existing sidewalk to Meadow Lane, and
D. VT-15 from Meadow Lane to Dumas Road.

These segments are illustrated in Figure 6.

Figure 6: Project phasing segments.

The highest priority segments were identified as those without existing sidewalks. Segments A and B contain sidewalk in deteriorated and deficient condition, however the walkway is still passable. Segments C and D do not have any pedestrian infrastructure and providing a safe means of pedestrian travel along
these segments have been identified as the greatest project need. Additionally, the pedestrian improvements to the large driveways at the fire station and service station in Segment C will help reduce pedestrian exposure and improve visibility at these locations.

Of Segments C and D, only Segment C, from the existing sidewalk end to Meadow Lane, has immediate logical termini in the existing condition. Upon construction of Segment C, Segment D will have logical termini between the end of the Segment C sidewalk to Dumas Road.

The initially proposed construction phasing priority is listed below. The estimated cost for each phase is based on the improvements illustrated in Alternative 3: Asphalt Sidewalk. All phases are recommended to be constructed in one project to maximize cost savings. However, this phasing priority is intended to inform the decision making process if the final design costs exceed available construction funding. Please see Attachment D – Updated Conceptual Cost Estimate for details about costs associated with each alternative.

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<th>Phase</th>
<th>Estimated Construction Cost</th>
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<td>1</td>
<td>Segment C: VT-15 from end of existing walk to Meadow Lane</td>
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<td>$172,500</td>
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<tr>
<td>2</td>
<td>Segment D: VT-15 from Meadow Lane to Dumas Road</td>
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<td>3</td>
<td>Segment B: VT-15 from Park Street to end of existing walk</td>
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<td>Segment A: Park Street Improvements</td>
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Total Project Cost: $427,800

*Figure 7: Project phasing priority.*
Section 8 Funding Opportunities

A variety of funding sources and grant opportunities are available to support the design and construction costs of the selected alternatives. These sources include:

- Vermont Agency of Transportation – Transportation Alternatives Program
- Vermont Agency of Transportation – Bicycle and Pedestrian Grant Program
- Chittenden County Regional Planning Commission – Sidewalk Grant Program

Transportation Alternatives Program

Under the federal transportation legislation *Moving Ahead for Progress in the 21st Century* (MAP-21), the Transportation Alternatives Program (TA) receives set-aside apportioning to provide funding opportunities for a variety of projects, including "construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other nonmotorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990." The selected alternative from this report will likely be eligible for funding from this competitive grant source.

Typically, the grant application process begins in around November when the grant program is announced. A mandatory training session for the applicant is held in December, applications are due in January, and grant awards are announced in March. The maximum TA grant award is $300,000 and requires a minimum 20% match. To receive the maximum grant award, the project total must be at least $375,000.

The TA program is federally funded and administered by the State Agency of Transportation. All federal requirements must be followed. More information on the grant program can be found on the VTrans website at [http://vtransengineering.vermont.gov/sections/ltf/transportationalternatives](http://vtransengineering.vermont.gov/sections/ltf/transportationalternatives). The Agency Contact for the TA program is:

Patti Coburn  
Local Transportation Facilities  
Vermont Agency of Transportation  
(802) 828-5799  
patti.coburn@state.vt.us
**Bicycle and Pedestrian Grant Program**

The Bicycle and Pedestrian Grant Program is funded by the state's Surface Transportation Program (STP) allocation. Eligible activities include all activities previously defined in the Transportation Alternatives Program. Generally, grant opportunities are announced in late-spring, with applications due mid-summer.

The Bicycle and Pedestrian Grant program is administered by VTrans and utilizes federal funds. Accordingly, all associated federal regulations must be met. There is a 10% local match requirement. The Agency contact for the Bicycle and Pedestrian Grant program is:

Jon Kaplan  
Local Transportation Facilities  
Vermont Agency of Transportation  
(802) 828-0059  
jon.kaplan@state.vt.us

**Sidewalk Grant Program**

The Chittenden County Regional Planning Commission (CCRPC) annually releases around $250,000 for the design and construction of pedestrian infrastructure through Sidewalk Grants. These competitive grants use a mix of state and federal funds, require a 20% match, and all federal requirements must be met. The most recent round of grant applications was due mid-November 2012.

While this grant may not provide enough funding to construct all four segments of the sidewalk identified as the preferred alternative, it may provide enough capital to design and build one phase of the project as identified in Section 7. If this phased approach to construction were to be pursued, the sidewalk phases should have logical termini, such as existing sidewalk infrastructure, a specific pedestrian-related origin or destination, or a cross street with acceptable pedestrian accommodations. The highest priority phase, Segment C between the existing sidewalk and Meadow Lane, appears to meet these criteria.

The CCRPC Sidewalk Grant Program Manager is:

Peter Keating  
Senior Transportation Planner  
110 West Canal Street, Suite 202  
Winooski, Vermont 05404-2109  
(802) 846-4490  
pkeating@ccrpcvt.org

**Local Funding Sources**

Local funding may reduce the overall project cost and shorten the project schedule. The source for local funds may be voter approved bonds, a Tax Increment Financing (TIF) district, development fees, and capital budget appropriation. A municipal bond offers the community immediate access to funds, with the balance to be paid back over a number of years. This payback period can be a known cost that can be budgeted over a number of years. A TIF district can be used to finance infrastructure improvements that spur additional development, with the resulting increase in the taxable base paying for the initial investment. This type of financing is usually used for large scale developments in more dense, urban areas and is not applicable solely for the construction of a sidewalk or multi-use path. Development fees and capital budget appropriations may take a number of years to accrue to the necessary funding level. During this accrual period, construction priorities may change and other uses may be found for the accrued funds.
Section 9  Project Schedule

It is estimated the design and construction of the initially selected preferred alternative described in this report will require approximately 6 months. The project development schedule for securing funding, progressing the design, and obtaining the necessary permits depends on the funding source selected. The following discussion on schedule and next steps assumes that a Transportation Alternatives grant is pursued and awarded.

