VT Route 15 / Pearl Street
Essex Junction, Vermont

SCOPING REPORT

December 14, 2012
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Submitted by:
Stantec Consulting Services Inc.
55 Green Mountain Drive
So. Burlington, VT 05403
(802) 864-0223
### Project Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christine Forde, CCRPC</td>
<td>Greg Edwards, Stantec Consulting Services</td>
</tr>
<tr>
<td>David Crawford, Village of Essex Junction</td>
<td>Richard Hamlin, Donald Hamlin Consulting Engineers, Inc.</td>
</tr>
<tr>
<td>Robin Pierce, Village of Essex Junction</td>
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</tr>
</tbody>
</table>

This study is the result of the support and strong interest of the Project Committee Members. Much of the background, history, local input, existing conditions, and consensus documented in the study is attributed to the Committee member's involvement. The study's quality and success is due to their contributions.
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1.0 Introduction

The purpose of this scoping report is to develop and evaluate alternatives for continuing the already initiated improvements along the Pearl Street corridor in Essex Junction. The scoping process includes working with a project committee, soliciting public input and seeking endorsements of a preferred alternative. Project committee members consist of:

- David Crawford – Village of Essex Junction
- Robin Pierce – Village of Essex Junction
- Christine Forde – Chittenden County Regional Planning Commission
- Greg Edwards – Stantec Consulting Services Inc.

The study area is approximately a 2,500-foot-long section of Pearl Street, also known as VT Route 15. It extends along Pearl Street from the Post Office Square intersection easterly to the completed improvements at the Five Corners Intersection.

Essex Junction has made numerous improvements to Pearl Street over the past several years including completing a “road diet” project that created three travel lanes and bike lanes. These bike lanes extend from West Street to the Champlain Valley Exposition. Improvements considered in this study would complement those other improvements and further advance Pearl Street as a multimodal corridor.
2.0 Project Background

The Village of Essex Junction has made great strides over recent years making the Village more vital and more community friendly. The VT Route 15 corridor, also known as Pearl Street, is no exception. The extension of Susie Wilson Road and the construction of VT 289 in Essex created an alternative link for VT Route 15 through traffic. All through traffic no longer has to utilize the Pearl Street corridor and pass through the Five Corners intersection. This has provided an opportunity to make Pearl Street truly a “complete street” serving all its users. Much progress towards this has already occurred including:

- New mixed use development along the corridor.
- More frequent transit service, resulting in increased transit use.
- Providing a “road diet” treatment by converting four-lane roadway section to three lanes with bike lanes.
- Expanding pedestrian accommodations and Village gateway treatments in the area of the Champlain Valley Exposition.
- Improving the signals, pedestrian facilities, and lighting at the Five Corners intersection.

In 2010, the Village completed a corridor study that included the project area of this scoping study from Post Office Square to the Five Corners Intersection.

2.1 Existing Plan / Study Review

The Village of Essex Junction 2008 Comprehensive Plan contains the following important elements:

- Develop multi-modal approaches to transportation planning including street network, bike facilities, sidewalks, and public transit and the possibility of railroad transit.
- Public safety is an important consideration in multi-modal improvements.
- Increased vehicular capacity that involves additional lanes conflicts with Village transportation goals.

The 2008 Comprehensive Plan also contains many elements specific to the VT Route 15 / Pearl Street corridor. Pertinent elements include:

- Include access management as an important planning consideration and an objective is to encourage the use of joint access driveways and shared parking lots.
- Consider the construction and/or signage of bicycle lanes on all future street construction projects.
- Encourage the increased use of public transportation and consider bus turnoffs and/or shelters on major streets.
- Consider options for reducing traffic at the two high crash locations on Pearl Street.

In 2008, a Route 15 Corridor Study was completed that developed a vision with qualifications and objectives for VT Route 15 from Winooski to Essex. Specific to Pearl Street, the vision included:

- Be a full integrated multi-modal corridor.
- Balance mobility and access needs.
- Have a safe, well connected network of bicycle and pedestrian facilities.
- Have convenient and effective transit service.
- Provide gateways announcing transition.
- Include high quality landscape.

The VT Route 15 corridor study noted that the Susie Wilson to VT 289 corridor now serves as the Route 15 through traffic route while Pearl Street now functions as a community road where access and local circulation is emphasized.

The 2010 Pearl Street Multi-modal Transportation Study built off all the previous study work and focused on Pearl Street from Susie Wilson Road to the Five Corners. A “complete street” concept evolved out of the report. Recommendations included traffic calming, street trees, easy and safe bike and pedestrian circulation, gateways, and better transit facilities. Specific recommendations for this portion of Pearl Street included:

- Continue on-road bike accommodations east of Post Office Square through a bike lane or “sharrows”.
- Provide new or improved bus shelters at the Essex Village Shopping Plaza and Summit Street.
- Add street trees within the existing greenbelt between the curb and the sidewalk, or in the setbacks of adjacent properties.
- Improve signal operations at Post Office Square and Summit Street including considering a roundabout at Post Office Square.
3.0 Existing Conditions

3.1 Roadway Characteristics

Pearl Street is a principal urban arterial, which serves an Annual Average Daily Traffic (AADT) volume of 14,500 vehicles per day (vpd). In this project area, Pearl Street operates as a three lane roadway, where the center lane transitions from an exclusive left turn lane at intersections to a two-way center left turn lane between the intersections. The total existing curb-to-curb pavement width is 36 feet with three (3) 12-foot-wide lanes and no shoulders. The VTrans route log indicates it was constructed with concrete pavement in 1927.

Approximately 800 feet west of the project, the roadway widens out to 48 feet curb-to-curb width and includes three lanes and five-foot-wide bike lanes and five-foot sidewalks. The remaining 800 feet, from Champlain Valley Exposition to the Post Office Square intersection, is a three-lane roadway section and was recently improved with five-foot sidewalks, street lighting, landscaping and curb. The roadway width remains at 36 feet and does not include shoulders or bike facilities.

At the easterly end, the approach to the Five Corners was also recently improved with an upgrade to the Five Corners intersection. From approximately the Fire Station to the Five Corners recent improvements include new curb, sidewalk, street lighting, signals, and landscaping.

The horizontal alignment of Pearl Street is generally straight with a large radius curve at School Street. The vertical alignment includes a three percent raising grade to Summit Street and then a five percent declining grade to the Five Corners intersection.

3.2 Land Use and Zoning

The project area contains a wide variety of land uses including commercial developments on the west end, office and commercial in the middle, and transitioning to office and residential at the eastern end. The existing zoning districts, as described in the 2010 Pearl Street Multimodal Transportation Study, are shown in Figure 1.
For this project area, the following zoning districts apply:

- Transit Oriented Development District – encourages development that supports a variety of transportation options.
- Residential Office District – provides for small office conversions of existing residential structures.
- Residential 2 District – provides areas for high density single family residential development.
- Village Center District – provides for a compact commercial center, having a mix of commercial, governmental, cultural, and residential uses and reflects and reinforces the existing architecture, design and layout.

![Figure 1 Existing Zoning Districts](image)

Given this zoning, the study also looked at the potential development along the corridor and identified the following:

- Essex Junction Shopping Center: Additional 24,000 square feet (sf) commercial and (20) – 1,000 sf residential units.
- Key Bank: 22,500 sf commercial; (20) – 1,000 sf residential units.
- #20 Pearl Street: (10) – 1,000 sf residential units.

### 3.3 Pedestrian and Bicycle Facilities

The project area contains four-foot-wide sidewalks on both the north and south sides along the corridor. Sidewalks are separated from the roadway curb by a four- to 10-foot green belt. Marked pedestrian crossings on Pearl Street exist at the three traffic signal locations—Post Office Square, South Summit, and Five Corners. They provide traffic signal pedestrian phases. These
marked crosswalks are separated by 1,000 and 1,300 feet. There are no marked crosswalks on Pearl Street, within the project area, at unsignalized intersections or mid-block locations.

Bicycles are served by designated bike lanes that end approximately 800 feet west of the project area. There are no bike lanes or viable shoulders on Pearl Street in the project area. West Street parallels Pearl Street and does offer an alternative route. Previous studies have included an off-road facility along the railroad right-of-way that parallels Pearl Street.

### 3.4 Parking Facilities

All parking in the project area is off-street parking and is privately owned and maintained. There are no park and ride facilities currently located in the project area. There were no proposed park and ride or intercept facilities for Essex Junction mentioned in the CCRPC’s 2011 Chittenden County Park and Ride / Intercept Facility Plan. An intercept facility was mentioned for VT 15/Barnes Avenue in Colchester but has a low priority. One mid-term recommendation (less than 10 years) in the 2010 Pearl Street Multi-modal Transportation Study was to begin planning for a mini-transit center close to or within Post Office Square.

### 3.5 Transit Service

Chittenden County Transportation Authority (CCTA) operates a bus route in the Pearl Street corridor. The Essex Junction Route provides a connection between Burlington, Winooski and Essex Junction. The route also includes Summit Street, South Street, IBM and the Amtrak Station in Essex Junction. Figure 2 shows the route of this bus service.

![Figure 2 CCTA Essex Junction Route](image)

CCTA implemented a 15-minute service frequency in February 2008. From February 2008 to February 2009, the route ridership grew by 40 percent. Between July 2008 and June 2009, the
route ridership grew by 27 percent. It appears that since implementing the 15-minute service, the percentage of weekday riders boarding in Essex Junction grew from 19 percent to 23 percent.

The existing bus stops are shown on the Existing Conditions Plan. There are two westbound signed bus stops and three eastbound signed bus stops within the project area. There is one bus shelter for westbound travelers just west of the project area.

The previous 2010 Pearl Street Multimodal Transportation Study suggested adding one westbound bus stop between Five Corners and Summit Street.

### 3.6 Traffic / Intersections

VTrans estimates the 2012 AADT for the section of Pearl Street west of the project to be 11,200 vpd and 14,700 vpd along this project segment. Based on traffic counts, traffic through the Post Office Square intersection includes approximately one percent heavy trucks and at the South Summit Street intersection, the truck percentage is slightly greater at two to three percent.

The project area contains two signalized intersections. At the Post Office Square intersection, traffic signals are supported by span wire. The heads are incandescent type. The minor approaches and Pearl Street left-turn lanes are vehicle actuated. There are pushbutton activated pedestrian signal crossings on all four approaches.

The existing system does not meet the most current MUTCD guidelines and if signal improvements were made, pedestrian pushbuttons would need to be separated by 10 feet.
The South Summit Street intersection traffic signals are also span wire that is supported with existing utility poles. The signal heads are non-LED type and the South Summit Street and westbound left turn approaches are vehicle actuated. There are marked pedestrian crosswalks across South Summit Street and the Pearl Street westbound approach. The westbound approach has a push button actuated pedestrian crossing signal. This is a designated school crossing with a crossing guard in the AM and PM school access and egress periods.

The Study Team used existing traffic count data to develop existing and future DHVs. These DHV’s were then used for the intersection capacity analysis. This analysis involved the use of Synchro 8.0 software. Existing traffic counts indicate that hourly traffic volumes on Pearl Street are highest during the evening from 4:30 to 5:30 PM, the PM peak hour. Table 1 shows the most recent traffic count data for Pearl Street.

<table>
<thead>
<tr>
<th>Location</th>
<th>Count Date</th>
<th>Pearl Street PM Peak Hour Vehicles*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>EB</td>
</tr>
<tr>
<td>PO Plaza</td>
<td>March 20, 2012</td>
<td>800</td>
</tr>
<tr>
<td>South Summit Street</td>
<td>June 7, 2012</td>
<td>760</td>
</tr>
</tbody>
</table>

*Turning Movement Count (TMC) observations 4:30 to 5:30 PM

The traffic signals at these locations operate semi-actuated with vehicle detection generally on the minor street approaches and the left turn lanes on Pearl Street; pedestrian pushbutton actuated signals/phases enable street crossings. The traffic signals operate with varying cycle lengths and are not coordinated. Table 2 presents the observed average cycle lengths during the PM peak hour.
Table 2: Traffic Signal Cycle Lengths

<table>
<thead>
<tr>
<th>Location</th>
<th>PM Peak Hour Cycle Lengths (seconds)</th>
<th>Without</th>
<th>With</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Street **</td>
<td>59</td>
<td>59 *</td>
<td></td>
</tr>
<tr>
<td>PO Plaza</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Summit Street</td>
<td>102</td>
<td>113</td>
<td></td>
</tr>
</tbody>
</table>

* Pedestrian phase operates concurrently with West Street
** For analysis purposes, it was assumed a 90-second cycle is the existing condition since this cycle length will eventually be modified as part of the recent road diet project.

The first step to analyzing existing and projected future traffic volume conditions at the intersections is to establish the design hour volumes (the 30th highest hour) for 2012 and 2032. The projected traffic growth from 2012 to 2032 was previously developed as part of the VT Route 15 Corridor Study for scenarios with and without additional circumferential highway construction. By agreement with the Chittenden County Regional Planning Commission, 50 percent of the 2005 to 2030 projected traffic growth was added to the 2012 traffic volumes to provide the 2032 volumes. These growth projections assume planned Metropolitan Transportation Plan (MTP) projects including the Crescent Connector, will be constructed by 2032 and Stantec assumed Circumferential Highway Parts A & B would not be constructed by 2032. The traffic projections reflect an estimated growth of motor vehicle traffic of 12 percent eastbound and seven percent westbound at Post Office Square and 11 percent eastbound and 17 percent westbound at South Summit Street.

The Synchro traffic capacity analysis software analyzed each intersection’s performance for 2012 and a 2032 No Build condition. The 2032 no build condition assumes the intersection’s lane assignment and signal cycle lengths remain unchanged from existing conditions in 2012.

Due to the traffic volume growth, the analysis showed that existing overall Levels of Service (LOS) at the two signalized intersections are projected to degrade by 2032. Overall, however, averaging the delay of all intersection movements, these intersections should operate no worse than LOS D by 2032. Tables 3a and 3b, provide summaries of each intersection for 2012 and 2032 conditions. The future conditions results reflect the future operations under existing signal timing and lane configurations.
Table 3a: Summary of Intersection Performances - Pearl Street at Post Office Square

<table>
<thead>
<tr>
<th>Lane Use</th>
<th>Pearl Street Eastbound</th>
<th>Pearl Street Westbound</th>
<th>PO Plaza Northbound</th>
<th>PO Plaza Southbound</th>
<th>Overall LOS Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DH Volume</td>
<td>61</td>
<td>710</td>
<td>26</td>
<td>569</td>
<td>76</td>
</tr>
<tr>
<td>HCM LOS</td>
<td>D</td>
<td>C</td>
<td>E</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Delay (sec)</td>
<td>53.1</td>
<td>29.8</td>
<td>67.3</td>
<td>19</td>
<td>63.2</td>
</tr>
<tr>
<td>V/C</td>
<td>0.59</td>
<td>0.85</td>
<td>0.62</td>
<td>10.63</td>
<td>0.8</td>
</tr>
<tr>
<td>95% Queue(ft.)</td>
<td>91</td>
<td>992</td>
<td>49</td>
<td>570</td>
<td>215</td>
</tr>
</tbody>
</table>

Table 3b: Summary of Intersection Performance - Pearl Street at South Summit Street

<table>
<thead>
<tr>
<th>Lane Use</th>
<th>Pearl Street Eastbound</th>
<th>Pearl Street Westbound</th>
<th>PO Plaza Northbound</th>
<th>PO Plaza Southbound</th>
<th>Overall LOS Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DH Volume</td>
<td>62</td>
<td>794</td>
<td>31</td>
<td>598</td>
<td>88</td>
</tr>
<tr>
<td>HCM LOS</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Delay (sec)</td>
<td>53.1</td>
<td>46.3</td>
<td>50.7</td>
<td>21.8</td>
<td>56.6</td>
</tr>
<tr>
<td>V/C</td>
<td>0.59</td>
<td>0.98</td>
<td>0.96</td>
<td>0.69</td>
<td>0.79</td>
</tr>
<tr>
<td>95% Queue(ft.)</td>
<td>92</td>
<td>1184</td>
<td>55</td>
<td>638</td>
<td>237</td>
</tr>
</tbody>
</table>

Table 4 below shows the specific movements where deficient operations are expected. It is important to note these will develop over time and numerous steps may be taken to address them. Potential improvements are described and analyzed in a subsequent section.

Table 4: LOS Degradation on Approaches

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Approach / Movement</th>
<th>Existing</th>
<th>2032</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO Plaza</td>
<td>Pearl Street EB Through</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>South Summit Street</td>
<td>PO Plaza NB Lefts</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td>S. Summit St. NB All</td>
<td>E</td>
<td>E</td>
</tr>
</tbody>
</table>
3.7 Crash History

On a yearly basis, VTrans updates their listing of High Crash Locations (HCL). This is done by determining the number of reported crashes along a highway segment and at intersections and comparing the frequency and severity to statewide averages for similar facilities. To be classified as HCL, a 0.3 mile highway segment or intersection must have at least five crashes over a five-year period and the actual crash rate (number of crashes per million vehicles) must exceed a critical crash rate. The critical crash rate is based on the average crash rate for similar highways.

