Village of Essex Junction

TRUSTEES MEETING NOTICE & AGENDA
TUESDAY, SEPTEMBER 11, 2018 at 6:30 PM
LINCOLN HALL MEETING ROOM, 2 LINCOLN STREET

1. **CALL TO ORDER/PLEDGE OF ALLEGIANCE TO FLAG** [6:30 PM]

2. **AGENDA ADDITIONS/CHANGES**

3. **APPROVE AGENDA**

4. **GUESTS, PRESENTATIONS AND PUBLIC HEARINGS**

   a. Comments from Public on Items Not on Agenda

5. **OLD BUSINESS**

   a. None

6. **NEW BUSINESS**

   a. Preferred Alternative for Route 15 Sidewalk/Path Study Athens Drive to VT RT 289 – Dennis Lutz
   b. Preferred Alternative for Route 15 Sidewalk/Path Study Susie Wilson Road to West Street Extension - Dennis Lutz
   c. Request to Collaborate UVM Capstone Project Traffic Calming Study – Darby Mayville
   d. Draft Policy for Capital Improvement Projects – Andrew Brown
   e. Amend Street Markings Policy – Evan Teich
   f. Annual Review of Ethics Policy – Evan Teich

7. **MANAGER'S REPORT**

   a. Trustees meeting schedule

8. **TRUSTEES' COMMENTS & CONCERNS/READING FILE**

   a. Board Member Comments
   b. Minutes from other boards/committees:
      - Essex Selectboard 8/20/18
      - Tree Advisory Committee 8/21/18
      - Capital Program Review Committee 9/4/18
   c. Articles in Essex Reporter re: space needs study and preschool accreditation

9. **CONSENT AGENDA**

   a. Approve Minutes of Previous Meeting 8/28/18
   b. Expense Warrant #17111 dated 8/31/18 in the amount of $71,984.13
   c. Expense Warrant #17112 dated 9/7/18 in the amount of $54,756.88
   d. Approve Ordinance Waivers for Essex High School Homecoming 9/21/18

10. **ADJOURN**

Meetings of the Trustees are accessible to people with disabilities. For information on accessibility or this agenda, call the Village Manager's office at 878-6944.

9/11/18 Agenda Addition

Chittenden Solid Waste District

ADMINISTRATIVE OFFICE
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Williston, VT 05495

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MEMORANDUM

TO: Board of Commissioners

FROM: Sarah Reeves

DATE: September 7, 2018

RE: ReUse Zone History and Closure Rationale Review

PROCESS

Upon my hiring in 2016, one of the duties I was tasked with by the Executive Board was conducting a top-to-bottom institutional system review. District staff and Board embarked on this overall examination of all District operations and infrastructure with the goal of developing a comprehensive plan that will take the District well into the next 20 to 30 years. We will be presenting sub-components of that plan to the Board for approval through the remainder of FY18 and into FY19.

The Drop-Off Centers were the second infrastructure component identified as overdue for examination and potential overhaul (Green Mountain Compost was the first). Staff presented, and the Board discussed, the many siting, materials management, traffic flow and other safety challenges during regular Board meetings in March 2017 and April 2018. During the April 2018 meeting the Board agreed that a DOC retreat was warranted.

On June 16th, 2018 the CSWD Board of Commissioners held a publicly-warned DOC strategic work session during which they discussed numerous topics of major concern, based on accumulated experience, observations and data collected by staff over the 25 years of DOC operations. The goals were to review the strengths and weaknesses of the system as it currently operates, to review challenges and opportunities presented by existing and potential future state mandates, and to discuss best practices of successful transfer stations with the aim of incorporating those future DOC operations. First and foremost**, the Board reaffirmed its commitment to the District owning and operating a system of Chittenden County DOCs**. The conversation turned to service, focusing on three areas: 1) the level of service the DOCs must provide (by law/regulation), 2) services could provide more effectively outside of the DOC system, and 3) CSWD services that duplicate or compete with services provided by the private and non-profit sectors.

REUSE ZONE HISTORY

When the DOC system was established, there were few convenient options available to the public to exchange gently used household items. CSWD filled a need not being met by non-profit, private, or other public entities with a pilot program to facilitate "swaps", which became the current ReUse Zone sheds. The intent of the ReUse Zones was, and is, to provide an opportunity for unwanted items to find their way into a home other than the landfill. Over the years, the ReUse Zones presented increasing operational challenges as our DOCs hosted more collection containers (as the list of mandated materials to collect grew) and more traffic (DOC visits are up 62% in the last 10 years). Since each DOC site is size-restricted, the safety of our customers and our operators was becoming a significant issue. At the same time, other options began surfacing to support reuse. Now, our ReUse Zones compete with numerous brick-and-mortar and digital free reuse and swap outlets.

RATIONALE FOR CLOSURE

During the June 16th meeting, **Safety was cited as the primary motivation** for improving the DOC user experience. Safety in the ReUse Zones fell into four categories:

-Vehicle traffic and impeded flow;
-Hazardous materials left in the ReUse Zones;
-Dangerous materials left in the ReUse Zones;
-Staff time needed to monitor activity in and around the ReUse Zones, which detracted from attention needed elsewhere onsite.

Traffic flow and congestion are problems at every DOC to one degree or another. Lingering at the ReUse Zones contributes to the congestion. Lines at Richmond and South Burlington routinely back up onto main roads on Saturdays due to limited through-put. Visitors parked by ReUse Zones far more than our 15-minute time limit contribute to the traffic backups and impede the overall flow.

Examples of hazardous materials left in the sheds include fertilizers, pesticides, medication, sharps (hypodermic needles), motor oil, antifreeze, fluorescent bulbs, and rat poisons. Examples of dangerous items left in the sheds are knives, spoiled food, broken lamps, broken appliances, ammunition, and propane tanks.

Additional concerns include outright trash left in ReUse Zones that should have been disposed—and paid for--by the customer, as well as items not selected for reuse by other customers that CSWD staff disposed. Though ReUse Zones have certainly contributed to many, many items having extended lives, this does not occur with the frequency and consistency that those of us who have found or left "treasures" like to believe. Operators, including at Richmond, have reported that on average, **over 50% of materials left in the ReUse Zone are sent to the landfill at the expense of CSWD on a weekly basis.**

After considering and debating ReUse Zone concerns, hazards, value to the communities and role in the current reuse marketplace, the Board concluded that the ReUse Zones should be closed and voted to do so. Once this was determined, staff set a date and immediately began the process of informing the public and DOC patrons.

NEXT STEPS

Does this mean that CSWD is giving up on reuse? Not at all.

As always, we will continue to encourage, promote, and invest in the kind of creative solutions to waste that our community is admired for. We have a long and growing list of local reuse & donation options on our website and a grant program with $25,000 available for projects to reduce waste (Huntington used it to build their reuse shed). **We are happy to provide the ReUse Zone sheds to any CSWD member community to use in their own version of a ReUse Zone**.

We will keep exploring options to improve safety and efficiency at our facilities while providing affordable, convenient service as our community grows and evolves over the next 25 years—and beyond.

Memorandum

TO: Evan Teich, Municipal Manager
Essex Selectboard
Essex Junction Trustees
FROM: Dennis Lutz, P.E, Public Works Director
Darren Schibler, Town Planner
Rick Hamlin, P.E., Village Engineer
Robin Pierce, Village Planner
Ricky Jones, Village Public Works Superintendent
DATE: 17 July 2018
SUBJECT: Preferred Alternative for the Route 15 Sidewalk/Path Study for the Section from Athens Drive to VT Route 289

ISSUE: The issue is whether or not the Selectboard and Trustees will approve the staff recommendation for Alternative 3 (with added comments) as outlined in the Scoping Study prepared by Stantec Engineering.

DISCUSSION: A Scoping Study has been completed for a new multi-purpose path using funding provided by both communities, VTRANS and the CCRPC. Stantec Engineering recently completed the referenced Scoping Study, reviews have been made by staff on the project and public hearings have been held for input on the proposed path. In order to apply for funding to prepare final designs, obtain right-of-way and construct the project, the local municipal governing board must select a preferred alternative. Since the project limits fall within both the Town and the Village, both Boards need to take action and agree on the selected alternative.

Village and Town Engineering and Planning Staffs have worked cooperatively to produce a unanimous series of recommendations relative to the project. The rationale for the recommendations is not contained in this memorandum, but staff will be available to present that rationale to the two Boards when this memorandum is presented. The Staff recommendations are:

1) The Preferred Alternative is Alternative 3: An 8-foot shared use path (and bike lanes) as described on page 21 of the Scoping Study and
2) The proposed path should include lighting along the path for its entire length, with lighting fixtures spaced appropriately, due to the location of the path and its importance as a critical multi-model link between the Village and the Town and
3) As a component of the planned VTRANS paving project along this section of VT15, the roadway will be configured to have two 11-foot lanes and a 4-foot bike lane on each side of the road to accommodate high speed bicyclists and
4) The project shall include replacement of the current 5-foot wide sidewalk east of Fairview Drive with the 8-foot multi-purpose path and

5) The project shall terminate on the east side of the VT15 Bridge over the Circumferential Highway with an 8-foot wide multi-purpose pedestrian/path crossing on the bridge.

RECOMMENDATION: It is recommended that the Board of Selectmen and the Village Trustees approve Alternative 3 as the preferred project alternative, including the four recommendations by Staff as outlined in this document, for the Route 15 Sidewalk/Path Study on the Section from Athens Drive to VT Route 289.

VT Route 15 Sidewalk / Path Study, Athens to VT Route 289
Essex Junction, Vermont

Scoping Report

Prepared by:

Stantec

Prepared for:

Chittenden County RPC

Village of Essex Junction

Essex Vermont

Vermont Agency of Transportation

July 31, 2018

CHITTENDEN COUNTY RPC

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The preparation of this report has been financed in part through grant[s] from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

Prepared by:

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Under the direction of:

Chittenden County Regional Planning Commission

Stantec

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1.0 INTRODUCTION

The Chittenden County Regional Planning Commission (CCRPC), working with the Town of Essex, the Village of Essex Junction, and Stantec Consulting Services, Inc. developed a scoping study evaluating sidewalk/path improvements for VT Route 15 between Athens Drive and VT Route 289. The goal of the scoping project was to identify options for an important missing link between the Town and Village pedestrian and bicycle network.

The scoping process involves identifying existing roadway and traffic conditions and then developing a purpose and need for the project. Alternative improvement strategies are then identified and evaluated leading to the selection of a preferred alternative.

The scoping process includes working closely with a project advisory committee made up of community leaders, Village/Town staff, CCRPC staff, and others. Advisory committee members for this project are listed below.

Essex Junction Village Staff	Robin Pierce, Rick Jones
Essex Town Staff	Dennis Lutz, Darren Schibler
CCRPC	Christine Forde, Marshall Distel

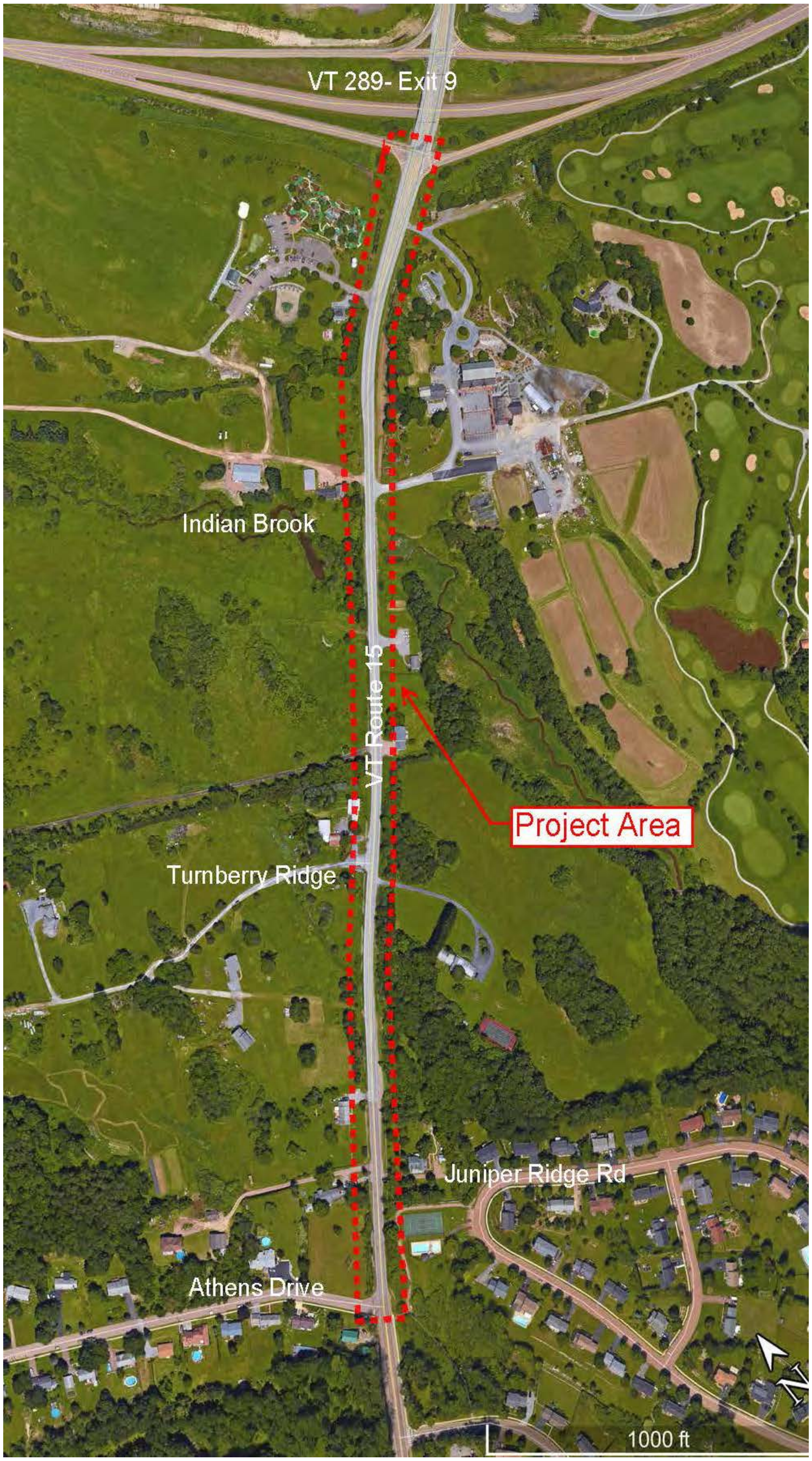
The advisory committee is charged with recommending a preferred improvement alternative to the Village Trustees and Town Selectboard.

2.0 PROJECT BACKGROUND

The VT Route 15 corridor has long been recognized as a primary transportation corridor that lacks sufficient pedestrian and bicycle facilities. Much progress has been made in recent years to address this. In Essex Junction, as development and roadway projects have occurred along VT Route15, sidewalks, a shared use path and bike lanes have been provided. These end at Athens Drive and near the Village/Town border. With the significant development in the VT Route 289 area of the Town, additional segments of sidewalks and shared use paths were constructed along VT Route 15. The 3600-foot section along VT Route 15, from Athens Drive to VT Route 289, has not seen significant development and is where the linkage of pedestrian and bicycle facilities to the east and west is missing.

This study focuses on this area and its limits are shown in Figure 1.

Figure 1: Project Study Area



2.1 EXISTING PLAN AND STUDY REVIEW

Plans and studies have been developed for this area that considered traffic and pedestrian concerns. Plans and studies reviewed for the preparation of this scoping study and are listed below.

- *VT 15 Corridor Study, 2008*
- *Essex Town Plan, 2016*
- *Essex Junction Comprehensive Plan, 2014*
- *Town of Essex, Village of Essex Junction Bicycle and Pedestrian Plan, 2014*
- *Chittenden County Active Transportation Plan, 2017*

Key elements relevant to this project are discussed below.

2.1.1 VT 15 Corridor Study, 2008

This study included the section of VT Route 15 from Winooski to Jericho and contain the following goals, objectives, and strategies pertinent to this project:

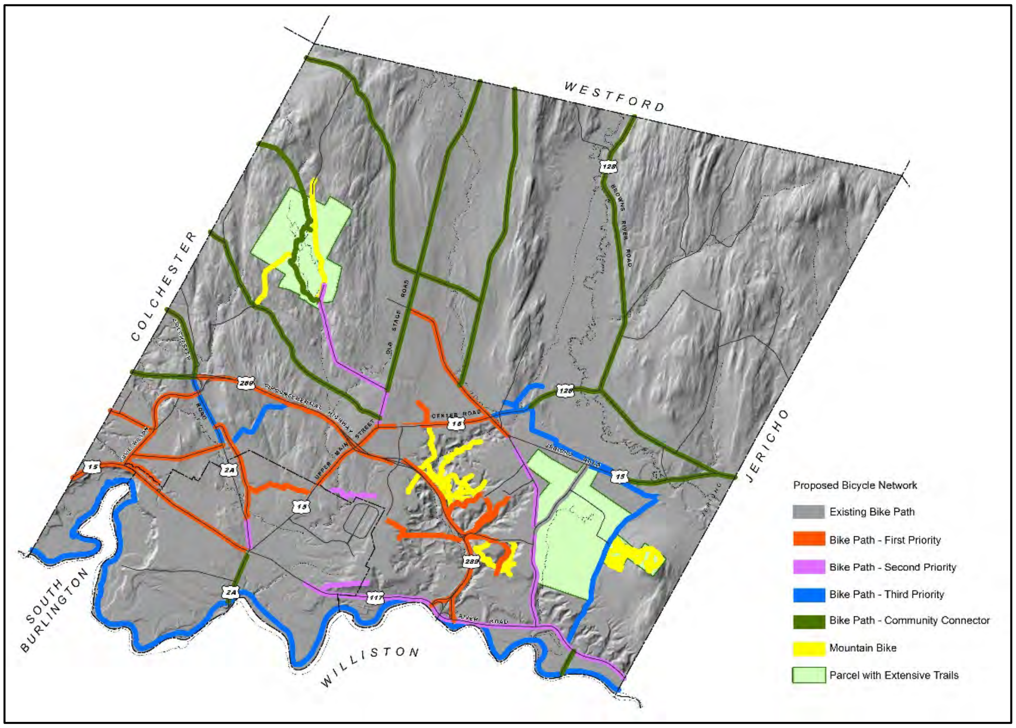
1. Enhance corridor safety for vehicular, pedestrian and bicycle traffic.
2. Create a safe bicycle network designed for transportation purposes
3. Improve bicycle and pedestrian facilities in the corridor and eliminate all gaps to create a continuous and efficient bicycle and pedestrian network.
4. East of the Five Corners sidewalks are recommended on both sides of VT 15 up to VT-289 where they will become shared use paths across the bridge over VT-289.
5. A continuous 5-foot shoulder or designated bicycle lanes is recommended (in the long term) along corridor segments that currently do not have on-road bicycle facilities, including VT Route 15 in the project area.

2.1.2 Essex Town Plan, 2016

The *Essex Town Plan* outlines the Town's goals, polices, and recommended actions. The goals and actions applicable to this study are listed below.

1. Multiple modes of transportation that connect residents to schools, work places, shopping centers and recreational areas shall be supported.
2. The proposed Bicycle network includes this section of VT Route 15 as a first priority.

Figure 2 Essex Town Plan 2016



2.1.3 Essex Junction Comprehensive Plan 2014

This plan includes the following objectives that pertain to this project.

1. Continue improving access to and safety of bicycle and pedestrian facilities, and public transit. Support the work of the Bike-Walk Advisory Committee.

2. Continue reducing local energy demand by providing further expansion of sidewalks, bike paths, park & rides, and public transportation.

3. Continue to increase the number of sidewalks and other facilities to support bike and pedestrian travel, making it easier for residents to visit downtown businesses.

4. Engage in climate mitigation strategies to reduce the region's contribution of greenhouse gases. For example, continue to implement policies that promote investment in transportation options that reduce emissions - such as sidewalks and bike lanes.

5. Encourage alternative access to all educational facilities through the use of sidewalks, bike paths and mass transportation as appropriate.

6. Well-marked bike and pedestrian lanes will encourage safety by allowing residents to comfortably and securely navigate the community.

7. Promote and implement strategies to encourage the use of bicycles as alternate transportation modes.

The Transportation section of the Comprehensive Plan states the following:

1. The Bike-Walk Advisory Committee has adopted the following vision statement: "Essex Junction strives to be recognized as a friendly village of connected neighborhoods and destinations in which convenient and safe bicycle and pedestrian facilities are integrated into a seamless and accessible year-round transportation system. This system will promote the enjoyment and health of all citizens, a more vibrant local economy, and a cleaner environment."

2.1.4 Town of Essex, Village of Essex Junction Bicycle and Pedestrian Plan, 2014

This plan identified the projects that need to be implemented to develop Direct Route and Neighborhood Bicycle and Pedestrian Networks. VT Route 15, south of VT 289, was listed as a high priority.

2.1.5 Chittenden County Active Transportation Plan, 2017

This plan updated the Chittenden County Active Transportation Plan, which defines its goal as creating a safe, comfortable, and connected regional network of pedestrian and bicycle routes that appeal to all ages and abilities. The Active Transportation Plan (ATP) supports CCRPC's regional ECOS plan and was developed in coordination with other concurrent local, regional, and state planning efforts. The result of this planning process was a series of proposed infrastructure and non-infrastructure recommendations organized around the five E's—education, encouragement, enforcement, engineering, and evaluation. Infrastructure and engineering recommendations were developed using a prioritization method that involved feasibility, closing gaps in the network, addressing a high crash location, and serving a population in need.

Important items noted in the plan relative to this study area included:

1. This section of VT15 was shown as a high priority and high feasibility on the proposed active transportation network.

2. The project team developed an interactive online map (a wikimap) that was available for input between late September 2015 and early November 2015. This allowed the public to provide geographically specific information about informal connections, desirable routes, and roadways of concern. Users were asked to identify routes they already ride or walk, ones they would like to ride or walk, and barriers to bicycling or walking throughout Chittenden County. When the project team asked the public to show which routes they would like to walk or bike within Chittenden County, this section of VT 15 was one of the most common.

3. The project team asked the public to show which locations they see as barriers to biking in Chittenden County and VT 15 was identified as challenging due to sight lines and narrow shoulders.

4. Network segments were established to connect bicycling and walking origins and destinations. Segments for which a low-stress alternative does not already exist (for example, a shared use path on a parallel alignment) were identified and it included the VT 15 corridor.

5. Recommendations included: Focus on separated facilities (separated bike lanes, shared use paths) to attract the greatest number of potential users

3.0 EXISTING CONDITIONS

3.1 ROADWAY CHARACTERISTICS

This section of VT Route 15 was reconstructed in 1934 and has not had significant improvements, beyond resurfacing and maintenance since. The exception to this is the east end of the project area as it approaches VT 289 where VT Route 15 was reconstructed and widened.

The existing paved roadway width varies but is generally 28 feet wide. This includes two 12- foot travel lanes and two 2-foot shoulders. The width widens to 12-foot lanes and 8-foot shoulders on the approach to VT 289.

Figure 3 VT Route 15

VT Route 15 is a Class I town highway in Essex Junction up to the Essex Junction/Essex Town line. As a Class I, this section of VT Route 15 is owned and maintained by the Village of Essex Junction. At the town line and eastward, VT Route 15 is owned and maintained by VTrans.

The posted speed with the Village limits is 30 mph and increases to 40 mph east of the town line. The location of the Village/Town boundary is shown on Figure 4 below.

The existing highway right-of-way width is generally 49.5 feet wide but does increase in the area of the Indian Brook Crossing and in the reconstructed section approaching VT 289.

The aerial utilities are primarily on the northern side of VT Route 15, but cross to the southern side on the approach to VT 289. There is a water line along the south side until it crosses VT Route 15 east of the town line and connects to a water storage tank.

This section of VT Route 15 includes a crossing of Indian Brook with a 12-foot wide by 6-foot high concrete box culvert. Based on the VTrans 2016 inspection report, the culvert is rated 5, fair condition. This suggests repair or replacement may be needed in the future. VTrans indicated they have no current improvement plan for the culvert.

Figure 4 Village of Essex Jct. / Town of Essex town line

3.2 TRAFFIC VOLUMES

Traffic volume data including Annual Average Daily Traffic (AADT) values and Hourly Volumes for the study area were available from VTrans. VTrans' 2016 AADT values for VT Route 15 are displayed in Table1.