Following the Local Transportation Facility (LTF) process for project development, the project definition, design and construction phases can be expected to require approximately 3 years. Assuming the project applies for and receives the next available TA grant opportunity, the project will likely be completed in July 2017. Under these assumptions, the project milestones are detailed below:

October 2013:  Approve Feasibility Study and Update – Select Preferred Alternative
January 2014:  Prepare and Submit TA Grant Application
March 2014:  TA Grant Awarded
November 2014:  Select Design Consultant
December 2014 – May 2016:  Project Design

December 2015:  Categorical Exclusion Received
June 2016:  Right of Way Clearance
December 2016:  Final Design
February 2017:  Project Bidding
April – June 2017:  Construction
July 2017:  Construction Completed
ATTACHMENT A

2007 Town of Underhill Route 15 Sidewalk Feasibility Study
Town of Underhill
Route 15 Sidewalk Feasibility Study

Final Report

July, 2007

Prepared By:

Donald L. Hamlin Consulting Engineers, Inc.
136 Pearl Street
Essex Junction, Vermont 05452
Tel(802) 878-3956 Fax (802) 878-2679
A. **Purpose and Need**

In April, 2006 the Town of Underhill Selectboard contacted the Chittenden County Metropolitan Planning Organization (CCMPO) to request a feasibility study for sidewalk improvements along Park Street and VT Route 15 from Park Street to Meadow Lane. The existing sidewalk that extends along the east side of VT Route 15 between Park Street and the fire station is in very poor condition and needs to be replaced. In addition to evaluating the replacement of this existing sidewalk, the Selectboard requested an evaluation of new sidewalk installation from the fire station to Meadow Lane.

Meadow Lane provides access to a relatively large residential area, consisting of approximately 55 residential lots, with 5 additional residential lots further to the north along Route 15 and Dumas Road. At its intersection with VT Route 15, Park Street hosts several commercial uses, and a church. The Underhill ID School and Browns River Middle School are located along River Road approximately two-thirds of a mile from the VT Route 15/Park Street intersection. VT Route 15 in this area is a heavily traveled roadway with a 2006 Annual Average Daily Traffic of 7,200 vehicles per day. The existing roadway shoulder is not a desirable route for pedestrian travel due to the volume of vehicle traffic and 35 mph speed limit along this section of roadway. In addition, the poor conditions of the existing sidewalk between the fire station and Park Street make drainage and winter maintenance difficult.

The purpose of the request by the Selectboard was in support the goals and objectives of the Town of Underhill to enhance pedestrian access in this area, to connect to recently completed sidewalk improvements along VT Route 15, Park Street, and River Road to the south, and to promote connectivity to the existing schools along River Road.

The proposed sidewalk is needed as there are a significant number of residences along Meadow Lane that currently do not have pedestrian access north of the fire station. Construction of the requested sidewalk would serve to provide a safe and convenient pedestrian connection from the residential area along Meadow Lane and the commercial uses, the church, and schools to the south and east.

To this end, as part of the CCMPO Technical Assistance Program, we were asked to provide assistance in the form of a sidewalk feasibility study. The text that follows presents a summary of our findings and conclusions.

B. **Project Area and Existing Conditions**

B1. **Project Area**

The project area is located along the east side of VT Route 15 in the Town of Underhill between Park Street and Dumas Road, which is located approximately 500 feet north of Meadow Lane. The original project area terminated at Meadow Lane, but was later extended to Dumas Road at the...
request of the citizens at the Public Concerns Meeting. Appendix A presents plans depicting the location of the project area.

B2. Existing Conditions

Starting at the south end of the project area, there is an existing sidewalk along the east side of Park Street adjacent to the church and commercial uses. This sidewalk is narrow and in very poor condition, as depicted in Figure 1.

Continuing to the north, the existing sidewalk passes adjacent to the large residential and commercial building at the intersection of Park Street and VT Route 15. In this area, there is existing parallel parking along VT Route 15 adjacent to the sidewalk serving the commercial uses in the building, which is depicted in Figure 2. This existing parking consists of a gravel area located between the edge of the existing pavement and the existing sidewalk and provides space for approximately 3-4 parked vehicles.

Between Park Street and the fire station to the north, the existing sidewalk is located between the edge of the roadway shoulder and the existing residential properties on the east side of the roadway. The condition of the existing sidewalk in this area is very poor with an uneven walking surface and inadequate drainage. There are several existing catch basins located in the area between the edge of the roadway shoulder and the existing sidewalk. This area mainly consists of a rough gravel surface.

The existing sidewalk terminates at the access drive to the fire station. In the vicinity of the fire station is a large grassy area adjacent to the roadway. There is an existing catch basin located in this grassy area and an existing culvert under a drive serving a very large open area located behind the fire station property.

Between the fire station and Meadow Lane, there are several residential properties and an auto service station. At the fire station drives, there are two existing curb cuts, approximately 24’ wide and 75’ in width. In front of the service station, there is an approximately 130’ wide paved area with
no channelization for vehicular ingress/egress. In the center of the paved area is an existing gas pump island located on the edge of the public right-of-way.

Between the service station and Meadow Lane there is one residential property and then a sloping grass area adjacent to the roadway. There is one existing utility pole located in this grass area, with a supporting guy wire, as shown in Figure 7.

Existing conditions between Meadow Lane and Dumas road consist of grass areas in front of several residential properties, as depicted in Figures 8 and 9.

**B3. Proposed Sidewalk Improvements**

The proposed sidewalk improvements consist of the removal and replacement of the existing sidewalk with new 5’ wide cement concrete sidewalk. Along Park Street and the parallel parking spaces in front of the large commercial building, new granite curbing would be installed along the edge of the roadway and adjacent to the sidewalk. As part of the proposed improvements, the existing gravel parking spaces would be paved and striped to delineate 3 parallel parking spaces in front of the commercial building. From this point to the fire station, the new concrete sidewalk would be installed generally in the same location as the existing sidewalk and generally follow the existing grades. The new sidewalk would be installed approximately 5 feet from the edge of the existing 4 foot wide, paved shoulder. This 5 foot wide buffer area, which is currently gravel, would be planted...
with grass and graded to drain to the existing roadside drainage structures. There will likely be areas where the new sidewalk will need to be raised slightly above the existing grade in order to maintain positive drainage flow to the existing roadside drainage structures.