The *VTrans High Crash Report: Sections and Intersections 2006-2010* lists two segments of VT 15/Pearl Street in the project area as high crash locations. One VT 15 segment is between mile marker 1.682 and 1.982, Post Office Square intersection to Summit Street. The other segment is between mile marker 2.082 and 2.382, Curtis Avenue through the Five Corners intersection.

<table>
<thead>
<tr>
<th>VT 15 Segment</th>
<th>2006-2010</th>
<th>Ranking</th>
<th>MM-MM</th>
<th>ADT</th>
<th>Crashes</th>
<th>Fatalities</th>
<th>Injuries</th>
<th>Actual / Critical Ratio</th>
<th>Severity Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>#574</td>
<td>1.682-1.982</td>
<td>14423</td>
<td>58</td>
<td>0</td>
<td>5</td>
<td>1.079</td>
<td>$13,059</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#379</td>
<td>2.082-2.382</td>
<td>11531</td>
<td>57</td>
<td>0</td>
<td>7</td>
<td>1.284</td>
<td>$15,370</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A General Yearly Summary Crash Listing for the period January 1, 2006 to December 31, 2010 was obtained from VTrans. This listing contains the reported crashes listed by mile marker within the project area (MM 1.73 to MM 2.19 in Essex Junction). It is VTrans policy to report crashes on federal aid highways involving injuries, fatalities, or those that exceed $1,000 in property damage. Below is a summary from this listing.

<table>
<thead>
<tr>
<th>Area</th>
<th>VT 15 MM-MM</th>
<th>Rear End</th>
<th>Broad-side</th>
<th>Side-swipe</th>
<th>Un-known</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Office Sq to W. Hillcrest</td>
<td>1.73-1.81</td>
<td>10</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>W. Hillcrest to Hillcrest</td>
<td>1.81-1.89</td>
<td>13</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Hillcrest to Summit</td>
<td>1.89-1.96</td>
<td>9</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Summit to Curtis</td>
<td>1.97-2.00</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Curtis to School</td>
<td>2.01-2.10</td>
<td>6</td>
<td>8</td>
<td>4</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td>School to Five Corners</td>
<td>2.11-2.19</td>
<td>11</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>TOTAL</td>
<td>52</td>
<td>20</td>
<td>12</td>
<td>10</td>
<td>94</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 3: 2006-2010 VTrans Crash Listing*

*Figure 4: VT 15 Crash Summary 01/01/006 to 12/31/10*
The data indicates that the greatest percentages of reported crashes are rear-end collisions, and occur in the area between Post Office Square and Hillcrest. Rear end collisions are associated with stop and go traffic and traffic signal operations.

The broadside type crashes are typically associated with turning traffic. The greatest number occur in the area of Post Office Square and School Street intersections and involve mostly left turning traffic.

Approximately 15 percent of the reported crashes in the project area were sideswipes. Typically, these involve vehicles changing lanes and/or driver confusion. Project area factors contributing to this include the volumes, congestion, delay of traffic, and lane changes associated with left turn lanes and the center left turn lane.

Improved lane configurations, improved traffic capacity and improved signage are items to consider when developing alternatives.

### 3.8 Watersheds / Stormwater

The existing project area is in two watersheds. West of Summit Street, the stormwater drains to Sunderland Brook, an impaired watershed. East of Summit Street stormwater drains to the Winooski River. For new growth (projects greater than 5,000 sf of new impervious surface and have greater than one acre of existing impervious surface), the Vermont Stormwater Management Manual requires that predevelopment stormwater volumes be maintained. This requires stormwater detention and/or treatment.

For the Sunderland Brook watershed Total Maximum Daily Loads (TDMLs) have been established and these will need to be addressed in the stormwater treatment.

### 3.9 Natural Resources

As part of this investigation, Stantec identified and characterized observable rare, threatened or endangered (RTE) species, wetlands, streams, wildlife habitat, agricultural land, and conservation zones. Wetland boundaries under state and federal jurisdiction were determined using the technical criteria described in the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0). Following is a summary of our findings.

#### 3.9.1 General Site Description

The project corridor is a developed area that includes existing roadways, roadsides, sidewalks, utility corridors, and drainage features. Vegetation within the corridor is limited to maintained lawns and ornamental plantings (see Photos 1 - 4).
3.9.2 Natural Resource Review Summary

Review of Existing Materials
According to the Natural Resource Conservation Service (NRCS) Web Soil Survey\(^1\) for Chittenden County, Vermont, soils are mapped as Adams and Windsor loamy sands, 0-5% slopes; Belgrade and Eldridge soils, 3-8% slopes; and Hinesburg fine sandy loam, 3-8% slopes along Pearl Street. None of these soils types are considered wholly hydric, although both the Belgrade and Eldridge soils have a hydric component. The Adams and Windsor and Belgrade and Eldridge soils are considered farmland soils of statewide importance, while the Hinesburg soils are considered prime farmland soils.

Stantec used the Vermont Agency of Natural Resources (ANR) Environmental Interest Locator program to assess the likelihood of the presence or absence of mapped Vermont Significant Wetland Inventory (VSWI) wetlands and rare, threatened, and endangered (RTE) plant and animal species. According to this program,\(^2\) there are no VSWI wetlands, RTE species, or significant natural communities mapped within the project area (see attached ANR Map).

Wetlands and Streams
No wetlands or streams were identified within the project corridor. The western portion of the corridor is located within the Sunderland Brook watershed, an area identified as a stormwater impaired watershed by ANR. Total Maximum Daily Loads (TMDLs) have been established for this stream, and any required stormwater permit will consider this.

RTE Species
Stantec identified no RTE plant species during the March 26, 2012 site visit. Because the majority of the area has been disturbed by development, it is unlikely that any RTE plant species occur within the project corridor.

Wildlife and Wildlife Habitat
The project area is a relatively narrow corridor along an existing road, flanked by commercial and residential developments and their parking areas. This narrow corridor has limited wildlife habitat value. It likely supports occasional use by songbirds.

Agricultural Land
As described above, according to the NRCS Web Soil Survey for Chittenden County, Vermont, soils within the study corridor are considered farmland soils of statewide importance or prime farmland soils. However, the project area is not used for agriculture, and the narrow strip alongside the existing pavement does not provide agricultural value as the affected land is already in urban use.


Conservation Zones
No designated state or town conservation zones are present within the narrow project corridor. According to a review of Land & Water Conservation Fund (LWCF) Projects from 1965-2011, no areas within the corridor were purchased with LWCF funds. Therefore, there are no “Section 4(f)” or “Section 6(f)” public lands present.

3.9.3 Summary
In summary, the narrow project corridor does not include any significant natural resources. The western portion of the corridor is located within a stormwater impaired watershed. TMDLs have been established for this stream, and any required stormwater permit will consider this.

3.10 Hazardous Material Sites
The Vermont ANR Environmental Interest Locator was referenced to identify hazardous material sites. Two sites were identified. They were the Highlands Village and Cumberland Farms sites. It is not expected these properties will be impacted by the project. During design development, some contaminated soil testing may be needed to confirm any presence and to account for handling it, if needed.

3.11 Historic Sites and Structures
Suzanne Jamelle, Historic Preservation Consultant, developed a report that identified historic resources within the proposed project’s Area of Potential Effect (APE), “the geographic area within which the project may cause changes to the character or use of the historic properties” [36CFR 800.2(c)] that are listed on or appear to be eligible for listing on the National Register of Historic Places. The report also provides a preliminary assessment of effect based on the preliminary project alignment. The consultant conducted a site visit on March 22, 2012, at which time photographs were taken. File review to identify sites in the project area was undertaken on March 20, 2012 at the Vermont Division for Historic Preservation in Montpelier, VT. Research was conducted at the Vermont Historical Society Library in Barre, and the State Library in Montpelier.

Pearl Street Historic District
The north side of Pearl Street from #43 to #19 (roughly from Summit Street to School Street) and the south side from #32 to #8 (east of Curtis Street to east of School Street) was identified in the 1984 Vermont Historic Sites and Structures Survey (VHSSS) for the Town of Essex as the Pearl Street Historic District. This district is listed on the State Register of Historic Places. Buildings are evenly spaced, have similar setbacks from the street and are largely 1½ to 2½ story structures. The district contains 16 properties and all but 22 Pearl were considered contributing structures at the time of the survey. Evaluation of the buildings during the March 22, 2012 site visit indicated that all of the structures continue to retain their architectural integrity and status as contributing structures and 22 Pearl remains noncontributing.
This historic district appears eligible for the National Register of Historic Places as an evolving residential neighborhood on the outskirts of the commercial village center. The original boundaries of the surveyed district can be expanded to include properties to the east and west that represent additional 20th century housing as well as two distinctive structures that are approaching 50 years old and represent significant late 20th century architectural developments—the c.1965 fire station at #3 and the bank at #4. The added structures include the buildings on the north side of Pearl at #1, 3, 11 (noncontributing), 15, 17 all east of School Street, and 39 (noncontributing), 49, 51, 53 and 55 all east of North Hillcrest Road. On the south side of Pearl, additional district buildings include #4 at the Five Corners intersection, 34 and 36 on either side of Curtis Avenue, 40 (noncontributing), 44 Pearl, as well as 1 and 2 South Summit Street.

3.12 Archeological Sites

The Vermont Division for Historic Preservation Internet Mapping Site was accessed and used to formulate the archeological sensitivity of the proposed project area (VDHP 2009). The mapping site evaluates the precontact potential of all areas of Vermont, based on 11 environmental factors, such as the presence of environmental characteristics; it is considered by the Vermont Division for Historic Preservation (VDHP) / State Historic Preservation Officer (SHPO) to be archeologically sensitive. Based on the Vermont ArcheoMap Information System (VAMIS), the project area possesses two sensitivity factors, including its location on a glacial outwash terrace and the presence of level terrain (Map5).

The VDHP Environmental Predictive Model was completed for the project area which produced an overall rating of 24 (appendix 1), with a rating of 32 or above indicating precontact sensitivity. The project area received points based on its location within a travel corridor, situated on a raised terrace overlooking the Winooski River. The project area received 32 additional points based on the high density of precontact sites in the area, although most of the sites were situated in different environmental settings that the APE. These points were negated by the loss of 32 points for previous disturbance through the construction of roads, sidewalks, buildings, utility lines and parking areas.

The general project area, with some level terrain overlooking the Winooski River, is considered an area of moderate precontact sensitivity. However, the absence of streams, water bodies or wetlands in the immediate project area vicinity somewhat diminishes its sensitivity. Nonetheless, it is possible that precontact sites are present in undisturbed areas exhibiting level terrain. Most of the western half of the project has been disturbed through modern development, though there are a few level areas of greenspace. Most of the eastern portion of the project area situated directly adjacent to Pearl Street has been previously disturbed by sidewalk and road construction. The areas which may contain undisturbed soil stratigraphy are level areas of green space, including the grass lawns associated with the historic houses located within the Pearl Street Historic District (photo 5). If the proposed project plans involve impacts beyond the limits of the sidewalk onto level grass areas, then further archeological investigation is recommended.
3.13 Existing Utilities

The following utility owners have existing facilities on this section of Pearl Street:

- Village of Essex Junction: Underground water, sewer, and storm drain.
- Green Mountain Power: Primary overhead utility, some underground.
- Vermont Gas Systems: Underground gas main and services.
- Comcast: Primary overhead on existing GMP poles with underground services that are unknown.
- Fairpoint: Underground conduit and vaults along north side.
- Level 3: Primary overhead on existing GMP poles with underground services that are unknown.
- Sovernet: Rent space on overhead lines from Fairpoint.
- Teljet: Primary overhead on existing GMP poles with underground services that are unknown.

In addition, Champlain Water District was contacted and they indicated they do not have facilities in the area of Pearl Street.

The information provided by the utility owners was transferred to the base plans so potential impact by the various alternatives could be considered in the evaluation. Once this project advances, further refinement on the horizontal and vertical locations of utilities will be required.
4.0 Project Purpose and Need

Purpose: The purpose of the VT15/Pearl Street project is to promote a multimodal corridor and enhance the mobility, access and safety for all users including vehicles, transit, pedestrians and bicyclists.

Need: The performance of VT15/Pearl Street is considered deficient based on limited pedestrian, bicycle, and transit facilities, intersection crashes and delay, and could be improved to be more reflective of current Village zoning to promote Transit Oriented Development (TOD).

1. Pedestrian Facilities – Much of the existing sidewalks are four feet wide and some are deteriorated and not ADA compliant.

2. Bicycle Facilities – There is no on-road or shared use path facility for bicycles. The existing roadway lanes are 12 feet wide with no shoulders and sidewalks vary from four feet to five feet wide. VT 15 has been identified as a major bicycle corridor. Many improvements along the VT15 corridor to accommodate bicycles have been completed and more are planned. Completed improvements include creating bicycle lanes on VT 15 that end 800 feet west of this project area. Corridor improvements need to accommodate bicycles and should consider extending westward and linking to the existing bike lanes.

3. Post Office Square Intersection – The intersection’s eastbound and northbound approaches experience some delay and congestion. This is expected to worsen. Numerous rear end crashes occur at this intersection.

4. Corridor Consistency/Compatibility – The VT 15 corridor has had many recent improvements including bicycle lanes, new sidewalk, new curbing, drainage improvements, new street lighting, and new landscaping. All these are contributing elements to a multimodal corridor that promotes Transit Oriented Development (TOD). The 2,500-foot project area is the one unimproved section of Pearl Street.

5. Traffic Calming/Gateway: This corridor is the entrance to the Village area. For eastbound travelers, the VT 15 corridor is transitioning from a 48-foot-wide roadway with bike lanes and more recent commercial development to a more Village context with a mix of commercial and residential development. Some of the existing structures are historic. This context, which includes numerous drives and streets, turning vehicles, and significant pedestrian—including schoolchildren—activity, warrants slower speeds. A section of Pearl Street is included in the VTrans 2006-2010 High Crash Location Report. Improvements need to consider providing a corridor design and context that promotes slower speeds and creates a gateway to the Village.
## 5.0 Design Criteria

Based on pertinent standards and references, applicable design criteria are tabulated below. These references include:

- Vermont State Standard for the Design of Transportation Construction, Reconstruction and Rehabilitation on Freeways, Roads and Streets (VSS)
- Vermont Pedestrian and Bicycle Facility Planning and Design Manual (VPBFPM)
- A Policy on Geometric Design of Highways and Streets (AASHTO)

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<tr>
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*VT Route 15 / Pearl Street Scoping Report*
6.0 Alternatives

With the project’s purpose and need in mind, the project committee discussed several alternatives for a typical section along the corridor. It was recommended that any alternative selected should remain within the existing 60-foot right of way (ROW) to minimize impacts to adjacent properties and to avoid potential delays due to ROW acquisition and Section 4(f) impacts. This suggested the three lanes of traffic, two sidewalks, and bicycle facilities needed to be within the existing 60-foot-wide ROW.

An off-road bicycle facility using the space between the ROW and the existing curbs was discussed. With only six to 13 feet between the curb and ROW there are many areas where an eight- to 10-foot-wide facility will not fit. It was determined that to accommodate bicycles, an on-road facility fit better and would address the more experienced bicyclists needs, while school children continue to use sidewalks. It was also noted an adjacent rail trail along the rail corridor has been discussed and may eventually provide an off-road alternative.

Various lane, shoulder, buffer strip and sidewalk arrangements and widths were considered. The project committee settled on three distinct and varied alternative typical sections to evaluate. These are described in the following sections.

6.1 Alternative A – Three 11-Foot Lanes, 4-Foot Shoulders

This alternative provides three 11-foot travel lanes, two four-foot shoulders, and two five-foot-wide sidewalks with a buffer strip between the curb and sidewalk that varies between one and five feet. To accommodate the relocated utility poles on the north side, a three foot minimum buffer space is proposed. This requires widening the curb-to-curb width from 36 feet (existing) to 41 feet, five feet of widening. To remain within the existing ROW, the proposed curb-to-curb widening is not a consistent amount on each side. A typical section is included on the following page and a plan of this alternative is included in Appendix A.

The 11-foot lane width is consistent with the lane width on many urban arterials in the area. The Vermont State Standards (VSS) suggests a four-foot paved shoulder be provided to accommodate shared use by bicycles. The VSS also indicates recessed drainage inlets or curb inlets should be used with the width is less than five feet. Specific details of this alternative are as follows:
ALTERNATIVE A
TYPICAL SECTION
11' TRAVEL LANES AND 4' BIKE LANES
WIDEN ROAD ON BOTH SIDES

(ASSUME 1½" COLDPLANE AND OVERLAY FULL PAVEMENT WIDTH)
• Does not require a stream operational stormwater permit since the total impervious area, which does not include the cold planed pavement, is less than one acre.

• Requires aerial utility pole relocation into the three-foot-wide buffer strip on the north side and some underground water, gas, and communications relocation for these relocated utility poles.

• Necessitates signal relocation at South Summit Street.

• Has some street tree impacts.

• Reduces the buffer area between curb and sidewalk.

• Requires drainage system modifications on both sides.

• Provides the greatest safety improvement for vehicles and bicycles.

• Increases crossing distance for pedestrians by five feet.

• The south side shoulder ends at Curtis Street for eastbound bikes to assume a lane as they approach the intersection.

• Has the greatest costs.