Table 1: Current AADT Volumes

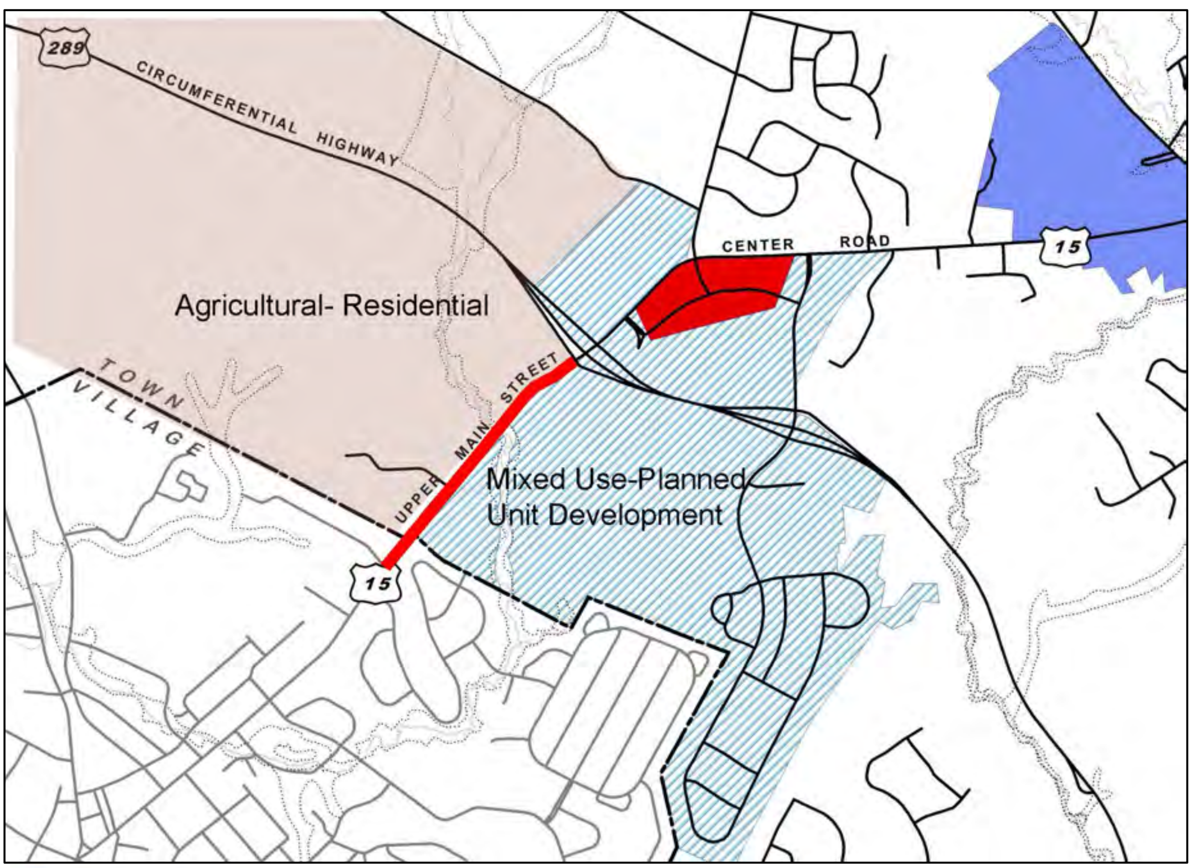
Location	AADT	Count Years
VT Route 15 – West of VT Route 289	10,800	2016
VT Route 15 – At VT Route 289	18,800	2016
VT Route 15 – East of VT Route 289	17,400	2016

3.3 LAND USE AND ZONING

Land use surrounding the project area has evolved significantly over the years. With the construction of VT 289 and the regional growth, the Essex Town Center to the east has developed into a regional commercial area. This growth has included residential and mixed-use development. The land adjacent to VT Route 15 within the project area has not realized significant new development except for the properties closer to VT 289, such as the Lang Farm. Much of the corridor remains single family homes and agricultural.

However, land uses in the project area are changing. The area on the south side of VT Route 15 is zoned Mixed Use Planned Unit Development and there is a permitted project on the Kolvoord parcel for 17 single family homes and 14 carriage homes.

Figure 5 Land Use Zoning in the project area



3.4 PEDESTRIAN AND BICYCLE FACILITIES

To the west of the project area, in the Village, there is a shared use path along the south side of VT Route 15 that ends at Fairview Drive and connects to the Village core and Essex High School. From Athens Drive westward towards the Village, VT Route 15 has 4-foot shoulders that are marked and signed as bike lanes. East of VT 289, a network of shared use paths and sidewalks extend through the recent development and along VT Route 15.

Within the project area there are no dedicated pedestrian or bicycle facilities. Pedestrians currently walk along the edge of the paved shoulder as is evident from the dirt path beside the road. Bicyclists share the road with vehicles.

Figure 6 Bicycles/Pedestrian share the road along this stretch of VT 15.

3.5 TRANSIT SERVICE

Green Mountain Transit (GMT) has one bus route, Route #4 Essex Center, that passes through the project area.

There are no designated bus stops in the project area. Table 4 summarizes bus route schedule and fare information.

Table 2: GMT Bus Schedule

Route	Start Location	End Location	Cost*	Schedule	Frequency
#4: Essex Center	Amtrak Station	Amtrak Station via Essex Center	$1.25	M-F 6:00 AM - 9:30 AM 1:00 PM – 6:45 PM	M-F; 30min;

*Fare for one-way ride

3.6 CRASH HISTORY

The crash history for the study area was investigated using the VTrans crash database. VTrans keeps records of reported crashes by milepost along State and Federal Aid highways in Vermont. General Yearly Summaries can be requested from VTrans for given roadway segments. The summaries note the location (mile marker), date, time of day, weather conditions, contributing circumstances and severity for reported crashes. Crash data for 2012 through 2016 were reviewed for VT Route 15 between mile marker 3.1 (Athens Drive) and mile marker 3.8 (VT 289). Table 3 provides a summary of the crash data.

Table 3 Crash Summary (2012-2016)

Year	VT Route 15
2012	7
2013	11
2014	4
2015	5
2016	3
Total	**30**
Type	
Angle	2
Rear-end	20
Head-on	0
Single Vehicle	2
Sideswipe	1
Unknown-other	5
Total	**30**
Severity	
Property Damage	27
Personal Injury	3
Fatality	0
Other	0
Total	**30**
Weather	
Clear	11
Cloudy	10
Rain	3
Snow/Ice	4
Fog	0
Unknown	2
Total	**30**

Time of Day	
7:00AM to 9:00AM	5
9:00AM to 4:00PM	12
4:00PM to 6:00PM	7
6:00PM to 7:00AM	6
Unknown	0
Total	**30**

<u>*High Crash Locations*</u>

VTrans maintains a listing of High Crash Locations (HCL) within the state. A 0.3 mile highway segment or intersection must have at least 5 crashes over a 5-year period and the actual crash rate (number of crashes per million vehicles) must exceed a critical crash rate to be classified as an HCL. The critical crash rate is based on the average crash rate for similar highways.
The VTrans High Crash Report: Sections and Intersections 2012-2016 lists one roadway section as an HCL within the project study area. It is summarized in Table 3 and is in the area of the VT 289 interchange. The VTrans High Crash Report is contained in the appendix. None of the crashes listed for 2012-2016 along this segment included pedestrians or bicycles.

Table 4 High Crash Locations

	Name	HCL No.	Mile Marker	AADT	Crashes	Fatalities	Injuries	Actual/ Critical Ratio	Severity Index
Segment	VT Route 15	606	3.682 - 3.982	10,800	57	0	12	1.146	$28,346

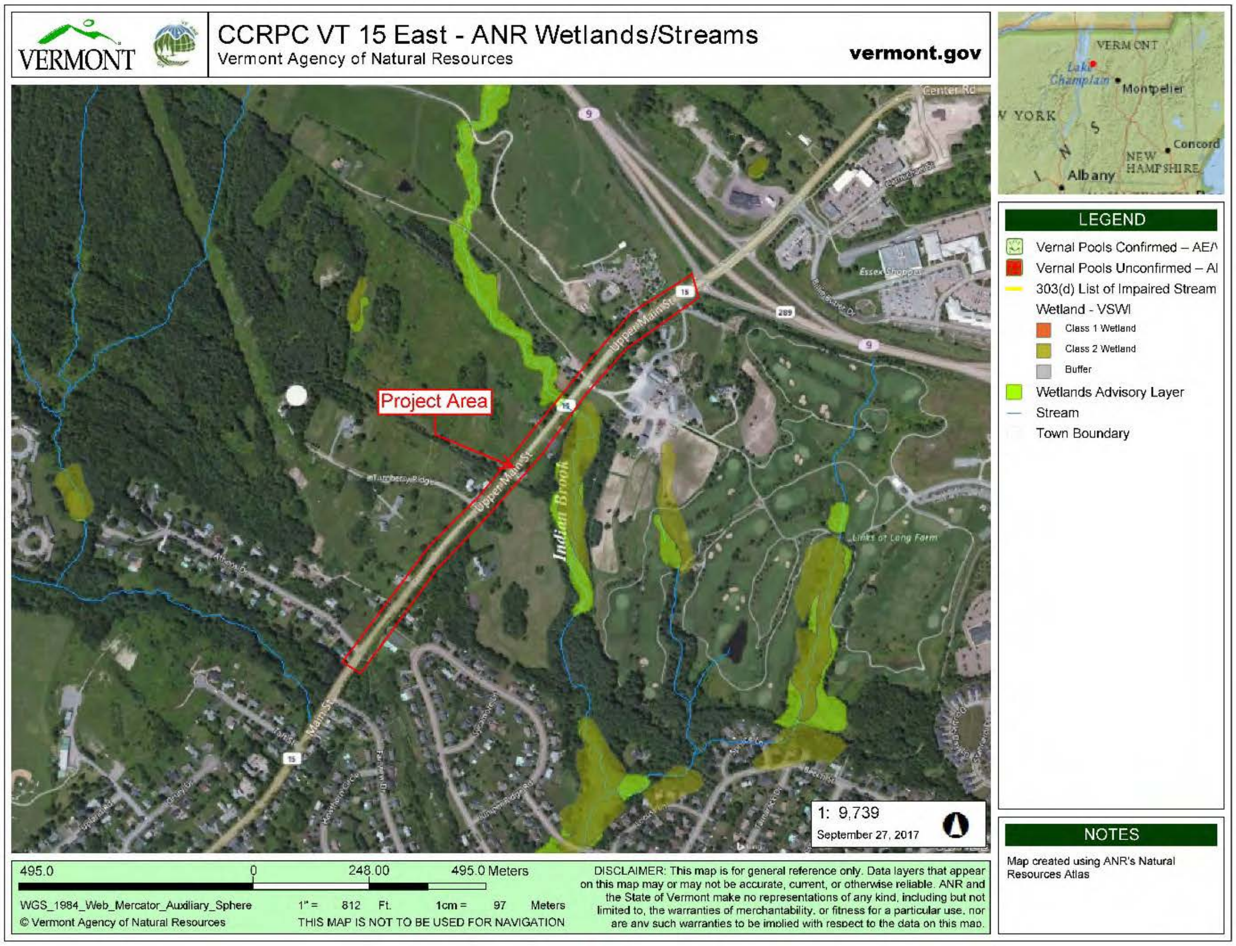
3.7 NATURAL RESOURCES

Stantec conducted a preliminary review of the natural resources present within the study area. Specifically, as part of this investigation, Stantec identified and characterized wetlands, streams, rare, threatened or endangered (RTE) species, wildlife habitat, agricultural land, 4(f) and 6(f) public lands, and hazardous waste sites. Refer to Appendix D for complete summary of the study's findings.

Natural Resource Review Summary – Review of Existing Materials
Stantec used the Vermont Agency of Natural Resources (ANR) Natural Resources Atlas mapping program to evaluate known natural resources within the project area.

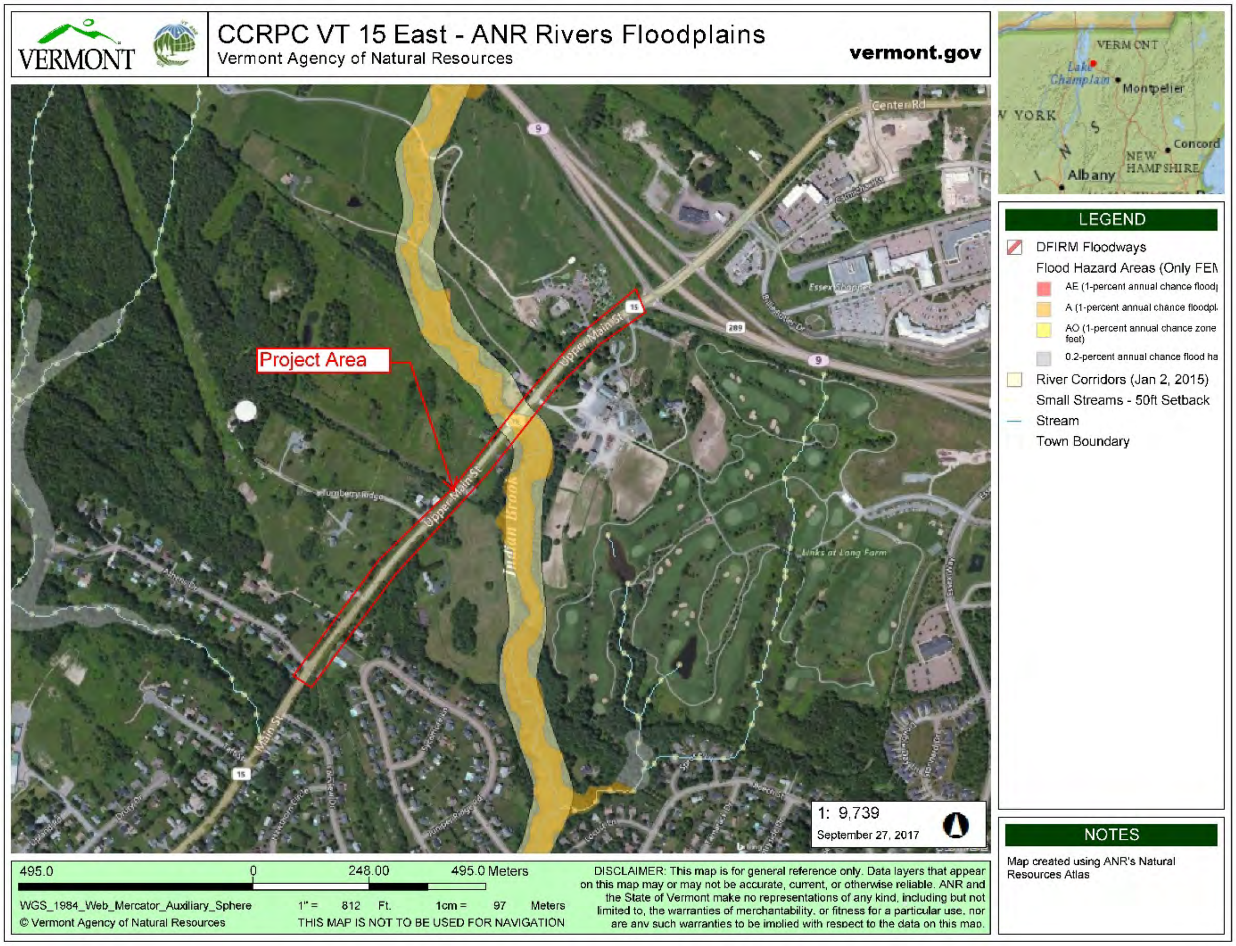
<u>Wetlands and Streams.</u> According to the ANR program, there is a Vermont Significant Wetland Inventory (VSWI) wetland mapped along Indian Brook within the project area (see ANR Wetlands/Streams figure). This is a Class II wetland with a regulated 50-foot buffer.

Figure 7 ANR VSWI Wetland in the project area



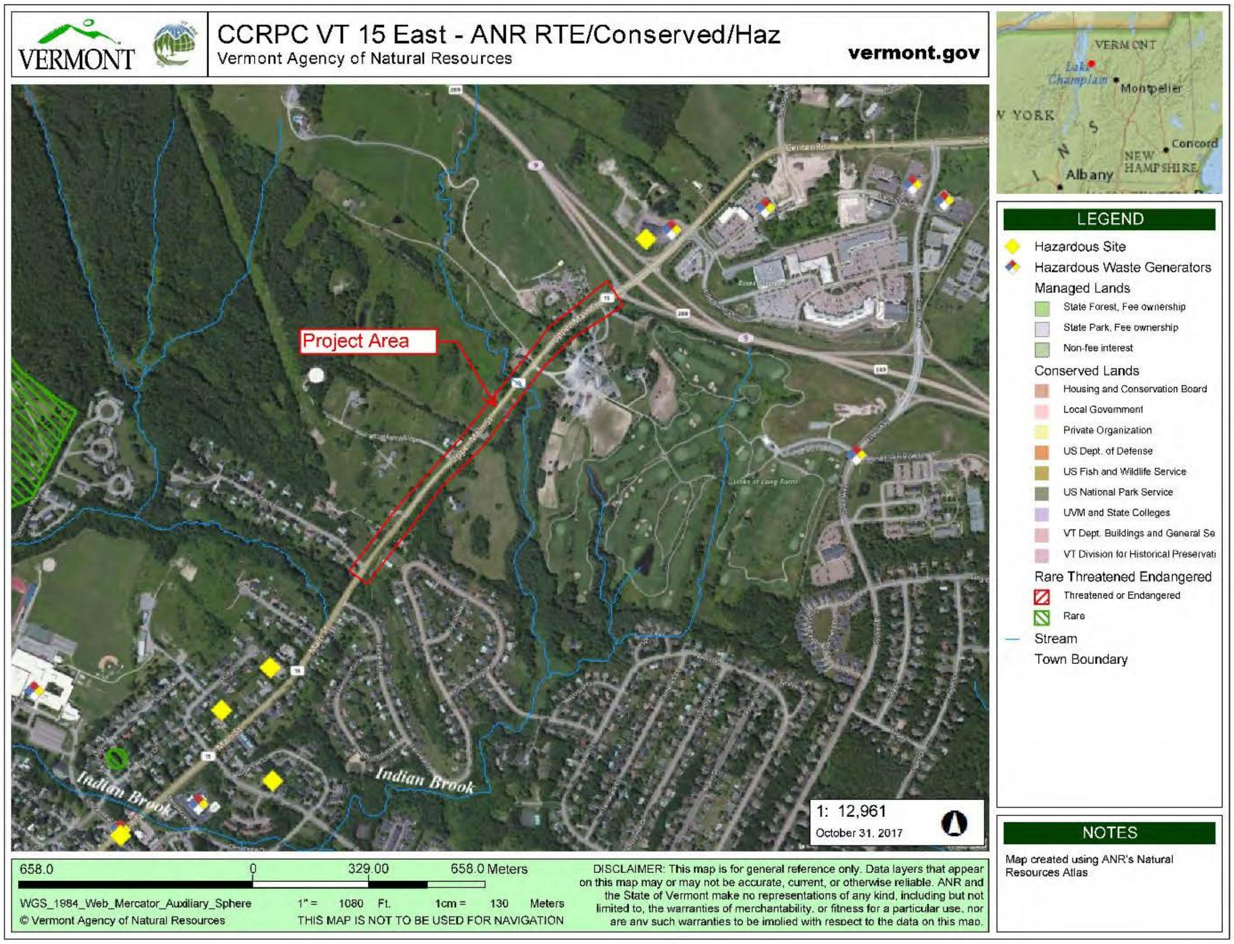
Indian Brook flows from north to south under VT 15 near the northern limits of the project area. This is a perennial stream with a mapped FEMA 100-year floodplain. It also has an ANR 50-foot river corridor (see ANR Rivers Floodplains figure). Indian Brook is stormwater-impaired and a Flow Restoration Plan (FRP) has been developed. The purpose of the FRP is to provide a planning tool to implement stormwater best management practice (BMP's) over a twenty (20) year timeframe, in the effort to return Indian Brook to its attainment condition. The BMP's identified to obtain the TDML high flow target includes the Fairview Drive/Main Street retrofit with Add On which treats stormwater in the project area. This project should be coordinated with this planned retrofit.

Figure 8 Indian Brook



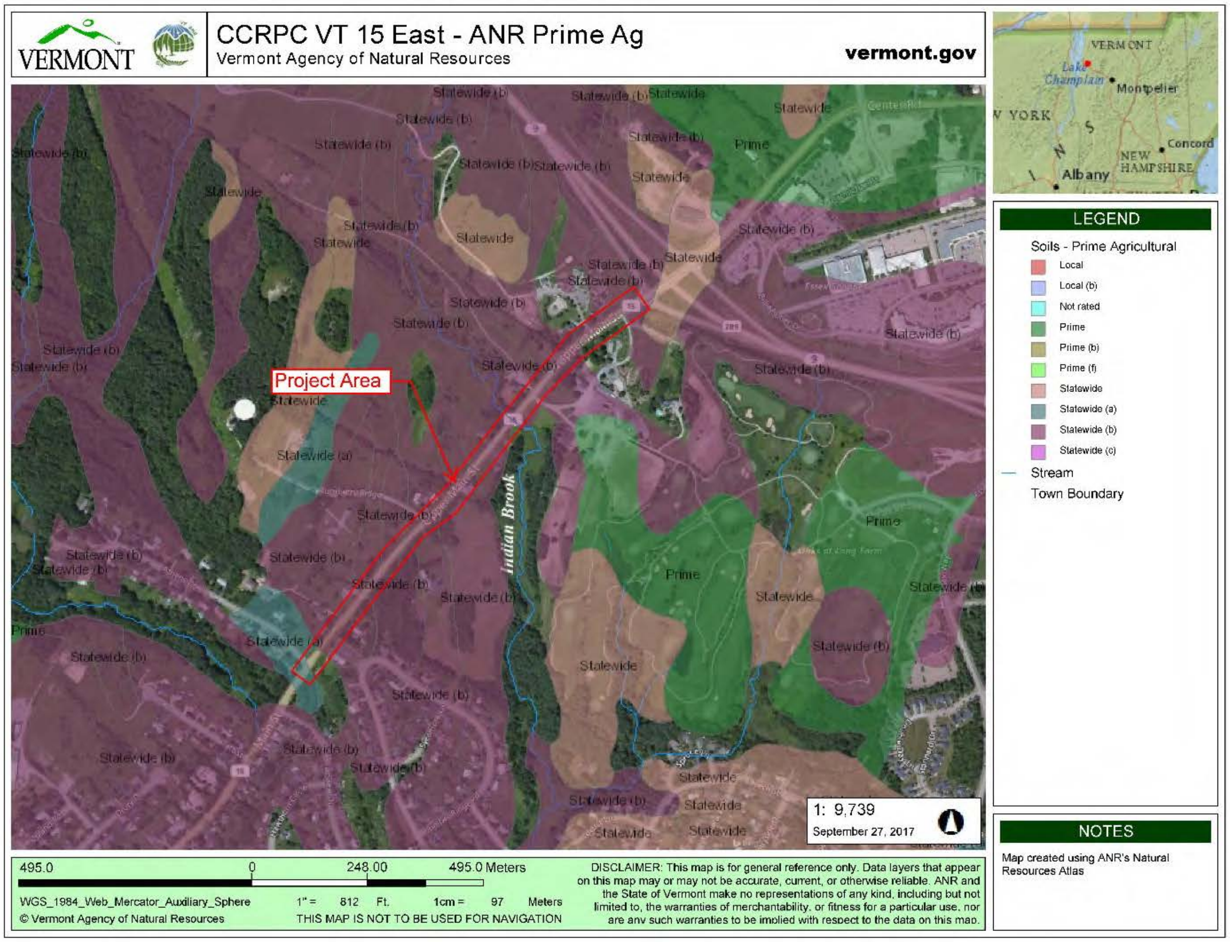
RTE Review. No rare plant species or rare habitat types are mapped by ANR within the project area (see below RTE/Conserved/Haz figure).

Figure 9 ANR RTE Map



Agricultural Soils. According to the Natural Resources Atlas, the soils within the project area include Statewide agricultural soils (see ANR Prime Ag Map below). The Farmland Policy Protection Act does not apply to projects within existing road ROWs. If any work is proposed outside of existing ROW, authorization from the NRCS via form AD-1006, the Farmland Conversion Impact Rating form, may be required.

Figure 10 ANR Agricultural area



Public Lands. The Project Areas do not include public recreation lands (a Section 4(f) resource) or public lands developed with Land and Water Conservation Funds (a Section 6(f) resource) (see RTE/Conserved/Haz Figure 9).

Hazardous Waste Sites. The ANR mapping program was reviewed for information on Hazardous Waste Sites in the project vicinity. No active Hazardous Waste Sites or Hazardous Waste Generators are located within the project area (see RTE/Conserved/Haz Figure 9).

4.0 PURPOSE AND NEED STATEMENT

The following statement was developed based on the existing conditions assessment, public input, and project advisory committee discussions.

Purpose: The purpose of this project is to create a safe, visible, comfortable, convenient, and direct pedestrian and bicycle facility connecting existing facilities on VT 15 between Athens Drive in the Village and VT 289 in the Town, while maintaining safe and efficient vehicular conditions on the VT 15; support healthy and sustainable lifestyles; and connect neighborhoods within the Town and Village to the businesses in the designated Village Center and the Essex Town Center area.

Needs

1. **Provide an inviting travel corridor that reinforces the Town's, Village's and Region's goals for pedestrian and bicycle mobility.** The lack of bicycle and pedestrian facilities fail to provide residents and visitors with a safe and convenient active transportation corridor to link neighborhoods with schools, shopping centers and work places. The 2016 Essex Town Plan states the following specific transportation policy: "Multiple modes of transportation that connect residents to schools, work places, shopping centers and recreational areas shall be supported." The desire for Village and Town neighborhoods to connect to the Essex Town Center and with the Five Corners area and the designated Village Center is evident with the worn path adjacent to VT 15.

2. **Facilitate use by all age groups, experience levels, and purposes of trips.** The current facility is challenging for all users including the most experienced and confident pedestrians and cyclists. The existing roadway is posted a 45 mph and is approximately 28 feet wide including 2 foot shoulders for much of the corridor. This discourages would-be commuters and recreational cyclists and pedestrians needing to travel along VT 15. This connection would provide access to schools, shopping centers, and work places and therefore it is expected to be used by a wide range of ages and abilities.

3. **Contribute to the town and regional bicycle network.** This area of VT 15 has been identified in the 2016 Essex Town Plan as a "first priority" location in the proposed bicycle network. This area is a missing link in the network that has been identified as a principal barrier within the regional bicycle and pedestrian network.