The Conceptual Plans for the proposed sidewalk, which are presented in Appendix A, depict the installation of an additional catch basin in the vicinity of the residential drive located south of the fire station drive. This additional catch basin structure will be connected to the existing drainage infrastructure and will serve to improve the drainage in this area.

At the Public Concerns meeting, the citizens expressed the desire to install the concrete sidewalk in the pavement across the drives, including the church, fire station, and service station. Alternatives considered for the major drives included the installation of textured pavement, painted cross walks, or leaving the existing pavement untouched. The citizens felt that embedding the new concrete sidewalk in the pavement would not only provide a visual cue to motorists alerting them to the presence of pedestrian facilities, but also promote a pedestrian-friendly, village-like feel throughout the area and take the focus away from VT Route 15.

As part of the initial conceptual layout, the new sidewalk was routed away from the roadway and onto the fire station property north of the fire station drive. This was done to avoid impacts to the existing catch basin and culvert in this vicinity, but would require an easement for the encroachment onto the fire station property. At the Public Concerns Meeting, the citizens expressed concern over this alignment as it took away from the “look and feel” they were envisioning through this area, as discussed above. Despite the need to make modifications to the existing drainage in this area to accommodate the new 5 foot wide green belt adjacent to the roadway shoulder and 5 foot wide sidewalk, the citizens expressed desire to maintain this typical section through this area. This configuration is depicted on Sheet #2 of the Concept Plan presented in Appendix A.

At the existing service station, the proposed improvements will consist of the construction of bulb-out islands on either side of the service station drive. This will serve to narrow the approximately 130’ wide expanse of pavement in this area to approximately 94’ wide and provide some level of channelization. Extensive discussions were held between the Town and property owners concerning the balance between the need to provide safe pedestrian access in this area while at the same time respecting and maintaining the commercial uses occurring on their property. There are large fuel delivery trucks that need access to the subsurface fuel storage tanks. Therefore the bulb-out islands and other improvements in this area need to be designed with these large vehicles in mind. Following input received from the citizens and service station owners, the bulb-out islands will be constructed without raised curbing, but will have a colored, textured concrete surface to provide
a visual contrast between the pavement surface and new concrete sidewalk. This configuration will also facilitate winter snow plowing operations, which were also a concern to the service station owners.

It was previously discussed that the new concrete sidewalk would be embedded in the pavement across the service station drive in an effort to alert motorists to the presence of pedestrian facilities. In the area of the gas pumps, the new sidewalk will be installed adjacent to the 4’ wide roadway shoulder. This was necessary in order to maintain service to vehicles on both sides of the gas pumps. Constructing the sidewalk on a raised curb island was considered, however there was insufficient space available between the edge of the roadway shoulder and the existing gas pumps for such an island, while maintaining service to the west side of the pumps. As the sidewalk will be adjacent to the roadway shoulder, the installation of flexible post delineators has been included along the west side of the sidewalk in this area to provide a visual barrier between motorists and the pedestrian facilities. It is envisioned that these delineators would be removed during the winter months to facilitate winter plowing. At the Public Concerns Meeting, the citizens expressed concern regarding the flexible post delineators and how they would look in the context of the new improvements. Consideration was given to removing them from the design, but it was eventually decided that they would remain as there was a recognized need for providing a visual barrier between the roadway shoulder and sidewalk. In addition, it was suggested that a warning sign be installed in advance of the service station to alert motorists of the presence of pedestrian facilities. The proposed improvements in this area are depicted on Sheet #3 of the Concept Plans in Appendix A.

Between the service station and Meadow Lane, the new sidewalk and green belt will be constructed generally along the edge of the roadway shoulder. One new fire hydrant will need to be relocated to accommodate the new sidewalk. There is one existing utility support pole that will need to be relocated to accommodate the new sidewalk.

At its intersection with Meadow Lane, the new sidewalk will stop and a new crosswalk and stop bar will be installed. Between Meadow Lane and Dumas Road, the new sidewalk and green belt will generally follow the roadway shoulder. However, as VT Route 15 turns to the northwest near the start of Dumas Road, the sidewalk will proceed straight along Dumas Road; where it will terminate at the first driveway along the east side of Dumas Road.

B4. Alternatives

As the new sidewalk would replace the existing sidewalk on the east side of the roadway, it was decided that the extended portion of the new sidewalk would also be located on the east side of the
roadway. This is also the side that Meadow Lane is located on, which avoids the need for most pedestrians to cross VT Route 15 in order to access the new sidewalk.

Alternate configurations for specific portions of the sidewalk as discussed above were considered, for example, several different sidewalk alignments were considered in the grass area north of the fire station drive in order to avoid impacts to the existing drainage features in this area. Ultimately, it was decided by the citizens that the preferred configuration would be to maintain the 5 foot green belt and 5 foot sidewalk section inasmuch as possible. Although this configuration would result in a slightly higher construction cost due to the additional drainage structure and piping required, the citizens specifically requested this configuration as they felt it presents a more consistent sidewalk alignment and avoids the need for an easement across the fire station property.

B5. Origins and Destinations

This sidewalk project was requested by the Town of Underhill Selectboard with origins and destinations in mind from the very onset. Meadow Lane, on the north end of the project area, is a relatively large residential area and abuts a large, vacant parcel behind the fire station. This approximately 58 acre parcel of land is planned for residential development in the near future, which is consistent with the Town Plan for encouraging growth in this area of Town.

On the opposite end of the project area are located several commercial uses and a church. Further to the south, approximately 2/3 of a mile, are located the Browns River Middle School and Underhill ID School. The Town Plan encourages the creation of pedestrian-friendly, village-like areas to promote pedestrian access and recreation.

At the Public Concerns Meeting, several citizens present were residents along this section of VT Route 15. They indicated strong support for the creation of pedestrian connections from this area to the nearby schools. In 2004, an extensive sidewalk enhancement project was completed that involved the construction of new sidewalks along VT Route 15, Park Street, and River Road that provide access to the school facilities. The currently proposed project would provide a vital link between the project area and these recently constructed sidewalks to achieve the connectivity so desired.