---

6.2 Alternative B – Three 10-Foot Lanes, 4-Foot Shoulders

This alternative provides three 10-foot travel lanes and two four-foot shoulders and two five-foot-wide sidewalks. The buffer strip between the curb and sidewalk varies between three feet and eight feet. This requires widening the curb-to-curb width from the existing 36 feet to 38 feet, or two feet of widening. The widening is proposed on the south side with the north side curb and the north side utility poles remaining where they are. A typical section is provided on the following page and a plan is included in Appendix A.

Ten-foot-wide travel lanes for urban principal arterials are not common locally, although Vermont State Standards indicate they are appropriate in highly restricted areas such as historic districts having little or no truck traffic. Truck traffic for this corridor is approximately 2.5 percent of the AADT or 360 trucks/day. During the morning peak hour, the truck percentage is 3 percent or greater while during the evening peak hour the truck percentage drops to 1.5 percent. Reduced lane widths have the potential to degrade safety and free flow speeds. These effects are greatly reduced in a reduced speed urban environment such as the 25 mph Pearl Street corridor. FHWA research suggests “For multi-lane urban arterials, the expected difference in substantive safety for variations in lane width is much less and on the order of a few percentage points when comparing lane widths of 10 feet.” With 10-foot lanes, large vehicles that are commonly 8.5 feet wide can off-track into the adjacent center turn lane or shoulder, when negotiating the curves such as the one near School Street. This condition is addressed with wider lanes in this
ALTERNATIVE B
TYPICAL SECTION
10' TRAVEL LANES AND 4' BIKE LANES
WIDEN ROAD ON SOUTH SIDE

(ASSUME 1½" COLDPLANE AND OVERLAY FULL PAVEMENT WIDTH)
area and bicycles are expected to assume a lane as they approach the five corners intersection. Based on FHWA research, the reduced free-flow speed is approximately 2.4 mph or 10 percent. This is not expected to affect the corridor’s traffic capacity.

CCTA expressed some concern with the narrower lanes, since they currently operate as frequently as every 15 minutes and expanding transit use is a strong desire for this corridor. On streets with narrow travel lanes next to bike lanes, bus operators tend to shift towards the right side of their lane giving themselves as much buffer to traffic on the left as they would a wide lane. When encountering a bicycle, the tendency for a bus is to shift a bit to the left. In this case, the shift is typically towards a center two-way left turn lane that is not always occupied by a vehicle such as a dedicated travel lane. Also, when compared to existing conditions, this alternative provides 14 feet (10-foot travel lane and 4-foot shoulder) while the existing is 12 feet.

The design objective is how to best distribute limited cross sectional width to maximize safety for the wide variety of users. Narrower lane widths have potential effects as discussed above, but they also have the potential to manage or reduce speed and they would shorten crossing distances for pedestrians.

There are some local examples of 10-foot lane widths. The Colchester Campus Connector, connecting St. Michael’s College to Fort Ethan Allen was recently constructed with 10-foot travel lanes and four-foot shoulders. Also, Shelburne Road in Burlington between I-189 and Home Avenue, in the area of the shopping plazas, narrows to 10-foot lanes to accommodate a left turn lane.

Specific details of this alternative include:

- Does not necessitate utility pole relocation.
- Reduces the existing buffer width on the south side.
- Has some street tree impacts.
- Requires drainage modifications on the south side.
- Does not necessitate signal replacement at South Summit, but it is recommended.
- Provides less safety for motorists and bicycles.
- Increases crossing distance for pedestrians by two feet.
- Promotes slower vehicle speed.
- Has somewhat reduced safety for vehicles (i.e. sideswipe crashes) and bicycles (i.e. large vehicle off-tracking)
- Has less cost.
- Requires a strip of ROW acquisitions in the area east of South Summit Street to provide a minimum three-foot buffer between the sidewalks and curb.
- Does not require an operational stormwater permit since the total impervious area, which does not include the cold planed pavement, is less than one acre.

### 6.3 Alternative C – Two 13-Foot Outside Lanes, 10-Foot Center Lane

This alternative provides two 13-foot curb lanes, a 10-foot center lane, two five-foot sidewalks, and a buffer strip between the curb and sidewalk. This requires no widening and, therefore, does not include new curbs, but does include widening the sidewalks from four feet to five feet where needed. The 13-foot curb lane is “shared use” curb lane meeting the minimum width in Vermont Standards to accommodate bicycles on principal arterial streets for the corridor’s traffic volumes and speed. Typically, there is no white edge line delineating the shoulder, but there are “sharrows” pavement marking and warning signs indicating the shared use.

Wide curb lanes are usually considered for restrictive low speed settings where shoulders or bike lanes cannot be provided. There is three percent to five percent uphill grade on each end of the corridor and a wider lane would benefit bicycles climbing these grades. A typical section is provided on the following page and a plan is included in Appendix A.

This alternative includes the following:

- Does not necessitate the relocation of utility poles.
- Does reduce the buffer area by approximately one foot due to widening of the sidewalk.
- Does not have street tree impacts.
ALTERNATIVE C
TYPICAL SECTION
SHARED TRAVEL LANES
NO WIDENING
N.T.S.

(ASSUME 1½” COLDPLANE AND
OVERLAY FULL PAVEMENT WIDTH)
• Requires recessed drainage inlets on both sides.
• Maintains the existing pedestrian crossing distance.
• Provides the least safety improvement for vehicles and bicycles.
• Does not necessitate signal replacement at South Summit but it is recommended.
• Does not require an operational stormwater permit since the total impervious area, which does not include the cold planed pavement, is less than one acre.
• Has the least cost.

6.4 Pearl Street / Post Office Square Intersection Alternatives

6.4.1 Signalized Intersection Improvements

Improvements considered to the existing intersection and signal operation included the following:

• Option 1
  o Fully actuating the operation to enable the traffic signal to be more responsive to varying traffic demands. All approaches would have vehicle detection and demand responsive timing.
  o Providing protected/permitted left turn operation that permits left turns on green ball as well as a protected left turn movement on green arrow.

• Option 2
  o Fully actuating the signal operation, as mentioned in Option 1 and incorporating a leading pedestrian internal operation that initiates a pedestrian crossing phase that is followed by a concurrent traffic/pedestrian phase.

• Option 3
  o In addition to options 1 and 2 above, adding a VT 15 eastbound right turn lane into Post Office Square for the almost 200 right turning vehicles in the peak hours along with full actuation and a leading pedestrian interval.

A capacity analysis to quantify the capacity improvement was performed for these options. On the following page are the detailed results for the design year 2032 DHV’s.
### Table 5: Pearl Street at Plaza Driveways Intersection Capacity Analysis

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<tr>
<th>Year</th>
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<th>Pearl Street Westbound</th>
<th>PO Plaza Northbound</th>
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<td>0.64</td>
<td>0.95</td>
<td>0.58</td>
<td>0.67</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>95% Queue (ft.)</td>
<td>96</td>
<td>630</td>
<td>49</td>
<td>406</td>
<td>192</td>
</tr>
</tbody>
</table>

When compared with the “No Build” the results for Option 1 indicate that the LOS is improved and delay is reduced on the VT 15 approaches, which will operate at LOS B or C. On the critical
minor street approach, left turns from northbound Post Office Square remain at a LOS E while all other side road approaches are LOS C or D. Option 2 further reduces the overall delay, while the LOS for the side road is improved, the LOS for VT 15 left turns is reduced. For Option 3, the overall LOS of C remains while the overall volume to capacity (v/c) ratio reduces to 0.67. Option 3 features an eastbound right turn lane and the advanced pedestrian interval with concurrent pedestrian/vehicle phasing. By providing more capacity on the critical eastbound approach, the side road approaches benefit from more allowed green time. Most notably, the left turns from Post Office Square operate at LOS C as compared to LOS E for Option 1. The construction of a right turn lane requires ROW acquisition and requires placing the stop bar approximately 20 feet to the south. This stop bar placement reduces the available queue storage for the Post Office Square approach. The property owner expressed concern with this and the impact on the parking area circulation.

Signal coordination with the South Summit Street signal was evaluated. It was determined that coordination is most beneficial when the optimal cycle length of the two signals are similar. With the advanced pedestrian intervals, the cycle length is less variable and a more similar length than with exclusive pedestrian phasing, therefore more feasible, and more beneficial.

A plan view of the proposed intersection improvements is shown in the Appendix. It includes new mast arm signal poles, pedestrian countdown signal heads, a new traffic controller, and pedestrian crossings meeting MUTCD’s current requirements. The eastbound right turn lane construction does require additional right-of-way acquisition and impacts the parking layout of the adjacent Citizen’s Bank.

### 6.4.2 Modern Roundabout

Previous corridor studies and plans have included a modern roundabout alternative at the VT 15/Post Office Square intersection. A traffic analysis of the roundabout using 2032 design year DHV’s indicates a single lane roundabout would perform overall at LOS F. The critical approach is VT 15 eastbound. By adding a right turn lane on the VT 15 eastbound approach, the overall LOS is improved to C. The analysis results are shown in the table below.

#### Table 6: Pearl Street at PO Square – Single Lane Roundabout

<table>
<thead>
<tr>
<th>Input Worksheet</th>
<th>Raw Turning Volumes</th>
<th>PHF</th>
<th>Adjusted Turning Volumes</th>
<th>Roundabout Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U-turn</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
</tr>
<tr>
<td>2032 PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NB PO Square</td>
<td>0</td>
<td>151</td>
<td>35</td>
<td>66</td>
</tr>
<tr>
<td>SB Plaza Driveway</td>
<td>0</td>
<td>85</td>
<td>44</td>
<td>10</td>
</tr>
<tr>
<td>EB Pearl Street</td>
<td>0</td>
<td>22</td>
<td>628</td>
<td>155</td>
</tr>
<tr>
<td>WB Pearl Street</td>
<td>0</td>
<td>33</td>
<td>490</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output Worksheet</th>
<th>Capacity (Veh/hr)</th>
<th>v/c</th>
<th>Control Delay (sec)</th>
<th>LOS</th>
<th>95th% Queue (vehicles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2032 PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NB PO Square</td>
<td>425</td>
<td>0.65</td>
<td>23</td>
<td>C</td>
<td>4.5</td>
</tr>
<tr>
<td>SB Plaza Driveway</td>
<td>514</td>
<td>0.28</td>
<td>10</td>
<td>A</td>
<td>1.1</td>
</tr>
<tr>
<td>EB Pearl Street</td>
<td>950</td>
<td>1.16</td>
<td>97</td>
<td>F</td>
<td>30</td>
</tr>
<tr>
<td>WB Pearl Street</td>
<td>894</td>
<td>0.78</td>
<td>16</td>
<td>C</td>
<td>7.9</td>
</tr>
<tr>
<td>Intersection</td>
<td></td>
<td></td>
<td>57</td>
<td>F</td>
<td></td>
</tr>
</tbody>
</table>
In a modern roundabout, all traffic entering the circulating lane must yield to traffic already in the circulating lane at the yield line, and only enter when there is a gap in traffic in the circulating lane. The roundabout is specifically designed to reduce speeds of incoming traffic with the curved approach and the splitter islands, which prevents traffic from entering straight through the intersection. The slow prevailing speeds through a roundabout allow incoming traffic to safety enter relatively small gaps in traffic, which contributes to their very high capacity compared to traffic signals. Roundabouts typically offer higher capacity and lower vehicle delays than traffic signals. The slow operating speeds and simple decision-making involved in entering a roundabout also explain their excellent safety record, as many potential crashes are avoided due to the slower speeds, and those crashes that do occur are generally minor.

The benefits of a roundabout intersection, and some constraining factors, are described below:

- **Traffic Safety** – Numerous studies have shown significant safety improvements at intersections converted from conventional forms to roundabouts. The physical shape of roundabouts eliminate crossing conflicts that are present at conventional intersections, thus reducing the total number of potential conflict points and the most severe of those conflict points. The most comprehensive and recent study showed overall reductions of 35 percent in total crashes and 76 percent in injury crashes. Severe, incapacitating injuries and fatalities are rare, with one study reporting 89 percent reduction in these types of crashes and another reporting 100 percent reduction in fatalities. The project area contains a high crash location with over 50 percent of the crashes being rear-end type. This type of crash is characterized by stop and go traffic and a roundabout would reduce the need to stop.

### Table 7: Pearl Street at PO Square Roundabout with added right turn lane

<table>
<thead>
<tr>
<th>Input Worksheet</th>
<th>Raw Turning Volumes</th>
<th>PHF</th>
<th>Adjusted Turning Volumes</th>
<th>Roundabout Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U-turn</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
</tr>
<tr>
<td>2032 PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NB PO Square</td>
<td>0</td>
<td>151</td>
<td>35</td>
<td>66</td>
</tr>
<tr>
<td>SB Plaza Driveway</td>
<td>0</td>
<td>85</td>
<td>44</td>
<td>10</td>
</tr>
<tr>
<td>EB Pearl Street</td>
<td>0</td>
<td>22</td>
<td>628</td>
<td>0.73</td>
</tr>
<tr>
<td>WB Pearl Street</td>
<td>0</td>
<td>33</td>
<td>490</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output Worksheet</th>
<th>Capacity (Veh/hr)</th>
<th>v/c</th>
<th>Control Delay (sec)</th>
<th>LOS</th>
<th>95th% Queue (vehicles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2032 PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NB PO Square</td>
<td>425</td>
<td>0.65</td>
<td>23</td>
<td>C</td>
<td>4.5</td>
</tr>
<tr>
<td>SB Plaza Driveway</td>
<td>514</td>
<td>0.28</td>
<td>10</td>
<td>A</td>
<td>1.1</td>
</tr>
<tr>
<td>EB Pearl Street</td>
<td>950</td>
<td>0.94</td>
<td>32</td>
<td>D</td>
<td>14.9</td>
</tr>
<tr>
<td>WB Pearl Street</td>
<td>894</td>
<td>0.78</td>
<td>16</td>
<td>C</td>
<td>7.9</td>
</tr>
<tr>
<td>Intersection</td>
<td></td>
<td></td>
<td></td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>
• **Operation Performance**  
  – When compared with the signalized intersection alternative, the roundabout alternative has a lower overall delay and provides additional capacity.

• **Environmental Factors**  
  – The roundabout provides environmental benefits by reducing vehicle delay and the number and duration of stops compared with the signalized alternative. Even when there are heavy volumes, vehicles continue to advance slowly in moving queues rather than coming to a complete stop. This reduces noise and air quality impacts and fuel consumption significantly by reducing the number of acceleration/deceleration cycles and the time spent idling.

• **Traffic Calming** – Roundabouts can have traffic calming effects on streets by reducing vehicle speeds using geometric design rather than relying solely on traffic control devices.

• **Pedestrian Safety** – Due to the reduction of vehicle speeds in and around the intersection, roundabouts can improve pedestrian crossing opportunities. Additionally, the splitter island refuge area provides the ability for pedestrians to focus on one traffic stream at a time while crossing. However, pedestrians with visual impairments may not receive the same level of information at a roundabout as at a typical signalized intersection, and they may require additional treatments, such as pedestrian signalization. Specific design treatments for enhancing accessibility for visually impaired pedestrians are receiving continued study.

• **Aesthetics** – The central island and splitter islands offer the opportunity to provide attractive entries or centerpieces to communities through use of landscaping, monuments,
and art, provided that they are appropriate for the speed environment in which the roundabout is located.

- **Gateway/Land Use** – The roundabout provides a transition area between higher speed urban and lower speed village environments. It also demarcates the commercial area from the residential area and provides a landmark for the area.

- **Ongoing Operations and Maintenance** – A roundabout has lower operating and maintenance costs than a traffic signal due to the lack of technical hardware, signal timing equipment, and electricity needs.

The intersection alternatives including roundabout concept were reviewed with the adjacent Post Office Square and Essex Shopping Center owners.

### 6.5  **Pearl Street / South Summit Street Intersection Alternatives**

#### 6.5.1  **Signalized Intersection Improvements**

Improvements considered to the existing intersection and signal operation included the following:

- **Option 1**
  - Fully actuating the operation to enable the traffic signal to be more responsive to varying traffic demands. All approaches would have vehicle detection and demand responsive timing and there would be an exclusive pedestrian phase.

- **Option 2**
  - Fully actuating the operation to enable the traffic signal to be more responsive to varying traffic demands. All approaches would have vehicle detection and demand responsive timing and there would be a pedestrian phase incorporating a leading pedestrian interval operation that initiates a concurrent traffic/pedestrian crossing phase.