4. **Create a safe, comfortable, user-friendly, desirable year-round bicycle and pedestrian connection along VT 15.** The 28-foot roadway width and vehicle speeds result in challenging accommodations for pedestrians and bicyclists. It favors the higher speed movement of vehicles.

5.0 ALTERNATIVES

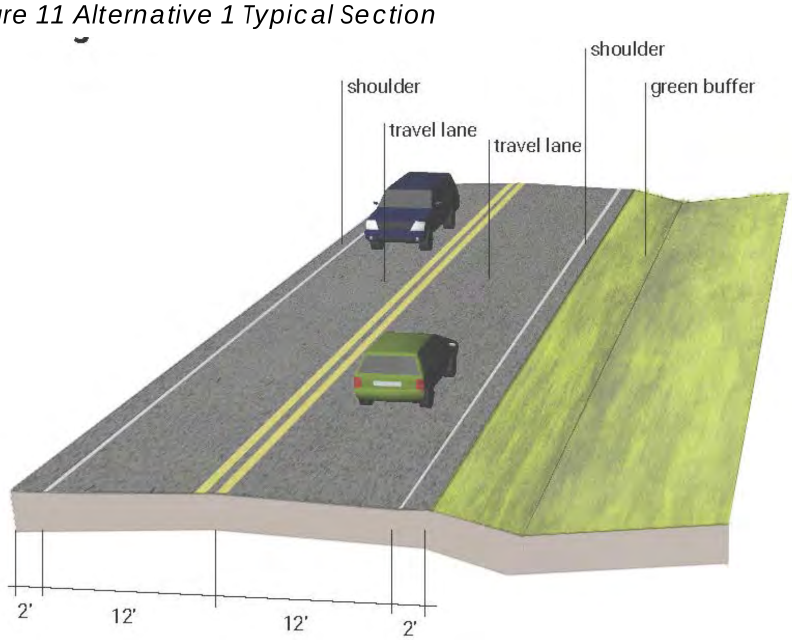
The project advisory committee (PAC) considered a wide range of improvements to address the project's purpose and need. During the PAC meetings, various combinations of on-road and off-road bicycle facilities and sidewalks were discussed as well as whether facilities should be located on the south side or the north side of VT Route 15. The Purpose and Need statement identified the desire for a direct route so alternatives adjacent to VT Route 15 were favored. The existing facilities at the east and west ends of the project area, which the project connects to, are located on the south side and planned and future development is expected along the south side, so alternatives along the south side of VT Route 15 were favored. Based on these discussions the following alternatives were developed and evaluated:

- Alternative 1: No Action
- Alternative 2: 10-Foot Shared Use Path and Bike Lane
- Alternative 3: 8-Foot Shared Use Path and Bike Lane

5.1 ALTERNATIVE 1: NO ACTION

For No Action alternative, the existing transportation facilities in the project area remain as they exist today. The roadway remains a 2 lane facility with 2-foot shoulders and bicycles and pedestrians sharing the road and no pedestrian facilities. Direct bicyclists along VT Route 15 continue to leave a shared use path to the west or the east and share lanes with vehicles. This alternative has no construction costs and has no impacts to right-of-way, resources, or traffic. The No Action Alternative does not address the project's purpose and need and a missing link in the regional bike network remains.

Figure 11 Alternative 1 Typical Section

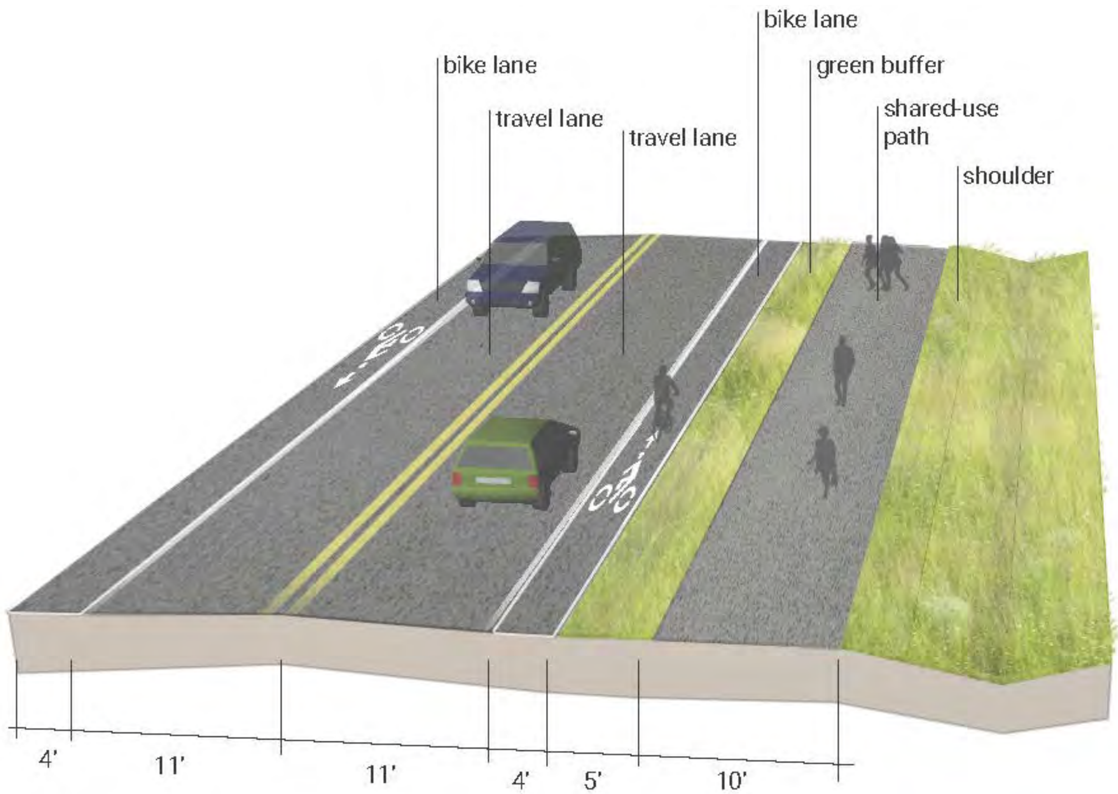


5.2 ALTERNATIVE 2: 10-FOOT SHARED USE PATH AND BIKE LANES

This alternative proposes a 3600-foot long 10-foot wide shared use path along the south side of VT Route 15 and provides for a widened 4-foot shoulder on both side of VT Route 15. A typical section and plan of this alternative is shown in Figure 12 and Figure 13, respectively. As shown on the plan this alternative includes the following features:

- The 10-foot wide asphalt shared use path is offset from the edge of the existing roadway by 6 feet. This provides for 1 foot of pavement widening and a 5-foot wide grassed/vegetated buffer. The buffer provides separation, snow storage and some stormwater treatment.
- Roadway is widened by 1 foot each side to provide a 4 foot shoulder that is signed as a bike lane. The shoulder widening is to be included in a VTrans resurfacing project currently being designed.

Figure 12 Alternative 2 Typical Section



- Connects to existing shared use paths to the east and west of the project area and does not require a crossing of VT Route 15.
- Replaces the 8-foot shoulder and curb and sidewalk between Fairview Drive and Athens Drive with a 4- foot shoulder/bike lane and curb and 10-foot shared use path.
- Limits of the shared use path extend beyond the existing highway ROW for much of the project. It impacts 10 properties and requires approximately 20,000 sf of permanent property acquisition (includes 2 feet beyond path) and approximately 50,000 sf of temporary easements.
- Aerial utility poles are generally on the north side and construction does not impact them. Guy poles on the south side will need relocating.
- Water, gas lines and mailboxes exist along the south side. Improvements will require relocation of 2 hydrants and 6 mailboxes
- Requires ledge excavation in the area of 31 Juniper Ridge Road and has the option to connect to the existing shared use path.
- Relocates existing fence at 203 Main Street and extends the culvert at Station 12+750, which impacts a possible Class II wetland.
- At 25 Upper Main Street, Brian French property (Sta 19+75 right), realigns the shared use path to the edge of the roadway to minimize impacts and provide for turnaround within drive.
- Replaces guardrail and end sections at Indian Brook Crossing.
- Constructs a retaining wall with railing at the Indian Brook culvert to minimize impacts to wetland and avoid extending culvert. Approximately 1000 sf of Class II wetland and 6000 sf of 50 foot Class II wetland buffer is impacted.
- Reconstructs drainage at east of Lang Farm drive to outlet on west side of drive.
- On approach to VT 289, reduces shoulder width to 4 feet by relocating curb to avoid impacts.
- Improves signage and pavement markings at VT 289 to include bike lanes.
- Extend 4-foot bike lane across VT 289 Bridge and widen existing sidewalk to 10 feet.
- Based on public input path lighting was add at an estimated cost of $300,000.
- Estimated construction cost is $1,150,000. This does not include the 1-foot shoulder widening on each side.

BEGIN 10' WIDE SHARED USE PATH
PLACE PATH ALONG ROADWAY WITH CURB TO REDUCE IMPACTS
TOWN/VILLAGE LINE
VILLAGE OF ESSEX JUNCTION
EXISTING STORMWATER TREATMENT
LEDGE REMOVAL
203 MAIN STREET LLC
REMOVE AND RESET EXISTING FENCE
CLASS 2 WETLAND IMPACTS
CONNECT EXISTING OUTLET TO NEW DRAINAGE STRUCTURE
CONNECT EXISTING OUTLET PIPE TO NEW DRAINAGE STRUCTURE
REPLACE GUARDRAIL END SECTIONS WITH TANGENTIAL TERMINAL
POTENTIAL STORMWATER TREATMENT AREA
CLASS 3 WETLAND IMPACTS
MOVE PATH CLOSER TO ROAD TO FACILITATE DRIVEWAY
BRIAN C FRENCH
WETLAND BUFFER
PATRICIA SPIELMAN-MORRIS
CLASS 2 WETLAND AND BUFFER IMPACTS
INSTALL NEW DRAINAGE PIPE
STRENGTHEN EXISTING CULVERT AND INSTALL RETAINING WALL WITH RAILING
COLLECT ROADWAY DRAINAGE IN A SHALLOW DEPRESSION BETWEEN PATH AND ROAD
REMOVE EXISTING SIDEWALK AND INSTALL 10' SHARED USE PATH AND CURB ACROSS BRIDGE
LANG FAMILY LLC
END PROPOSED PATH CONNECT TO EXISTING PATH
Stantec

5.3 ALTERNATIVE 3: 8-FOOT SHARED USE PATH AND BIKE LANES

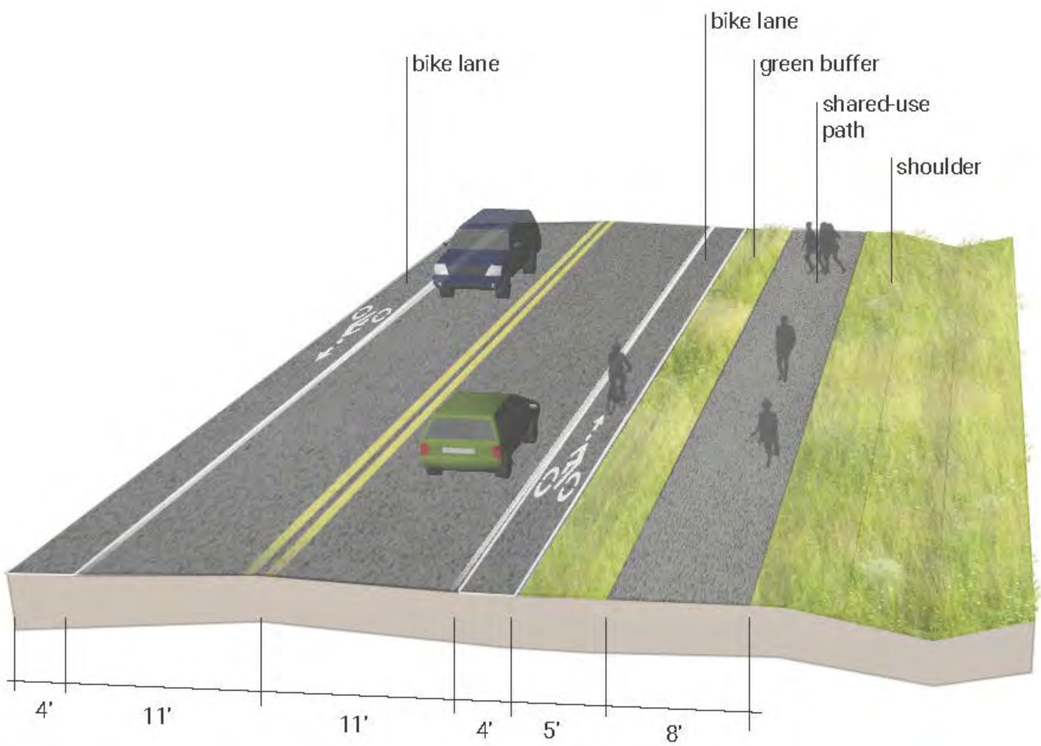
To reduce impacts and costs an 8-foot wide shared use path was developed and evaluated. This alternative also includes the widened 4-foot shoulder on both sides of VT Route 15 to serve as the on-road bike lane. This alternative has the same features as Alternative 2. A typical section of this alternative is shown in Figure 14. The features of this alternative are the same as Alternative 2 but with the addition of pedestrian street lighting. Major differences include:

- As with Alternative 2, the limits of the shared use path extend beyond the existing highway ROW for much of the project. It also impacts 10 properties, however it requires approximately 12,000 sf of permanent property acquisition as compared to 20,000 sf in Alternative 2. This alternative also requires (includes 2 feet beyond path) approximately 50,000 sf of temporary easements.

- At 25 Upper Main Street, Brian French property (Sta. 19+75 right), realigns shared use path to edge of roadway and reduces impacts.

- The construction cost, including the lighting, is $1,100,000. This does not include the 1-foot shoulder widening on each side as this will be addressed in the VTrans resurfacing project.

Figure 14 Alternative 3 Typical Section



BEGIN 8' WIDE SHARED USE PATH
PLACE PATH ALONG ROADWAY WITH CURB TO REDUCE IMPACTS
TOWN/VILLAGE LINE
CLASS 2 WETLANDS
VILLAGE OF ESSEX JUNCTION
EXISTING STORMWATER TREATMENT
LEDGE REMOVAL
203 MAIN STREET LLC
REMOVE AND RESET EXISTING FENCE
WETLAND BUFFER
CLASS 2 WETLAND IMPACTS
WETLAND BUFFER
CLASS 3 WETLANDS
CONNECT EXISTING OUTLET TO NEW DRAINAGE STRUCTURE
REPLACE GUARDRAIL END SECTIONS WITH TANGENTIAL TERMINAL
CONNECT EXISTING OUTLET PIPE TO NEW DRAINAGE STRUCTURE
POTENTIAL STORMWATER TREATMENT AREA
CLASS 3 WETLAND IMPACTS
MOVE PATH CLOSER TO ROAD TO FACILITATE DRIVEWAY
BRIAN C FRENCH
PATRICIA SPIELMAN-MORRIS
CLASS 2 WETLAND AND BUFFER IMPACTS
INSTALL NEW DRAINAGE PIPE
STRENGTHEN EXISTING CULVERT AND INSTALL RETAINING WALL WITH RAILING
COLLECT ROADWAY DRAINAGE IN A SHALLOW DEPRESSION BETWEEN PATH AND ROAD
REMOVE EXISTING SIDEWALK AND INSTALL 8' SHARED USE PATH AND CURB ACROSS BRIDGE
LANG FAMILY LLC
END PROPOSED PATH CONNECT TO EXISTING PATH
MCDONALD'S CORP
Stantec

The VTrans Pedestrian and Bicycle Facility Planning and Design Manual indicates a 10 to 14 foot wide shared use path is desirable and 8 foot wide is the minimum. The necessary width is a function of the variety, speed, and volume of users. The minimum width of 2.4 m (8 ft) for shared use paths is recommended only when the following conditions prevail:

- Bicycle traffic is expected to be low, even on peak days or during peak hours.
- Pedestrian use of the facility is not expected to be more than occasional.
- Good horizontal and vertical alignment provides safe and frequent passing opportunities.
- The path will not be subjected to maintenance vehicle loading conditions that would cause damage to the edge of the pavement.
- No practical alternative design exists.
- Applicable path sight distance requirements can be met.
- For limited distances of up to 61.0 m (200 ft) to bypass a physical barrier (i.e., building, water body or other immoveable objects)

5.4 COMPARISON OF ALTERNATIVES

5.4.1 Alternative Impacts

Safety Impacts

Safety for pedestrians and bicyclists is improved in Alternatives 2 and 3 over the No Action Alternative. Bicyclists have the choice of an on-road 4-foot shoulder/bike lane or a shared use path along VT Route 15. Alternative 3 has a greater potential to provide conflicts with lower speed walkers and higher speed bicyclists.

Right-of-Way (ROW) Impacts

Based on the 1934 record plans, the Right-of-Way width varies but generally is 49.5 feet wide. Alternative 2 has approximately 20,000 sf of permanent acquisition and Alternative 3 has approximately 12,000 sf.

Environmental Resource Impacts

Based on the desktop research and site visit there are no known impacts to streams wildlife or rare and endangered species for the alternatives. Alternatives 2 and 3 do impact wetlands and wetland buffers. Their impacts are similar and an ANR Wetland permit is anticipated due to Class II wetland impacts.

Cultural Resource Impacts

A preliminary cultural resources assessment was completed and included in the Appendix. There are two areas of archeological sensitivity identified within the project area. A level terrace located on the east side of Route 15, situated directly above a small unnamed stream, was determined to be sensitive for the presence of precontact cultural material. A historic archaeological sensitivity area is located on the west side of Route 15, directly north of Turnberry Ridge. This level terrace comprises the front yard of a historic residence, dating to at least 1850, and possibly earlier. It is anticipated the level terrace on the east side of VT 15 will be within the proposed construction area and Phase IB archeological testing is recommended.

Utility Impacts

Existing utilities in the project area includes aerial electric distribution and communication lines, water, gas, electric and communications. The construction of the alternatives does not impact utilities and does not require their wholesale relocation.

Stormwater Impacts

All alternatives are under the 1 acre threshold of new impervious surface area and a Stormwater Operational Permit is not required. Indian Brook is stormwater-impaired and a Flow Restoration Plan (FRP) has been developed. The purpose of the FRP is to provide a planning tool to implement stormwater best management practice (BMP's) over a twenty (20) year timeframe, in the effort to return Indian Brook to its attainment condition. The BMP's identified to obtain the TDML high flow target includes the Fairview Drive/Main Street retrofit with Add On which treats stormwater in the project area. This work should be coordinated with this project. There is an additional area adjacent to the Indian Brook crossing for stormwater treatment if desired.

5.4.2 Project Costs

The following table is a summary of the project costs for all alternatives and the add on for the VT Route 15 shoulder widening, in case this widening is not addressed in the planned VTrans resurfacing project.

Table 5 Summary of Project Costs

Item	Alternative 1: No Action	Alternative 2 (10 ft SU Path and Bike Lanes)	Alternative 3 (8 ft SU Path and Bike Lanes)
Construction Costs	**$0**	$900,000	$750,000
Street Lighting Costs	**$0**	$300,000	$300,000
Right-of-Way Costs	**$0**	$100,000	$70,000
Design Engineering	**$0**	$150,000	$150,000
Construction Engineering	**$0**	$100,000	$100,000
Total Project Costs	**$0**	**$1,550,000**	**$1,370,000**

5.4.3 Evaluation Matrix

The following table provides an evaluation matrix summarizing the above information pertaining to traffic operations, safety, right-of-way, environmental, cultural resources, utilities, and project costs. The major difference is right-of-way impacts and project costs.

Table 6 Evaluation Matrix

CRITERIA	Alternative 1: No Action	Alternative 2: 10 ft SU Path with Bike Lanes	Alternative 3: 8 ft SU Path with Bike Lanes
Project Costs	**$0**	**$1,550,000**	**$1,370,000**
Purpose and Need			
Complete a missing bicycle link	No	Yes	Yes
Support goals for active mobility	No	Yes	Yes
Facilitate use by all ages and experience	No	Yes	Yes
Impacts			
Safety	No Improvement	Improvement	Improvement
Right-of-way	None	20,000 SF	12,000 SF
Environmental	None	1000 sf Wetland	800 SF Wetland
Cultural Resources	None	TBD	TBD
Utilities/Drainage	None	Drainage Modifications	Drainage Modifications
Stormwater	No Change	<1 acre w/ Treatment Opportunity	<1 acre w/ Treatment Opportunity

6.0 STAKEHOLDER INPUT AND RECOMMENDATIONS

Two public meetings were held during the scoping process; a Local Concerns Meeting held in December of 2017 and an Alternatives Presentation Meeting held in June of 2018. Meeting notes for both meetings can be seen in the appendices.

A general summation of the Local Concerns Meeting can be described as strong support for a facility that can accommodate both pedestrians and bicycles. The attendees mentioned the current and likely future demand for the facility based on current businesses and residences and future residential development. Attendees also expressed concerns related to safety. The general sentiment is that current conditions are not safe – specifically at the VT 289 interchange.

The Alternatives Presentation Meeting provided additional feedback from the community. Based on the relatively small increase in cost, the 10' path was supported by some of the attendees. Some attendees indicated that with on road bike lanes provided, an 8-foot wide path would suffice and would have less impact on adjacent properties. The attendees also supported crosswalk enhancements such as rapid flashing beacons at Athens Drive to help encourage drivers to yield to bicyclists and pedestrians attempting to cross VT 15. Additionally, the attendees generally supported lighting the path with pedestrian street lighting.

7.0 MUNICIPAL PREFERRED ALTERNATIVE

With input received at the public meetings considered, Village and Town Engineering and Planning Staffs worked cooperatively to produce a unanimous series of recommendations relative to the project. The Staff recommendations are as follows:

1) The Preferred Alternative is Alternative 3: An 8-foot shared use path (and bike lanes)

2) The proposed path should include lighting along the path for its entire length, with lighting fixtures spaced appropriately, due to the location of the path and its importance as a critical multi-model link between the Village and the Town and

3) As a component of the planned VTRANS paving project along this section of VT15, the roadway will be configured to have two 11-foot lanes and a 4-foot bike lane on each side of the road to accommodate high speed bicyclists and

4) The project shall include replacement of the current 5-foot wide sidewalk east of Fairview Drive with the 8-foot multi-purpose path and

5) The project shall terminate on the east side of the VT15 Bridge over the Circumferential Highway with an 8-foot wide multi-purpose pedestrian/path crossing on the bridge.

A memo outlining the Village and Town recommendations can be found in Appendix A. These recommendations will be provided to the Village Trustees and Town Selectboard for discussion and to seek their endorsement.

APPENDIX A

Meeting Notes and Correspondence

Meeting Notes

Kickoff Meeting

VT 15/Pearl Street Scoping Study Alternatives Analysis & VT 15 Athens Drive to I-289 Shared Use Path, 195311490 & 19531507

Date/Time: October 16, 2017 / 11:00 AM

Place: Stantec, Mt. Mansfield Conference Room

Next Meeting: TBD

Attendees: Christine Forde (CCRPC), Greg Edwards (Stantec), Erik Alling (Stantec), Sean Neely (Stantec), Polly Harris (Stantec)

Absentees: N/A

Distribution: Attendees

Item:	Action:
Updated Proposal There are a few minor errors in the most recently submitted version of the SOW	Greg will update and resubmit the proposal
Susie Wilson/VT 15 Intersection Scoping Study VTrans is currently scoping intersection improvements to the Susie Wilson/VT 15 intersection. Christine requests that Stantec keep in contact with VTrans so that the two studies do not end up contradicting each other.	Stantec will contact VTrans PM Patti Coburn to establish communication to be maintained throughout the scoping process.
Base Mapping The CCRPC has developed base mapping for the Pearl St. study and will also provide base mapping for the shared use path study. Christine requests that Stantec work with Pam Brannigan directly.	Sean will contact Pam and will work with her to receive base mapping and associated GIS files.
Permanent Project FTP Site An FTP site will be established to facilitate the transfer of project files.	Erik will create the permanent FTP site and will distribute a link to the team members.
Traffic Analysis Stantec will perform analysis on Susie Wilson/VT 15 to determine impacts of adding a pedestrian phase.	Stantec has crash data for shared use path project, Sean to obtain crash data for Pearl Street project.
Pearl Street Median Island	

Christine mentioned that an acceptable alternative to explore would be the removal of the median island along VT 15.	Christine to verify with Robin that removal of the island is an option that may be considered.
Local Concerns Meeting Greg mentioned that a LCM should be organized as soon as is practical. After some discussion, attendees agreed that early to mid-December would be a good time to hold the meeting	Greg to provide a sample LCM presentation. Christine will reach out to the Town and the Village to find some potential dates. Christine to determine if holding a combined meeting for both projects is feasible. Greg/Stantec to obtain property owner addresses to use for meeting invitations.
Environmental/Permitting For the scoping of each project, Stantec will need to determine permitting needs. This will potentially include NEPA, CGP, Wetlands & Corps permits.	Polly to conduct desktop reviews of each project area. Permitting needs will be assessed and included in the reports.
Utilities Utility information will need to be included in the alternative analyses of both studies.	Greg will contact utility companies to obtain available relevant information.
Town/Village path/Pedestrian Commissions Both the Town and the Village have path and pedestrian commissions. They should be involved throughout the scoping process. Additionally, the State should be made aware of the projects.	Erik will coordinate with Village and Town representatives. Erik will coordinate with VTrans bike/ped program manager Jon Kaplan.