C. Right of Way

Right of way and property boundary lines depicted on the Concept Plans were obtained from the Vermont Agency of Transportation (VTrans) and the CCMPO and are approximate. During further stages of this project, detailed right-of-way investigations will be performed in order to confirm the right-of-way locations.
The existing VT Route 15 roadway is not centered inside of the existing 4-rod State right-of-way, but is instead shifted towards the east side of the right-of-way. The proposed typical section for the new sidewalk consists of an 11’ wide travel lane and 4’ wide paved shoulder for VT Route 15, a 5’ wide grass belt, and the 5’ wide concrete sidewalk. With this typical section and utilizing the existing roadway centerline, the back of the new sidewalk will be generally 1’ inside the right-of-way. This will likely require temporary construction easements from the adjacent property owners. The extent of these easements is not known at this time due to the conceptual nature of the design. At the Public Concerns Meeting, there was some discussion that it would take just one property owner unwilling to grant a temporary easement to delay the project. This potential occurrence will need to be addressed during final design stages of this project, once the extent of any temporary easements can be identified.

D. Utility Impacts

The proposed project will have limited impacts to existing utilities within the project area. Due to the nature of the construction, impacts to existing subsurface utilities are not anticipated. There are existing overhead utility lines located on the west side of VT Route 15, which will not be impacted by this project. There are two utility poles located on the east side of VT Route 15 that provide overhead utility crossings. One of these poles will need to be relocated in order to accommodate the sidewalk alignment.

There are existing roadside drainage structures along the east side of the roadway, between the roadway and the proposed sidewalk. In general, it is anticipated that the new sidewalk will be installed in such a manner as to maintain positive drainage to the existing catch basins. The conceptual design includes the installation of one additional catch basin in the vicinity of the residential drive west of the fire station. This new catch basin will be connected to the existing drainage system adjacent to the fire station.

In the grass area north of the fire station, there is an existing catch basin that will need to be modified due to the new sidewalk. This catch basin is located in a low area several feet below the surface of the roadway. As the new sidewalk will be installed generally at the same or slightly lower elevation as the roadway, this new catch basin will be raised and fitted with a solid cover. A new drainage pipe will be installed from this catch basin to accept drainage from the low area. In addition, a nearby culvert will be replaced to connect to this catch basin structure. The proposed improvements are depicted on Sheet #3 of the Concept Plans in Appendix A.

There is one existing fire hydrant that will need to be relocated to accommodate the new sidewalk alignment.
E. Natural and Cultural Resources

The proposed sidewalk is located within the existing Town and/or State rights-of-way along Park Street and VT Route 15. A significant portion of the proposed sidewalk will replace an existing sidewalk that is in very poor condition. The remaining area of the proposed sidewalk is located in the grass area adjacent to the roadway in front of residential properties, with the exception of the fire station and service station. In consideration of the location of the proposed sidewalk, impacts to natural and cultural resources will be minimal, as described below.

E1. Natural Resources

E1.1 Wetlands

According to the National Wetland Inventory maps, there are no mapped wetlands within the project area.

E1.2 Lakes/Ponds/Streams/Rivers

Roaring Brook crosses beneath VT Route 15 and just north of the end of Dumas Road, approximately 465 feet beyond the end of the proposed sidewalk; and therefore will not be adversely impacted by the proposed sidewalk.

E1.3 Floodplains

According to the FEMA Flood Insurance Rate Maps, the limits of the 100-year floodplain extend approximately 100 feet on either side of the Roaring Brook in the vicinity of Dumas Road. The proposed sidewalk is outside the limits of the 100-year flood plain.

E1.4 Endangered Species

There are no rare, threatened, or endangered species that will be adversely impacted by the proposed project.

E1.5 Flora/Fauna

No adverse impacts to flora/fauna are anticipated as a result of the proposed project.

E1.6 Stormwater

There is existing stormwater drainage infrastructure adjacent to the roadway within the project area. Minor modifications to the existing drainage infrastructure will be required to accommodate the preferred alignment of the proposed sidewalk. These modifications will not adversely impact the operation and functionality of the drainage system.

E1.7 Hazardous Wastes

No hazardous waste sites will be adversely impacted as a result of the proposed project. The proposed sidewalk construction at the service station will be limited to the area inside the State right-of-way.
E1.8 Forest Land
The proposed project will not adversely impact forest lands.

E.2 Cultural Resources

E2.1 Historic
The proposed sidewalk will be installed adjacent to the existing roadways within the project area. In addition, in the vicinity of Park Street and the adjacent commercial buildings, the proposed sidewalk will replace an existing sidewalk that is in very poor condition and presents a safety hazard to pedestrians. No impacts to historic structures are anticipated as a result of this project.

E2.2 Archaeological
The project area is located adjacent to existing roadway, which has been disturbed in the past as part of the roadway construction and development of adjacent properties; and as such no impacts to archaeological resources are anticipated.

E2.3 Architectural
The proposed project will not adversely impact the architectural resources within the project area.

E2.4 Public Lands
There are no public lands that will be adversely impacted as a result of the proposed sidewalk.

E2.5 Agricultural Lands
According to the USDA’s Farmland Classification Systems for Vermont Soils, April 2003 Edition, the soils adjacent to VT Route 15 and within the project area are classified as primary agricultural soils. In consideration of the project’s location being immediately adjacent to VT Route 15 and inside the State right-of-way, there will be no impact to the use of the adjoining lands for agricultural purposes.

F. Preliminary Project Cost Estimate
Based on the Concept Plans presented in Appendix A, the estimate of probable construction cost is presented below, assuming construction during the 2009 construction season. A breakdown of the cost estimate is presented in Appendix F.

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G. **Maintenance**

Anticipated maintenance needs will primarily be limited to winter snow plowing. Currently, the Town of Underhill plows the existing sidewalk between Park Street and the fire station; although the poor condition of this existing walk makes winter plowing difficult. The new sidewalk will be approximately two feet wider and will have a consistent surface that will be more conducive to winter plowing.

During the summer months, necessary maintenance will include mowing of the adjacent grass areas and inspection and cleaning of the storm drainage infrastructure, as needed. These maintenance items are on-going currently.

H. **Public Involvement**

Throughout the course of the project, close contact has been maintained between the Town staff and community members. During the design development, a meeting was held with the owners of the service station to review the proposed improvements and ensure that they were compatible with their business operations inasmuch as possible. As a result of input from the community, several revisions were incorporated into the design.