A capacity analysis to quantify the capacity improvement was performed for these options. Below are the detailed results for the design year 2032 DHV’s.
Pearl Street/So. Summit Intersection

Table 8: Pearl Street at South Summit Street Intersection Capacity Analysis

<table>
<thead>
<tr>
<th>Lane Use</th>
<th>Pearl Street Eastbound</th>
<th>Pearl Street Westbound</th>
<th>PO Plaza Northbound</th>
<th>Overall LOS Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Build</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>860 107 79 630</td>
<td>132</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>HCM LOS</td>
<td>C C A E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delay (sec)</td>
<td>29.1 20.1 8.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V/C</td>
<td>0.88 0.35 0.45</td>
<td>0.76</td>
<td>0.76</td>
<td></td>
</tr>
<tr>
<td>95% Queue (ft.)</td>
<td>1149 44 381</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DH Volume</td>
<td>860 107 79 630</td>
<td>132</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>HCM LOS</td>
<td>C C A E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delay (sec)</td>
<td>31.3 20.8 7.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V/C</td>
<td>0.93 0.48 0.48</td>
<td>0.79</td>
<td>0.79</td>
<td></td>
</tr>
<tr>
<td>95% Queue (ft.)</td>
<td>936 42 322</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2032 Cycle Length (99 sec) Full-actuated Option 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane Use</td>
<td>Left Thru Rt Left Thru Rt Left Thru Rt Left Thru Rt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>860 107 79 630</td>
<td>132</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>HCM LOS</td>
<td>C C A E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delay (sec)</td>
<td>31.3 20.8 7.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V/C</td>
<td>0.93 0.48 0.48</td>
<td>0.79</td>
<td>0.79</td>
<td></td>
</tr>
<tr>
<td>95% Queue (ft.)</td>
<td>936 42 322</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2032 Cycle Length (81 sec) Full-actuated Option 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane Use</td>
<td>Left Thru Rt Left Thru Rt Left Thru Rt Left Thru Rt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DH Volume</td>
<td>860 107 79 630</td>
<td>132</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>HCM LOS</td>
<td>B D B D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delay (sec)</td>
<td>29.3 19.7 7.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V/C</td>
<td>0.92 0.45 0.47</td>
<td>0.71</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>95% Queue (ft.)</td>
<td>849 33 271</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

VT Route 15 / Pearl Street Scoping Report 32
When compared with the “No Build” the results for Option 1 (Full Actuation) indicates the LOS is improved and the delay is approximately the same for the VT 15 approaches with LOS C eastbound and LOS A westbound. Operations are improved on the South Summit Street approach from LOS E to D. For Option 2, the overall LOS is C remains while the overall v/c ratio reduces to 0.84. Option 2 features an advanced pedestrian interval operation that initiates concurrent traffic/pedestrian phasing. The advanced pedestrian interval enables pedestrians to enter the crosswalk and gain visibility within the crosswalk while all traffic is stopped. Following this interval, traffic that does not conflict with the pedestrian crossing may proceed on the green indication while traffic conflicting with pedestrians in the crosswalk must yield to the pedestrians. The eastbound approach and westbound left turn benefit from a shorter cycle length afforded by the proposed pedestrian phasing as exhibited by the LOS B operation for each.

Signal coordination with the Pearl Street signal was also considered. It was determined beneficial coordination could be achieved with the cycle lengths that result with advance / concurrent pedestrian phasing of Option 2 rather than the exclusive pedestrian phasing that currently exists at both locations.

A plan view of the proposed intersection improvements are shown in the Appendix. It includes new mast arm signal poles, pedestrian countdown signal heads, a new traffic controller, and pedestrian crossings meeting MUTCD’s current requirements.

### 6.6 Alternative Evaluation Matrix

#### 6.6.1 Corridor Alternative Evaluation Matrix

<table>
<thead>
<tr>
<th>ITEM</th>
<th>No Build</th>
<th>Alternative A (4-11-11-11-4)</th>
<th>Alternative B (4-10-10-10-4)</th>
<th>Alternative C (13-10-13)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Opinion of Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Costs (estimated)</td>
<td>--</td>
<td>$1,700,000</td>
<td>$1,500,000</td>
<td>$1,300,000</td>
</tr>
<tr>
<td>Preliminary Engineering (15%)</td>
<td>--</td>
<td>$250,000</td>
<td>$225,000</td>
<td>$200,000</td>
</tr>
<tr>
<td>ROW Costs (estimated)</td>
<td>--</td>
<td>Not included</td>
<td>Not included</td>
<td>Not included</td>
</tr>
<tr>
<td>Construction Engineering (10%)</td>
<td>--</td>
<td>$170,000</td>
<td>$150,000</td>
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</tr>
<tr>
<td><strong>TOTAL PROJECT COSTS</strong></td>
<td>$0</td>
<td>$2,120,000</td>
<td>$1,875,000</td>
<td>$1,630,000</td>
</tr>
<tr>
<td><strong>Purpose and Need</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedestrian Facilities</td>
<td>No Change</td>
<td>Some</td>
<td>More</td>
<td>Most</td>
</tr>
<tr>
<td>Bicycle Facilities</td>
<td>No Change</td>
<td>Most</td>
<td>More</td>
<td>Some</td>
</tr>
<tr>
<td>Corridor Consistency / Compatibility</td>
<td>No Change</td>
<td>More</td>
<td>More</td>
<td>Some</td>
</tr>
<tr>
<td>Traffic Calming / Gateway</td>
<td>No Change</td>
<td>Some</td>
<td>More</td>
<td>Most</td>
</tr>
<tr>
<td>Corridor Safety</td>
<td>No Change</td>
<td>Most</td>
<td>More</td>
<td>Similar</td>
</tr>
<tr>
<td><strong>Impacts</strong></td>
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<td></td>
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<tr>
<td>Design Exception</td>
<td>None Required</td>
<td>None Required</td>
<td>None Required</td>
<td>None Required</td>
</tr>
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<td>Adjacent Properties / Street trees</td>
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<td>Most</td>
<td>Less</td>
<td>Least</td>
</tr>
<tr>
<td>Utilities</td>
<td>None</td>
<td>Most</td>
<td>Less</td>
<td>Less</td>
</tr>
<tr>
<td>Historic Sites</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Some</td>
</tr>
<tr>
<td>Water Quality</td>
<td>None</td>
<td>Most</td>
<td>Less</td>
<td>Least</td>
</tr>
</tbody>
</table>
### ITEM

<table>
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<tr>
<th>Village Plan Conformance</th>
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<th>Alternative A (4-11-11-11-4)</th>
<th>Alternative B (4-10-10-10-4)</th>
<th>Alternative C (13-10-13)</th>
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<tbody>
<tr>
<td>Permits</td>
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<tr>
<td>ACT 250</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>NEPA</td>
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<td>CE</td>
<td>CE</td>
<td>CE</td>
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<tr>
<td>401 Water quality</td>
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<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>404 COE Wetlands</td>
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<td>No</td>
<td>No</td>
<td>No</td>
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<td>WD – ANR Wetlands</td>
<td>No</td>
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<td>No</td>
<td>No</td>
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<tr>
<td>Stream alteration</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Stormwater Operational</td>
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<td>No</td>
<td>No</td>
<td>No</td>
</tr>
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<td>Archaeology – Phase IB</td>
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<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Section 106 / Historic</td>
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<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>NEPDES - CGP</td>
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<td>Yes</td>
<td>Yes</td>
<td>No</td>
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</table>

#### 6.6.2 Post Office Square Intersection Evaluation Matrix

<table>
<thead>
<tr>
<th>ITEM</th>
<th>No Build</th>
<th>Signal Improvements (Option 2)</th>
<th>Modern Roundabout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Opinion of Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Costs (estimated)</td>
<td>0</td>
<td>$300,000</td>
<td>$630,000</td>
</tr>
<tr>
<td>Preliminary Engineering (15%)</td>
<td>0</td>
<td>$45,000</td>
<td>$95,000</td>
</tr>
<tr>
<td>ROW Costs (estimated)</td>
<td>--</td>
<td>Not included</td>
<td>Not included</td>
</tr>
<tr>
<td>Construction Engineering (10%)</td>
<td>0</td>
<td>$30,000</td>
<td>$65,000</td>
</tr>
<tr>
<td>TOTAL PROJECT COSTS</td>
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</tr>
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<td>Purpose and Need</td>
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<tr>
<td>Pedestrian Facilities</td>
<td>No Change</td>
<td>Some</td>
<td>More</td>
</tr>
<tr>
<td>Bicycle Facilities</td>
<td>No Change</td>
<td>More</td>
<td>More</td>
</tr>
<tr>
<td>Corridor Consistency / Compatibility</td>
<td>No Change</td>
<td>More</td>
<td>More</td>
</tr>
<tr>
<td>Traffic Calming / Gateway</td>
<td>No Change</td>
<td>Similar</td>
<td>Most</td>
</tr>
<tr>
<td>Corridor Safety</td>
<td>No Change</td>
<td>Similar</td>
<td>More</td>
</tr>
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<td>Signal Improvements (Option 2)</td>
<td>Modern Roundabout</td>
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6.7 Alternatives Presentation

On September 11, 2012, at 7:00 pm, the project’s Alternative Presentation was held in conjunction with an Essex Junction Village Trustees Meeting. The presentation was noticed on the Village’s website, posted in the local paper, and mailed to adjoining property owners and special interest groups such as Local Motion. The various alternatives were described and the evaluation matrix was presented to illustrate the differences among the alternatives. Comments or concerns provided at the meeting included the following:

- Concern with impacting trees, green space, and corridor character.
- Concern with Alternative B – 10-foot lanes accommodating trucks and the safety of bicyclists on shoulders with 10-foot lanes.
- Maintain continuity along the VT Route 15 corridor including accommodating bicyclists between Champlain Valley Exposition and the Post Office Square intersection. Similar to this section of Pearl Street, the curb-to-curb width is 36 feet with three 12-foot-wide lanes.
- Provide a curb radius for right turning trucks leaving School Street.
- Extend the eastbound bike lane to Curtis Avenue for the transition of bikes to use the south side sidewalk.
- Provide bike friendly drainage grates in shoulder areas.
- The Post Office Square representative supported the Post Office Square intersection signal improvement Option 2.

Due to the potential impacts to the Post Office Square intersection, alternatives were reviewed with representatives of the Essex Junction Shopping Plaza and of Post Office Square. As a result of the discussions, Stantec developed an alternative roundabout layout that shifted the intersection westward approximately 30 feet. After reviewing this alternative, the Post Office Square representative indicated that it would create greater issues for the adjacent Citizens Bank and the former roundabout was preferred. The Essex Junction Shopping Plaza representative expressed concern with the roundabout’s impact on circulation within the property since it prevented direct access to the Northfield Savings Bank (NSB) drive-through facility. Subsequent to these discussions, the Essex Junction Shopping Plaza representative sent an email indicating, “As much as I like the idea of a roundabout, we will be in favor of improvements to the current signalized intersection.” The NSB provided a letter indicating significant concerns with the roundabout compromising bank access and stacking problems for drive up teller customers. This correspondence is in Appendix B.
6.8 Preferred Alternative

The project committee met on September 24, 2012 to review the input received at the Alternatives Presentation Meeting and determined the committee’s preferred alternative. After much discussion, the project committee recommended Alternative A, as the preferred corridor alternative. Primary reasons for recommending Alternative A were as follows:

- There is not a significant difference in impact to street trees, green space, cultural resources, environmental resources, and adjacent properties for this alternative as compared to Alternative B. Alternative A allows a three-foot green strip/buffer area between the curb and sidewalk.
- The 11-foot lanes are needed to maximize safety for vehicles and bicycles given trucks and buses use this corridor and bus service is likely to increase over time.
- The additional cost of Alternative A is not significant over Alternative B.
- There will likely be only one opportunity to fund improvements along this corridor and this alternative maximizes the improvements without significant impacts.

For the VT 15 / Post Office Square Intersection, the committee recommended the signal intersection improvements over a roundabout for the following reasons:

- This alternative has very limited impacts on adjacent properties when compared to the roundabout alternative.
- An adjacent property owners did not support the roundabout alternative due to its impact on circulation.
- This alternative provides adequate capacity for the 2032 design year traffic.
- It has less construction cost when compared to the roundabout alternative.

On October 9, 2012, the project committee met with the Village Trustees and provided the committee’s preferred alternative recommendations. After comments and discussions, the Village trustees passed a motion that provided Alternative A and the Post Square signal improvements as their preferred alternative.

During discussions, the following points were made and need to be considered as this project develops.

- To conserve green space, have the three-foot-wide buffer strip be grass.
- Work with adjacent property owners for installing street trees behind the sidewalk.
- Address the bike facility gap between the Champlain Valley Exposition and the Post Office Square intersection.
- Reduce the recently installed street lighting at the Champlain Valley Exposition and move some of that lighting to this project.
- Provide a greater curb radius for exiting trucks at School Street.
- Provide two feet of widening on the north side from the fire station to Five Corners intersection to achieve 11-foot-wide lanes or greater.
- Extend the eastbound bike lane to Curtis Avenue.
- Address drainage onto adjacent properties on the southside with improved grading.

**Compliance with Complete Streets Legislation**

Act 34 became effective July 1, 2011 and 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. The build alternatives investigated accommodate vehicle, truck, bicycle and pedestrian travel with respect to the study area. It is therefore determined this scoping project complies with the complete streets legislation.
APPENDIX B

CORRESPONDENCE
I met with Rick Jones yesterday to review the project area and documented the following:

1. The Pearl St pedestrian crossing at South Summit street is a designated school crossing and utilizes a crossing guard in the AM and PM.

2. Most of the sidewalk is older 4 wide concrete but some newer 5 foot wide sections exist in the PO Square, Highland Village, South Summit, and School Street area.

3. South Summit and Summit were reconstructed in recent years including new sidewalk, curb, waterlines and pavement.

4. The signalized intersections would benefit from video detection due to maintenance of detection loops.

5. Groundwater is an issue on the north side in the area of Hillcrest to Summit. Underdrain should be considered in this area.

6. Little vehicle queuing occurs on the unsignalized sidelines to Pearl Street.

7. Pearl St does have concrete pavement underlying it for most of the length. It may not be full width.

8. The existing sidewalk is below the curb elevation in the area of Key Bank and is problematic for drainage.

9. May drives have drainage concerns including in the area of Cumberland Farms and the eastern PO Square drive. Roadway grading needs to retain roadway runoff along the curbline. Drives may need to be elevated to prevent roadway runoff from entering the drive.

10. Existing utilities include underground communications along the northern sidewalk, sewer along the westbound lane, gas under the road and a water on
the north side of the road and then transitioning to the south side by School Street. Work should consider upgrading hydrants when excavating the area.

Greg Edwards  
Principal, Transportation  
greg.edwards@stantec.com

Attachment:

c. Rick Jones, Village of Essex Junction
## Project Committee Meeting No. 1

VT 15 / Pearl Street Scoping / FILE 195310710

| Date/Time: | March 28, 2012 / 10:00 AM |
| Place: | Lincoln Hall, Village Offices, Essex Junction, VT |
| Next Meeting: | TBD |
| Attendees: | Dave Crawford, Robin Pierce -- Village of Essex Junction  
Christine Forde -- CCRPC  
Greg Edwards -- Stantec |

### Item:

<table>
<thead>
<tr>
<th>Item:</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Roadway Sufficiency Rating:</strong></td>
<td>Greg Edwards to seek from VTrans to see if structural condition may warrant concrete pavement removal.</td>
</tr>
<tr>
<td>2. <strong>VTrans Class I Resurfacing Project:</strong></td>
<td>Village thought there may be one planned. Greg will contact VTrans for project schedule and proposed scope.</td>
</tr>
<tr>
<td>3. <strong>Traffic Volumes:</strong></td>
<td>Greg will discuss approach for growth volumes with Jason Charest.</td>
</tr>
<tr>
<td>4. <strong>Stormwater:</strong></td>
<td>Greg to contact Jim Jutras to discuss existing stormwater, but should hold until after April 15th due to his need to focus on Wastewater Plant Improvements.</td>
</tr>
<tr>
<td>5. <strong>Purpose and Need Statement:</strong></td>
<td>Stantec provided a draft and committee members will review and provide comments.</td>
</tr>
<tr>
<td>6. <strong>Potential Alternatives:</strong></td>
<td>To define lane alternatives (i.e. on-road bicycle facilities) it was suggested input from bicycle interests. Christine will contact Local Motion to seek input. Regarding P.O. Square intersection alternatives, Stantec will hold until getting input at local concerns meeting.</td>
</tr>
<tr>
<td>7. <strong>Local Concerns Meeting:</strong></td>
<td>It was concluded the local concerns meeting should include mentioning the proposed improvements from previous studies, including a roundabout at P.O. Square, and widening of roadway for bicycles. Comments on these should be solicited. Meeting is scheduled for May 8 Trustees meeting. Greg will circulate a draft notice for review and then send notice to <a href="mailto:patty@essexjct.com">patty@essexjct.com</a> for distribution. Terry Haas will provide property owner list with addresses. Village will post on web and Essex Reporter. The improvements mentioned in previous studies should be discussed at the meeting.</td>
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**One Team. Infinite Solutions.**

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March 28, 2012
Project Committee Meeting No. 1
Page 2 of 2

The meeting adjourned at 12:00 noon.
The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

STANTEC CONSULTING SERVICES INC.

Gregory A. Edwards, PE
Principal
greg.edwards@stantec.com
Meeting Notes

Project Committee Meeting No. 3
VT 15 / Pearl Street Scoping / FILE 195310710

Date/Time: July 16, 2012 / 2:00 PM
Place: Lincoln Hall, Village Offices, Essex Junction, VT
Next Meeting: August 13, 2:00 pm
Attendees: Dave Crawford, Robin Pierce -- Village of Essex Junction
Richard Hamlin – Hamlin Consulting Engineers
Greg Edwards, Karl Richardson – Stantec Consulting Services
Distribution: Attendees, Christine Forde

Item: Action:

The purpose of the meeting was to discuss advancing the study with respect to the comments and concerns received from the recent meeting with the Village Trustees. Greg presented the Alternatives and the following items were discussed:

1. Alternative A: 4-11-11-11-4 lane typical
   a) The eastbound 4’ shoulder could end at the intersection of Curtis Avenue. This would require cyclists to assume a travel lane as the roadway transitions into two travel lanes. With the increasing vertical grade of the street, cyclists should be traveling closer to vehicular speeds facilitating an easier merge to the left lane in preparation for a left turn at the 5-corners intersection if desired.