The meeting adjourned at 12:00 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

Erik Alling, PE
Project Manager
Phone: (802) 864-0223
Erik.Alling@stantec.com

Attachments: Sign-in Sheet
c. Design File

Meeting Notes

Local Concerns Meeting

VT 15 Athens Drive to VT 289 Scoping Study
Essex, Vermont

Date/Time:	December 11, 2017
Place:	Essex Town Office
Next Meeting:	TBD
Attendees:	Dennis Lutz, Darren Schibler – Town of Essex Christine Forde, Marshall Distel -CCRPC Greg Edwards, Sean Neely - Stantec 6 residents – see attached sheet
Distribution:	Project Committee

Summary

Meeting was held to better define existing issues and concerns in the project area. The meeting was hosted by the Town of Essex. Introductions were given by Dennis Lutz and Christine Forde. Stantec provided a PowerPoint presentation describing existing roadway and traffic conditions. The public was invited to provide comments and ask questions. Attendees were supportive of the project, as well as thankful for the existing bicycle and pedestrian infrastructure.

Resident Comments

- Ideally pedestrians could stay on one side of the street or the other. Having to cross the street unnecessarily is frustrating. Residents of Athens Drive and Taft Street desperately want a sidewalk on the north side of the street.
- Lang Farms attracts considerable pedestrian traffic for Friday evening events in summer.
- Many Essex High School students walk or ride their bike to and from school.
- With 30 new homes planned for the Kolvoord property, there will be more pedestrian demand on the south side of the street in general, and more students walking and biking to and from the High School.
- In the long-term, properties on the north side of the street will likely be developed, increasing demand.
- The residential population is likely to increase in the future, as is travel demand generated from the Town Center. We need to connect the Village and Town Center with adequate bicycle and pedestrian facilities.
- Motor vehicle speed is a concern. Physical separation, both horizontal and vertical, should be considered for bicycle and pedestrian facilities in the project area. The local population verbally commits to walking and biking, but it can be challenging without separation.

- Bike commuting between Essex and South Burlington eight months out of the year, I ride along VT 15 north of the project area. I use the countryside path though, crossing at Maplefield's. I refuse to ride through the project area along VT 15, because of the interchange with VT 289. If there were a 10-foot-wide shared use path along the south side of VT 15 through this area, I would use it.
- Cycling on VT 15, crossing the ramps through the interchange with VT 289, is a scary place to ride. Traveling westbound through the interchange is worse than traveling eastbound. There are no crosswalks over the ramps for westbound travel, and the slip lane for getting on VT 289 is challenging to cycle through, dealing with motor vehicles. Cycling eastbound by McDonald's is tricky, because of the dedicated right-turn lane. This makes it difficult to get to the shared use path connection on the east side of Billie Butler Drive.
- If there is a shared use path built, it could be challenging to deal with transitions for crossing VT 15 or at intersections.
- There is a pinch point on VT 15 near the apartments south of the project area, where the last storm sewer upgrade was made. Recent repaving has made a big difference.
- Cycling along VT 15 in the project area is challenging because of the hill, and the narrowness along that section. The Saybrook shared use path is more gradual, and you don't have to deal with traffic, although it can take longer.
- If bike lanes are added, widening the road, maybe motorists would increase speed. Something to be said for a narrower road.
- It's hard for motorists to see pedestrians along VT 15 in this area without street lights. The Indian Brook crossing is the most dangerous spot. Adequate street lighting is an important component to include in the project.
- A shared use path might be better placed along the south side of the road. There is currently more room to walk along the south side, with a drainage ditch running along the north side. There is existing sidewalk leading up to the project area along the south side.
- Consider a reduction in speed limit through this area to increase comfort for pedestrians and cyclists. With more development in the future, there could be access issues.
- For crossing Indian Brook, maybe a cantilever bridge would work, if built simultaneously with replacing the existing culvert. There is a cantilever bridge for active travel on Industrial Ave that works well.

The meeting adjourned at 8:15pm

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.

Greg Edwards, PE
Project Manager
Greg.Edwards@stantec.com

Attachment: Sign-in Sheet

c. Project Committee

Essex VT 15 Athens Drive to VT 289

Public Meeting Sign in Sheet

December 11, 2017

Name	Affiliation	Email	Phone
Bogdan Boczar	Essex Resident	Bboczar@[illegible]	87[illegible]-677[illegible] X
Diane Clemens	ES Planning	dclemens@sover.net	878-3536
Eric Bowker	Bike/Walk Comm.	eric@ericbowker.com	578-5563
Colin Flanders	E/R	Colin@essexreporter.com	
Jim Bernegger	EDC	Bernegger Essex EDC @gmail.com	607 435 0623
Irene Wrenner	TOE SB	imwren@aol.com	879-0011

From:	Edwards, Greg
To:	Smiley, Lynn
Cc:	Neely, Sean
Subject:	Fwd: Local Concerns Meeting | December 11, 2017, 7:00-8:30pm, 81 Main Street, Essex Jct., VT 05452
Date:	Tuesday, November 28, 2017 9:42:39 AM

Can you create an email list for 195311507 and put this person in it?

Get Outlook for iOS

From: Edwards, Greg
Sent: Tuesday, November 28, 2017 6:39:21 PM
To: Tom Soules
Cc: Christine Forde; Dennis Lutz; Neely, Sean
Subject: Re: Local Concerns Meeting | December 11, 2017, 7:00-8:30pm, 81 Main Street, Essex Jct., VT 05452

Hi Tom,

Thank you for your interest and input. With this and others input we will be developing alternatives. Once we doing an alernatives presentation will be noticed and we will put you on the email list.

In the meantime if you have any suggestions on the route and type of facility we welcome your thoughts.

Greg
Get Outlook for iOS

From: Tom Soules <tksoules@msn.com>
Sent: Tuesday, November 28, 2017 9:43:59 AM
To: Edwards, Greg
Subject: Local Concerns Meeting | December 11, 2017, 7:00-8:30pm, 81 Main Street, Essex Jct., VT 05452

Hello Gregory,

I won't be able to make the Dec 11 meeting, but I would very much encourage such a project.

I often walk and/or ride my bike from Athens Drive up RT 15 to I289. I do this to shop and make caregiving visits to my parents. My vision is not good enough for a driver's license.
Each time I make this trip I feel like I'm taking my life in my hands.

Yes, there is a long way around, but it take almost 3 times longer one way, and my schedule doesn't allow that. And, sometimes my parents need me sooner then later. There is also church on Sundays, and the occasional dentist/doctor appointment to get to. In addition, I enjoy walks and bike rides, often going between the town and the village down this corridor. In my mind it the number 1 project that would do the most to improve pedestrian and bicycle safety and connections between the Village and the town. I'm sure it would also result in a positive business and social benefit for our communities. I currently view this corridor as the big divide.

Best regards, Tom

From: Front Porch Forum <countryside@frontporchforum.com>
Sent: Monday, November 27, 2017 5:20 PM
To: tksoules@msn.com
Subject: Countryside Front Porch Forum No. 2088

MEMBER FAQ | COMPOSE POSTING | BECOME SUPPORTING MEMBER

ISSUE NO. 2088NOVEMBER 27, 2017

VT15 Sidewalk/Path Study: Athens Drive to VT289

DARREN SCHIBLER, DSCHIBLER@ESSEX.ORG, PLANNER, ESSEX

CALENDAR

Event: Dec 11, 2017, 7:00 PM to 8:30 PM

The Town of Essex and the Chittenden County Regional Planning Commission are hosting a Public Meeting to hear your feedback on how to improve pedestrian and bicycle connections between the Village and VT289 along VT 15. Please attend and provide your thoughts on what is needed in this corridor. Additional information can be found at https://www.ccrpcvt.org/our-work/transportation/current-projects/scoping/vt15-sidewalk-path-scoping-athens-drive-to-vt289/. If you are unable to attend and have comments/questions, please contact Gregory Edwards, Project Manager, Stantec Consulting, 802-864-0223 or greg.edwards@stantec.com.

MAYVILLE READ POST (AND 2 MORE) »

From:	Edwards, Greg
To:	Smiley, Lynn
Cc:	Neely, Sean
Subject:	Fwd: Sidewalk 289
Date:	Tuesday, November 28, 2017 9:42:35 AM

Can you create an email list for 195311507 and put this person in it?

Get Outlook for iOS

From: Edwards, Greg
Sent: Tuesday, November 28, 2017 6:41:59 PM
To: David Gray
Cc: Christine Forde; Dennis Lutz; Neely, Sean
Subject: Re: Sidewalk 289

Thank you for your interest and input. With this and others input we will be developing alternatives. Once we do, an alernatives presentation will be noticed and we will put you on the email list.

In the meantime if you have any suggestions on the route and type of facility we welcome your thoughts.

Get Outlook for iOS

From: David Gray <david@grayvermont.com>
Sent: Tuesday, November 28, 2017 5:57:13 AM
To: Edwards, Greg
Subject: Sidewalk 289

Greetings,

My immediate thought is, maintenance of existing sidewalks.

I live at Ketcham and walk 4-5 miles daily on various routes between my home and the 5 corners. Many sidewalks are in tough shape, some with serious tripping hazards.

Sent from my iPhone

From:	Edwards, Greg
To:	Smiley, Lynn
Cc:	Neely, Sean
Subject:	Fwd: Sidewalk/bikepath on 15
Date:	Tuesday, November 28, 2017 9:44:44 AM

Can you create an email list for 195311507 and put this person in it?

Get Outlook for iOS

From: Darren Schibler <DSchibler@ESSEX.ORG>
Sent: Tuesday, November 28, 2017 9:36:14 PM
To: Edwards, Greg; Christine Forde
Subject: FW: Sidewalk/bikepath on 15

Hi Christine and Greg,

I got some direct feedback from my Front Porch Forum post last night and just wanted to pass it along. I'll tell Bob we'd love to see him at the meeting.

Best,
Darren

From: bobchaffee@aol.com [mailto:bobchaffee@aol.com]
Sent: Monday, November 27, 2017 9:20 PM
To: Darren Schibler
Subject: Sidewalk/bikepath on 15

Sounds like a great idea. I often see people walking on the side of the road and think how dangerous that is. There is not room on the roadway for bicycles , either.
Bob Chaffee
7 Walnut Lane
Essex Jct.

Memorandum

TO: Evan Teich, Municipal Manager
Essex Selectboard
Essex Junction Trustees
FROM: Dennis Lutz, P.E, Public Works Director
Darren Schibler, Town Planner
Rick Hamlin, P.E., Village Engineer
Robin Pierce, Village Planner
Ricky Jones, Village Public Works Superintendent
DATE: 17 July 2018
SUBJECT: Preferred Alternative for the Route 15 Sidewalk/Path Study for the Section from Athens Drive to VT Route 289

ISSUE: The issue is whether or not the Selectboard and Trustees will approve the staff recommendation for Alternative 3 (with added comments) as outlined in the Scoping Study prepared by Stantec Engineering.

DISCUSSION: A Scoping Study has been completed for a new multi-purpose path using funding provided by both communities, VTRANS and the CCRPC. Stantec Engineering recently completed the referenced Scoping Study, reviews have been made by staff on the project and public hearings have been held for input on the proposed path. In order to apply for funding to prepare final designs, obtain right-of-way and construct the project, the local municipal governing board must select a preferred alternative. Since the project limits fall within both the Town and the Village, both Boards need to take action and agree on the selected alternative.

Village and Town Engineering and Planning Staffs have worked cooperatively to produce a unanimous series of recommendations relative to the project. The rationale for the recommendations is not contained in this memorandum, but staff will be available to present that rationale to the two Boards when this memorandum is presented. The Staff recommendations are:

1) The Preferred Alternative is Alternative 3: An 8-foot shared use path (and bike lanes) as described on page 21 of the Scoping Study and
2) The proposed path should include lighting along the path for its entire length, with lighting fixtures spaced appropriately, due to the location of the path and its importance as a critical multi-model link between the Village and the Town and
3) As a component of the planned VTRANS paving project along this section of VT15, the roadway will be configured to have two 11-foot lanes and a 4-foot bike lane on each side of the road to accommodate high speed bicyclists and
4) The project shall include replacement of the current 5-foot wide sidewalk east of Fairview Drive with the 8-foot multi-purpose path and

5) The project shall terminate on the east side of the VT15 Bridge over the Circumferential Highway with an 8-foot wide multi-purpose pedestrian/path crossing on the bridge.

RECOMMENDATION: It is recommended that the Board of Selectmen and the Village Trustees approve Alternative 3 as the preferred project alternative, including the four recommendations by Staff as outlined in this document, for the Route 15 Sidewalk/Path Study on the Section from Athens Drive to VT Route 289.

Stantec

Meeting Notes

VTrans Coordination Meeting

VT 15 Athens Drive to VT 289 Scoping Study
Essex, Vermont

Date/Time:	March 26, 2018
Place:	5th Floor Board Room, National Life, Montpelier, VT
Next Meeting:	TBD
Attendees:	Dennis Lutz, Darren Schibler – Town of Essex Robin Pierce – Village of Essex Junction Christine Forde, Marshall Distel -CCRPC Greg Edwards - Stantec Amy Bell, Dick Hosking, Jon Kapan, Pam Thurber, James Clancy, Tyler Hanson - VTrans
Distribution:	Project Committee

Summary

Meeting was held to seek VTrans input early on in the scoping process. This input will help better define the alternatives to evaluate including the type of facility and specific widths to use. Stantec provided a PowerPoint presentation describing some of existing roadway and conditions and a potential shared use path alternative.

Meeting Discussions

- **Shared use path typical section dimensions**: Planning for a 4-foot shoulder that serves as a on-road bike lane was supported. This may be a component of the FY2019 VTrans resurfacing project but this will not be known until further plan development this year. Providing a 5-foot buffer to provide separation from traffic, snow storage and stormwater treatmen was supported. VTrans pointed out 8-foot is the minimum width of a shared use path based on AASHTO and since there is a shared use path on both ends they questioned reducing the shared use path below the 8 feet and providing a sidewalk that is 5 to 6 feet wide. For this area, VTrans did not express a concern with providing an 8-foot shared use path in combination with 4 foot on-road bike lanes.

- **VT 289 interchange:** VTrans questioned how a shared use path or on-road bike lanes would connect to facilities on the east side on VT 289. It was discussed marking and signing bike lanes through the interchange using the existing 8-foot shoulders or a portion of them. It was also suggested connecting the shared use path through the interchange by consider widening the existing sidewalk by narrowing the southside shoulder. It was pointed out the crossing of ramps may be problematic and revisions to geometry may need to be considered. Improvements in the interchange area are currently not in the scope of work.

- **Indian Brook Crossing:** VTrans does not have plans to replace the culvert. When replaced it is likely the culvert would need to be on the order of 20 feet wide compared to the existing 6 foot width. Since what they would do is unknown and there is no replacement planned, the construction of the shared use path should consider maintaining the existing culvert, if possible, and any eventual culvert construction would need a accommodate the facilities that exist at the time of construction.

- **Stormwater** – Indian brook is an impaired stream for phosphorous and stormwater. VTrans encouraged maintaining the 5 foot vegetated buffer and consider a disconnect strategy for stormwater.

The meeting adjourned at 2 pm.

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

Stantec Consulting Services Inc.

Greg Edwards, PE
Project Manager
Greg.Edwards@stantec.com

Attachment: Sign-in Sheet

c. Project Committee

Stantec

Meeting Notes

Alternatives Meeting

VT 15 Athens Drive to VT 289 Sidewalk/Path Scoping Study / 195311507

Date/Time:	June 27, 2018 / 6:30 PM
Place:	Essex Town Offices
Next Meeting:	N/A
Attendees:	See attached attendance list
Absentees:	N/A
Distribution:	Project Advisory Committee

An alternatives presentation was provided that described existing conditions, purpose and need and the developed alternatives. The 3 alternatives evaluated include No action, 10-Foot Shared Use Path, and 8-foot Shared Use Path. The following are questions and comments received from the public.

Item:	Action:
Safety of an 8' vs. 10' Path Is there a difference in terms of safety between the 8' and 10' path options?	Possibly but it depends how much usage the path will get and the type of users. The Project Advisory Committee (PAC) was interested in evaluating an 8-foot path since on road bike lanes are provided for experienced higher speed bikers and reduces the potential for conflicts with slower shared use path users.
Burlington Bike Path Width As a means of comparing the widths of the alternatives, how wide is the Burlington Bike Path?	The path is 8'-10', however all new sections are 10'. The Burlington bike path is not an ideal comparison due to the high usage. It is proposed the path will include a 1-foot shoulder on each side.
"Future Proofing" the Path Would a 10' path ensure that the path will continue to serve its purpose well into the future?	A 10-foot path will accommodate greater usage growth.
Rapid Flashing Beacons (RRFB) Can RRFBs be installed at the crosswalks, especially at the Athens Drive? Many people use these crosswalks and it was the attendee's observation that yield rates are low.	VTrans provides guidance for the installation of RRFBs and other crosswalk enhancements. These areas meet may the warrants for crosswalk enhancements and could be considered regardless of this project.
Red Lights vs. Yellow Lights at Enhanced Crossing Is there a choice between red and yellow lights at crosswalk enhancements?	RRFBs have yellow lights to warn drivers while red requires a stop. RRFBs do not use red lights but HAWK systems do. The HAWK system is potentially problematic due to driver's growing accustom to seeing them unlit. Drivers sometimes do not stop for systems that get infrequent use.

Path Lighting Some attendees expressed support for pedestrian-level street lighting. It was pointed out that the path and bike lanes will be used during shorter daylight periods in winter months, use will be difficult to see.	Lighting will add costs and potentially additional impacts. The PAC will discuss including lighting in the scoping report.
Alternative Preferred by Attendees Based on the relatively small increase in cost and ROW impacts, the 10' path was supported by some of the attendees. Some attendees indicated an 8-foot wide path would suffice.	An 8-foot wide path does provide the opportunity to place the back end of the path at the same location as the 10-foot path, widen the on-road bike lanes from 4 to 5-feet wide and maintain the same impacts of a 10-foot wide path. Construction cost would increase due to the road widening.

The meeting adjourned at 7:15 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.

Erik Alling

Erik Alling PE, ENV SP
Project Manager

Phone: (802) 864-0223
Erik.alling@stantec.com

Attachment: Attendance List

c. Design File

PROJECT: VT Route 15 Bike and Pedestrian Improvements: Athens Drive to VT 289
MEETING: Local Concerns Meeting
LOCATION: Essex Town Office
DATE: 6/27/2018
TIME: 6:30 PM

CHITTENDEN COUNTY RPC

Stantec

	NAME	Entity Representing or Town of Residence	E-MAIL	PHONE
1	Christine Forde	CCRPC	cforde@ccrpcvt.org	(802) 846-4490
2	Greg Edwards	Stantec	greg.edwards@stantec.com	(802) 864-0223
3	Erik Alling	Stantec	erik.alling@stantec.com	(802) 864-0223
4	ANDY SUNTUP	ESSEX JUNCTION	[illegible] @ YAHOO.COM	(802) 857-5383
5	LINDA SUNTUP	Essex Junction	lindajo910@yahoo.com	802-857-5383
6	Deb Ellen Holland	Essex	djehl2@yahoo.com	802-878-4499
7	MARIA GODLESKI	ESSEX JUNCTION	rugbyaddict76@YAHOO.COM	802 233 0946
8	ERIC BOWKER	ESSEX JCT	—	—
9	SAI SAREPALLI	CCRPC		
10	Frank [illegible]	[illegible]	FRANKVERMONT@COMCAST.COM	
11	Tom Sailes	tksailes@msn.com		802-662-7970
12				

V:\1953\active\195311507\transportation\meetings\Local Concerns Meeting\Sign in sheet.xls

PROJECT: VT Route 15 Bike and Pedestrian Improvements: Athens Drive to VT 289
MEETING: Local Concerns Meeting
LOCATION: Essex Town Office
DATE: 6/27/2018
TIME: 6:30 PM

CHITTENDEN COUNTY RPC

Stantec

	NAME	Entity Representing or Town of Residence	E-MAIL	PHONE
13	Jeff Frolik	EJCT	jfrolik@uvm.edu	802 878 6064
14	Rick Hamlin	EJCT	RHAMLIN@DLHCE.COM	802-878-3956
15	Marshall Distel	CCRPC		
16	Diane Clemens		dclemens@sover.net	
17	Terry Gosselin	Essex	225 Pearl St, Essex 05452	802 872-9119
18				
19				
20				
21				
22				
23				
24				
25				

APPENDIX B

Construction Costs

Stantec	Quantity Summary			
	Essex Village/Essex Town			
	195311507			
			Initials	Date
55 Green Mountain Drive		Calc'd By:	ENA	5/15/2018
South Burlington, VT 05403	VT Route 15 East - 8' Path	Checked By:	DMY	5/18/2018
Tel: (802) 864-0223		Revised By:		
		Checked By:		

Item No.	Item Description	Unit	Unit Price	Alternative A Description Quantity	$
201.10	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	LS	$20,000.00	1	$20,000.00
203.15	COMMON EXCAVATION	CY	$30.00	1500	$45,000.00
203.16	SOLID ROCK EXCAVATION	CY	$50.00	150	$7,500.00
301.35	SUBBASE OF DENSE GRADED CRUSHED STONE	CY	$35.00	1250	$43,750.00
490.30	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	TON	$100.00	500	$50,000.00
601.2615	18" CPEP(SL)	LF	$50.00	400	$20,000.00
604.20	PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE	EACH	$5,000.00	5	$25,000.00
616.21	VERTICAL GRANITE CURB	LF	$35.00	450	$15,750.00
630.10	UNIFORMED TRAFFIC OFFICERS	HR	$50.00	250	$12,500.00
630.15	FLAGGERS	HR	$25.00	1000	$25,000.00
635.11	MOBILIZATION/DEMOBILIZATION	LS	$67,820.00	1	$67,820.00
641.10	TRAFFIC CONTROL	LS	$25,000.00	1	$25,000.00
678.23	WIRED CONDUIT	LF	$12.00	5000	$60,000.00
678.26	JUNCTION BOX	EACH	$1,500.00	8	$12,000.00
900.620	SPECIAL PROVISION (PEDESTRIAN LIGHTING ASSEMBLY)	EACH	$5,000.00	40	$200,000.00
900.645	SPECIAL PROVISION (LANDSCAPING)	LS	$20,000.00	1	$20,000.00
900.645	SPECIAL PROVISION (ADD PED PHASE TO EX. SIGNAL SYSTEM)	LS	$30,000.00	1	$30,000.00
900.645	SPECIAL PROVISION (STRENGTHEN CULVERT)	LS	$20,000.00	1	$20,000.00
900.675	SPECIAL PROVISION (GREEN BIKE LANE PAVEMENT MARKING)	SY	$125.00	450	$56,250.00
900.675	SPECIAL PROVISION (RETAINING WALL)	SY	$200.00	800	$160,000.00
				Subtotal	$915,570.00
				Contingency	20.00%
				Total	**$1,098,684.00**

Stantec 55 Green Mountain Drive South Burlington, VT 05403 Tel: (802) 864-0223	Quantity Summary **Essex Village/Essex Town** **195311490** **VT Route 15 East - 10' Path**		Initials	Date
		Calc'd By:	ENA	5/15/2018
		Checked By:	DMY	5/18/2018
		Revised By:		
		Checked By:		

Item No.	Item Description	Unit	Unit Price	Alternative A Description Quantity	$
201.10	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	LS	$20,000.00	1	$20,000.00
203.15	COMMON EXCAVATION	CY	$30.00	1800	$54,000.00
203.16	SOLID ROCK EXCAVATION	CY	$50.00	250	$12,500.00
301.35	SUBBASE OF DENSE GRADED CRUSHED STONE	CY	$35.00	1500	$52,500.00
490.30	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	TON	$100.00	600	$60,000.00
601.2615	18" CPEP(SL)	LF	$50.00	400	$20,000.00
604.20	PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE	EACH	$5,000.00	5	$25,000.00
616.21	VERTICAL GRANITE CURB	LF	$35.00	450	$15,750.00
630.10	UNIFORMED TRAFFIC OFFICERS	HR	$50.00	250	$12,500.00
630.15	FLAGGERS	HR	$25.00	1000	$25,000.00
635.11	MOBILIZATION/DEMOBILIZATION	LS	$44,160.00	1	$44,160.00
641.10	TRAFFIC CONTROL	LS	$25,000.00	1	$25,000.00
900.645	SPECIAL PROVISION (STORMWATER TREATMENT)	LS	$30,000.00	1	$30,000.00
900.645	SPECIAL PROVISION (LANDSCAPING)	LS	$20,000.00	1	$20,000.00
900.645	SPECIAL PROVISION (ADD PED PHASE TO EX. SIGNAL SYSTEM)	LS	$30,000.00	1	$30,000.00
900.645	SPECIAL PROVISION (STRENGTHEN CULVERT)	LS	$20,000.00	1	$20,000.00
900.675	SPECIAL PROVISION (RETAINING WALL)	SY	$200.00	800	$160,000.00
900.675	SPECIAL PROVISION (GREEN BIKE LANE PAVEMENT MARKING)	SY	$125.00	450	$56,250.00
				Subtotal	$682,660.00
				Contingency	20.00%
				Sub Total	**$819,192.00**
678.23	WIRED CONDUIT	LF	$12.00	5000	$60,000.00
678.26	JUNCTION BOX	EACH	$1,500.00	8	$12,000.00
900.620	SPECIAL PROVISION (PEDESTRIAN LIGHTING ASSEMBLY)	EACH	$5,000.00	40	$200,000.00
				Subtotal	$272,000.00
				Contingency	20.00%
				Sub Total	**$326,400.00**
				total	**$1,145,592.00**

APPENDIX C

Cultural Resource Assessment

HARTGEN
archeological associates inc

ARCHEOLOGICAL RESOURCE ASSESSMENT

VT Route 15 Scoping Study

Town of Essex
Chittenden County, Vermont

HAA # 5234.11

Submitted to:

Greg Edwards, PE, ENV SP
Senior Principal, Transportation
Stantec
Fax: 802.864. 0165
Phone: 802.674.2904
Cell: 802.738.4000
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

June 2018

MANAGEMENT SUMMARY

SHPO Project Review Number:
Involved State and Federal Agencies: *Vermont Agency of Transportation (VTrans)*
Phase of Survey: *Archeological Resource Assessment*

LOCATION INFORMATION

Municipality: *Town of Essex*
County: *Chittenden County, Vermont*

SURVEY AREA

Length: *3,636 feet*
Width: *Approximately 100 feet (50 feet east and west of road centerline)*

RESULTS OF RESEARCH

Precontact Archeological sites within one mile: *Six*
Historic Archeological sites within one mile: *None*
NR/NRE districts in or adjacent: *None. Several Standing Structures listed on the Vermont Standing Structures Survey are located within the project alignment.*
Precontact Sensitivity: *One area of precontact archeological sensitivity was identified – a small terrace above an unnamed book.*
Historic Sensitivity: *One area of historic sensitivity was identified on the front lawn of a historic home.*

RECOMMENDATIONS

Archeological potential is high in the southwest, southeast and northeast areas adjacent to the culvert. These areas contain level terrain adjacent to Bascom Brook. If these level terraces will be impacted during the culvert replacement activities, then Phase IB archeological testing is recommended.