A Public Concerns Meeting was held on October 24, 2006 at the Underhill Town Hall in Underhill Center. There were 9 citizens and 3 Selectboard members present at the meeting. Following a brief introduction to the project, the concept plans were presented and discussed. Following the review of the plans, the meeting was opened up for questions and comments from the public. There was extensive discussion regarding several specific items regarding the project, which included the following:

- VT Route 15 Right-of-Way location
- Winter Sidewalk Maintenance
- Sidewalk surface at major drive crossings
- Roadside parking at the end of Park Street
- Drainage concerns
- Sidewalk alignment through the fire station property
- Service station sidewalk alignment, surfaces, and use of flexible delineators
- Extension of project from Meadow Lane to Dumas Road

At the conclusion of the meeting, there was substantial support for the project. Many of the concerns expressed at the meeting were very specific items, outside of the scope of this feasibility study, which will be addressed in the final design stages of the project. In fact, the citizens were so supportive of the project that they requested that the project be extended from Meadow Lane to Dumas Road; a request that was subsequently approved. A summary of the Public Concerns Meeting is presented in Appendix E.

I. **Compatibility with Planning Efforts**

This project was initiated by the Town of Underhill Selectboard through a request to the CCMPO for a feasibility study for this project. This project was envisioned as an extension of the sidewalk
construction along Park Street, River Road, and VT Route 15 as part of a 2004 transportation enhancement grant for the Town of Jericho and Underhill. With this proposed sidewalk in place, it would provide a safe pedestrian connection between the relatively large residential areas in and around Meadow Lane with the new sidewalks leading to the schools along River Road.

The Underhill Town Plan designates the Underhill Flats area of town as a growth-center, which includes the project area, with a vision for a “…pedestrian-friendly, high-density, mixed-use village center that promotes contacts among residents and that does not require driving to shops farther away…” In addition, the Town Plan presents objectives to “ensure access to education”, “provide transportation options”, and “provide recreation opportunities.”

**J. Project Time Line**

This study has shown strong public support for this project, with minimal adverse impacts to natural and cultural resources. The project design is relatively straightforward with few complications. Accordingly, from the time that funding is secured, preliminary engineering, categorical exclusion determination, and final engineering design is estimated to be completed within 12 months. Acquisition of required permits for the project is estimated to take approximately 4-6 months. The construction duration is estimated to be approximately 4-5 months for this project.

**K. Viability**

The Town of Underhill Selectboard envisions this project as a continuation of the extensive sidewalk construction that occurred in 2004 along Park Street, River Road, and VT Route 15 to provide safe pedestrian access to the nearby schools along River Road. The proximity of the project area to the schools will provide an opportunity for students to safely walk or bike to/from school and make this project a natural extension of the existing sidewalk network.

The proposed project will provide the Town of Underhill with a vital link between residential areas and existing pedestrian facilities to encourage non-motorized transportation alternatives in an area designated to be a “pedestrian-friendly, high-density, mixed-use village center.”

In consideration of the proximity of the Meadow Lane residential areas to the schools along River Road and the nearby Mills Riverside Park along VT Route 15, the proposed project meets the objectives of the Town Plan and aids in the fulfillment of the town’s vision.
Appendix A
CCMPO TECHNICAL ASSISTANCE PROGRAM
TOWN OF UNDERHILL
ROUTE 15 SIDEWALK FEASIBILITY STUDY

DONALD L. HAMLIN CONSULTING ENGINEERS, INC.
136 Pearl Street, Essex Junction Vermont 05452

JULY, 2007
ATTACHMENT B

Multi-Use Path Alignment Sheets
NOTES:
RIGHT OF SHOWN IS APPROXIMATE ONLY BASED ON GIS PARCEL MAPPING PROVIDED BY THE CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION AND TOWN OF UNDERHILL.
NOTES:
RIGHT OF SHOWN IS APPROXIMATE ONLY BASED ON GIS PARCEL MAPPING PROVIDED BY THE CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION AND TOWN OF UNDERHILL.

NOTES:
RIGHT OF WAY (ROW) SHOWN IN CROSS SECTION IS FOR DISCUSSION ONLY. ROW SHOWN ASSUMES 4-ROD (66') AND 3-ROD (49.5') WIDTH CENTERED ON ROADWAY CENTERLINE WHICH HAS NOT BEEN VERIFIED.

TYPICAL CROSS SECTION

NOT TO SCALE

ROW (4 ROD)

ROW (3 ROD)

ROW (3 ROD)

ROW (3 ROD)

NOTES:
1. RIGHT OF WAY ROW SHOWN IN CROSS SECTION IS FOR DISCUSSION ONLY. ROW SHOWN ASSUMES 4-ROD (66') AND 3-ROD (49.5') WIDTH CENTERED ON ROADWAY CENTERLINE WHICH HAS NOT BEEN VERIFIED.
NOTES:
1. RIGHT OF WAY (ROW) SHOWN IN CROSS SECTION IS FOR DISCUSSION ONLY. ROW SHOWN ASSUMES A 4-ROD (66') AND 3-ROD (49.5') WIDTH CENTERED ON ROADWAY CENTERLINE WHICH HAS NOT BEEN VERIFIED.

LEGEND
- PROPOSED PATHWAY
- PROPOSED GREEN STRIP
- NEW PAVEMENT
- CATCH BASIN
- APPROXIMATE RIGHT OF WAY
- EXISTING GAS LINE
- EXISTING WATER LINE

NOTES:
RIGHT OF SHOWING APPROXIMATE ONLY BASED ON GIS PARCEL MAPPING PROVIDED BY THE CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION AND TOWN OF UNDERHILL.

TYPICAL CROSS SECTION
NOT TO SCALE

NOTES:
1. RIGHT OF WAY (ROW) SHOWN IN CROSS SECTION IS FOR DISCUSSION ONLY. ROW SHOWN ASSUMES A 4-ROD (66') AND 3-ROD (49.5') WIDTH CENTERED ON ROADWAY CENTERLINE WHICH HAS NOT BEEN VERIFIED.
Attachment C

Initially Preferred Alternative - Asphalt Walkway Alignment Sheets
NOTES:
1. RIGHT OF WAY SHOWN IS APPROXIMATE ONLY BASED ON GIS PARCEL MAPPING PROVIDED BY THE CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION AND TOWN OF UNDERHILL.