   - One benefit would include more roadway width to accommodate a wider (potentially 5’ or more) westbound “climbing” lane for cyclists.

   - Another benefit would be maintaining (or potentially increasing) the green strip through the residential area as requested by the Trustees. More of the existing mature trees could be saved as well.

   b) Existing underground facilities need to be looked at closely to determine if the utility poles can be relocated into the proposed buffer area between the curb and sidewalk. Stantec will look into this issue further to identify the conflicts. The Village requested that proposed sidewalks be kept at 5’ for maintenance reasons, and the solution to conflicts should not include a reduction of sidewalk width.

   c) The existing traffic signal at South Summit Street needs to be

   One Team Infinite Solutions.
replaced with this option nad should be upgraded with any of the alternative improvements. Include pictures in the report to support the aesthetic improvements associated with a signal upgrade at this location.

d) In some locations the existing sidewalk is outside of the existing street ROW. Should the Village claim dedication and acceptance and leave the sidewalk in that location, or should the sidewalk be moved to be completely within ROW? The Village will approach the property owners and ask them if they would be willing to allow the current sidewalk alignment to remain. For now the alternative will assume the sidewalk at the Highlands will remain in its existing location and outside the highway ROW.

e) Eastbound improvements should end at the intersection with School Street and tie into the recent curb and sidewalk improvements ending at that location.

f) While this alternative is the most expensive, it is also the safest for vehicles and bicycles.

2. Alternative B: 4-10-10-10-4 lane typical

a) Greg reviewed the results of the FHWA study that concluded that lane widths of 10’ on urban arterials are not significantly less safe when compared to 11’ and 12’ lanes.

- 10’ lanes are tight, especially in the winter, and may be compounded by the vertical grades. Would it be a benefit to have 10’ lanes going up the hill (westbound) and 11’ lanes going down the hill? It was noted that a consistent typical be maintained through the project area.

- It was noted that while the traffic counts reported only 1% trucks during the peak hour, there is a higher percentage of trucks during the non-peak hours. Truck drivers tend to avoid the area during peak hours but utilize the corridor more heavily at other times of the day.

3. Alternative B: 13-10-13 shared lane typical

a) Drainage grates can be a hazard for cyclists – the use of curb inlets may mitigate this problem.

b) A lane line should be added to define the travel lane as 10’ wide to discourage the increase in vehicle speeds expected with 13’ lanes. This will eliminate the “Sharrow” pavement markings.
4. Post Office square intersection improvements

a) Benefits of a roundabout were discussed and it was concluded that the directly affected property owners should be contacted to see if they would be in favor of this option. The Village will attempt to schedule property owner visits on August 1st.

b) The roundabout option could be addressed separately in the report to note the safety benefits, but don’t forget the added ROW costs and property impacts.

c) A paragraph should be added to the report mentioning the “missing link” for cyclists from the Champlain Valley Exposition to the beginning of this project.

4. Next steps

a) Meet with representatives of the local biking groups to record their comments on the proposed alternatives prior to the next meeting with the Village Trustees.

b) Meet with property owners to record their input on intersection improvements at post office square. Stantec will prepare blow-up exhibits for these meetings.

c) Follow up with another committee meeting on August 13th to finalize preparation for an alternative presentation meeting with the Trustees.

The meeting adjourned at 4:00 PM.
The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

STANTEC CONSULTING SERVICES INC.

Karl J Richardson, PE
Project Engineer
Karl.richardson@stantec.com
Meeting Notes

Project Committee Meeting No. 4
VT 15 / Pearl Street Scoping / FILE 195310710

Date/Time: July 31, 2012 /9:00 AM
Place: Lincoln Hall, Village Offices, Essex Junction, VT
Next Meeting: TBD
Attendees: Dave Crawford, Robin Pierce -- Village of Essex Junction
Christine Forde -- CCRPC
Greg Edwards, Karl Richardson – Stantec
David Hauke – Hauke Development
Steven Schonberg – SPS Management

Distribution: Attendees

Item: Action:

1. **Meeting Purpose:** To review proposed alternatives at the Pearl St./PO Square intersection and seek input from adjacent property owners.

2. **Post Office Square background:** Existing vacancy is 9,000 sf out of the 109,000 total. SPS leases 16 spaces to the Citizen’s Bank. The bank also has 8 spaces that are deeded to them from SPS. Traffic does cut through the PO Square lot to So. Summit Street to avoid the traffic signal at So Summit. The aerial mapping does not show the current parking configuration at PO Square. The preference is to favor parking impacts to the west side to minimize impacts to the east side parking.

3. **Essex Shopping Plaza Background:** The Merchants Bank is on Hauke property. The bank access also provides access to properties beyond. CVE has an easement as well.

4. **Pedestrians** – It was pointed most pedestrians cross the side streets. Less cross VT route 15.

5. **Alternative Review:**
   a. **Signal Upgrade:** Benefits of signal phasing changes were reviewed. The greatest capacity improvement was from an eastbound right turn lane. This has ROW impacts, affects existing parking in front of the Citizen’s Bank and reduces available queue storage for the PO Square approach.
   b. **Roundabout:** The roundabout impacts parking spaces on both sides. The access to Merchants bank requires and additional leg on the roundabout. It was concluded
Stantec would look at shifting the roundabout westward to reduce parking impacts and provide a copy for all to review. Due to the file size Stantec will post this on an FTP site next week for all to review.

6. **Next meeting** – There is a committee meeting scheduled for August 13th at 2 pm. Steve and Dave will attend to discuss the revised roundabout alternative. Christine will also pursue getting bicycle interests to attend to provide input on the various typical alternatives.

The meeting adjourned at 10:30 PM.
The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

**STANTEC CONSULTING SERVICES INC.**

Gregory A. Edwards, PE
Principal
greg.edwards@stantec.com
**Meeting Notes**

**Project Committee Meeting No. 5**

VT 15 / Pearl Street Scoping / FILE 195310710

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Date/Time: August 12, 2012 / 2:00 PM  
Place: Lincoln Hall, Village Offices, Essex Junction, VT  
Next Meeting: TBD  
Attendees: Dave Crawford, Robin Pierce -- Village of Essex Junction  
Christine Forde -- CCRPC  
Greg Edwards, Karl Richardson – Stantec  
Jason Van Driesche - Local Motion  
David Hauke – Hauke Development  
Steven Schonberg, Michael Dressell – SPS Management  
Distribution: Attendees, Rick Hamlin

**Item:**  
**Action:**

1. **Meeting Purpose:** To review the latest corridor alternative plan and impacts and to seek input on the alternatives. Also to review proposed alternatives at the Pearl St./PO Square intersection including a revised Roundabout layout and seek input from adjacent property owners.

2. **Bicycle Facility Alternatives:** Jason, of Local Motion, indicated from the bicycle perspective Alternative B, the 4-10-10-10-4 typical is best. The 10 foot wide lanes will tend to reduce speed and would provide the greatest comfort for on road bicyclists. He concurred with ending the 4 foot eastbound bike lane/shoulder near Curtis where on road bicyclists would assume a lane. Jason also indicated Alternative C, which includes sharrows pavement markings, would not be appropriate for this facility given the volumes and speeds. It was pointed out this project would more likely receive funding if it meets the needs of all users, including bicyclists.

3. **Design Considerations:** Provide bicycle friendly drainage grates along the curbs and include a bicycle ramp from the roadway to the sidewalk at the end of the eastbound bike lane/shoulder. This will provide an alternative for bicyclists not comfortable assuming the lane to use the 5 foot sidewalk. Signage indicating its shared use should be included. Consider signing and marking the 4 foot shoulder as a bike lane. Other suggestions were made subsequent to the meeting by email. These included starting the westbound 4 foot bike lane/shoulder at the five corners intersection, and addressing the bike needs just east to the project area to the CVE entrance by narrowing lanes to 10 feet with pavement markings and creating a shoulder on the remaining existing curb to curb width.
4. **Roundabout Alternative** – Steve Schonberg, PO Square representative, indicated they preferred the initial roundabout layout since it had less impact on the Citizen’s bank parking which is problematic due to deeded easements and leases and requires buy in from the bank. He thought some parking impacted on the east side could be recovered but would need to determine a new sign location. He indicated PO Square would like to see the roundabout move forward due to its desired function, and creates a landmark for the area. Dave Hauke, representative of the Essex shopping plaza expressed concern with the roundabout's impact on parking and circulation on his property. Although he also favored the initial roundabout layout compared to the revised layout, he was concern with its effect of accessing the Northfield Savings Bank drive thru facility from the shopping plaza parking area to the west. Dave will discuss the roundabout alternative with NSB representatives and provide their input to the Village.

5. **Alternatives Presentation Meeting**: The next available trustees meeting is Tuesday, September 11, 2012. Dave will confirm there is an available slot for this. Stantec suggested the Village consider use the meeting to present alternatives and obtain input for the committee then to determine a preferred alternative that would be put to the trustees at a later date for concurrence or endorsement. Stantec will develop and circulate a draft notice.

6. **Next meeting** – There is no committee meeting scheduled but would likely be prior to the Alternatives Presentation meeting.

The meeting adjourned at 4:00 PM.

The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

**STANTEC CONSULTING SERVICES INC.**

Gregory A. Edwards, PE
Principal
greg.edwards@stantec.com
Meeting Notes

Project Committee Meeting No. 7
VT 15 / Pearl Street Scoping / FILE 195310710

Date/Time: September 24, 2012 /1:00 PM
Place: Lincoln Hall, Village Offices, Essex Junction, VT
Next Meeting: TBD
Attendees: Dave Crawford, Robin Pierce -- Village of Essex Junction
Christine Forde -- CCRPC
Greg Edwards - Stantec
Rick Hamlin - DLHCE
Distribution: Attendees

Item: Action:

- **Meeting Purpose:** To review the input received from the Alternatives Presentation meeting and discuss a preferred alternative for endorsement by the Village Trustees.

- **Alternatives Presentation Input:** The committee reiterated some of the concerns, input and questions from the meeting. These included: concern with impacting trees, green space and corridor character; concern with 10 foot lanes accommodating trucks: maintain continuity along the corridor including accommodating bikes between CVE and PO square; right turning trucks leaving School Street require a larger curb radius; consider moving trees; extend eastbound bike lane to Curtis Ave for transition to bikes on sidewalk; consider drainage grates friendly to bikes; NSB bank has a concern with roundabout and effects on their operation; PO square representative supported intersection signal option 2.

- **Preferred Corridor Alternative:** The committee recommended Alternative A – three 11 foot lanes, 4 foot shoulders as the preferred corridor alternative. Primary reasons for recommending Alternative A is as follows:
  a. There is not a significant difference in impact to street trees, green space, cultural resources, environmental resources, and adjacent properties for this alternative vs. Alternative B. Allows a 3 foot green strip/buffer area between the curb and sidewalk.
  b. The 11 foot lanes are needed to maximize safety for vehicles and bicycles given trucks and buses use this corridor and bus service is likely to increase over time.
  c. The additional cost of Alternative A is not significant over
Alternative B.

d. There will likely be only one opportunity to fund improvements along this corridor and this alternative maximizes the improvements without significant impacts.

- **Preferred Intersection Alternative** - The committee recommended the signal intersection improvements as the preferred intersection alternative. Primary reasons for recommending this alternative is as follows:
  
a. This alternative has very limited impacts on adjacent properties when compared to the roundabout alternative.
  
b. An adjacent property owner did not support the roundabout alternative due to its impact on circulation.
  
c. This alternative provides adequate capacity for the 2032 design year traffic.
  
d. It is has less construction cost when compared to the roundabout alternative.

- **October 9th Trustees Meeting**: The committee will provide their recommendation to the trustees via this memo and will seek endorsement for the trustees so as the project can be eligible for transportation funds to support the design phase.

- **Next meeting** – There is no committee meeting scheduled but based on the trustee meeting outcome, Stantec will finalized the scoping report’s Alternative Presentation section and Preferred Alternative section and circulate to the committee for review.

The meeting adjourned at 2:00 PM.
The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

**STANTEC CONSULTING SERVICES INC.**

Gregory A. Edwards, PE
Principal
greg.edwards@stantec.com
MEMORANDUM

TO: Village Trustees
FROM: Robin Pierce, Development Director
THROUGH: David A. Crawford, Village Manager
DATE: October 9, 2012
SUBJECT: Pearl Street Missing Link

The Committee charged with the Scoping of the ‘Missing Link’ on pearl Street met the week of September 24th and selected a Preferred Alternative for the section of Pearl Street from the Post Office Square shopping center to Lincoln Hall.

The Committee selected the alternative that most closely created a Complete Street: Alternative A. A Complete Street is something that federal and state laws require when new roads are being constructed or existing roads are modified.

This will give eleven foot travel lanes for cars along the complete length of the study area and four foot bicycle lanes for cyclists everywhere except a small portion from Curtis to the Five Corners for cyclists travelling east. This will create a safer and more welcoming environment. This alternative also saves the most existing trees, and preserves a green strip between the roadway and the sidewalk.

MOTION: The Essex Junction Village Trustees endorse Alternative A for the Scoping Study of the ‘Missing Link’ portion of Pearl Street from Post Office Square to the Five Corners.
Based on the base file provided by Hamlin;

West Hillcrest to Hillcrest Drive: existing gas and water lines in area of proposed buffer strip.

Hillcrest to Summit: existing water and communications duct bank in proposed buffer strip. Sewer main crosses in one location.

Summit to School: existing water and gas lines meander in and out of proposed buffer strip.

School Street to End: existing communications MH and street light conduit in proposed buffer strip.

To summarize, much of the proposed buffer strip would be free of underground obstacles and would accommodate the proposed utility poles and street lights. There would be localized utility relocation necessary (especially between West Hillcrest & Hillcrest) but it appears that this could be minimized through the rest of the project if the proposed poles are strategically located.

Karl Richardson, PE
Project Engineer
Stantec
Ph: (802) 864-0223 Ext. 151
Fx: (802) 864-0165
Karl.Richardson@stantec.com
stantec.com

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Edwards, Greg

From: Richardson, Karl
Sent: Thursday, September 06, 2012 8:51 AM
To: Edwards, Greg
Cc: Goyette, Gregory
Subject: Pearl Street stormwater permit

Alt A adds 10,000 sf of impervious area (wider sidewalk and street widening) + 15,000 redeveloped existing impervious + 8,000 (assume hardscape buffer strip) = 0.8 acres. Alts B & C impervious totals are less than Alt A. A discharge permit would not be required for any of the alternatives.

Total disturbed area (not including overlay area) is greater than 1 acre for Alts A & B. This assumes that the entire area from existing curb to ROW will be disturbed. A construction general permit will be needed.

Alt C replaces sidewalk only, so (assuming a 8' wide construction strip on each side of the street) the disturbed area would be less than 1 acre.

From: Goyette, Gregory
Sent: Wednesday, September 05, 2012 2:30 PM
To: Richardson, Karl
Subject: FW: conference meeting

Here’s the answer. If your total new, redeveloped and existing excluding the overlay area is less than 1 acre, a permit is not required.

From: Calvi, Jenna [mailto:Jenna.Calvi@state.vt.us]
Sent: Wednesday, September 05, 2012 2:28 PM
To: Goyette, Gregory
Subject: RE: conference meeting

Hi Greg!
Not pushing it – I was out this morning, so I am just getting to this now!

If the overlay and sidewalk project is merely re-surfacing, then yes you can safely make that assumption. Any level of excavation, re-grading, or substantial re-construction may constitute redevelopment and may require permit coverage.

If you need anything further on this, just let me know : )

-Jenna

From: Goyette, Gregory [mailto:greg.goyette@stantec.com]
Sent: Wednesday, September 05, 2012 11:58 AM
To: Calvi, Jenna
Subject: RE: conference meeting
Importance: High

Hi Jenna,

Quick technical question for you…

We are working on a roadway overlay and sidewalk project in Chittenden County. Would it be correct to assume the roadway overlay component is maintenance and does not count in the total impervious area calculation when considering a stormwater discharge permit?
I know I’m pushing it now, but is there any chance you can respond today in time for my meeting with the client tomorrow? 😊

Greg

---

From: Calvi, Jenna [mailto:Jenna.Calvi@state.vt.us]
Sent: Wednesday, September 05, 2012 7:44 AM
To: Goyette, Gregory
Subject: conference meeting

Hi Greg,
So this week seems to have crept up on me pretty quickly. Is there any way that we could meet about the presentation next week - say Wednesday in the morning or Thursday later in the afternoon? I have a staff meeting Thursday from 8:30-?? (usually about 10-10:30) so I could meet after that.

Thanks for being flexible – things just pile on so fast, especially with the long holiday weekends!

-Jenna

----------------------------------
Jenna Calvi | Environmental Analyst
Vermont DEC | Stormwater Program
802.338.4889 (p) | 802.338-4890 (f)
www.vtwaterquality.org
August 15, 2012

David Hauke
Hauke Building Supply
1127 North Avenue, Suite 42
Ethan Allen Center
Burlington, VT 05401

Re: Pearl Street, Route 15, Essex Junction

Dear David:

Tim Burke of White & Burke Real Estate Investment Advisors has provided us with information regarding potential traffic changes at the intersection of Pearl Street, Route 15 and the entrances to the Essex Junction Shopping Center and Post Office Square.