Report Authors: *Elise Manning-Sterling*

Date of Report: *June 2018*

ARCHEOLOGICAL RESOURCE ASSESSMENT

INTRODUCTION

Hartgen Archeological Associates, Inc. (HAA, Inc.) was retained by Stantec to conduct an Archaeological Resource Assessment for the proposed scoping and planning study to make improvements along a 3,636 foot section of roadway along VT 15, located between Exit 9 of I-289 and Athens Road in the Town of Essex, Chittenden County, Vermont (Map 1). This scoping project proposes to identify options for this missing link between the Town and the Village pedestrian network. It is anticipated that a 10 foot-wide path will be constructed on either the north or south side of VT 15.

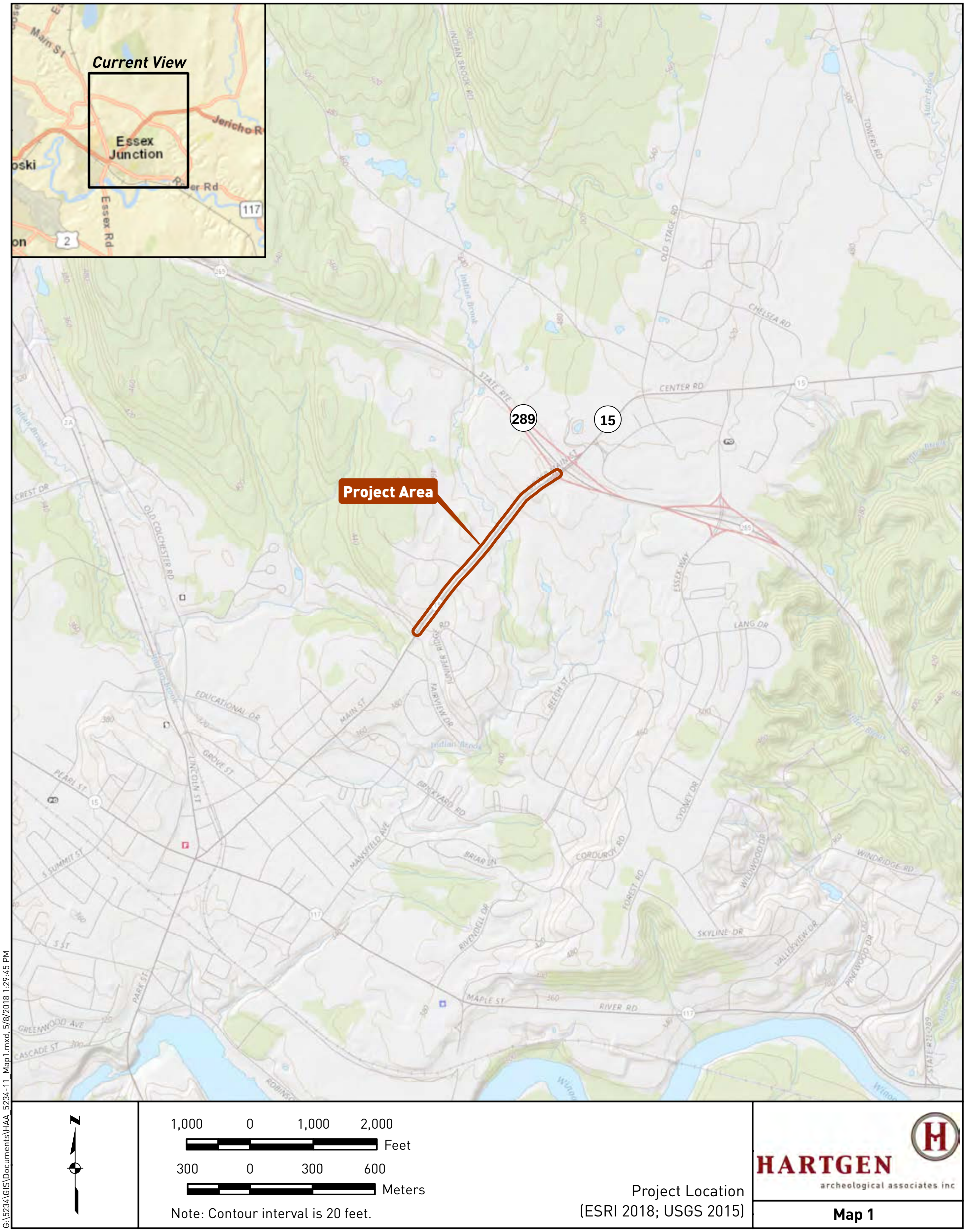
The Town of Essex will be involved in this scoping study, which is being funded by the Chittenden County Regional Planning Commission using Federal transportation funds and a local match. The cultural resources investigations required according to Section 106 of the National Historic Preservation Act. The project requires approval by the Vermont Agency of Transportation (VTrans), and the cultural resource report will be reviewed by the VTrans archaeology officer.

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) ORC (Online Resource Center) site where archeological site files, National Register (NR), State Register (SR) and town information were reviewed. A site visit was conducted by Elise Manning Sterling 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 Town of Essex is located in the Vermont Lowlands physiographic region. The project alignment exhibits a variety of topographic features and variations in elevation. The southern portion of the project alignment is located at an approximate elevation of 410 feet above mean sea level (amsl). From this point, the terrain slowly rises in elevation, ending at an approximate elevation of 490 feet amsl at the northern terminus of the project APE. Located near the northern end of the project area is Indian Brook, which flows in a southeast to northwest direction. The brook is situated at the base of a ravine that is bordered to the north and south by sloping hillsides (Photo 1). A small unnamed, possibly seasonal, stream is located near the southern end of the project area. The small terrace adjacent to this stream is one of the archeological sensitivity areas identified during the assessment (Map 2).

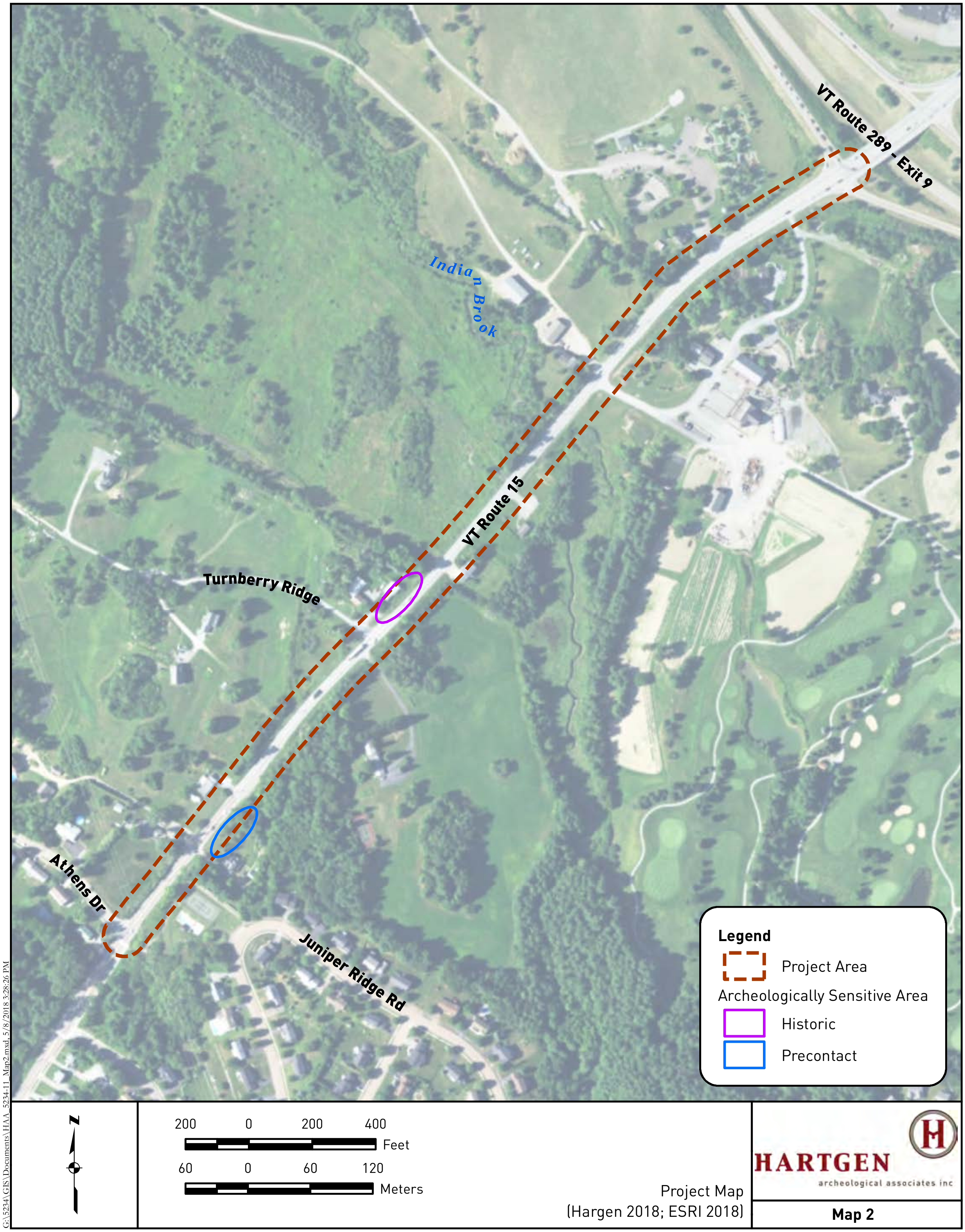


Project Location
(ESRI 2018; USGS 2015)

HARTGEN archeological associates inc

Map 1

G:\5234\GIS\Documents\HAA_5234-11_Map1.mxd, 5/8/2018 1:29:45 PM



Project Map
(Hargen 2018; ESRI 2018)

Map 2

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Photo 1. Photo shows the sloping hills bordering Indian Brook on both sides. The brook is located at the base of the slope with wetland grasses evident. View is to the north.

The bedrock within the project area is worthy of note. The leading edge of the prominent Hinesburg Thrust Fault, which extends from Bristol, Vermont northward into Canada, is located several hundred feet to the southwest of the south end of the project area at Athens Drive. This unique geologic feature delineates "the contact point where metamorphosed phyllites were pushed four miles westward up over the top of younger carbonate rocks during the Taconic Orogeny" (UVM 2018). The southern half of the project area contains Cheshire Formation bedrock, which is characterized by "argillaceous quartzite member, a fine to medium grained, gray and rusty weathering, dark gray argillaceous quartzite with abundant quartz veins (Data.gov 2018). The quartzite and quartz in the bedrock formations was a source of lithic material for precontact groups, which has been identified on several nearby precontact sites.

The bedrock in the northern half of the project alignment is from the Fairfield Pond Formation. This formation is characterized as "silvery tan and rusty weathering, light green to gray, phyllite, schist and phyllitic granofels; locally interbedded with dark gray argillaceous quartzite; interlayered with Pinnacle Formation. Contact with overlying Cheshire Formation is gradational" (Data.gov 2018). Prominent bedrock outcrops are evident at the northern end of the project area (Photo 2).

There are several soils types, alternating in small linear sections, along the project alignment. The primary soil types include Munson and Raynham silt loam, 2 to 6% slope and 6-12% slope, Munson and Belgrade, 12-25% slope and Scantic silt loam, 0-2% slope. All four of these soil types Coarse-silty glaciolacustrine deposits over clayey glaciolacustrine deposits glaciofluvial deposits, and are encountered on terrace formations between 90 to 1,200 feet amsl (USDA 2018).

Throughout the project alignment, on both sides of Route 15, the ground located directly adjacent to the road is primarily characterized as areas of slope and/or the location of drainage ditches. The two exceptions to

Photo 2. Photo shows the massive bedrock outcrops located at the northern end of the project area. View is to the northwest.

this characterization are areas of level terrain which were determined to be areas of archaeological sensitivity. A level terrace located on the east side of Route 15, situated directly above a small unnamed stream, was determined to be sensitive for the presence of precontact cultural material (Map 2, Photo 3). A historic archaeological sensitivity area is located on the west side of Route 15, directly north of Turnberry Ridge (Map 2, Photo 4). This level terrace comprises the front yard of a historic residence, dating to at least 1850, and possibly earlier.

DOCUMENTARY RESEARCH

Precontact Site File Research and Archeological Sensitivity

Examination of VDHP site files indicates that within several miles of the project area, there are several hundred precontact sites situated adjacent to Lake Champlain, the Winooski River, and their numerous tributaries, such as Indian Brook, and associated wetlands. There are six precontact sites located within a one mile (1.6 km) radius of the APE, all identified during testing for the Chittenden County Circumferential Highway (Dillon 1985, Knight 2001, Sheehan & Thomas 1993, Thomas & Florentin 2002 and Wilson 1990). These include VT-CH- 220, VT-CH- 229, VT-CH- 230, VT-CH- 486, VT-CH- 490 and VT-CH- 9191, all but one of which were identified adjacent to Indian Brook. The remaining site, VT-CH-229, was identified on a high terrace overlooking the Winooski River.

Site VT-CH-9191 was identified in a field associated with the Lang Farm, located at the north end of the project area. This Late Archaic site was identified through the surface collection of a cornfield on a higher terrace above Route 15. The site collection consisted of five artifacts, including quartz and quartzite flakes, and a base and mid-section of a corner notched Late Archaic projectile point. The site is located on the north side of Indian Brook, approximately 300 feet east of VT Route 15.

Photo 3. Photo shows the level terrace adjacent to an unnamed stream, which was determined to be a precontact sensitivity area. View is to the south.

Photo 4. Photo shows the front yard of a historic residence which was determined to be a historic archeological sensitivity area. View is to the north.

Table 1. Vermont Archeological Inventory (VAI) precontact sites within one mile (6. km) of the APE.

VAI Site No.	Site Identifier	Description	Approximate Proximity to Project Area
VT-CH-220	BT	A precontact site of indeterminate time period located adjacent to Indian Brook that contained lithic material, including a groundstone tool and chert, quartz and quartzite flakes	Located approximately 1,000 feet north of the north end of the project alignment
VT-CH-229	Old Stations	A precontact site of indeterminate time period that contained chert, quartzite and quartz flakes.	Located approximately 1,000 feet north of the north end of the project alignment
VT-CH-230		An extremely important multi-component site, containing a Paleoindian component, and four loci dating to the Early Archaic. The Paleoindian camp was briefly occupied between 8,200 and 8,000. Two of the Early Archaic camp sites produced evidence of an area of intense wood processing with quartz and quartzite scraping tools (similar to VT-CH-486). The site is located on a low rise on the east side of Indian Brook.	Located approximately 1,000 feet north of the north end of the project alignment
VT-CH-486		A multi-component site containing four Early Archaic period loci located on the east side of Indian Brook. Researchers identified areas of intense activity related to wood processing, as well as quartz and quartzite scraping tools (similar to VT-CH-230). There was also evidence to these activities were conducted within small shelters.	Located approximately 1,000 feet north of the north end of the project alignment
VT-CH-490		A multi-component precontact site which contained two separate Early Archaic loci which contained quartz scrapers from local bedrock, and quartzite tools made from bedrock located approximately 30 km to the south. The researchers stated that there was evidence of small structures.	Located approximately 1,000 feet north of the north end of the project alignment

The VDHP Environmental Predictive Model was completed for the entire project area which produced an overall rating of 24 (Appendix 1), with a rating of 32 or above indicating precontact sensitivity. The overall project area received points based on its location in an area with a high density of recorded precontact sites (32 points) within a travel corridor (12 points), and containing a small stream channel (12 points). This rating also reflects a large reduction (-32 points) for the presence of disturbance, primarily in the form of slope from man-made drainages along a large portion of the project alignment (Photos 5 and 6). Level areas within the project alignment that do not exhibit obvious disturbance would have a higher archeological sensitivity, with a rating of 56, as they would not have the -32 point reduction.

As noted earlier, there is a small level terrace located on the east side of Route 15, situated directly above a small unnamed stream, was determined to be sensitive for the presence of precontact cultural material (Map 2). While there is likely to be some disturbance directly adjacent to the road from road construction and installation of a waterline and water hydrant, the portion of the terrace overlooking the stream may be undisturbed. If project plans involve ground disturbance to this terrace, then Phase IB archeological testing is recommended.

Photo 5. Photo shows a large roadside gully. A large portion of the project area contained similar drainage gullies adjacent to the roadway. View is to the south.

Photo 6. Photo shows a large shallow roadside gully on the east (right) side of the road, and large bedrock outcrops on the west (left) side of the road. View is to the north.

Historic Site File Search and Archeological Sensitivity

National and State Register, Cemeteries

There are three historic structures listed on the State Register (VHSSS) located within the project APE. In addition, there are several historic structures located within the project area which were not included as part of the Vermont State Register survey. All of the structures located within the project area will be outlined further within the historic structure assessment report.

There are no National Register sites located within or adjacent to the project APE.

There are no known cemeteries located within or adjacent to the project area (Hyde and Hyde 1991).

Historic Archaeological Sites

There are no historic archeological sites located within the project vicinity or within one mile of the APE.

Historic Maps

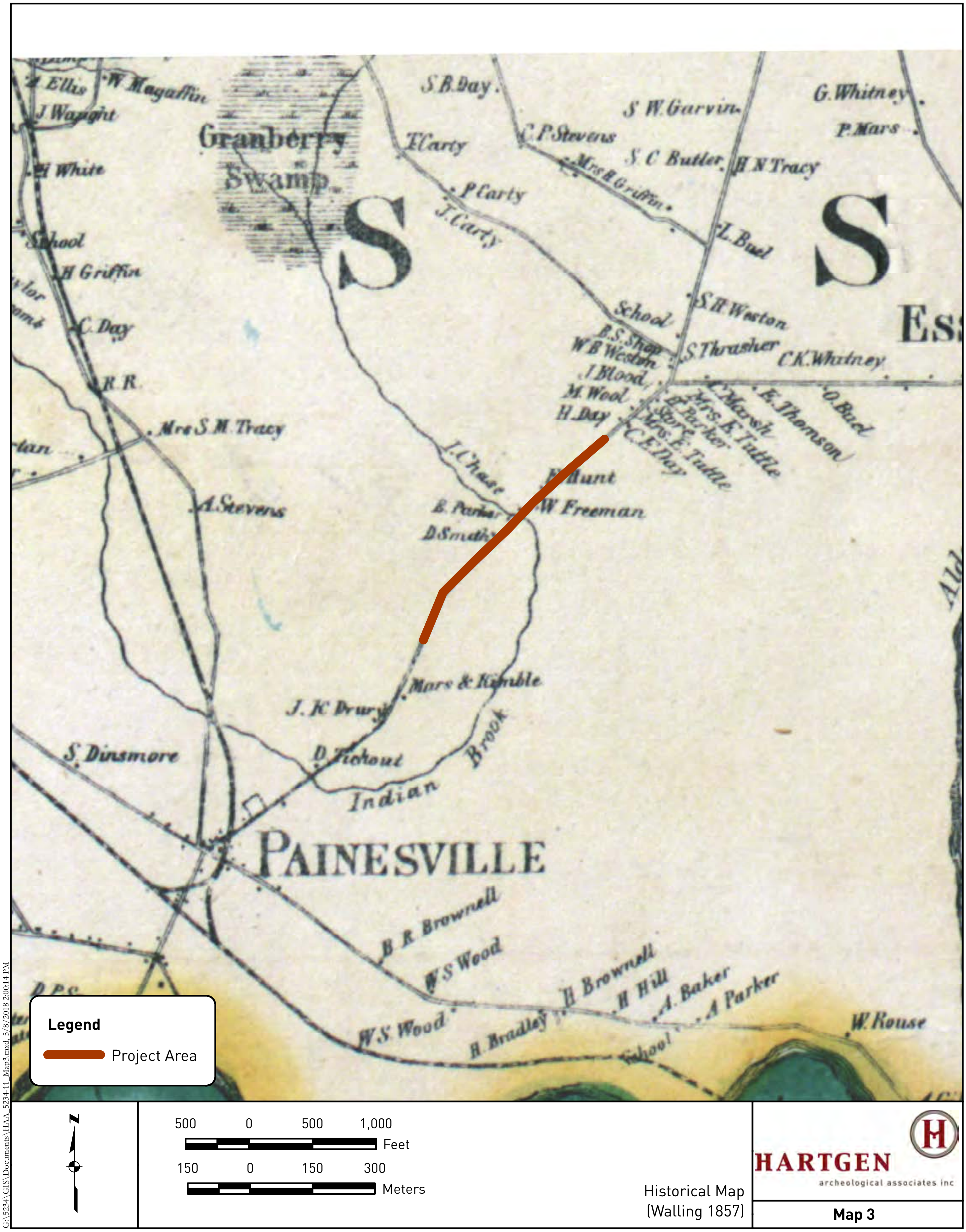
A review of historic maps of the project area was conducted to attain an overview of the changing historical and environmental landscape within the project area. This review includes the study of historic structures that may be or may no longer be extant, alterations to road and rail systems, and changes in stream and river courses. 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 3 & 4).

Four houses are depicted within the project area on the 1857 Walling map – including the residences of D. Smith, B. Parker, F. Hunt and W. Freeman. These likely represent the structures #3, #4, #5 and #9, respectively, as shown on Map 5. These four structures are also shown on the 1869 Beers map, which at that time were the homes D. Smith, L. Chase, C. Morse, and M. W. Freeman. The 1869 map depicts an additional four structures –including the residences of D.F. Tubb, M. Levely, J.M. Knox, as well as one unlabeled structure to the northeast of M.W. Freeman. The unlabeled structure may be a barn or other outbuilding associated with the M.W. Freeman (aka Lang Farm). The home of M. Levely is likely the structure #6 on Map 5. The structures designated as D.F. Tubb and J.M. Knox are no longer extant, as there are no other historic structures at these approximate locations on the landscape.

There are several historic houses along the project alignment, most all of which are set back far from the road, and are separated from the road by drainage gullies, slope, or, in one instance, by massive bedrock outcropping. Only one of the historic properties contains a level yard area that is situated close to the road. The home of D. Smith, as depicted on both the 1857 and 1869 maps, which dates to at least 1850, is considered to be historic archaeological sensitivity area. The house is located on the west side of Route 15, directly north of Turnberry Ridge, and is designated as Structure #3 on Map 5. This level terrace comprises the front yard of a historic residence, dating to at least 1850, and possibly earlier.

ARCHEOLOGICAL POTENTIAL AND RECOMMENDATIONS

Two site visits were made to the Vermont Route 15 project area to assess areas of archaeological sensitivity and areas of disturbance. A site visit was made in March 2018 when there was still light snow cover on the ground. At that time, standing structures were documented, and a general assessment was made concerning possible areas of archaeological sensitivity. A second site visit was made in June 2018 to definitively identify areas of sensitivity, slope and disturbance.