LEGEND
- PROPOSED PATHWAY
- PROPOSED GREEN STRIP
- NEW PAVEMENT
- CATCH-BASIN
- APPROXIMATE RIGHT OF WAY
- EXISTING GAS LINE
- EXISTING WATER LINE

TYPICAL CROSS SECTION
NOT TO SCALE

NOTES:
1. RIGHT OF WAY SHOWN IN CROSS SECTION IS FOR DISCUSSION ONLY. ROW SHOWN ASSUMES A 4-ROD (66') AND 3-ROD (49.5') WIDTH CENTERED ON ROADWAY CENTERLINE WHICH HAS NOT BEEN VERIFIED.

SCALE: 1" = 20'
ASPHALT SIDEWALK ALIGNMENT SHEET 3

NOTES:
1. RIGHT OF WAY (ROW) SHOWN IN CROSS SECTION IS FOR DISCUSSION ONLY. ROW SHOWN ASSUMES A 4-ROD (66') AND 3-ROD (49.5') WIDTH CENTERED ON ROADWAY CENTERLINE WHICH HAS NOT BEEN VERIFIED.

NOTES:
1. RIGHT OF SHOWN IS APPROXIMATE ONLY BASED ON GIS PARCELS. MAPPING PROVIDED BY THE CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION AND TOWN OF UNDERHILL.

OPTIONAL:
"PEDESTRIAN" WARNING SIGN (MUTED W11-2) AND "AHEAD" SUPPLEMENTARY PLAQUE (MUTED W16-8P) MAY BE PLACED 500-FEET IN ADVANCE OF THE SERVICE STATION DRIVE.

NOTES:
3. MOUNTABLE GRANITE CURB
4. REMOVABLE FLEXIBLE POST DELINERATORS
5. MOUNTABLE GRANITE CURB
6. REMOVABLE FLEXIBLE BOLLARDS (OPTIONAL)

NOT TO SCALE

1. CROSS SECTION B-B'

NOTES:
1. CROSS SECTION IS FOR DISCUSSION ONLY. ROW SHOWN ASSUMES A 4-ROD (66') AND 3-ROD (49.5') WIDTH CENTERED ON ROADWAY CENTERLINE WHICH HAS NOT BEEN VERIFIED.
NOTES:
1. RIGHT OF WAY (ROW) SHOWN IN CROSS SECTION IS FOR DISCUSSION ONLY. ROW SHOWN ASSUMES A 4-ROD (66') AND 3-ROD (49.5') WIDTH CENTERED ON ROADWAY CENTERLINE WHICH HAS NOT BEEN VERIFIED.

NOTES:
RIGHT OF SHOWN IS APPROXIMATE ONLY BASED ON GIS PARCEL MAPPING PROVIDED BY THE CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION AND TOWN OF UNDERHILL.

NOTES:
PROPOSED PATHWAY
PROPOSED GREEN STRIP
NEW PAVEMENT
CATCH BASIN
APPROXIMATE RIGHT OF WAY
EXISTING GAS LINE
EXISTING WATER LINE

TYPICAL CROSS SECTION

NOT TO SCALE

1. RIGHT OF WAY (ROW) SHOWN IN CROSS SECTION IS FOR DISCUSSION ONLY. ROW SHOWN ASSUMES A 4-ROD (66') AND 3-ROD (49.5') WIDTH CENTERED ON ROADWAY CENTERLINE WHICH HAS NOT BEEN VERIFIED.
NOTES:
RIGHT OF WAY SHOWN IS APPROXIMATE ONLY BASED ON GIS PARCEL MAPPING, PROVIDED BY THE CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION AND TOWN OF UNDERHILL.

LEGEND
- PROPOSED PATHWAY
- PROPOSED GREEN STRIP
- NEW PAVEMENT
- GATCR BASIN
- APPROXIMATE RIGHT OF WAY
- EXISTING GAS LINE
- EXISTING WATER LINE

NOTES:
1. RIGHT OF WAY (ROW) SHOWN IN CROSS SECTION IS FOR DISCUSSION ONLY. ROW SHOWN ASSUMES 4-ROD (66') AND 3-ROD (49.5') WIDTH CENTERED ON ROADWAY CENTERLINE WHICH HAS NOT BEEN VERIFIED.

TYPICAL CROSS SECTION

NOT TO SCALE
ATTACHMENT D

Updated Conceptual Cost Estimate
### Conceptual Cost Estimate

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>Price</th>
<th>Alternative 1 Concrete Sidewalk Quantity</th>
<th>Total</th>
<th>Alternative 2 Multi-Use Path Quantity</th>
<th>Total</th>
<th>Alternative 3 Asphalt Sidewalk Quantity</th>
<th>Total</th>
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<td>$21,200.00</td>
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Subtotal: $276,500.00
Contingency (20%): $55,300.00
Total Estimated Construction Cost: $331,800.00
Project Management (8%): $26,600.00
Engineering (15%): $49,800.00
Right of Way: $20,000.00
Construction Supervisor (10%): $33,200.00

Total Estimated Maintenance and Repair: $320,000.00

Project Grand Total: $461,400.00

<table>
<thead>
<tr>
<th>Estimated Maintenance and Repair</th>
<th>Alternative 1 Concrete Sidewalk Quantity</th>
<th>Total</th>
<th>Alternative 2 Multi-Use Path Quantity</th>
<th>Total</th>
<th>Alternative 3 Asphalt Sidewalk Quantity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>Annual Maintenance (plowing, mowing, etc) (2013 Cost)</td>
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<td>$ -</td>
<td>1375</td>
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</tr>
</tbody>
</table>

Total Maintenance, 2015 - 2065: $320,000.00
Total Repairs, 2015 - 2065: $360,000.00
ATTACHMENT E

Notes from Alternatives Presentation Meeting
Corey gave an overview of the report update; in addition to the concrete sidewalk alternative documented in the 2007 Sidewalk Feasibility Study, three new alternatives have been developed:

- 10-foot asphalt path along roadway,
- 10-foot asphalt path behind fire and service stations, and
- 5-foot asphalt sidewalk along roadway.