As you know, Northfield Savings Bank maintains a full service branch bank on the northeasterly corner of the intersection.

We support efforts to improve the area's overall traffic flow. However, safe and efficient access to the branch remains a priority. The branch’s continuing success is predicated on ease of customer access. Initiatives which would limit access or significantly alter existing traffic flows are a concern.

From the information Tim provided, we understand consideration is being given to re-timing the intersection's traffic lights. Without knowing the implications of re-timing the lights, we do not have a position on the issue at this time.

The roundabout or traffic circle drawings of August 1 and 9 as presented are of significant concern. As we understand the drawings, access to the branch and its drive-up teller would be severely compromised. Further, the August 1 drawings potentially present stacking problems for drive-up teller customers. It appears vehicles could back up to, and worse case on to Pearl Street, Route 15.

Please keep us posted of the future traffic discussions. Should you have any questions, please advise.

Sincerely,

Thomas N. Pelletier
President and Chief Executive Officer
Hi Dave,

As much as I like the idea of a roundabout, we will be in favor of improvements to the current signalized intersection. The impact on the interior traffic flow within the Shopping Center creates too many negatives for our tenants.

I have attached a letter from Northfield Savings expressing their concerns.

I will be attending the Sept 11th meeting, but did want to give you our position prior to the meeting. Please contact me if you wish to discuss in further detail.

Thanks,
David

David Hauke
Hauke Building Supply, Inc.
1127 North Avenue, Suite 42
Burlington, VT 05408
Office: (802) 658-6688, ext. 2
As requested, on March 26, 2012, Stantec Consulting (Stantec) evaluated the natural resources present within the VT Route 15 / Pearl Street Scoping Project corridor in Essex Junction, Vermont. The study area is an approximately 2,500-foot long section of Pearl Street, also known as VT Route 15. It extends along Pearl Street from the Post Office Square intersection easterly to the completed improvements near the Five Corners Intersection. For the purposes of this review, the study area includes a corridor 50 feet from centerline along Pearl Street.

Specifically, as part of this investigation, Stantec identified and characterized observable rare, threatened or endangered (RTE) species, wetlands, streams, wildlife habitat, agricultural land, and conservation zones. Wetland boundaries under state and federal jurisdiction were determined using the technical criteria described in the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0). Following is a summary of our findings.

General Site Description

The project corridor is a developed area that includes existing roadways, roadsides, sidewalks, utility corridors, and drainage features. Vegetation within the corridor is limited to maintained lawns and ornamental plantings (see Photos 1 - 4).

Natural Resource Review Summary

Review of Existing Materials

According to the Natural Resource Conservation Service (NRCS) Web Soil Survey for Chittenden County, Vermont, soils are mapped as Adams and Windsor loamy sands, 0-5% slopes; Belgrade and Eldridge soils, 3-8% slopes; and Hinesburg fine sandy loam, 3-8% slopes along Pearl Street. None of these soils types are considered wholly hydric, although both the Belgrade/ Eldridge soils have a hydric component. The Adams/Windsor and Belgrade/Eldridge soils are considered farmland soils of statewide importance, while the Hinesburg soils are considered prime farmland soils.

Reference: VT Route 15/Pearl Street Scoping Project Natural Resource Review

Stantec used the Vermont Agency of Natural Resources (ANR) Environmental Interest Locator program to assess the likelihood of the presence or absence of mapped Vermont Significant Wetland Inventory (VSWI) wetlands and rare, threatened, and endangered (RTE) plant and animal species. According to this program, there are no VSWI wetlands, RTE species, or significant natural communities mapped within the project area (see attached ANR Map).

**Wetlands and Streams**
No wetlands or streams were identified within the project corridor. The western portion of the corridor is located within the Sunderland Brook watershed, an area identified as a stormwater impaired watershed by ANR. Total Maximum Daily Loads (TMDLs) have been established for this stream, and any required stormwater permit will take this into consideration.

**RTE Species**
Stantec identified no RTE plant species during the March 26, 2012 site visit. Because the majority of the area has been disturbed by development, it is unlikely that any RTE plant species occur within the project corridor.

**Wildlife and Wildlife Habitat**
The project area is a relatively narrow corridor along an existing road, flanked by commercial and residential developments and their parking areas. This narrow corridor has limited wildlife habitat value. It likely supports occasional use by songbirds.

**Agricultural Land**
As described above, according to the NRCS Web Soil Survey for Chittenden County, Vermont, soils within the study corridor are considered farmland soils of statewide importance or prime farmland soils. However, the project area is not used for agriculture, and the narrow strip alongside the existing pavement does not provide agricultural value as the affected land is already in urban use.

**Conservation Zones**
No designated state or town conservation zones are present within the narrow project corridor. According to a review of Land & Water Conservation Fund (LWCF) Projects from 1965-2011, no areas within the corridor were purchased with LWCF funds. Therefore, there are no “Section 4(f)” or “Section 6(f)” public lands present.

**Summary**
In summary, the narrow project corridor does not include any significant natural resources. The western portion of the corridor is located within a stormwater impaired watershed. TMDLs have been established for this stream, and any required stormwater permit will take this into consideration.

STANTEC CONSULTING SERVICES INC.

Polly Harris
Environmental Project Manager
Polly.Harris@stantec.com

2 http://maps.vermont.gov/imf/sites/ANR_NATRESViewer/jsp/launch.jsp
Photo 1. The Route 15/Pearl Street Scoping Project study corridor includes lawns, utility corridors, and ornamental plantings. 3/26/12

Photo 2. View of residential development, landscaping, and utility corridors within the study corridor. 3/26/12
Photo 3. Maintained lawns and some mature trees are present within the study corridor. 3/26/12

Photo 4. A narrow vegetated strip is present alongside the road. 3/26/12
Memo

To: Greg Edwards  
South Burlington, VT  
File: VT Route 15 / Pearl Street Scoping Project 195310710

From: Polly Harris  
South Burlington, VT  
Date: March 27, 2012

Reference: VT Route 15 / Pearl Street Scoping Project Natural Resource Review

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One Team. Infinite Solutions.
Stantec

March 27, 2012
Greg Edwards - VT Route 15/Pearl Street Essex Sidewalk Project
Page 2 of 4

Reference: VT Route 15/Pearl Street Scoping Project Natural Resource Review

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In summary, the narrow project corridor does not include any significant natural resources. The western portion of the corridor is located within a stormwater impaired watershed. TMDLs have been established for this stream, and any required stormwater permit will take this into consideration.

STANTEC CONSULTING SERVICES INC.

Polly Harris
Environmental Project Manager
Polly.Harris@stantec.com

2 http://maps.vermont.gov/imf/sites/ANR_NATRESViewer/jsp/launch.jsp
Route 15/Pearl Street Scoping Project

Photos

**Photo 1.** The Route 15/Pearl Street Scoping Project study corridor includes lawns, utility corridors, and ornamental plantings. 3/26/12

**Photo 2.** View of residential development, landscaping, and utility corridors within the study corridor. 3/26/12
Photo 3. Maintained lawns and some mature trees are present within the study corridor. 3/26/12

Photo 4. A narrow vegetated strip is present alongside the road. 3/26/12
DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. VCGI and the State of Vermont make no representations of any kind, including but not limited to the warranties of merchantability or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.
Historic Structures Assessment for the Vermont Route 15/Pearl Street Scoping Study
Essex Junction, Vermont

Prepared for:
Stantec
55 Green Mountain Drive
South Burlington, VT 05407

Prepared by:
Suzanne Jamele
Historic Preservation Consultant
1 High Street
Plainfield, Vermont 05667

April 2012
Introduction

This report will provide comments on the above-referenced project pursuant to 36 CFR 800.4, regulations established by the Advisory Council on Historic Preservation to implement Section 106 of the National Historic Preservation Act. Project review consists of evaluating the project's potential impacts to historic buildings and structures, historic districts, historic landscapes and settings, and known or potential archeological resources.

This report identifies historic resources within the proposed project’s Area of Potential Effect (APE), “the geographic area within which the project may cause changes to the character or use of the historic properties” [36CFR 800.2(c)] that are listed on or appear to be eligible for listing on the National Register of Historic Places. The report also provides a preliminary assessment of effect based on the preliminary project alignment. A site visit was conducted by the consultant on March 22, 2012, at which time photographs were taken. File review to identify sites in the project area was undertaken on March 20, 2012 at the Vermont Division for Historic Preservation in Montpelier, VT. Research was conducted at the Vermont Historical Society Library in Barre, and the State Library in Montpelier.

Project Description

The proposed project is being planned by the Village of Essex Junction and the Chittenden County Regional Planning Commission. The proposed undertaking will make streetscape improvements along Route 15 (Pearl Street) in Essex Junction. The project will begin at Capital Motors at 100 Pearl Street and continue east to the signalized Five Corners intersection just beyond the People’s United Bank at 4 Pearl Street.

The project will involve construction of a roundabout and lane additions at the Post Office Square intersection and adding bike lanes along Pearl Street to the Five Corners. This would be accomplished by reducing lane widths and/or reducing the width of the existing green strip. Sidewalks would be replaced but the back edges would remain where they are today. The actual construction area has not yet been defined and until it is, the proposed project’s Area of Potential Effect is along both sides of Pearl Street from Capital Motors at 100 Pearl Street east to the signalized Five Corners intersection just beyond the bank at 4 Pearl Street. The APE corresponds to the area within the yellow line labeled “Assumed Project Area” on the attached Pearl Street Multimodal Transportation Plan.

Pearl Street, also known as Vermont State Route 15, is a heavily traveled two-way road. The western end of the project area is lined with late 20th century structures housing various commercial establishments. Proceeding east toward the Five Corners intersection, the character of the street changes to a mix of civic structures, homes, and small businesses occupying residential buildings largely constructed in the mid-19th to mid-20th centuries. In this area, many of the buildings are set back from the road with front lawns and mature trees. Both sides of the street, in the entire project area, are lined with existing sidewalks and green strips.
Historic Properties

Scattered amidst the modern commercial construction at the western end of the APE are two early 20th century houses located on the south side of the street - #s 86 and 88 Pearl Street, both of which appear on a 1928 Sanborn Fire Insurance Map of the street. A c. 1950 Cape Cod house is located at 90 Pearl Street. The properties at 86 and 88 Pearl are listed on the State Register of Historic Places. The property at 90 was not included in the 1984 Vermont Historic Sites and Structures Survey (VHSSS) for the Town of Essex and is not listed on the State Register. The three structures are not eligible for the National Register of Historic Places due to alterations.

86 Pearl Street, VHSSS #0405-53
When surveyed in 1984, this building was a vernacular, gable front, 2 ½ story Queen Anne house. It had a left sidehall entrance sheltered by a hipped roof, open front porch with turned posts and solid clapboard railing. To the right of the door was a picture window with a colored and patterned arch transom. The gable peak had a decorative window surrounded by staggered butt shingles and the façade was outlined with fascia, corner and sill boards and the windows had lip molds.

The building now has vinyl siding rather than clapboards, has lost all historic trim molding, the staggered butt shingles in the gable have been replaced with diagonal vinyl, and the porch has been enclosed obscuring any remaining historic doors or windows. These alterations make the building no longer eligible for the State or National Registers.

88 Pearl Street, VHSSS #0405-54
This vernacular, 2 ½ story, hip roof, center hall plan house has a dormer on the front roof slope. When it was surveyed in 1984 the hipped roof front porch had scroll sawn brackets and turned posts and railings. The front door was flanked by picture windows with transoms. Three windows were evenly spaced across the second floor of the front façade. There was a shed roof entry porch with turned posts in the rear.

The building was covered in asphalt single siding and now has vinyl siding. The porch has lost its Queen Anne style turned posts and railing and now has square posts and railing composed of slanted square balusters. The rear porch has square posts and balusters. The picture windows have been replaced with paired 1/1 windows. The dormer has lost its window which has been replaced by a louvered vent. Window placement has changed on the front and side elevations. The three second floor windows on the front façade no longer are evenly spaced. On the east elevation the rear windows have been moved closer to the front end of the building. The building’s brick foundation has been replaced or covered with concrete. Because of all these changes, the building no longer retains enough integrity to be eligible for the State or National Registers.
90 Pearl Street
This Cape Cod house was built c. 1950. The 3x2 bay, 1 ½ story, gable roof, eaves front house rests on a concrete block foundation, has vinyl siding and an asphalt shingle roof. A gable roof entry porch shelters the centered front door. Windows are 1/1 except for a bay window in the third bay of the front façade. The entry porch and bay window appear to be more recent additions to the building, as does the vinyl siding. While typical of mid-century residential construction, the house has had enough changes to render it not eligible for the National Register. Buildings from this relatively recent period must have very few alterations in order to be eligible for individual listing on the National Register.

Pearl Street Historic District
The north side of Pearl Street from #43 to #19 (roughly from Summit Street to School Street) and the south side from # 32 to #8 (east of Curtis Street to east of School Street) was identified in the 1984 Vermont Historic Sites and Structures Survey (VHSSS) for the Town of Essex as the Pearl Street Historic District. This district is listed on the State Register of Historic Places. Buildings are evenly spaced, have a similar setbacks from the street and are largely 1 ½ to 2 ½ story structures. The district contains 16 properties and all but 22 Pearl were considered contributing structures at the time of the survey. Evaluation of the buildings during the March 22, 2012 site visit indicated that all of the structures continue to retain their architectural integrity and status as contributing structures and 22 Pearl remains noncontributing. The buildings were all built as single family homes or duplexes and date from c. 1825 to c. 1920, with most built c.1880 and c. 1920. They represent a range of architectural styles that reflect several periods of Essex Junction’s development. The brick Greek Revival style house at 35 Pearl (HD#4) was built c. 1825 by Abram Stevens, one of Essex Junction’s founding citizens. During the community’s early years, the street was a main coach line from Essex Junction to the falls in Winooski accessing mill activity along the river but was sparsely settled. After the arrival of the railroad in Essex Junction in 1849 the economy grew and building activity increased culminating with a construction boom in the 1880s. A number of buildings along Pearl Street exhibit architectural details from this period including protruding bays, decorative fenestration and fancy woodworking. Construction of a concentration of commercial buildings in the heart of the Junction at the end of the 19th century led to a new wave of residential growth. After the turn of the 20th century a vernacular Shingle style house (one of two in Essex Junction village) was built at 8 Pearl Street and a unique brick and wood shingle house was built at 14 Pearl. By 1920 three Colonial Revival style houses were built at # 43,41, and 31, and a Dutch Colonial Revival style house at 37 Pearl, all representing styles and classical features popular in home construction at the time. This historic district appears eligible for the National Register of Historic Places as an evolving residential neighborhood on the outskirts of the commercial village center.

The original boundaries of the surveyed district can be expanded to include properties to the east and west that represent additional 20th century housing as well as two distinctive structures that are approaching 50 years old and represent significant late 20th century architectural
developments—the c. 1965 fire station at #3 and the bank at #4. The added structures include the buildings on the north side of Pearl at #1,3,11 (noncontributing), 15,17 all east of School Street, and 39 (noncontributing), 49,51, 53 and 55 all east of North Hillcrest Road. On the south side of Pearl, additional district buildings include #4 at the Five Corners intersection, 34 and 36 on either side of Curtis Avenue, 40 (noncontributing), 44 Pearl, as well as 1 and 2 South Summit Street.

Additional buildings in expanded district:

1 Pearl Street-contributing
Located at the corner of Pearl and Lincoln Streets, at the Five Corners intersection, this building is listed on the State Register of Historic Places. It is composed of several sections and has two eaves front, gable roof, 2 ½ story portions that face Pearl Street. The eastern part of the building is a Federal style, 5x3 bay, brick, c. 1820 former tavern with a stone foundation. A central door is flanked by 3/4 length sidelights and has a fanlight transom. Windows have splayed lintels on the second story and there are fanlights in the gable ends. There are four corbelled, interior, gable end chimneys. Attached to the building on the west end is a c. 1860, 5x2 bay, cladboarded building with Greek Revival style features including cornice returns, full entablature, and corner pilasters. The central entry surround with 3/4 length sidelights, pilasters and denticular cornice with molded entablature was added in the late 1960s. From 1914 to 1965 the fire department was located in the building and there were two overhead garage doors that accommodated the trucks located in the three easternmost first floor bays (where the front door and two windows to its right are now).

3 Pearl Street-contributing
Built in 1965, this 1 ½ story, broad gable front, 3x4 bay, concrete block fire station has distinctive projecting piers separating each bay on each side of the building. The building’s utilitarian and geometric form, lack of ornamentation, vertical piers that define spaces, and smooth masonry walls are all elements of the International style, which was most popular in Vermont from 1955-1975. The building has three overhead garage doors on the front elevation, each with two rows of four horizontally placed oval windows. The gable above the doors is cladboard-sided and has one large and two small plain circular medallions. The building occupies the former site of a c. 1920 service station and is deeply set back from the road.