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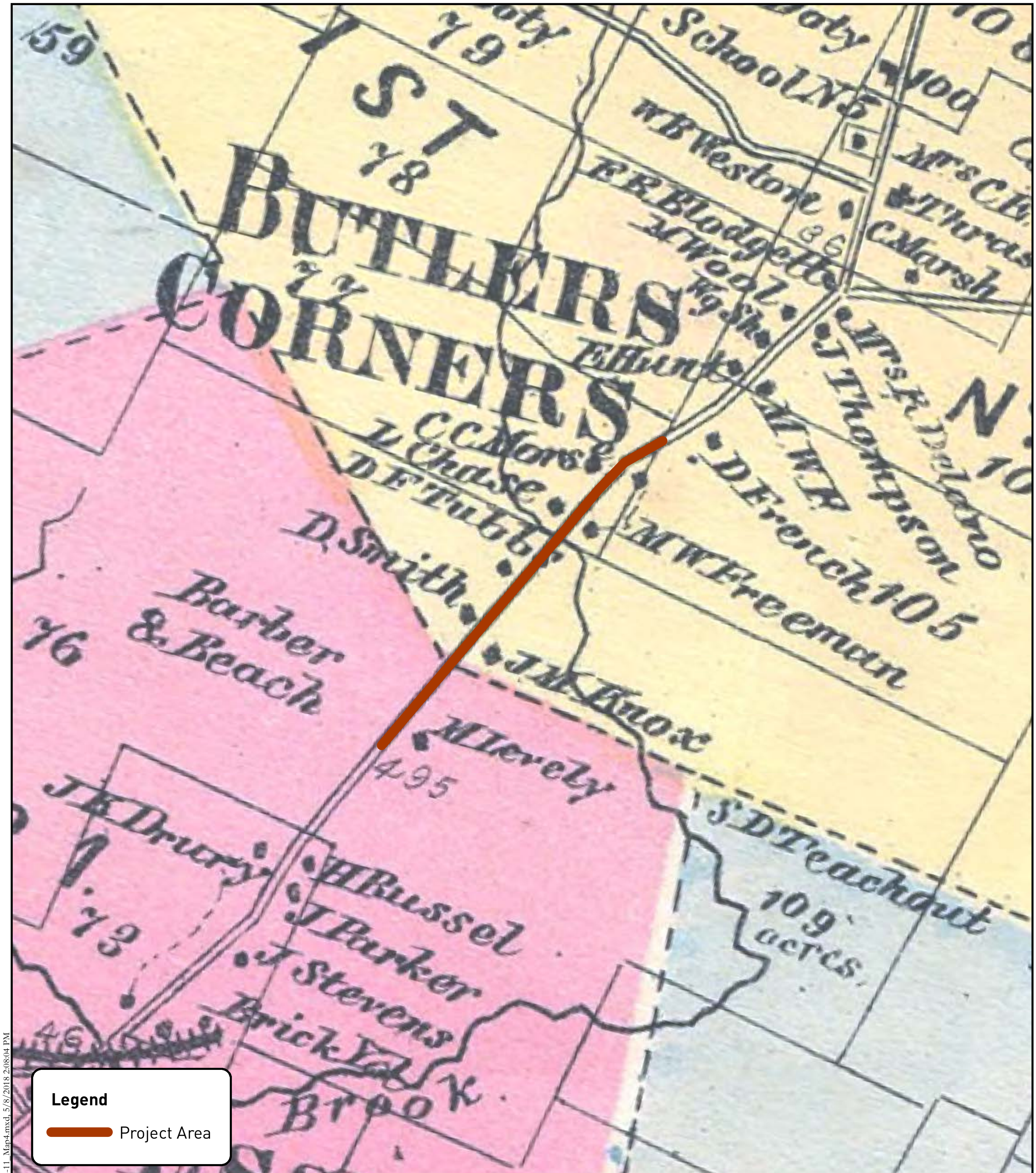

N

500 0 500 1,000 Feet

150 0 150 300 Meters

Historical Map
(Beers 1869)

HARTGEN archeological associates inc

Map 4

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Structures Map
(Hargen 2018; ESRI 2018)

Map 5

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There are two areas of archeological sensitivity identified within the project area. A level terrace located on the east side of Route 15, situated directly above a small unnamed stream, was determined to be sensitive for the presence of precontact cultural material. A historic archaeological sensitivity area is located on the west side of Route 15, directly north of Turnberry Ridge. This level terrace comprises the front yard of a historic residence, dating to at least 1850, and possibly earlier. If either of these areas will be impacted during the project improvements, then Phase IB archeological testing is recommended. This ARA report should be submitted to VTrans archaeology officer for review and concurrence.

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APPENDIX 1: VDHP Archaeological Resources Assessment Form

VERMONT DIVISION FOR HISTORIC PRESERVATION

Environmental Predictive Model for Locating Pre-contact Archaeological Sites

Project Name Vermont Route 15 Scoping **County** Chittenden **Town** Essex
DHP No. **Map No.** **Staff Init.** **Date** 5/2018

Additional Information

Environmental Variable	Proximity	Value	Assigned Score
A. RIVERS and STREAMS (EXISTING or RELICT):			
1) Distance to River or Permanent Stream (measured from top of bank)	0- 90 m 90- 180 m	12 6	12
2) Distance to Intermittent Stream	0- 90 m 90-180 m	8 4	
3) Confluence of River/River or River/Stream	0-90 m 90 –180 m	12 6	
4) Confluence of Intermittent Streams	0 – 90 m 90 – 180 m	8 4	
5) Falls or Rapids	0 – 90 m 90 – 180 m	8 4	
6) Head of Draw	0 – 90 m 90 – 180 m	8 4	
7) Major Floodplain/Alluvial Terrace		32	
8) Knoll or swamp island		32	
9) Stable Riverine Island		32	
B. LAKES and PONDS (EXISTING or RELICT):			
10) Distance to Pond or Lake	0- 90 m 90 -180 m	12 6	
11) Confluence of River or Stream	0-90 m 90 –180 m	12 6	
12) Lake Cove/Peninsula/Head of Bay		12	
C. WETLANDS:			
13) Distance to Wetland (wetland > one acre in size)	0- 90 m 90 -180 m	12 6	
14) Knoll or swamp island		32	
D. VALLEY EDGE and GLACIAL LAND FORMS:			
15) High elevated landform such as Knoll Top/Ridge Crest/ Promontory		12	
16) Valley edge features such as Kame/Outwash Terrace**		12	

17) Marine/Lake Delta Complex** 18) Champlain Sea or Glacial Lake Shore Line**		12 32	
E. OTHER ENVIRONMENTAL FACTORS: 19) Caves /Rockshelters 20) ☑ Natural Travel Corridor ☐ Sole or important access to another drainage ☐ Drainage divide 21) Existing or Relict Spring 22) Potential or Apparent Prehistoric Quarry for stone procurement 23)) Special Environmental or Natural Area, such as Milton acquifer, mountain top, etc. (these may be historic or prehistoric sacred or traditional site locations and prehistoric site types as well)	 0 – 90 m 90 – 180 m 0 – 180 m	32 12 8 4 32 32	12
F. OTHER HIGH SENSITIVITY FACTORS: 24) High Likelihood of Burials 25) High Recorded Site Density 26) High likelihood of containing significant site based on recorded or archival data or oral tradition		32 32 32	32
G. NEGATIVE FACTORS: 27) Excessive Slope (>15%) or Steep Erosional Slope (>20) 28) Previously disturbed land 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)		- 32 - 32	-32
**** refer to 1970 Surficial Geological Map of Vermont** **Total Score**: 24			
Other Comments :			
0- 31 = Archeologically Non- Sensitive **32+ = Archeologically Sensitive**			


48 Upper Main Street-The Thibault House.

HISTORIC RESOURCES IDENTIFICATION

VT ROUTE 15 SCOPING STUDY

ESSEX JUNCTION, TOWN OF ESSEX, CHITTENDEN COUNTY, VERMONT

HARTGEN
archeological associates inc
www.hartgen.com

Vermont Route 15 Scoping Study,

Essex Junction, Town of Essex,

Chittenden County, Vermont

Submitted to:

Stantec
55 Green Mountain Drive
South Burlington, VT 05403

Submitted by:

Walter R. Wheeler
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Rensselaer, New York 12144

July 2018

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INTRODUCTION

Hartgen Archeological Associates, Inc. (Hartgen) conducted an Historic Resources Identification assessment for the Vermont Route 15 Scoping Study (Project) located in the Town of Essex, Chittenden County, Vermont (Maps 1 and 2).

The Town of Essex will be involved in this scoping study, which is being funded by the Chittenden County Regional Planning Commission using Federal transportation funds and a local match. The cultural resources investigations required according to Section 106 of the National Historic Preservation Act. The project requires approval by the Vermont Agency of Transportation (VTrans), and the cultural resource report will be reviewed by the VTrans archaeology officer.

Background research was conducted at the Vermont Division for Historic Preservation (VDHP) ORC (Online Resource Center) site 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 5 April 2018, to observe and photograph existing conditions within the project area.

PROJECT LOCATION AND DESCRIPTION

The project includes improvements along a 3,636 foot section of roadway along VT 15, located between Exit 9 of I-289 and Athens Road in the Town of Essex, Chittenden County, Vermont (Map 1). The scoping project proposes to identify options for this missing link in the Town and the Village pedestrian network.

Description of the Area of Potential Effects (APE)

It is anticipated that a 10 foot-wide path will be constructed on either the north or south side of VT 15 along the entire length of the project.

HISTORICAL BACKGROUND

The Town of Essex was chartered in 1763, although settlement within the project APE doesn't appear to have made much headway until after 1800. A settlement to the southwest of the project APE (today's Essex Junction) was initially known as Painesville. With the establishment of a rail line from Northfield to Burlington in the 1840s, development of that community began in earnest. By 1854 six railroads had their junction ties in the area; in 1862 a station was built in the village of Painesville and its name was changed to Essex Junction. The Village of Essex Junction was incorporated in 1892 (Chapin & Dodge 2014).

Northeast of the project area is the hamlet of Butler's Corners, an unincorporated hamlet established in the 19th century which has been entirely subsumed by late-20th century construction. VT-15 connects Butler's Corners and Essex Junction, and was, in the 19th century, occupied by successful farmsteads (Structures 3 thru 6 and 9).

The outward expansion of Burlington in the post-World War II era, fueled by the affordability of private automobiles, resulted in the extension of suburban developments into the Town of Essex, and transformed the Village of Essex Junction into a bedroom community for Vermont's largest urban area during the third quarter of the 20th century. Several of the structures in the project APE (Structures 1, 2, 7, 8 and 10) date to this period. The houses built at that time occupy landscaped sites and sit back from the road.

The completion of VT-289 in 1993 has fueled a dramatic expansion of commercial construction (to the north of the highway, north of the project APE) and transformation of former agricultural land within the project APE into sites for recreation (Structures 5 and 9).

Historical Map Review

Two 19th-century maps, the 1857 Walling map and the 1869 Beers map, depict the project APE, and establish the presence of several structures within the survey are during those two periods, together with the names of early occupants of these buildings (Maps 3 & 4).

Four houses are depicted within the project APE on the 1857 Walling map (Map 3) – including the residences of D. Smith, B. Parker, F. Hunt and W. Freeman. These likely represent the structures #3, #4, #5 and #9, respectively, as shown on Map 5. These four structures are also shown on the 1869 Beers map (Map 4), which at that time were the homes D. Smith, I. Chase, C. Morse, and M. W. Freeman, respectively. The 1869 map depicts an additional four structures –including the residences of D. F. Tubb, M. Levely, J. M. Knox, as well as one unlabeled structure to the northeast of M. W. Freeman. The unlabeled structure may have been a barn or other outbuilding associated with the M. W. Freeman (aka Lang Farm). The home of M. Levely is probably the same as that identified as Structure 6 in this survey (Map 5). The structures designated as D. F. Tubb and J. M. Knox are no longer extant; there are no historic structures standing today at these locations.

STREETSCAPE VIEWS

Figure 1. Looking north-northeast from the south end of the project APE.

Figure 2. Looking southwest from the north end of the project APE.

ARCHITECTURAL DESCRIPTIONS

Structure 1. 200 Main Street

Structure 1 is a one-story wood frame ranch style house of rectangular plan with shallow gable roof, with one-story gabled garage attached. This single family dwelling was constructed c. 1975. It is not eligible for listing on the National Register due to insufficient age (Figure 3).

Figure 3. Structure 1, looking northwest.

Structure 2. 4 Upper Main Street

Structure 2 is a one-story wood frame ranch style house of rectangular plan with shallow gable roof, with one-story gabled garage attached. This single family dwelling was constructed c. 1975. It is not eligible for listing on the National Register due to insufficient age (Figure 4).

Figure 4. Structure 2, looking west.

Structure 3. 1 Turnberry Ridge (D. Smith house)

The D. Smith house appears on both the 1857 Walling and 1869 Beers maps. It was recorded as occupied by "D. Smith" on both. The house appears to have originally been built c. 1850.

The D. Smith house is a one-and-one-half story wood frame cape with slightly off-center door. It has a side-gable roof, sits on a stone foundation, and is sheathed with clapboards. Formerly it had a central chimney, the location of which is indicated by a patch in the asphalt shingle roof. The front door is flanked by two double-hung sash on either side, each with 6-over-6 divided lights. A one-story wood frame wing extends from the south end of the house; its roof slope is similar to that of the main portion of the dwelling. The wing may have been constructed in the 19th century; if so it was extensively altered in the third quarter of the 20th century by alterations to its fenestration pattern a surface treatments, which now include brick veneer. The house appears to be unoccupied at present (Figures 5 and 6).

What appears to have been originally constructed as a barn on the property has been renovated for use as a dwelling. It is one-and-one-half stories in height, is wood framed, and has vertical board siding. Paired casement windows have replaced the original door and window arrangement so that today the building bears little resemblance to a barn. A one-story framed wing with shallow gable roof extends to the north from the west end of this building; it contains three open vehicle garage bays. A slightly taller portion at the north end contains an additional vehicular bay (Figures 5 and 7).

The D. Smith house unfortunately lacks enough integrity at present to be eligible for listing on the National Register.

Figure 5. Structure 3, looking northwest.

Figure 6. Structure 3, looking north.

Figure 7. Structure 3, looking northwest at the converted barn complex.

Structure 4. 38 Upper Main Street (Lang House)—VHSSS 0405-123

The Lang house (Structure 4) was identified as occupied by "I. Chase" on the 1857 Walling map; it may have been constructed c. 1840 (Figures 8 and 9). A two-story brick masonry house with side-gable roof, it is three bays wide and two bays deep and measures approximately 20' x 16' in size. Small corbeled chimneys are located at the peak of each gable end wall. The principal entrance is located in the central bay, and is sheltered by a small gable roof supported on square posts, dating to the late 20th century. The roof has a Greek Revival cornice with returns on the gable end walls. Semi-circular windows, now covered, are located in the gable ends, and formerly lit the attic. Windows througouth are replacement undivided double-hung sash. A substantial one-and-one-half story wing extends from the back (west side) of the main block; it is wood framed and has a broad gable roof which is at right angles with those of the masonry portion of the building. This wing, which incorporates a two-bay garage is of later date, but achieved this form by the time it was included in a VHSSS survey in 1984 (VHSSS 0405-123). The wing may incorporate portions of an earlier structure (it was said, in 1984, that it "was once a milkhouse", and it was extensively renovated to its current form c. 1970. These alterations significantly impact the appearance of this resource (Czaikowski 1984).

The house is accompanied by a one-story multiple bay pole barn of rectangular plan with a side-gable roof. It was not possible to determine if this structure is an extensively remodeled version of that which appears in the 1984 survey photographs, or if it is an entirely new structure.

Although listed on the Vermont State Register, alterations to the wing, windows, porch, and outbuildings make this structure ineligible for listing on the National Register.

Figure 8. Structure 4, looking west.

Figure 9. Structure 4, looking west. A closer view of the house.

Structure 5. 48 Upper Main Street (Thibault House, now Essex Family Fun and Entertainment Center)—VHSSS 0405-7

The Thibault house—the name derived from the owner when the building was surveyed in 1976—was attributed a c. 1885 construction date by that survey. The house appears to be older than that, and may be, or may incorporate portions of, the "F. Hunt" house which is documented as being on this site in 1857 (Walling 1857). Elements which suggest a construction date in the middle decades of the 19th century rather than late in that period include the Gothic Revival labels over the windows and doors, and the bracketed cornice.

The house is rectangular in plan, is three bays in width and two in depth (Figures 10 and 11). Its flattened mansard roof gives this brick masonry house the appearance of being one-and-one-half stories in height. A large corbelled chimney rises out of the central portion of the flat upper section of the shingled roof. The lower portion of the roof is punctuated by two gabled dormers on each elevation; these lend the roofline much interest and visually lighten the roof. A round window in the second floor center of the west elevation creates interest on that façade (Figure 11).

A one-story porch whose flattened hip roof is supported on six columns on paneled plinths, extends across the east elevation (Figure 10). This porch was constructed after 1976, when the house was surveyed

(Fonda 1976b). Similarly, the gable-roofed porch on the south elevation was added after 1976, and the original slate roof, present during the earlier survey, has since been removed.

The principal entrance is in the form of a single door with rectangular transom, and is flanked by paired 2-over-2 double-hung sash. The principal entrance door and secondary entry on the south elevation have been replaced with steel doors, probably within the past 20 years, and the original transoms are now lost.

Since the 1976 survey this property has been transformed from agricultural use to recreational use, a change which has included the removal of the original outbuildings (an aluminum silo now stands by itself to the east of the house (Figure 2). This house has now lost its agricultural setting, and is within a commercial context that includes a large parking lot and mini-golf course. Even with the above-noted changes the house retains sufficient integrity to be considered eligible for listing on the National Register; however that eligibility does not extend to its associated landscape.

Figure 10. Structure 5, looking west.

Figure 11. Structure 5, looking north. The west elevation with circular window is visible in this view.

Structure 6. 203 Main Street (Fairview)

Structure 6, 203 Main Street, was constructed c. 1855, and was noted on the Walling map of 1857 as owned by "Mars & Kimball" (Map 3). It is a large wood-framed dwelling of rectangular plan, one-and-one-half stories in height, and with two large steeply-pitched gabled dormers on each of the slopes of its large side-gable roof. A substantial addition, two stories in height and with a shallow gable roof which intersects the east end of the earlier part of the house, appears to date to the third quarter of the 20th century, and is incongruous in detail and scale. Similarly, the large shed-roofed enclosed porch which extends across much of the south elevation, and the second floor deck attached to the north elevation are later additions which detract from the ability to appreciate the earlier portions of the structure (Figures 12 and 13).

Windows throughout are single or paired undivided light double hung sash, some of which appear to be recent replacements, possibly vinyl. The house is sheathed with clapboards and has as asphalt shingle roof.

203 Main Street does not currently retain enough integrity to be considered eligible for listing on the National Register; the abovementioned alterations have significantly impacted the 19th century appearance of the building and have covered substantial portions of the original south and east facades.

Figure 12. Structure 6, looking east.

Figure 13. Structure 6, looking southeast.

Structure 7. 25 Upper Main Street

Structure 7, 25 Upper Main Street, is a two-story duplex wood-frame dwelling with jettied second floor. The house is sheathed with vinyl siding and its shallow side-gable roof is covered with asphalt shingles. The two principal entrances are sheltered by a pentice roof extending from the face of the second floor elevation; it is supported on three square posts. The facades is roughly symmetrical; at the first floor level the two doors are flanked in the outer bays by tripartite windows with central fixed sash; at the second floor level three double-hung windows with undivided sash are eqispaced along the length of the façade. A two-bay garage with side-gable roof is attached to the south side of the dwelling (Figure 14).

This duplex, constructed c. 1975, is not eligible for listing on the National Register due to insufficient age.

Figure 14. Structure 7, looking east.

Structure 8. 29 Upper Main Street (State Farm Insurance)

A one-story wood-frame ranch type single family dwelling, now converted for professional office space. This side-gable roofed building sits on a concrete block foundation and is covered with vinyl siding (Figure 15). It was constructed c. 1975 and is not eligible for listing on the National Register due to insufficient age.

Figure 15. Structure 8, looking east.

Structure 9. 43 Upper Main Street (Lang Farm)-- VHSSS 0405-6

The VHSSS survey form attributes a construction date of c. 1835 to this house, but that appears to be too early (Fonda 1976a). A c. 1840-55 construction date is more appropriate for this resource.

The Lang house is a two-story brick side-passage house with gable entry, three bays in width and measuring 26' x 34' in plan (Figures 16 and 17). The house is three bays in width on the street elevation, and has a centrally-located entrance. A semi-circular window lights the attic gable end wall, and a chimney with corbelled top is located at the peak of the roof, set back a short distance from the plane of the front elevation. A one-and-one-half story wood-frame shingled and brick-faced wing is offset from the main block of the house and is attached to its southeast corner. This wing was constructed between 1971 and

1976; it replaces the original rear ell of the house, which burned in the earlier year. A one-story covered porch with turned columns, dating to c. 1910, fills the inset corner formed by the house and wing.

Associated with the house is a large gable-roofed frame barn with gable roof, built in 1879 (Figure 18). Other structures, noted in the survey of the site undertaken in 1976, do not appear to survive. A second large barn has been constructed, c. 2000; it is rectangular in plan, has a gable roof, and a prominent cupola. Additional service structures have been constructed on the property within the past 20 years. These structures support the present use of the property as "The Barns at Lang Farm," which houses three shops, a golf course, and a nursery. The house is rented for overnight stays and the property is marketed as a wedding venue.

The Langs purchased the property in 1919 and operated a dairy farm here until 1986. A "garden shop" was opened in 1990. Conversion of the property from dairy farming to hospitality services has involved the renovation and alteration of all of the structures on the property. An antique shop was opened on the property in 2009; the "garden barn" was completed in 2015. The facilities are operated by the fourth generation of the Lang family to own the property (www.langbarn.com).

The substantial alterations undertaken in the early 1970s, together with the loss of historic context caused by the removal of most of the original agricultural outbuildings and landscape features and the significant alterations undertaken to the remaining outbuildings, make this farmstead, listed on the Vermont State Register, ineligible for listing on the National Register.

Figure 16. Structure 9, looking east-southeast.

Figure 17. Structure 9, looking northwest.

Figure 18. Barns associated with Structure 9, looking east.

Structure 10. 55 Upper Main Street

55 Upper Main Street is a one-story wood-frame ranch style dwelling of L-shaped plan with intersecting gable roofs of shallow slope (Figure 19). Double-hung sash are distributed in irregular spacing on each of its elevations. This house, constructed c. 1960, is not considered eligible for listing on the National Register due to lack of integrity. It has vinyl replacement windows and is covered with vinyl siding.

Figure 19. Structure 10, looking east-southeast.

NATIONAL REGISTER ELIGIBILITY SUMMARY

Of the 10 structures surveyed, three (Structures 4, 5, and 9) have previously been surveyed and are listed on the Vermont State Register (Table 1). All have undergone alterations and changes to their context since having been surveyed, so that only one structure (Structure 5, the Thibault house) is now considered to be eligible for listing on the National Register. Of the remaining structures, three (Structures 3, 6 and 10) which are greater than 50 years in age are not considered eligible for listing on the National Register due to loss of integrity. Four additional structures (Structures 1, 2, 7 and 8) are less than 50 years in age.