Previous meetings with the Planning Commission have indicated that the 5-foot asphalt sidewalk was the initially preferred alternative, and Corey presented the features and potential impacts of this initially preferred alternative. Corey added that the impacts would be very similar to the 5-foot concrete sidewalk, and slightly less than the 10’ asphalt path alternative.

Comments from the general discussion that followed are summarized below. Responses are included in italics.

- A catch basin is needed at the first house south of the fire station. The 2007 study included this drainage infrastructure and it is still needed.  
  *The catch basin should still be in the plans, and if it is not shown, the plans will be updated to include.*
- There were previous concerns about truck access to the gas station.  
  *The current design includes a mountable granite curb to provide a vertical buffer between pedestrians, and will allow vehicles to maneuver over the curbed areas.*
- Participants in 2007 study preferred a concrete sidewalk surface. Asphalt sidewalks in Jericho and other towns do not have the same durability.  
  *The durability, initial cost, lifecycle cost, visual contrast, future expansion potential, and aesthetics were identified as criteria when considering the preferred surface material.*
- Without a network of paths or significant destinations, a 10-foot wide path isn’t necessary. Most cyclists wouldn’t use them for a short distance.  
  *The 10-foot path was not selected as the preferred alternative. The reason cited above was one factor in the decision. A network of shared-use paths should be planned.*
Plows for the gas station currently plow over the mountable curb area - their plows might get hung up under the current design.

Noted. The mountable curbs would need to be approved by VTrans and operational input from the service station owner would be critical.

Flexible / removable delineators may help differentiate the highway from the walkway.

The flexible / removable delineators would also need to be approved by VTrans.

Concrete across the fire and service station driveways could be used, rather than mountable curbs, to make sidewalk more visible.

The visual contrast is important, particularly across large driveways. This was a factor and discussion point in the selection of a preferred alternative.

Due to a large slope and ditch north of the fire station to Dumas Road, the project would likely need significant amount of fill to build sidewalk.

The final design of the sidewalk will determine the total fill and project limits of the sidewalk alternative. The potential for a slope in this location was noted in the study.

Improved bicycle and pedestrian connectivity to the Poker Hill neighborhood is desired, but the existing bridge is inadequate. A new bridge would be well received.

A bridge has been discussed at the end of Dumas Road. This sidewalk may one day serve a new bridge at the end of Dumas Road. The installation of a bridge was not studied and is beyond the scope of this report.

Why wasn’t a sidewalk on the other side of Route 15 considered?

The origins and destinations study from the 2007 study indicated that a sidewalk would be most beneficial on the east side of VT-15.

There are significant elevation issues north of Meadow, where would sidewalk be? Doesn’t VTrans prefer not to have sidewalks below road grade? See 2007 study for reference.

No reference to sidewalk vertical alignment was noted in the 2007 study. The sidewalk is proposed to be below grade from the roadway to minimize grading requirements. VTrans will have the opportunity to comment.

Are there other examples of projects with a 5-foot buffer and 5-foot sidewalk?

A similar uncurbed typical section with a 5-foot green strip is found in Jericho.

Drainage issues – water from one property regularly drains to neighbor, would this project increase that occurrence?

The drainage characteristics will be addressed in final design. Any deficiencies in drainage will be addressed.

What about trees that might need to be removed?

No trees have been identified for removal.

Why does the sidewalk angle to Dumas when in 2007 study it’s straight?

The sidewalk in the 2007 study follows an offset from an assumed right of way with a varying green strip. The sidewalk alignment in the current study update follows a consistent offset from the road centerline. The alignment can be modified based on available right-of-way.

How deep would sidewalk bed need to be?

The asphalt sidewalk section is typically around 15” deep, concrete is around 13”.

Which side of the sidewalk would things like hydrants be located?
Depending on VTrans recommendations, fixed objects such as hydrants should be beyond the clear zone. In this situation, the clear zone is 12-14 feet from the edgeline, which would place the hydrant in the middle of the sidewalk. The final location of the relocated hydrants can be discussed with the fire department and VTrans.

- In final design you should work closely with utilities to avoid any issues.
  Utility coordination is a critical consideration during final design. All utilities with infrastructure near the project area will be contacted.
- Would sidewalk be plowed in winter? Jericho gets plowed, Underhill doesn’t.

Town has contract for plowing

Brad stated that the Selectboard has decided to phase this project over three years in the capital plan, and Kari added that there is currently $15,000 available in the Town budget as matching funds.

The majority in attendance discussed a preference for a concrete surface:

- Concrete is more durable,
- Concrete provides a visual contrast between parking / driving areas and walkways,
- The expansion groves will not be a deterrent for most recreational users, and bicycle commuters do not ride on sidewalks.
- The higher initial cost was discussed as being acceptable given the longer expected service life.
- An asphalt sidewalk would require more maintenance and annual striping, which can become less of a priority over the years.

There was a simple vote held, and most in attendance preferred concrete. Planning Commission will take all of this information into account and decide on next steps.

END OF NOTES

These notes are the understanding of the preparer. Please contact Corey Mack within 14 days with any discrepancies noted.
ATTACHMENT F

Complete Streets Reporting Form
Complete Streets Project Reporting Form

This project reporting form and attached checklist can serve to document that Complete Streets practices and principles were considered and implemented where appropriate for the project listed below. This form should be completed after preliminary plans and retained in the project file.

Municipality: Underhill

Study Name: Underhill Sidewalk Feasibility Study Update

Date: March 15, 2013

Complete Streets Exemptions:

Is the use of the transportation facility by pedestrians, bicyclists, or others users prohibited by law?

   No.

Is the cost of including complete streets principles disproportionate to the need or probable use?

   No.

Are complete streets principles outside the scope of the subject project because of its very nature?

   No.

Supporting documentation can be attached to this document and retained in the project’s file. For all other instances a brief description of the Complete Streets practices and principles that have been incorporated into the subject project’s design can be included below.