11 Pearl Street-noncontributing
This building was built in 1936 and housed Clayton Brown’s Tractor Sales; the Colonial Theater occupied the back of the building. Brown’s business closed in 1983 and in 1984 the building was renovated to its present appearance. The 1 ½ story, gable front building originally had wide overhanging eaves, four wide openings on the first floor of the front elevation that had paneled wood double doors in the first and third bays and three 2/2 windows in the second and fourth bays. On the second floor of the front elevation were three pairs of 2/2 windows. The 4x8 bay building now has synthetic clapboard siding, a right sidehall entry with full-length sidelights, 1/1
windows, corner pilasters, cornice returns, and semi-circular louvered gable vents. This building is noncontributing due to alterations.

**15 Pearl Street-contributing**
This c. 1920, vernacular Colonial Revival style house is a 3x3 bay, eaves front, 2 ½ story, stucco-sided building with a slate gable roof. There is a shed roof dormer on the front roof slope with four small 4/1 windows. The central front entry is sheltered by a modern entry porch. Windows on the building are a variety of shapes and styles and have prominent rectangular lintels and sills. Many have multi-light sash (4, 6, or 8) over a single lower pane. Paired 6/1 windows rest to the left of the front door and a three-part picture window is at the right. It is composed of two 4/1 narrow sash flanking a large central single pane with tracery above. On the second floor, above this window, is a similar one but the central sash is 6/1. A pair of small windows rests above the front door and to the left is a large 8/1 window. The north side of the building is decorated with two stair hall windows with tracery. The south side of the building has a gabled oriel window with a stepped base and tracery sash.

The building appears on the 1922 Sanborn Fire Insurance map of the street and appears to have replaced a gable front house with rear ell that is shown on the 1910 map. Directories from 1929-1940 indicate it was the location of Mrs. Marion Wood’s beauty parlor.

**17 Pearl Street-contributing**
This is a c. 1890, 2x4 bay, 2 ½ story, vernacular Queen Anne style, left sidehall plan house with an eaves front gable roof and single story rear wing. The vinyl sided building has a modern gable roof door hood supported by brackets that shelters the front entry and a bay window to its right. On the second floor of the front elevation are two 1/1 windows. The west side has four 1/1 windows on the second floor and two on the first floor. The window in the first floor second bay is a square stairhall window. The building appears on the first Sanborn Fire Insurance map of Essex Junction published in 1894 and had a longer rear wing until sometime between the 1910 map and the 1922 map when it was removed.

**39 Pearl Street-noncontributing**
This is a contemporary 2 ½ story, 2 bay wide, eaves front house with attached large, eaves front garage on the west end. The house has an open, hip roof, single story porch across the front elevation. The garage has a large gable roofed dormer with paired windows on the front roof slope. This building is infill within the existing district.

**49 Pearl Street-contributing**
This single story, sprawling 6x3 bay, early Ranch house has a shallow hip roof with wide overhang and was built between January 1951 and August 1952, according to directories. The building has a highly articulated front façade and a hip roof, single car garage with overhead door attached to a shallow rear cross-hip addition set back on the east end. On the front façade
the first bay is set very close to the southwest corner and a shallow 1x1 bay projection occupies the second bay. This projection has a cluster of narrow five-pane awning windows in its southwest corner- on the west side of the corner are two of the awning windows and on the south side are four. Immediately to the right of the projection is a ribbon of five single pane, vertical windows and in the next bay is the front entry. This portion of the front façade is sheltered by an extension of the broad roof overhang which is supported by a brick pier, with cut-outs, immediately to the right of the front door. Two double hung windows rest to the right of the pier. The sheltered portion of the front elevation has vertical board siding. The rest of the house has wide clapboard siding and on the front and east elevations there is brick siding below the windowsills. Windows are largely double hung 2/2 horizontal sash. The building is set on a rise and has rubble stone walls set into the streetside bank forming a rock garden. The stone walls also line the driveway.

51 Pearl Street-contributing
Directories indicate that this building was built between January 1948 and August 1949 by U. Seth Eberhardt. The 5x2 bay building is a Colonial Revival style, Cope Cod house with rear ell and attached cross-gable two car garage. While the building has had some alteration, it continues to reflect the post-World War Two period of housing construction resulting from a rapid growth in population in Essex Junction during the late 1940s and 1950s. The eaves front house is sided with wood shingles and has stylized cornice returns. Two gable roofed dormers, with cornice returns, rest on the front roof slope. An enclosed, wood shingle sided, gable roofed entry vestibule, with cornice returns, is centered on the front elevation and flanked by two windows on each side. Windows are all replacement double hung multi-pane sash and the front door is a modern replacement. The south side has two three-part windows. The ell is recessed to the north and the recessed area is covered by a roof overhang forming an open porch area. Attached is the garage, which is also covered with wood shingles and has a nine light window in the gable. There are two overhead garage doors, each with a ribbon of four windows. The upper outer corners of the garage doors, and the recessed porch roof, have small cut-out scrolled brackets.

53 Pearl Street-contributing
This single story, 4x2 bay Ranch house was built in 1955 and, while somewhat altered, in association with its neighboring properties it continues to reflect a popular housing type of the time. The building’s narrow rectangular form and shallow eaves front gable roof, along with its small 1/1 windows and integral gable roofed, open-front garage set into the street-side bank on the front elevation, are all typical features of the mid-20th century vernacular Ranch house. The building has a recessed, contemporary front door centered on the front elevation under broad overhanging eaves. To its left is a modern bay window and to the right is a small 1/1 window. There is a pair of similar small windows at the far right-hand (east) side of the front elevation, above the garage roof. The building has a rectangular ridge chimney offset to the west.
55 Pearl Street-contributing
This Minimal-traditional style house, commonly built in the 1930s-50s, was constructed between August 1952 and January 1954, and, along with the buildings at 49, 51 and 53 Pearl, represent a period of growth in the community following the end of World War Two. The single story, shallow eaves front, 3x2 bay house has a shallow cross gable on the eastern two-thirds of the front elevation. Eaves are close and have stylized small returns. The modern front door enters into in a cross gable in the building’s second bay and is sheltered by a gable roofed door hood supported by simple brackets with a cross-brace. A 1/1 double hung window rests to the right of the door. To the left of the door, in the main block of the house, is a three-part picture window composed of a large central pane flanked by narrow 1/1 sash. The window rests in a wall covered with board and batten siding. The rest of the house has wide clapboard siding. The house rests on a slight rise above the street and is accessed by a set of concrete stairs and walkway.

4 Pearl Street-contributing
This bank building was built in 1970 on the site of a former Queen Anne style house. The building is an exaggerated example of the Mansard style- a movement in the Neo-eclectic period of design which began in the mid-1960s. Although not yet 50 years old, the building is a distinctive and unusual example of the style. The 1 ½ story, square brick building, located prominently on the corner of Pearl and Parks Streets, has an oversized, steeply pitched roof covered with wood shingles. Deeply recessed tall, narrow windows set singly and in clusters pierce the brick walls.

34 Pearl Street-noncontributing
This 2 ½ story, wood frame, gable roofed, building is attached to 32 Pearl Street (#16 in the State Register historic district) via a modern single story hyphen. A single family house appears at this location on early 20th century Sanborn maps. It appears to have been altered in the late 20th century receiving a two story, 2x1 bay cross gable front addition and a small single story, flat roofed addition on its north end, all added after the historic district documentation was prepared in 1984.

36 Pearl Street-contributing
This small, late 19th century, vernacular eaves front, 3x1 bay house with high knee walls has an extended rear shed roof that incorporates a deep three bay addition to the house. The front elevation has a centered front door sheltered by a modern open shed roof porch with a small gable roof wall dormer above. There are wide replacement clapboards, 1/1 replacement windows, and a new asphalt shingle roof. The house does not appear on the 1869 Beers map of Essex Junction.

40 Pearl Street-noncontributing
This is a late 20th century 1 ½ story, gable front, bank building. There are gable roof dormers with paired windows on the east and west roof slopes. The clapboard sided building has wide cornerboards and water table. An open gable roof porch with square posts shelters the centered
front entry. The entry is flanked by single pane picture windows and above them are two pairs of small 1/1 windows. Noncontributing due to age.

**44 Pearl Street-contributing**
This c. 1920, vernacular, 1 ½ story, 3x3 bay, gable front house has wood shingle siding. The front entry is centered on the front elevation between two wide double hung windows. Two smaller windows are centered in the gable. The west roof slope has a small shed roof dormer with small window.

**2 South Summit Street-contributing**
This c. 1947 vernacular Colonial Revival style Cape Cod plan house was constructed in a period of rapid growth in Essex Junction following World War Two. In 1940 the population of the community was 1,901 and by 1950 it was 2,701. South Summit Street and adjacent streets like Curtis Avenue began to be developed to respond to a demand for housing. New developments first began with the opening of 25 lots on South Summit Street in 1947. Although this house has had later additions, the original house remains evident and contributes to the understanding of this period of growth.

The 3x2 bay, eaves front, clapboard sided house faces west on South Summit Street, at its intersection with Pearl Street. The house has a flat roofed dormer that spans most of the front roof slope and has two pairs of small 3/1 windows. On the rear (east) side a similar flat roofed dormer extends beyond the eaves of the house’s roof, forming a one bay deep extension of the main block. The two flat roofed dormers make the entire house appear as though it has a flat roof from the Pearl Street vantage point. There is a small, flat roofed addition on the north side of the main block. It has paired 1/1 windows on the north elevation and a modern door on the west side.

The building’s primary entry is centered on the west elevation and contains a wood paneled door with half-length sidelights with a simple surround. The entry is sheltered by an open entry porch with a pedimented gable roof which is supported by four turned columns. There is a simple porch and stair railing with square balusters. Flanking the entry are pairs of 3/1 double hung windows. All 3/1 windows have tall narrow panes on the upper sash. The building has wide corner boards and plain trim around the windows. Eaves on the main block and dormer roofs have wide overhangs. On the front elevation the main block has exposed rafter tails and the dormer has rafters that are exposed but boxed within the plain cornice board.

**1 South Summit Street-contributing**
Like the house at 2 South Summit, this c. 1947 Cape Cod house was part of the post World War Two housing development in this part of Essex Junction. Its location on the corner of Pearl Street provides an example of mid-20th century housing along Pearl Street, a road which exhibits examples of residential construction from c. 1825 to the present.
The eaves front, 3x3 bay house has an attached single car garage, with overhead door, on the south side. The house has a steeply pitched gable roof and an exterior wall chimney on its north side. There is wide clapboard siding and plain trim around windows and doors. Windows are 1/1 double hung except for a large, single pane picture window to the north of the centered front door. There are two windows in each gable end. The entry is sheltered by a small, open, entry porch with a gable roof with wrought iron posts and railing.

As previously stated in this report, the portion of the project area to the west of 55 Pearl Street on the north side, and 44 Pearl on the south side (except for #s 86,88,90 Pearl) are all modern buildings housing commercial uses or are large apartment complexes. Many of them are set back behind large parking lots that are adjacent to Pearl Street. None of these buildings have historic significance.

Assessment of Effect

Project plans are preliminary. Formal findings of effect for Section 106 should be based on final project plans when they become available. It is anticipated that the proposed project will have no adverse effect on any historic structures. Proposed components of the project are:

Construction of a roundabout and lane additions at the Post Office Square intersection
This portion of the APE does not contain any historic structures and should not have any effect on historic buildings.

Adding bike lanes along Pearl Street to the Five Corners
This would be accomplished by reducing lane widths and/or reducing the width of the existing green strip. These activities will not directly affect any historic resource in the APE and is not expected to alter the setting of any historic structures. Slightly wider paved lanes and reduction of the size of the green strips to accommodate a bike lane is not expected to alter the character of the historic district.

Sidewalks would be replaced leaving the back edges where they are today
Sidewalks exist along the full length of the APE and have been in place since at least the early 20\(^{th}\) century. The broad road accommodated both horse and buggies and trolleys starting in 1895 when a trolley line was built along Route 15 from Fort Ethan Allen to the railroad station in Essex Junction. The first paved sidewalk on Pearl Street was constructed in 1917.

This activity is not anticipated to directly affect any historic structures in the APE nor is expected to alter the setting of any historic structures. Replacing the sidewalks is not expected to alter the character of the historic district within which they are located. ADA requirements may result in slightly wider walkways but visual impacts should be minimal. Limiting impacts to the existing back edges of sidewalks should allow retention of mature trees and shrubbery, as well as residential landscape features such as the rock garden in the front yard of # 49 and the stairs and walkway at #55. The existing sidewalks and curbing are not historic.
Bibliography


Attachments

1. Location of Historic Buildings
2. Photographs
3. Conceptual Location Map/APE
4. 86 Pearl Street, Vermont Historic Sites and Structures Survey Form #0405-53
5. 88 Pearl Street, Vermont Historic Sites and Structures Survey Form #0405-54
6. 1 Pearl Street, Vermont Historic Sites and Structures Survey Form #0405-78
7. Pearl Street Historic District, Vermont Historic Sites and Structures Survey Form #0405-40
White polygon indicates the boundary of Pearl Street Historic District currently listed on the State Register of Historic Places. Numbers represent street addresses and correspond with headings in the report text.
Photos of western end of project area-no historic properties

90 Pearl Street near western end of project area on south side.

88 Pearl Street

86 Pearl Street

South side of Pearl street in western section of project area.
South side of Pearl St. heading east from shopping center. South side of Pearl St. near western end of project area.
Looking west toward PO Square intersection. Looking northeast at western end of project area.
Photos of historic buildings beginning at the Five Corners intersection and moving west along the north side of Pearl Street

1 Pearl Street

3 Pearl Street

11 Pearl Street

15 Pearl Street
VT Route 15/Pearl Street Scoping Study
Essex Junction, Vermont
Historic Resource Identification and Preliminary Findings of Effect
April 2012
South (front) and west sides of 51 Pearl Street

East side of 51 Pearl Street

53 Pearl Street

55 Pearl Street
Photos of historic buildings beginning at the Five Corners intersection and moving west along south side of Pearl Street

4 Pearl Street

8 Pearl Street

12, 14 Pearl Street

20, 22-24 Pearl Street
VT Route 15/Pearl Street Scoping Study
Essex Junction, Vermont
Historic Resource Identification and Preliminary Findings of Effect
April 2012

30 Pearl Street

32,34 Pearl Street

36,40 Pearl Street

44 Pearl Street

21
Front (west) side of 2 South Summit Street

North side of 2 South Summit looking from Pearl St.

1 South Summit Street

Pearl Street looking west from the Five Corners intersection, c. 1900. Note sidewalks and trolley.
August 16, 2012

Gregory Edwards, PE
Stantec
55 Green Mountain Drive
South Burlington, VT 05407

Re: Vermont Route 15/Pearl Street Scoping Study, Essex Junction

Dear Mr. Edwards:

I have reviewed the preliminary plans for proposed alternative alignments and intersection options for the above-referenced undertaking in order to assess their potential to impact historic structures.

The project area is approximately a 2,500 foot long section of Pearl Street, also known as VT Route 15. It extends along Pearl Street from the Post Office Square intersection easterly to the completed improvements at the Five Corners Intersection.

The project will involve improvements to the Post Office Square intersection, including lane additions and/or possible roundabout. Bike lanes will be added along Pearl Street to the Five Corners. This would be accomplished by reducing lane widths and reducing the width of the green strip. Sidewalks would be replaced and all work would be conducted within the existing right-of-way.

Project plans are preliminary. Formal findings of effect for Section 106 should be based on final project plans when they become available. It is anticipated that the proposed project will have no adverse effect on any historic structures. Proposed components of the project are:

**Construction of a roundabout and lane additions at the Post Office Square intersection**
*Plan dated 8-1-2012*
This portion of the APE does not contain any historic structures and should not have any effect on historic buildings.

**Adding bike lanes along Pearl Street to the Five Corners**
*Alternatives A, B, C*
This would be accomplished by reducing lane widths and reducing the width of the existing green strip/ buffer. In locations where the buffers strips are 3 feet or less, they will be a hardscape. Porous colored /textured concrete or porous brick pavers are being considered.
These activities will not directly affect any historic resource in the APE and is not expected to alter the setting of any historic structures. Alternatives will either incorporate the bike lane into shared travel lanes on both sides of the road (Alternative C), or will add a four foot bike lane on each side of the road situated between the travel lane and the sidewalk (Alternative A and B).

Buffers will be constructed between the bike lane and sidewalk that will vary in size. Where they are 3 feet or less they will be a hardscape; wider buffers will be planted with grass. Porous colored/textured concrete, or porous brick pavers, are being considered for the hardscape sections.

Slightly wider paved lanes, a bike lane, and some loss of the existing grass covered green strips to accommodate the bike lane, will result in a wider swath of hardscape bisecting the historic district. This will add a slightly more urban feel to the streetscape but is not expected to significantly alter the character of the historic district. Any opportunity to add pockets of green areas, shrubs, or street trees would help soften the impact of the wider paved area on the historic district.

**Sidewalk Replacement**

*Alternatives A, B, C*  
New sidewalks will be five foot wide concrete to meet minimal ADA requirements. Replacing the sidewalks is not expected alter the character of the historic district within which they are located. Visual impacts of the slightly wider sidewalks should be minimal. The existing sidewalks and curbing are not historic. In construction of the sidewalks, mature trees along the alignment should be retained wherever possible, as they add to the setting and character of the historic district.

In summary, it is anticipated that upon review of final project plans the proposed project will be found to have no adverse effect on any historic structures.