Table 1. Summary of Resources Surveyed for the Vermont Route 15 Scoping Study

Building Number (see Map 2 for locations and photo angles)	Resource Address	Construction Date	Historic Use	Previous Survey and/or NR status	Recommended National Register Status
1	200 Main Street	c. 1975	Single family home		Not NRE
2	4 Upper Main Street	c. 1975	Single family home		Not NRE
3	1 Turnberry Ridge	c. 1850	Single family home		Not NRE
4	38 Upper Main Street	c. 1840	Single family home, "Lang House"	VSSS #0405-123	Not NRE
5	48 Upper Main Street	c. 1855	Single family home, "Thibault House"	VSSS #0405-7	NRE
6	203 Main Street	c. 1855	Single family home, "Fairview"		Not NRE
7	25 Upper Main Street	c. 1975	Duplex dwelling		Not NRE
8	29 Upper Main Street	c. 1975	Single family home		Not NRE
9	43 Upper Main Street	c. 1840-55	Single family home, "Lang Farm"	VSSS #0405-6	Not NRE
10	55 Upper Main Street	c. 1960	Single family home		Not NRE

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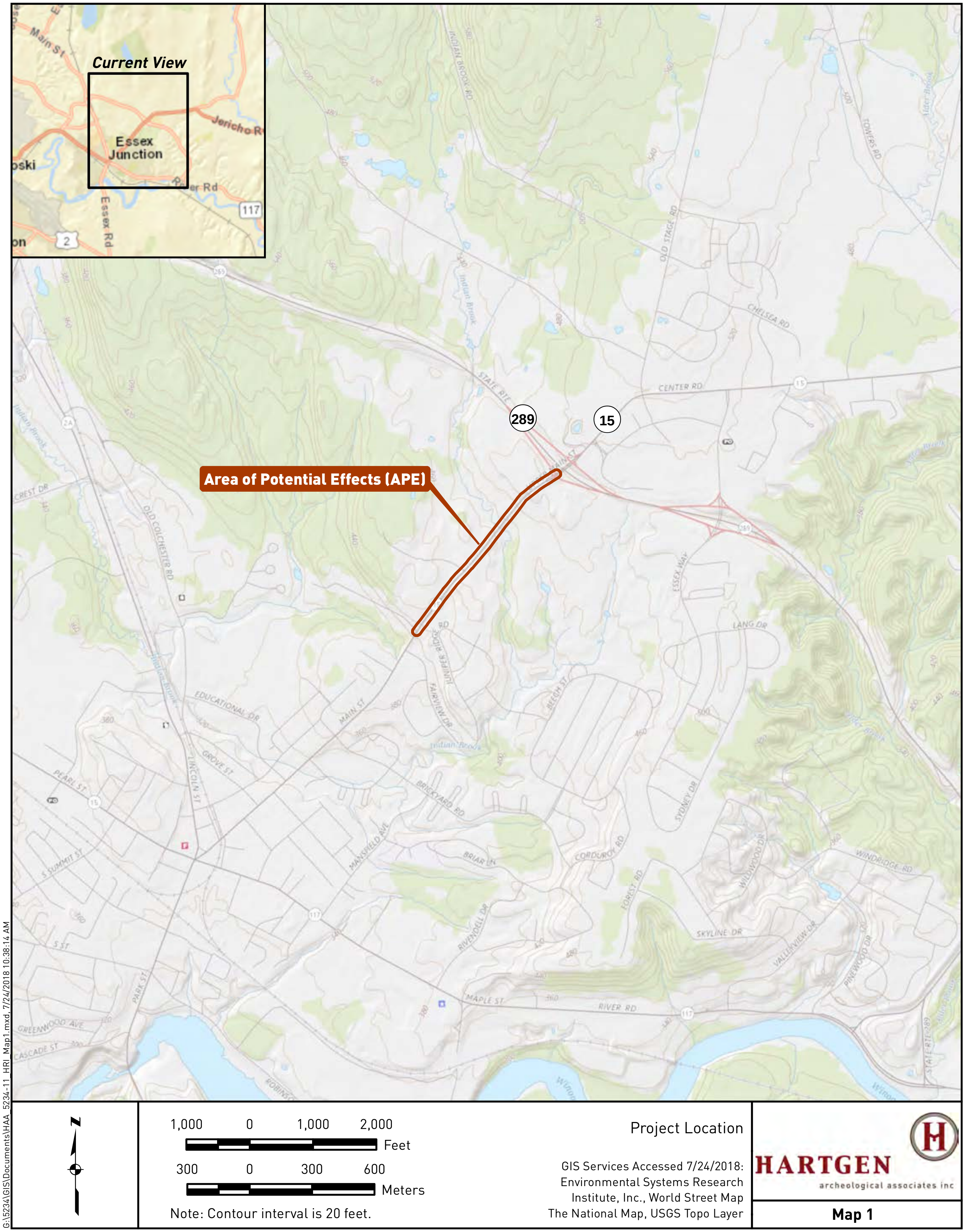
Maps



Project Location

GIS Services Accessed 7/24/2018: Environmental Systems Research Institute, Inc., World Street Map The National Map, USGS Topo Layer

Map 1

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Project Map

Environmental Systems Research Institute, Inc.,
World Imagery Accessed 7/24/2018

HARTGEN archeological associates inc

Map 2

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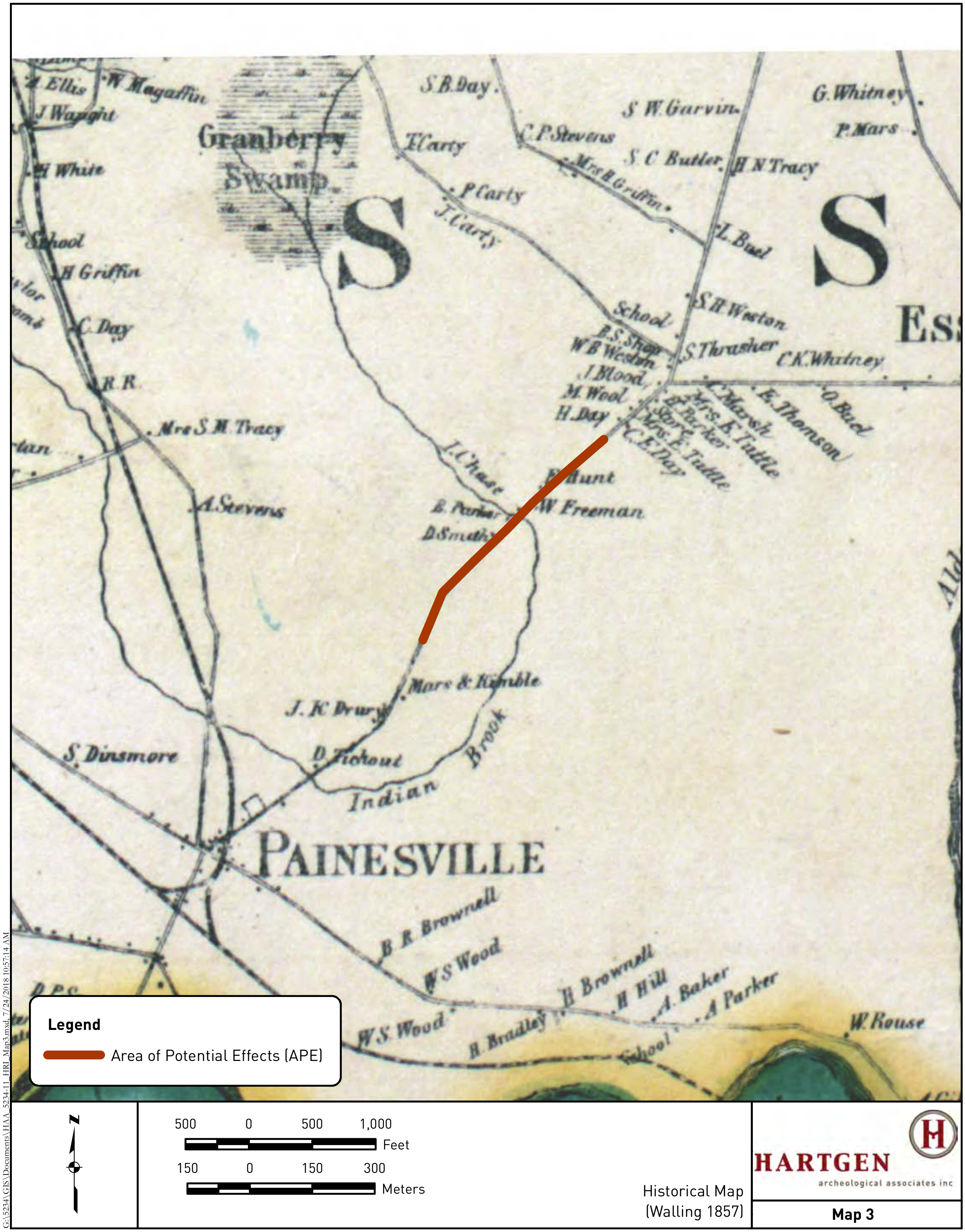

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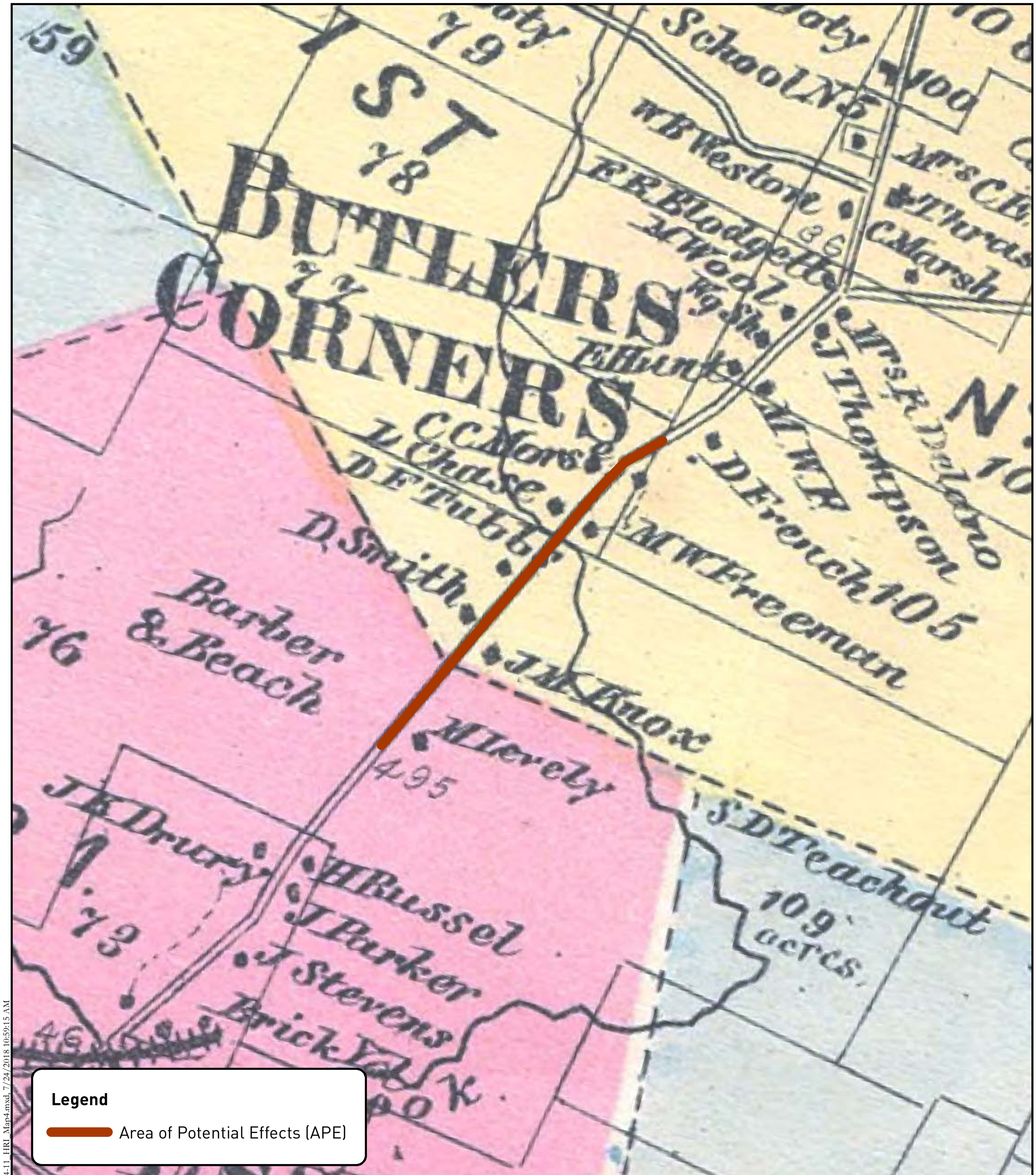

500 0 500 1,000 Feet
150 0 150 300 Meters

Historical Map
(Beers 1869)

HARTGEN archeological associates inc

Map 4

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Qualifications

WALTER R. WHEELER
Senior Architectural Historian

EDUCATION: Rensselaer Polytechnic Institute
Bachelor of Architecture May 1987
Bachelor of Science, Building Science, May 1986

QUALIFICATIONS: 36 CFR Part 61 Qualified Architectural Historian

SPECIAL TRAINING: Architectural History Consultant Training
VDHP, Burlington, VT, April 2018.

Vermont Community Development Program Qualified Professionals Training
VDHP, Montpelier, VT, September 2016.

Evaluating Significance of Historic and Archeological Resources Workshop
Vermont College, Montpelier, VT, May 2001
Historic Preservation Consultant training and Section 106 training

PROFESSIONAL EXPERIENCE:

June 1999 – Present — Senior Architectural Historian
Hartgen Archeological Associates, Inc.
Oversee and prepare architectural resource surveys, including pre-assessments, literature reviews and historical documentation; field reconnaissance; report and proposal preparation. Responsible for preparing documents to be reviewed by VAOT, VDHP, and USACOE, for SEQR, Section 106 and NEPA. Preparation of reports generated under ACT 250 and the FCCs Nationwide Programmatic Agreement, including preparation of forms 620 and 621.

November 1992 – June 1999 — Architectural History Consultant
Identified, analyzed, and assessed historic structures; researched and wrote for exhibitions and publications including Historic Structures Reports; executed drawings in connection with restoration projects. Clients included Rensselaer County Historical Society; Robert Pierpont, both in Troy, NY; towns of Durham and Oak Hill, NY; Albany Institute of History and Art; Metropolitan Museum of Art; the New York Public Library, and John G. Waite Associates, Albany, NY.

May 1984—November 1992 — Junior Architect
Worked for the Office of the New York State Architect, Wagoner & Reynolds, and in the office of Robert N. Pierpont as a Junior Architect. Responsible for restoration projects including the Governor's Mansion, the New York State Capitol, and Wilborn Temple (all in Albany, NY), and the Knickerbocker Mansion, in Schaghticoke, NY.

PRINCIPAL PUBLICATIONS:

In preparation — *Building Albany: Studies in the Vernacular Architecture of the Upper Hudson and Lower Mohawk Valleys*. Albany, NY: SUNY Press.

2010 — "Once adorned with quaint Dutch tiles...: A Preliminary Analysis of Delft Tiles Found in Archaeological Contexts and Historical Collections in the Upper Hudson Valley," in Penelope Ballard Drooker and John P. Hart, eds., *Soldiers, Cities and Landscapes: Papers in Honor of Charles L. Fisher*. New York State Museum Bulletin 513, 107-150. Albany, NY: New York State Museum.

2009 — *Architects in Albany*. Diana S. Waite, editor. Albany, NY: Mt Ida Press/ Historic Albany Foundation. Contributed two biographical essays.

2005 — *The Encyclopedia of New York State*, Peter Eisenstadt, editor. Syracuse, NY: Syracuse University Press, 2005. Author of entries "Philip Hooker," "Archimedes Russell," "Upright and Wing Houses," "Cobblestone Architecture," "Empire State Plaza," and "Architects and Architecture of Syracuse and Central New York."

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APPENDIX D

Natural Resources

Memo

To:	Greg Edwards South Burlington, VT	From:	Polly Harris South Burlington, VT
File:	CCRPC VT 15 Athens Drive to VT 289 Scoping Study 195311507	Date:	November 9, 2017

Reference: CCRPC VT 15 Athens Drive to VT 289 Scoping Project Natural Resources Review

Stantec Consulting Services Inc. (Stantec) conducted a preliminary review of the natural resources present within CCRPC VT 15 Athens Drive to VT 289 Scoping Study Project area in the Village and Town of Essex, Vermont. Specifically, as part of this investigation, Stantec identified and characterized wetlands, streams, rare, threatened or endangered (RTE) species, wildlife habitat, agricultural land, 4(f) and 6(f) public lands, and hazardous waste sites. Following is a summary of the findings.

General Site Description

The VT 15 corridor project area extends along VT 15 from Athens Drive northeast approximately 0.70 mile to the VT 289 interchange. VT 15 is a busy travel corridor, and the scoping study will identify a preferred link for a shared use path adjacent to the existing road. An existing shared use path located along the east side of VT 15 ends at Athens Drive. The project corridor includes residential developments near the southern project limits, with scattered homes and businesses along the remainder of the route.

Natural resources were reviewed within 50 feet of the existing road.

Natural Resource Review Summary – Review of Existing Materials

Stantec used the Vermont Agency of Natural Resources (ANR) Natural Resources Atlas mapping program[1] to evaluate known natural resources within the Project Area.

Wetlands and Streams. According to the ANR program, there is a Vermont Significant Wetland Inventory (VSWI) wetland mapped along Indian Brook within the project area (see attached ANR Wetlands/Streams figure). This is a Class II wetland with a regulated 50-foot buffer.

Indian Brook flows from north to south under VT 15 near the northern limits of the project area. This is a perennial stream with a mapped FEMA 100-year floodplain. It also has an ANR 50-foot river corridor (see attached ANR Rivers Floodplains figure). Indian Brook is stormwater-impaired.

RTE Review. No rare plant species or rare habitat types are mapped by ANR within the project area (see attached RTE/Conserved/Haz figure).

Agricultural Soils. According to the *Natural Resources Atlas,* the soils within the project area include Statewide agricultural soils (see attached ANR Prime Ag Map). The Farmland Policy Protection Act

[1] http://anrmaps.vermont.gov/websites/anra/

does not apply to projects within existing road ROWs. If any work is proposed outside of existing ROW, authorization from the NRCS via form AD-1006, the Farmland Conversion Impact Rating form, may be required.

Public Lands. The Project Areas do not include public recreation lands (a Section 4(f) resource) or public lands developed with Land and Water Conservation Funds (a Section 6(f) resource)(see attached RTE/Conserved/Haz figure).

Hazardous Waste Sites. The ANR mapping program was reviewed for information on Hazardous Waste Sites in the project vicinity. No active Hazardous Waste Sites or Hazardous Waste Generators are located within the project area (see attached RTE/Conserved/Haz figure).

Natural Resource Review Summary – Site Investigation

Stantec conducted a site visit on October 18, 2017 to evaluate natural resources present within the project area.

Wetlands/Streams. The wetland associated with Indian Brook was verified during the site investigation. This wetland is a palustrine forested, scrub/shrub, and emergent wetland located on both sides of VT 15. This wetland is a mapped Vermont Class II wetland with a regulated 50-foot buffer.

Additional wetland areas were identified during the site visit. One is a wetland system located approximately 300 feet south of Turnberry Ridge on the east and west sides of VT 15, associated with a drainage culvert below the road. This palustrine emergent and scrub/shrub wetland is likely a Vermont Class II wetland with a regulated 50-foot buffer.

Two small wetland areas were identified at the intersection of Turnberry Ridge and VT 15. A palustrine emergent wetland is located at the southwest corner of this intersection, while a palustrine forested wetland is located on the east side of VT 15 near this intersection. Both wetlands are small and likely merit Vermont Class III ratings.

RTE Species. Stantec identified no RTE species during the October 18, 2017 site visit. Much of the corridor been disturbed to some degree by mowing, clearing, or adjacent development. As a result, it is possible but unlikely that any RTE plant or animal species occur within the small undeveloped portions of the project area.

Wildlife Habitat. The Project Areas provide habitat for various wildlife species common to Vermont's rural areas such as black-capped chickadee (*Poecile atricapillus*), blue jay (*Cyanocitta cristata*), raccoon (*Procyon lotor*), skunk (*Mephitis mephitis*), and gray squirrel (*Sciurus carolinensis*), as well as other species that may travel through the area. The proximity to the interstate and a state road limits the value of the wildlife habitat.

Federal and State Wetland/Stream Regulations. The US Army Corps of Engineers (Corps) regulates wetlands and streams under the provisions of Section 404 of the Clean Water Act. The Corps has issued a Programmatic General Permit for the State of Vermont. Typically, wetland and stream impacts of less than one acre may be covered by a Programmatic General Permit (GP), with

Reference: Natural Resources Review

impacts of less than 3,000 s.f. often eligible for approval via a one-page Self-Verification Form. Note that the current GP will expire in December 2017, and the new GP may have different conditions and requirements.

The Vermont ANR regulates Class I and II wetlands and their buffers. The wetland area associated with Indian Brook is a Class II wetland. Therefore, any impacts to this wetland or its 50-foot buffer would likely require authorization under the Vermont Wetland Permit or Vermont General Permit. The wetland system associated with the culvert approximately 300 feet south of Turnberry Ridge is likely a Class II wetland, while the small wetlands located at the intersection of VT 15 and Turnberry Ridge are likely Class III wetlands. The classification of these other wetlands identified within the project corridor must be verified by ANR.

ANR also regulates activities in streams. A Stream Alteration Permit is required for movement, excavation, or fills involving 10 or more cubic yards in a perennial stream. There are General and Individual Permits depending upon the activity.

Stormwater designs must address the impaired status of Indian Brook.

STANTEC CONSULTING SERVICES, INC.

Polly Harris
Environmental Project Manager
Phone: (802) 497-6407
Fax: (802) 864-0165
Polly.Harris@stantec.com

Attachments: Photos, ANR Mapping

Reference: Natural Resources Review

CCRPC VT 15 Athens Drive to VT 289 Scoping Study Area Photographs

Photo 1. View looking southwest at Indian Brook wetland complex in distance, adjacent to VT 15. 10/18/17

Photo 2. View looking southwest at Indian Brook wetland (to left) adjacent to VT 15. 10/18/17

Reference: Natural Resources Review

Photo 3. View to southwest of typical roadside habitat along corridor. 10/18/17

Photo 4. View to northeast of small palustrine emergent wetland adjacent to project area. 10/18/17

Reference: Natural Resources Review

Photo 5. View to northeast showing typical upland meadow habitat adjacent to VT 15. 10/18/17

Photo 6. View to northeast showing Indian Brook wetland (to left) adjacent to VT 15. 10/18/17

CCRPC VT 15 East - ANR Wetlands/Streams

Vermont Agency of Natural Resources

vermont.gov

1: 9,739

September 27, 2017

LEGEND

- Vernal Pools Confirmed – AE/V
- Vernal Pools Unconfirmed – AI
- 303(d) List of Impaired Stream
- Wetland - VSWI
  - Class 1 Wetland
  - Class 2 Wetland
  - Buffer
- Wetlands Advisory Layer
- Stream
- Town Boundary

495.0 | 0 | 248.00 | 495.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

1" = 812 Ft. 1cm = 97 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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. ANR 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.

NOTES

Map created using ANR's Natural Resources Atlas

CCRPC VT 15 East - ANR Rivers Floodplains

Vermont Agency of Natural Resources

vermont.gov

LEGEND

- DFIRM Floodways
- Flood Hazard Areas (Only FEN
  - AE (1-percent annual chance flood
  - A (1-percent annual chance floodpl
  - AO (1-percent annual chance zone feet)
  - 0.2-percent annual chance flood ha
- River Corridors (Jan 2, 2015)
- Small Streams - 50ft Setback
- Stream
- Town Boundary

1: 9,739

September 27, 2017

495.0 | 0 | 248.00 | 495.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

1" = 812 Ft. 1cm = 97 Meters

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NOTES

Map created using ANR's Natural Resources Atlas

CCRPC VT 15 East - ANR RTE/Conserved/Haz

Vermont Agency of Natural Resources

vermont.gov

1: 12,961

October 31, 2017

LEGEND

- Hazardous Site
- Hazardous Waste Generators
- Managed Lands
  - State Forest, Fee ownership
  - State Park, Fee ownership
  - Non-fee interest
- Conserved Lands
  - Housing and Conservation Board
  - Local Government
  - Private Organization
  - US Dept. of Defense
  - US Fish and Wildlife Service
  - US National Park Service
  - UVM and State Colleges
  - VT Dept. Buildings and General Se
  - VT Division for Historical Preservati
- Rare Threatened Endangered
  - Threatened or Endangered
  - Rare
- Stream
- Town Boundary

658.0 | 0 | 329.00 | 658.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

1" = 1080 Ft. 1cm = 130 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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NOTES

Map created using ANR's Natural Resources Atlas

CCRPC VT 15 East - ANR Prime Ag

Vermont Agency of Natural Resources

vermont.gov

LEGEND

Soils - Prime Agricultural

- Local
- Local (b)
- Not rated
- Prime
- Prime (b)
- Prime (f)
- Statewide
- Statewide (a)
- Statewide (b)
- Statewide (c)

Stream

Town Boundary

495.0 | 0 | 248.00 | 495.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

1" = 812 Ft. 1cm = 97 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

NOTES

Map created using ANR's Natural Resources Atlas

Memorandum

TO: Evan Teich, Municipal Manager
Essex Selectboard
Essex Junction Trustees
FROM: Dennis Lutz, P.E, Public Works Director
Darren Schibler, Town Planner
Rick Hamlin, P.E., Village Engineer
Robin Pierce, Village Planner
Ricky Jones, Village Public Works Superintendent
DATE: 17 July 2018
SUBJECT: Preferred Alternative for the Route 15 Sidewalk/Path Study for the Section from Susie Wilson Road to West Street Extension

ISSUE: The issue is whether or not the Selectboard and Trustees will approve the staff recommendation for Alternative 3 (with added comments) as outlined in the Scoping Study prepared by Stantec Engineering.

DISCUSSION: A revised Scoping Study has been prepared to address the completion of the remaining bicycle link between Susie Wilson Road and the Five Corners. The remaining link falls between Susie Wilson Road and West Street Extension. This project was identified as a component element of the Circumferential Highway Alternative Project Process from the off-ramp of the interstate in Winooski to West Street extension. The original scoping project was split into three separate components with the project under consideration being the third leg of the original Circumferential Highway VT15 Bicycle/Path Scoping Project.

The current Scoping Study was performed using funding provided by both communities, VTRANS and the CCRPC and looked specifically at the location from Susie Wilson Road to West Street Extension. Stantec Engineering recently completed the referenced Scoping Study, reviews have been made by staff on the project and public hearings have been held for input on the proposed link. In order to apply for funding to prepare final designs, obtain right-of-way and construct the project, the local municipal governing board must select a preferred alternative. Since the project limits fall within both the Town and the Village, both Boards need to take action and agree on the selected alternative.

Village and Town Engineering and Planning Staffs have worked cooperatively to produce a unanimous series of recommendations relative to the project. Staff will be available to provide more information on the rationale leading to the recommendation to the two Boards when this memorandum is presented. However, it is important to provide information on one aspect of the recommendations in this memorandum.

Another Circumferential Highway Alternative project is underway concurrent with this Scoping Study and the two projects impact each other. VTRANS has hired WSP USA to provide

RECOMMENDATION: It is recommended that the Board of Selectmen and the Village Trustees approve Alternative 3, with Option A, as the preferred project alternative including the recommendations by Staff as outlined in this document.

VT Route 15 Bicycle/Pedestrian Improvements Study

Susie Wilson Road to West Street Extension
Essex Junction, Vermont

Scoping Report Update

Prepared by:

Stantec

Prepared for:

Chittenden County RPC

Village of Essex Junction

Vermont Agency of Transportation

July 31, 2018

VT ROUTE 15 BICYCLE/PEDESTRIAN IMPROVEMENTS STUDY, SUSIE WILSON ROAD TO WEST STREET EXTENSION

110 West Canal Street, Suite 202
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www.ccrpcvt.org

The preparation of this report has been financed in part through grant[s] from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

Prepared by:

Stantec Consulting Services Inc.
55 Green Mountain Drive
So. Burlington, VT 05403
(802) 864-0223

Under the direction of:

Chittenden County Regional Planning Commission

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Stantec

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1.0 INTRODUCTION

The Chittenden County Regional Planning Commission (CCRPC), working with the Village of Essex Junction the Town of Essex, and Stantec Consulting Services Inc. updated a scoping study completed in 2013 for bicycle and pedestrian improvements to VT Route 15 from Exit 15 to West Street Extension. This update looks more closely at the section between Susie Wilson Road and West Street Extension. The scoping process involves quantifying existing bicycle and pedestrian, roadway and traffic conditions and then defining a purpose and need for the project. Alternative improvement strategies are then identified and evaluated leading to the selection of a preferred alternative.