Describe Complete Streets elements included in project:

VT-15 serves as a primary vehicle travel corridor within the Underhill Flats village area, consisting of mixed use commercial and residential development along the highway, with primarily residential dwellings along Meadow Lane and the adjacent roadways. The purpose of this feasibility study is to propose enhancements to this corridor in support of the goals and objectives of the Town of Underhill to enhance bicycle and pedestrian access in this area, connecting adjacent residential areas to an existing sidewalk network along VT-15, Park Street, and River Road to the south, and to promote connectivity to the existing schools along River Road. The study update will address additional existing features that have been constructed since the original study was completed in 2007, and to analyze new potential bicycle and pedestrian alignments.
Complete Streets - Municipal Planning/Scoping Project Checklist

Obtain the Municipal/Regional Plan(s)
☑ Determine multi-modal status of subject facility per plan(s) recommendations

Determine Land Use Context
☑ Ascertain land use type & density: existing; future/desired
☑ Determine context zone: existing; future/desired

Identify Current Transportation Modes and Facilities; Transportation Data
☑ Determine roadway classification: existing; future/desired
☑ Determine pedestrian and bicycle facilities: existing; future/desired
☐ Identify existing and projected transit service features
☑ Obtain current and projected traffic volumes
☐ Identify current and projected pedestrian/bicyclist use
☑ Obtain existing crash data (including pedestrian and bicycle crashes)

Identify Constraints on Transportation Project Development
☑ Determine existing roadway right-of-way
☑ Determine location of traveled way within right-of-way
☑ Assess potentially available private front yard space
☑ Identify existing natural resource constraints
☑ Identify existing historic resource constraints

Other Factors (explain any that apply)
☐ Environment
☐ Economic development
☐ Aesthetics
☐ Historic preservation
☐ Health

Describe Alternatives Considered
Alternatives considered can be found in Section 5 Alternatives Comparison.

Describe Preferred Alternative and indicate complete streets elements in final recommendation
The Preferred Alternative can be found in Section 6 Preferred Alternative.
ATTACHMENT G

Vermont Agency of Transportation Comments
Sorry,

Been meaning to get these off to you.

Comment from Traffic Safety:

If they did go with the 10 ft path, it apparently takes up the entire ROW in segment 1 (page 7) and leaves no place for signs. Part of the reason for selecting the preferred alternative of the narrow asphalt path was the ability to widen it in the future, so signs should be part of that equation.

Not sure I like the idea of separating the sidewalk from the road using flexible delineators (page 4).

Comments for District #5

- Bulb-outs and textured concrete will be constructed at the service station driveway. Due to the proximity of the gasoline pumps, the sidewalk will be shifted closer to VT-15 adjacent to the pumps. The sidewalk will be separated from VT-15 with flexible post delineators. (IS this allowed? I have never seen these used.) Page 8 are there sloped granite curbs as well? Appendix A has these.
- Additional Walk Considerations Section 3, Page 11, par 2 reads... path will slope TOWARDS the road... we want it to slope AWAY from the road.
- 3.2, Path Segment 2, VT 15-Fire Station, Par. 3, There is a “private stone wall’ referred to in the report, this may be illegal, and in turn may be within our ROW.
- All ROW issues will have to be settled BEFORE any plans are reviewed or conceptual designs are considered.
- District opposes any on street parking for winter maintenance reasons

These are what I have received for comments to date.

Shaun Corbett
Utilities & Permits Supervisor
Utilities & Permits Unit
Vermont Agency of Transportation
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Hi Shaun,

A couple weeks ago (mid-April) you and I discussed the update to a Sidewalk Feasibility Study in Underhill I had prepared. My recollection of the conversation boiled down to:

- Removable bollards are a maintenance and operational hassle;
- The sidewalk should be concrete through the gas station driveway;
- Reduce the gas station opening width if possible; and
- It’s preferable to have the sidewalk sloped away from the road.

You had mentioned that you were going to circulate the report to a couple other District staff for review and comment – has this resulted in any further discussion? If not, we can move forward with the comments noted above.

Thank you for your continued consideration.

Regards,
Corey

Corey Mack, P.E. | Project Engineer
RSG

Hi Shaun,

Working with the CCRPC and Town of Underhill, we’ve recently completed most of the analysis for the update to the Underhill Flats Sidewalk Scoping Study from 2007. The project area is along VT 15 from the Jericho Town Line to Dumas Road. The conclusions of the original report have not changed much, but we were still hoping that you could take a look at the document and provide some feedback. Any comments would be greatly appreciated.

The document and attachments can be downloaded with the following links, both around 5 MB:


I will call you tomorrow to discuss the report. We’re hoping we could receive comments in the next couple weeks if that fits in your schedule.

Thank you,
Corey

Corey Mack, P.E. | Project Engineer
Comments from Jon Kaplan, VTrans Bike-Ped Program, July 2, 2013

Responses in italics.

(Regarding parking spaces near VT-15 / Park Street intersection) Are these really official spaces or just an area where people pull off?

Added note about parking spaces being informal but integral to adjacent commercial property.

(Regarding existing sidewalk north of Park Street) How narrow? What is poor about it?

Updated language to answer questions.

(Regarding Section 3 headings) Would be useful to state the length of segments. (TYP.)

Length added to headings.

(Regarding Section 4 Cost Estimate, page 10) For projects to be potentially funded through VTrans, it is useful to include costs for administration/project management, engineering and construction inspection. Guidance on these can be found in the VTrans sidewalk and shared use path unit cost report.

Costs are included in the “Administrative” cost. Expanded definition, full estimate provided in attachments.

(Regarding conceptual cost estimate, page 11) Without lengths, it is hard to determine if these are valid costs.

Total length added to previous paragraph. Unit costs and expanded estimate provided in attachments.

(Regarding permitting impacts, page 12) Most scoping studies list the different potential environmental resources and address whether they are impacted or not.

Permitting discussion is covered in original 2007 Feasibility Study.

(Regarding cross section, page 14) Would be nice to show the ROW limits on this.

Assumed ROW illustrated.

(Regarding schedule, page 20) Totally unrealistic schedule. Don't build up these unrealistic expectations in towns. Typical time for an LTF project - 4 years from grant agreement to start of construction.

Schedule expanded to three years, with some expectation that the process will proceed smoothly.