Sincerely,

[Signature]

Suzanne Jamele  
Historic Preservation Consultant
ARCHEOLOGICAL RESOURCE ASSESSMENT

Pearl Street Scoping Study

Village of Essex Junction
Chittenden County, Vermont

HAA # 4544.11

Submitted to:
Gregory Edwards, P.E.
Stantec
55 Green Mountain Drive
South Burlington, Vermont 05403
p. 802.864.0223
c. 603.289.0025
greg.edwards@stantec.com

Prepared by:
Hartgen Archeological Associates, Inc.
PO Box 81
Putney, Vermont 05346
p +1 802 380 2845
f +1 802 387 8524
email: emanning@hartgen.com

www.hartgen.com

An ACRA Member Firm
www.acra-crm.org

August 2012
INTRODUCTION

Hartgen Archeological Associates, Inc. (HAA, Inc.) was retained by Stantec to conduct an Archaeological Resource Assessment (ARA) for the proposed Pearl Street Scoping Study in the Village of Essex Junction, Chittenden County, Vermont (Map 1). This is a planning project for the area between Post Office Square and the Five Corners Intersection (Map 2). The project is contracted by the Chittenden County Regional Planning Commission (CCRPC) and financially supported with Federal, State and Local funding. The project will be reviewed by VTrans.

The primary objective of the ARA is to identify areas of archeological sensitivity based on environmental factors, known site information and historical information for the project Area of Potential Effects (APE). Reference to the general project vicinity is provided as appropriate to understanding the local cultural and historical context. Background research was conducted at the Vermont Division for Historic Preservation (VDHP) where archeological site files, National Register (NR), State Register (SR) and town information were reviewed. A site visit was conducted by Elise Manning Sterling on August 2, 2012 to observe and photograph existing conditions within the project area.

Environmental Overview and Current Conditions

Environmental characteristics of an area are significant for determining the sensitivity for archeological resources. Precontact and historic groups often favored level, well-drained locations near wetlands and waterways. Therefore, topography, proximity to wetlands, and soils are examined to determine if there are landforms in the project area that are more likely to contain archeological resources. In addition, bedrock formations or other lithic sources may contain resources that may have been quarried by precontact groups. Other locations can also be special purpose sacred and traditional use sites. Soil conditions can provide a clue to past climatic conditions, as well as changes in local hydrology.

The Village of Essex Junction is located in the Vermont Lowlands physiographic region. It is situated on a gently sloped plateau overlooking the Winooski River Valley to its west and south, and Lake Champlain further to the west. At its closest, the Pearl Street project area is located approximately 2,500 feet (760 m) north of the Winooski River which is situated at an elevation of 200 feet (66 m) amsl. Lake Champlain is located approximately 5.7 miles (9.3 km) to the west. The Central Vermont Railroad is located several hundred feet south of Pearl Street.

The linear project area begins at the Five Corners intersection, and extends approximately 3,300 feet (1,007 m) to the west along Pearl Street, also known as VT RT 15 and the Grand Army of the Republic Highway (Photo 1). From the Five Points intersection, situated at an approximate elevation of 340 feet amsl, the terrain slopes upward to a relatively level plateau situated at approximately 360 amsl.

The Five Corners portion of the project area contains a variety of buildings, a modern bank, a fire station, as well as historic structures, including domestic residences and the Lincoln Hall Tavern (Photo 2). The Lincoln Hall Tavern is listed on the Vermont Historic Sites & Structures Survey (VHSSS), and designated as Number 78 on Map 3. The Pearl Street Historic District is located within the project area and listed on the VHSSS (Number 40 on Map 3). The district contains fine examples of both the vernacular and rural high style houses dating from 1825 to 1920. On the south side of Pearl Street, the district begins part way between Five Corners and School Street, and extends just east of Curtis Street. On the north side of Pearl Street, the district begins at School Street and extends westward to one house beyond Summit Street (Map 4). The historic district contains many large trees adjacent to the cement sidewalks, with the houses set back at different distances from Pearl Street (Photo 3). There is variation in topography along this section of Pearl Street, with some front yards consisting of slope or embankment, while others are level lawns (Photos 4 and 5).
Pearl Street Scoping Study
Village of Essex Junction, Chittenden County, Vermont
Archaeological Resource Assessment

USGS 1948, Photo-revised 1987
Essex Junction, Vermont

Legend
- Project Area

Note: Contour interval is 20 feet.

Map 1
Pearl Street Scoping Study
Village of Essex Junction, Chittenden County, Vermont
Archaeological Resource Assessment

Map 2
(match line)

Project Map
(Base Map Provided By
Broadreach - Summer 2010)

Legend
Assumed Project Area
Match Line

Assumed Project Area
88 Pearl Street
86 Pearl Street

Champlain Valley Exposition / Fair Grounds

0 250 500 Feet
0 50 100 150 Meters

0 75 150 225 Meters

C. 1820 Tavern

Assumed Project Area

Map 2
Photo 1. Photo shows the south side of Pearl Street at the Five Corners intersection. View is to the southeast.

Photo 2. Photo shows the tavern building located at the Five Corners intersection. View is to the northeast.
Photo 3. Photo shows a general streetscape within the Pearl Street Historic District. View is to the southeast.

Photo 4. Photo shows the sloped front yard of a house located within the Pearl Street Historic District. View is to the north.
West of the historic district, Pearl Street becomes primarily a commercial district with a large number of modern businesses, two major shopping centers and extensive parking lots (Photo 6). There are a few houses remaining, several of which have been converted into businesses. Two of the structures within the western portion of the project area, located at 86 and 88 Pearl Street, are listed on the VHSSS (Numbers 53 and 54 on Map 3). On its western end, the project APE terminates east of the entrance to the Champlain Valley Exposition, also listed as a historic complex on the VHSSS (Number 52 on Map 3).

There are several soils types located within the project area. Adams and Winsor loamy sands, 0 to 5 percent slopes are located on the areas of level terrain located at the eastern and western ends of the project alignment. These somewhat excessively drained soils are derived from sandy glaciofluvial deposits, and are encountered on terrace formations between 90 to 1,200 feet amsl (USDA 2012). The Hinesburg fine sandy loam, 3 to 8 percent slopes soil series begin slightly west of Five Corners, and extends westward up the slope to Curtis Avenue. These soils are derived from sandy glaciofluvial deposits over loamy glaciolacustrine deposits and are present on terrace landforms (USDA 2012). Further to the west are Belgrade and Eldridge soils, 3 to 8 percent slopes which are characterized as moderately well drained very fine sandy loam and loamy fine sand. These soils are derived from coarse silty to sandy glaciolacustrine deposits and are typically found on terrace formations. (USDA 2012).
Photo 6. Photo shows the commercial district at the western end of the project area. View is to the east.

DOCUMENTARY RESEARCH

Precontact Site File Research and Archeological Sensitivity

Examination of VDHDP site files indicates that there are eighteen precontact sites located within a one mile (1.6 km) radius of the APE. Several hundred other precontact sites are located within several miles of the project area, situated adjacent to Lake Champlain, the Winooski River, and their numerous tributaries and associated wetlands. Of the 18 sites located within one mile of the APE, there is great variation displayed in the site types and amount and type of precontact cultural material. There are isolated find sites as well as sites which have dense concentrations of lithics, pottery, and buried features, and which date from the Woodland through to the Archaic Periods.

The largest concentration of sites is clustered near Indian Brook northeast of the project area, and includes: VT-CH-16, VT-CH-563, VT-CH-564, VT-CH-565, VT-CH-566, VT-CH-567, VT-CH-568, VT-CH-569, and VT-CH-571. Situated to the northwest are two sites - VT-CH-234 and VT-CH-235 which are located adjacent to Sunderland Brook. All these sites are located at approximately the same elevation as the project area, but, unlike the APE, are located on or in close proximity to a stream. The precontact sites located near the Winooski River at a lower elevation that the project APE include: VT-CH-66, VT-CH-487, VT-CH-488, VT-CH-489 and FS 36.

There are two sites located in Essex Junction, both of which are which share the APE’s environmental elevation and setting. VT-CH-63 is located approximately 1,200 feet south of the Five Corners intersection, on the south side of the railroad. This site was identified based on the collection of Late Archaic and Middle
to Late Woodland projectile points, with their only provenience being their location on the Indian Acres property near a no longer extant pond. The closest reported precontact site to the project area is VT-CH-49, which contained an isolated find - a Late Archaic gray slate projectile point – whose exact location is unknown, with the projectile point having been “collected somewhere in the Village of Essex Junction”.

The Vermont Division for Historic Preservation Internet Mapping Site was accessed and used to formulate the archeological sensitivity of the proposed project area (VDHP 2009). The mapping site evaluates the precontact potential of all areas of Vermont, based on 11 environmental factors, such as the presence of specific terrain, soils, or proximity to streams or wetlands. If an area possesses just one of these environmental characteristics, it is considered by the Vermont Division for Historic Preservation (VDHP) / State Historic Preservation Officer (SHPO) to be archeologically sensitive. Based on the Vermont ArcheoMap Information System (VAMIS), the project area possesses two sensitivity factors, including its location on a glacial outwash terrace and the presence of level terrain (Map 5).

The VDHP Environmental Predictive Model was completed for the project area which produced an overall rating of 24 (Appendix 1), with a rating of 32 or above indicating precontact sensitivity. The project area received points based on its location within a travel corridor, situated on a raised terrace overlooking the Winooski River. The rating of this project area is somewhat problematic. The project area received 32 additional points based on the high density of precontact sites in the area, although most of the sites were situated in different environmental settings that the APE. These points were negated by the loss of 32 points for previous disturbance through the construction of roads, sidewalks, buildings, utility lines and parking areas.

The general project area, with some level terrain overlooking the Winooski River is considered to be an area of moderate precontact sensitivity. However, the absence of streams, water bodies or wetlands in the immediate project area vicinity somewhat diminishes its sensitivity. Nonetheless, it is possible that precontact sites are present in undisturbed areas exhibiting level terrain. Most of the western half of the project has been disturbed through modern development, though there are a few level areas of greenspace. Most of the eastern portion of the project area, situated directly adjacent to Pearl Street, has been previously disturbed by sidewalk and road construction. The areas which may contain undisturbed soil stratigraphy are level areas of green space, including the grass lawns associated with the historic houses located within the Pearl Street Historic District (Photo 5). If the proposed project plans involve impacts beyond the limits of the sidewalk onto level grass areas, then further archeological investigation is recommended.

**Historic Site File Search and Archeological Sensitivity**

**National and State Register**

There are several historic structures and one historic district listed on the State Register (VHSSS) located within the Pearl Street APE (Map 3). These include:

- Lincoln Hall Tavern c. 1820/ c. 1860 (Number 78).
- Pearl Street Historic District c. 1825- 1920 (Number 40).
- 86 Pearl Street c. 1900 (Number 53).
- 88 Pearl Street c. 1920(Number 54).

The Champlain Valley Exposition/ Fair Grounds c. 1920, listed on the State Register (VHSSS) is located west of the project area (Number 52).

There are no National Register sites located within or adjacent to the project APE.
Pearl Street Scoping Study
Village of Essex Junction, Chittenden County, Vermont
Archaeological Resource Assessment

Project Area

Vermont ArcheoMap

Map 5

Vermont ArcheoMap (VDHP 2012)

HARTGEN archeological associates inc
Cemeteries
There are no known cemeteries located within or adjacent to the project area (Hyde and Hyde 1991).

Historic Sites
An examination of the VDHP archeological site files indicated that there are seven historic archeological sites located within one mile of the project area. There are six 19th-century industrial sites, including a fulling mill, a grist mill, a paper mill, two sawmills and a brickyard, located south of Five Corners between the Central Vermont Railroad and the Winooski River. A c. 1760-1850 earth-filled stone dam is located on Indian Brook northeast of the APE.

Historic Maps
A review of historic maps of the project area was conducted to attain an overview of the changing historical and environmental landscape within the project area. This review includes the study of historic structures that may be or may no longer be extant, alterations to road and rail systems, and changes in stream and river courses. The two 19th-century maps, the 1857 Walling map and the 1869 Beers map, depict the roadways and river and stream courses in the project area, as well as the names of the residents who lived there in those years (Maps 6 & 7).

The 1857 Walling map shows the Five Corners area which was at that time named Painesville. The map depicts only a few structures located within the project area, including the tavern/hotel and three other residences located on the north side of Pearl Street. Only one home is shown on the south side of Pearl Street, located close to the intersection with Lincoln Street. Five Corners was the chosen location for the junction of two major rail lines – the Vermont Central Railroad and the Vermont & Canada Railroad which were built in 1849. The prominence of the railroads to the local economy is strongly indicated by the town name being changed from Painesville to Essex Junction, as shown on the 1869 Beers map. By 1869, only a few more structures had been built along the eastern end of Pearl Street. The majority of houses on Pearl Street were constructed as the local economy grew in the 1870s and 1880s.

The primary historical development within the project area was in the construction of houses along the eastern end of Pearl Street. It is unlikely that significant historic deposits or features would be located in the front yards of houses situated on such a prominent thoroughfare. Therefore, the project area is considered to have a low sensitivity for historical cultural resources.

ARCHEOLOGICAL POTENTIAL AND RECOMMENDATIONS
A site visit was made to the Pearl Street project area on August 3, 2012 under sunny and warm conditions. Sidewalks are present on both sides of the street along the project area alignment. The western portion of the APE has been highly developed through modern development. As discussed in the precontact section of this report, the areas which are considered archeologically sensitive are undisturbed areas of level terrain. Within the project area, these sensitivity areas include lawn and grass parcels located beyond the sidewalks. If the project plans entail ground disturbance beyond the limits of the sidewalks onto level lawns and green spaces, then further archeological investigation is recommended.

It is also recommended that a historic preservation specialist be consulted in order to make recommendations to mitigate potential impacts to historic trees and plantings, historic features such as retaining walls, and structures located within the project area, most specifically within the Pearl Street Historic District.
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Walling, H.E.
1857 Map of Washington County, Vermont from Actual Surveys. Published by Baker, Tilden and Co., NY.
APPENDIX 1: VDHP Archaeological Resources Assessment Form
## Environmental Predictive Model

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<th>Proximity</th>
<th>Value</th>
<th>Assigned Score</th>
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<td>12) Lake Coves, Peninsulas, and Bayheads</td>
<td>0–90 m</td>
<td>12</td>
<td></td>
<td>Layer 2: Proximity to Waterbodies (0-180 m)</td>
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<td></td>
<td>90-180 m</td>
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<tr>
<td><strong>C. Wetlands</strong></td>
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<tr>
<td>13) Proximity to Wetlands*</td>
<td>0–90 m</td>
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<td>Layer 3: Proximity to Wetlands (0-180 m)</td>
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<tr>
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<td>90-180 m</td>
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<td>Value</td>
<td>Assigned Score</td>
<td>Field Inspection Comments</td>
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<td>14) Knoll or Swamp Island</td>
<td>Layer 3: Proximity to Wetlands (0-180 m)</td>
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<tr>
<td>15) High Elevated Landform (e.g. Knoll Top, Ridge Crest, Promontory)</td>
<td>Layer 9 Glacial Outwash and Kame Terrace Soils Presence</td>
<td>12</td>
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</tr>
<tr>
<td>17) Marine/Lake Delta Complexes</td>
<td>Layer 9 Glacial Outwash and Kame Terrace Soils</td>
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<td>19) Caves and Rockshelters</td>
<td>Layer 8: Paleo Lake Soils Proximity (0-180 m)</td>
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<tr>
<td>20) Natural Travel Corridors (e.g. Drainage Divides)</td>
<td>See Landmarks (Info Layers) and catchment layers (Water-related Layers)</td>
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<td>21) Existing or Relict Springs</td>
<td>Layer 8: Paleo Lake Soils Proximity (0-180 m)</td>
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<tr>
<td>22) Potential or Apparent Prehistoric Quarry for Lithic Material Procurement</td>
<td>See Soils with &quot;M&quot; parent material (Under Construction)</td>
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<tr>
<td>23) Special Environmental or Natural Area~</td>
<td>See VAI layer (Under Construction)</td>
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<tr>
<td>24) High Likelihood of Burials</td>
<td>See VAI layer (Under Construction)</td>
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**E. Other Environmental Factors**

**F. Other High Sensitivity Layers**

Archeological Resources Form

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Revised 10/09/2006
<table>
<thead>
<tr>
<th>Variable Description</th>
<th>Proximity</th>
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<th>ArcheoMapTool GIS Model</th>
<th>Field Inspection Comments</th>
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<td>27) Excessive (&gt;15%) or Steep Erosional (&gt;20%) Slopes</td>
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<td>See Slope Layer (Info Layers folder)</td>
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<td>28) Previously Disturbed Land***</td>
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<td>See Land Use ND Building Footprint Layers (Info Layers folder)</td>
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<td><strong>Total Score:</strong></td>
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** remains incompletely mapped; digital layer includes paleo lakes and wetlands based on soils data
*** as evaluated by a qualified archeological professional or engineer based on coring, earlier as-built plans, or obvious surface evidence (such as a gravel pit)
~such as Milton aquifer, mountain top, etc. (historic or prehistoric sacred or traditional site locations, other prehistoric site types)
*Environmental predictive model limits wetlands to those > one acre in size; ArchSensMap