The scoping process includes working closely with a project advisory committee made up of community leaders, Village/Town staff, CCRPC staff, and others. Advisory committee members for this project are listed below.

Essex Junction Village Staff	Robin Pierce, Rick Jones
Essex Town Staff	Dennis Lutz, Darren Schibler
CCRPC	Christine Forde, Marshall Distel

The advisory committee is charged with recommending a preferred improvement alternative to the Village Trustees and Town Selectboard.

2.0 PROJECT BACKGROUND

The VT Route 15 corridor from Winooski to Essex Junction is recognized as a primary transportation corridor that lacks sufficient bicycle facilities. Much progress has been made in recent years to address this. In Essex Junction, from West Street Extension to the Champlain Valley Exposition (CVE), bicycle lanes have been added to VT Route 15 by converting the four-lane section to a three-lane section with a center left turn lane. East of CVE, bike lanes have been added to VT Route 15 to the five corners. For the VT Route 15 section, from Lime Kiln Road to Susie Wilson Road, a shared use path is currently being designed and needed acquisitions and easements are being pursued.

This study focuses on VT Route 15 section from Susie Wilson Road to West Street Extension. This section was included a previous scoping study which resulted in recommending reducing the 4 lanes to 2 lanes and 2 bicycle lanes, with the median retained.

This scoping study builds upon the previous study to further evaluate alternatives for addressing the bicycle and pedestrian needs along this portion of the corridor.

Figure 1: Project Study Area

2.1 EXISTING PLAN AND STUDY REVIEW

Several studies and plans have been developed for this area that considered traffic and pedestrian concerns. The most recent studies were reviewed in the preparation of this scoping study and are listed below.

- *Essex Junction Comprehensive Plan 2014*
- *Pearl Street (Route15) Multimodal Transportation Plan, June 2010*
- *Vermont Route 15 Bicycle and Pedestrian Scoping Report, 2013*
- *Colchester/Essex Network Transportation Study (CENTS), 2014*
- *VTrans Susie Wilson Road Scoping Study, (on going)*
- *CCRPC Chittenden County Active Transportation Plan, 2015*

2.1.1 Essex Junction Comprehensive Plan 2014

This plan includes the following objectives that pertain to this project.

1. Continue improving access to and safety of bicycle and pedestrian facilities, and public transit. Support the work of the Bike-Walk Advisory Committee.

2. Continue reducing local energy demand by providing further expansion of sidewalks, bike paths, park & rides, and public transportation.

3. Continue to increase the number of sidewalks and other facilities to support bike and pedestrian travel, making it easier for residents to visit downtown businesses.

4. Engage in climate mitigation strategies to reduce the region's contribution of greenhouse gases. For example, continue to implement policies that promote investment in transportation options that reduce emissions - such as sidewalks and bike lanes.

5. Encourage alternative access to all educational facilities through the use of sidewalks, bike paths and mass transportation as appropriate.

6. Well-marked bike and pedestrian lanes will encourage safety by allowing residents to comfortably and securely navigate the community.

7. Promote and implement strategies to encourage the use of bicycles as alternate transportation modes.

The Transportation section of the Comprehensive Plan states the following:

1. The Bike-Walk Advisory Committee has adopted the following vision statement: "Essex Junction strives to be recognized as a friendly village of connected neighborhoods and destinations in which convenient and safe bicycle and pedestrian facilities are integrated into a seamless and accessible year-round transportation system. This system will promote the enjoyment and health of all citizens, a more vibrant local economy, and a cleaner environment."

2. On major arterial roads such as Pearl Street the high number of curb cuts makes a shared use path less desirable and does not adequately address the need for local access if the path is not immediately adjacent to the street. On-street bicycle facilities should be considered in these areas and supported at the regional level.

2.1.2 Pearl Street (Route15) Multimodal Transportation Plan

The *Pearl Street (Route15) Multimodal Transportation Plan* was conducted in 2010 and included the area along Route 15 from Susie Wilson Road to the Five Corners. Below are the pertinent recommendations from the plan.

NEAR TERM RECOMMENDATIONS – PHASE 1 (Less than three years)

- ***A1.*** *Position corridor for reduced bus travel times and reduced headways with incremental improvements to regular service.*
- ***A2.*** *Provide new bus shelters at Summit Street, Willey's Court, West Street Extension (South side), and new CVE Gate A entrance.*
- ***A4.*** *Work with New England Central Railroad (NECR) to seek corridor rail improvement funding for the Burlington Branch line to support future passenger rail service (commuter and/or expanded Amtrak service), leveraging NECR funds to support matching Federal funds.*
- ***A5.*** *Increase signal time for Pearl Street at the West Street Extension intersection to reduce the queuing condition.*
- ***A6.*** *Relocate the existing bus shelter at the jug handle to the current bus stop location to the west of the intersection.*
- ***A9.*** *Add vehicular and pedestrian gateway elements east of the West Street Extension intersection, including a welcome sign, plantings, and a road narrowing (by converting the painted bump out to one defined by a six inch curb) within the Pearl Street right-of-way.*
- ***A10.*** *Add small or medium trees within the five-foot apron and, as possible, larger street trees in the setbacks of adjacent properties along Pearl Street.*
- ***A13.*** *Continue negotiations to secure a long-term easement agreement with NECR for a shared use path in the railroad ROW (rail-with-trail).*
- ***A20.*** *Check current speed conditions to determine if it may be possible to reduce posted speed limits west of CVE and lower the speed limit if appropriate.*
- ***A21.*** *Initiate discussions with the Town of Essex and VTrans on the medium term recommendation of implementing a road diet on Pearl Street (one lane each direction plus designated bike lanes) between the Susie Wilson and West Street Extension intersections.*
- ***A22.*** *Update Village Zoning regulations to allow greater residential density along Pearl Street in the Residential 2 district.*
- ***A24.*** *Set up regular maintenance procedures for Route 15 including:*
    - *Regular pavement marking schedule,*

- *On-going signal updates,*
- *Street tree and green strip maintenance, and*
- *Detection loop service*

NEAR TERM RECOMMENDATIONS – PHASE 2 (Less than five years)

- ***B7.*** *Enhance pedestrian crossings (painted and/or textured crosswalks) at the West Street Extension, Post Office Square, Summit Street, and School Street intersections.*
- ***B8.*** *Adapt VT ROUTE 15 eastbound right turn lane and signal operations at West Street Extension to provide a transit queue jump.*
- ***B10.*** *Conduct a study to investigate the feasibility of implementing a road diet on Pearl Street between the Susie Wilson and West Street Extension intersections. B11. Calm the roadway traffic on Pearl Street, with reduced lane widths, vehicle activated signs, streetscape, and gateway treatments.*

MID-TERM RECOMMENDATIONS (Less than ten years)

- ***C1.*** *As ridership on existing buses increases, evaluate the suitability of a BRT application to the FTA Small Starts program with the aim of beginning a new limited-stop overlay BRT on the Pearl Street service.*
- ***C2.*** *Seek earmarks in Federal authorizations for BRT planning and development.*
- ***C4.*** *Based on the results of the feasibility study and negotiations with VTrans and Essex Town, proceed with the implementation of a road diet for the Pearl Street section west of the West Street Extension intersection—convert the existing two lanes in each direction to one lane with an adjacent bike lane and provide adequate bicycle routing through the intersection.*
- ***C5.*** *Add new pedestrian scale street lighting, some with banner poles.*
- ***C7.*** *Prepare design plans for a shared use path in the railroad right-of-way.*
- ***C8.*** *Investigate the need for a second West Street Extension lane for left turns.*

LONG TERM RECOMMENDATIONS (More than ten years)

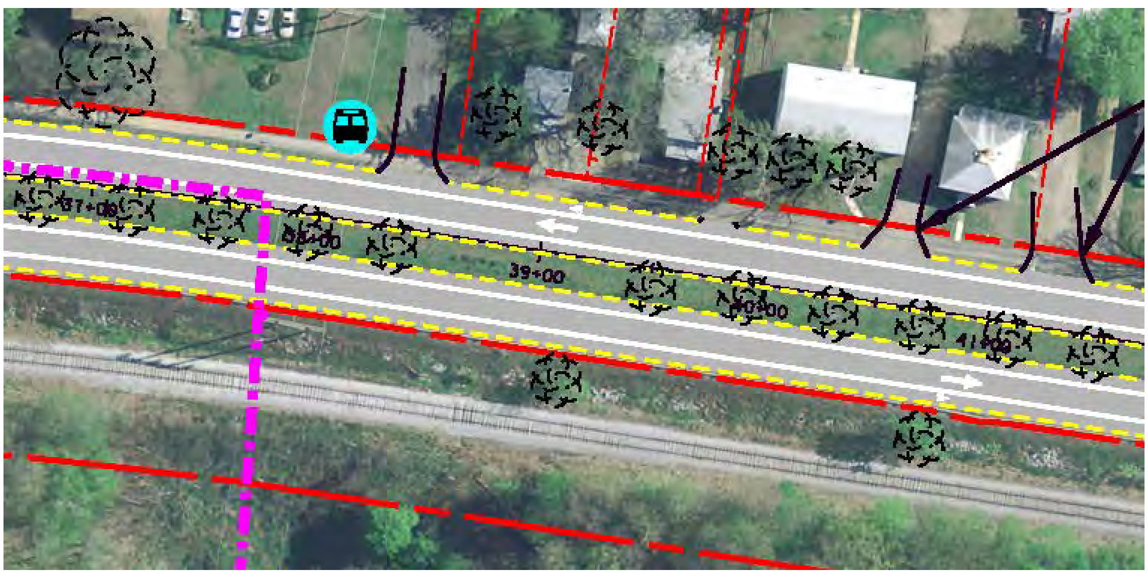
- ***D1.*** *Develop BRT as a means of increasing transit ridership in the corridor; BRT should include* the following elements:
  - *Attractive stations,*
  - *Distinctive and easy-to-board vehicles,*
  - *Off vehicle fare collection,*
  - *Ten-minute headways during peak periods,*
  - *Automatic vehicle location systems,*
  - *Passenger information systems, and*
  - *Transit priority at signalized intersections.*

- ***D2.*** Work with Chittenden County Transportation Authority (CCTA) to establish a transit area sign *system with distinctive graphics for the BRT services that may be developed for the region.*
- ***D3.*** *Following lease agreements with NECR, construct a shared use path in the railroad right-of-way.*
- ***D6***. *Investigate the operation of the Pearl/West Street Extension Intersection—if needed, convert the existing eastbound right turn lane to a combined thru and right turn lane and create a short receiving lane on the east side to enable through traffic in two lanes that would taper to* the existing three lane section east of the intersection.
- ***D8.*** Investigate the feasibility of a "complete street" plan for the Pearl Street corridor that includes planted median and roundabouts to enable U-turns and facilitate access to businesses; *based* on the results of the feasibility study, develop a "complete street" plan for the corridor.

Source: *Pearl Street Multimodal Corridor Plan*, Broadreach, 2010.

Following is a graphic from the plan that illustrates the "road diet" and addition of bicycles lanes in this section of VT *Route* 15.

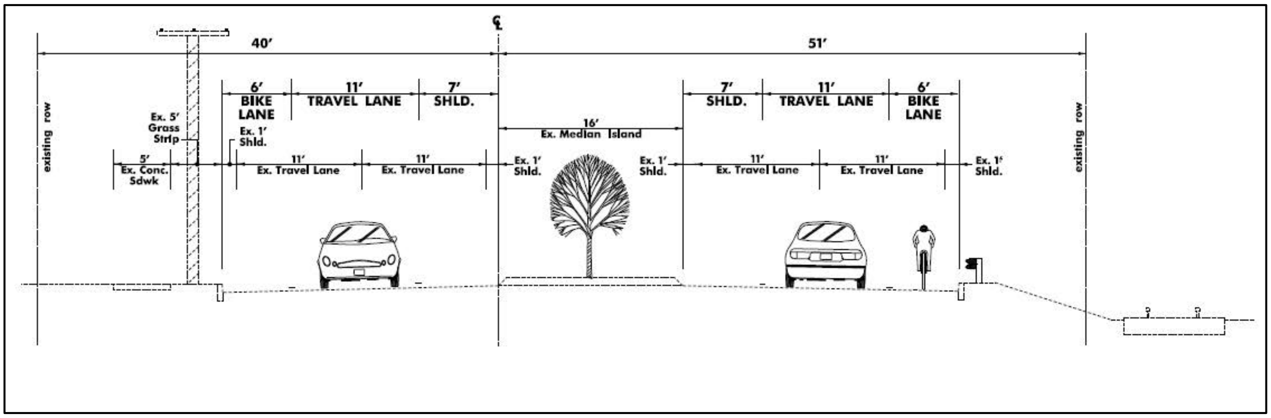
Figure 2 Pearl Street Multimodal Corridor Plan, Broadreach, 2010.



2.1.3 Vermont Route 15 Bicycle and Pedestrian Scoping Report

The 2013 Vermont Route 15 Bicycle and Pedestrian Scoping Report, focused on the bicycle and pedestrian needs along VT Route 15 from I-89 Exit 15 in Winooski to West Street Extension in the Village of Essex Junction. For this report's subject area, the 2013 report include the following recommendation: Bicycle lanes on the north and south sides of Route 15 from Susie Wilson Road to West Street Extension. Below is a graphic from the report illustrating the bicycle lanes.

Figure 3 Typical Section Vermont Route 15 Bicycle and Pedestrian Scoping Report



2.1.4 Colchester/Essex Network Transportation Study (CENTS)

The CENTS project area was bounded by Roosevelt Highway (US 2/7) on the west, Main Street (VT 2A) on the north, Susie Wilson Road on the east, and Severance Road/Kellogg Road along the south. One of the primary goals of this study is to develop a better understanding of current and future travel demands along the VT 2A, Susie Wilson Road, and Severance/Kellogg corridors and develop specific improvement recommendations in response to identified issues and stakeholder input. The study included a scoping level assessment of the VT Route 15 (Pearl Street) and Susie Wilson Road intersection.

The recommended selected preferred alternative for the VT Route 15 (Pearl Street) and Susie Wilson Road intersection was widening of the intersection to incorporate a second southbound left-turn lane (see Figure 4 below).

Figure 4 Preferred Alternative for the VT Route 15 and Susie Wilson Road intersection

2.1.5 VTrans Susie Wilson Road Scoping Study

The Vermont Agency of Transportation (VTrans) is currently conducting a more detailed scoping of the Susie Wilson Road Corridor to determine the specific corridor improvements to seek funding for. This includes updating the 2013 analysis for the VT Route 15 and Susie Wilson Road intersection. The VT15/Susie Wilson Road scoping is underway, and the results are not yet available for this study. For this study's purposes, it is assumed that a preferred alternative is likely to be determined before the intersection scoping is finished. Therefore, the proposed bicycle and pedestrian facility improvements recommended from this study will be considered in the intersection scoping. The improvements for this study need to consider the possibly of accommodating 2 receiving lanes on VT Route 15 eastbound for the Susie Wilson two left turn lanes shown above.

2.1.6 CCRPC Chittenden County Active Transportation Plan

This plan updated the previous Chittenden County Active Transportation Plan, which defines its goal as creating a safe, comfortable, and connected regional network of pedestrian and bicycle routes that appeal to all ages and abilities. The Active Transportation Plan (ATP) supports CCRPC's regional plan ECOS and was developed in coordination with other concurrent local, regional, and state planning efforts. The result of this planning process was a series of proposed infrastructure and non-infrastructure recommendations organized around the five E's—education, encouragement, enforcement, engineering, and evaluation. Infrastructure and engineering recommendations were developed using a prioritization method that involved feasibility, closing gaps in the network, addressing a high crash location, and serving a population in need.

Important items noted in the plan relative to this study area included:

1. This section of VT15 was shown as a high priority and high feasibility on the proposed active transportation network.

2. The project team developed an interactive online map (a wikimap) that was available for input between late September 2015 and early November 2015. This allowed the public to provide geographically specific information about informal connections, desirable routes, and roadways of concern. Users were asked to identify routes they already ride or walk, ones they would like to ride or walk, and barriers to bicycling or walking throughout Chittenden County. When the project team asked the public to show which routes they would like to walk or bike within Chittenden County, this section of VT Route 15 was one of the most common.

3. The project team asked the public to show which locations they see as barriers to biking in Chittenden County and VT Route 15 was identified as challenging due to sight lines and narrow shoulders.

4. Green Mountain Transit (GMT; formerly Chittenden County Transportation Authority (CCTA)) shared data on numbers of people and bikes getting off and on by stop for the year 2013. The Essex route had the second largest number of bike boardings among all the routes at 7278 bike boardings.

5. Network segments were established to connect bicycling and walking origins and destinations. Segments for which a low-stress alternative does not already exist (for example, a shared use path on a parallel alignment) were identified and it included the VT Route 15 corridor.

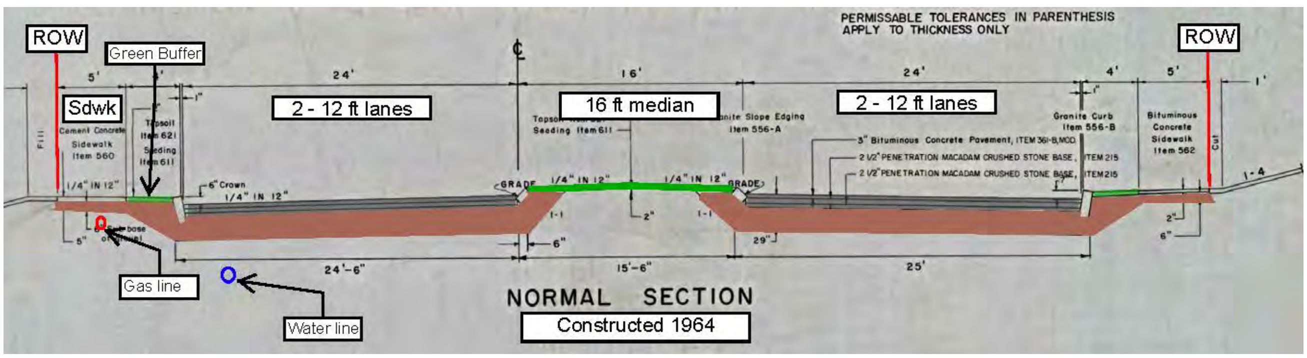
6. Recommendations included: Focus on separated facilities (separated bike lanes, shared use paths) to attract the greatest number of potential users

3.0 EXISTING CONDITIONS

3.1 ROADWAY CHARACTERISTICS

This section of VT Route 15 was reconstructed in 1964 with a full depth of new subbase and pavement, new drainage system, and water and sewer utilities. It was constructed as a curbed four lane roadway (two 12-foot lanes in each direction) that are separated by a landscaped median (16 feet wide). A 5-foot wide sidewalk and aerial utility poles were installed along the northern side. A typical section from the 1964 record plans is shown below. Bicyclists using this section either ride on the 5-foot wide sidewalk or assume a lane on the roadway.

Figure 5 Existing Typical Section



The roadway is bordered by residential and commercial development to the north and the New England Central Railroad to the south. The median extends the full length of the project area and restricts left turns to and from the northside development. Lefts turns are accommodated by U-turns at the jug handles at the Susie Wilson Road and West Street Extension intersections. A jug handle is a type of ramp, or slip road, which allows drivers to change directions without disruptive stops or direct left turns. The Susie Wilson Road jug handle's operation is problematic in that it is stop controlled within a signalized intersection and therefore U-turns are subject to signal controlled traffic yielding to them.

The current posted speed is 45 mph. It changes to 35 mph east of the West Street Extension intersection. Over the years land use on this section of VT Route15 has evolved from a few single-family homes into commercial establishments and multi-family housing. This has generated greater friction along VT Route 15 with more driveway more movements, more frequent bus stops and greater pedestrian and bicycle activity. This redevelopment is expected to continue.

East of the Susie Wilson Road intersection, VT Route 15 is a Class I Town Highway, owned and maintained by the Village of Essex Junction. VT Route 15 west of this intersection is owned and maintained by VTrans. VT Route 15 east of West Street Extension was improved with a VTrans Class I town highway resurfacing project. Improvements in this section should be coordinated with future VTrans' resurfacing projects.

3.2 INTERSECTION CHARACTERISTICS

3.2.1 VT Route 15 / Ethan Allen Avenue

Figure 6 Westerly Perspective of VT Route 15/ Ethan Allen Avenue Intersection (Google Street View, 2015)

The VT Route 15/Ethan Allen Avenue intersection is a T-type signalized intersection. The westbound VT Route 15 approach includes two through lanes and a right turn lane. The eastbound VT Route 15 approach includes two through lanes and a left turn lane. The southbound Ethan Allen Avenue approach includes a single lane for right and left turns. The signal operates with three phases serving: westbound and eastbound movements; southbound movements; and, eastbound left-turn movements. Westbound right-turn movements have a green arrow during southbound movements. The only crosswalk provided at the intersection allows pedestrians to cross Ethan Allen Avenue. A push-button activated pedestrian signal phase is available.

3.2.2 VT Route 15 (Pearl Street) / Susie Wilson Road

Figure 7 Easterly Perspective of VT Route 15 (Pearl Street) / Susie Wilson Road Intersection

The Pearl Street/Susie Wilson Road intersection is a state-controlled, T-type signalized intersection. The westbound Pearl Street approach includes two through lanes and a channelized right turn lane. The eastbound Pearl Street approach includes three lanes with two left turn lanes and a single through lane. The southbound Susie Wilson Road approach includes a left turn lane and two right turn lanes. The signal operates with three phases separately serving: westbound movements; southbound left-turn movements; and, eastbound left-turn movements. Southbound right turns and eastbound through movements each operate during two of the above three phases. Sidewalks are located on the north side of Pearl Street and both sides of Susie Wilson Road at this intersection. The only crosswalk provided at the intersection allows pedestrians to cross Susie Wilson Road. A push-button activated pedestrian signal phase is available.

3.2.3 VT Route 15 (Pearl Street) / West Street Extension

Figure 8 Westerly Perspective of VT Route 15 / West Street Extension Intersection

The Pearl Street/West Street Extension intersection is a four-way signalized intersection. The westbound Pearl Street approach includes a through lane and a combined through and right turn lane. Left turns from this approach must use the jug handle. The eastbound Pearl Street approach includes a left turn lane, a thru lane, and a right turn lane separated by a median. Northbound and southbound West Street Extension approaches each include a single lane. One crosswalk serves pedestrians crossing the westbound approach; a second crosswalk serves pedestrians crossing the southbound approach. The pedestrian phase operates concurrently with West Street Extension.

3.3 TRAFFIC VOLUMES

Traffic volume data including Annual Average Daily Traffic (AADT) values and Peak Hourly Volumes for the study area were collected from VTrans. 2016 AADT values for the study area road segments are displayed in Table 1. The segment of VT Route 15 between Ethan Allen Avenue and Susie Wilson Road has the highest volume, with the volume of VT Route 15 being one third less for the primary study segment between Susie Wilson Road and West Street Extension. The volume of VT Route 15 is further reduced east of West Street Extension.

Table 1: Current AADT Volumes

Location	AADT	Count Years
VT Route 15 – West of Susie Wilson Ave.	24400	2016
Susie Wilson Road	20500	2016
VT Route 15 – East of Susie Wilson Ave.	16300	2016
West Street Extension	5900	2016
VT Route 15 – East of West Street Ext.	11700	2016

Existing weekday commuter peak hour traffic conditions for the study area were determined using the latest available data. Traffic volume data are collected periodically by VTrans and by the Chittenden County Regional Planning Commission (CCRPC) at intersections in the region. Collected data used to establish existing conditions include:

- A June 8-9, 2015 count at the VT Route 15/Ethan Allen Avenue intersection; and,
- A June 12-13, 2017 count at the VT Route 15/West Street Extension intersection.

A recent traffic impact study report was completed for a potential private development on the parcel adjacent to and northwest of the intersection of VT Route 15/Susie Wilson Road (3/8/2018). During that study, existing 2017 Design Hour Volumes (DHV's) were developed by the project team, reviewed by, and vetted by the Town of Essex. The existing 2017 DHV turning movements at the intersection of VT Route 15/Susie Wilson Road from that study were used in this scoping study and combined with the counts listed above to balance DHV's among the three study intersections. Where conflicting volumes were noted between adjacent intersections, the existing 2017 DHV turning movements, vetted and approved by the Town of Essex, were used to balance the volumes to create a baseline condition.

VTrans typically requires that traffic studies be prepared using Design Hour Volumes (DHV's). Design Hour Volumes are calculated based on historical traffic counts to represent the 30th highest volume hour of the year and therefore represent a very conservative design condition. DHV's for roadways such as those in the study area are typically experienced during the commuter peak hours in the summer months. DHV calculations for this location are based on data from the VTrans Continuous Traffic Counting station D530 on VT 289 in Essex.

Figures 9 through 14 display existing AM and PM design hour volume (DHV) turning movement counts for the three study area intersections. The data show a large portion of eastbound traffic volume along VT Route 15 diverting to Susie Wilson Road.

Figure 9 Existing 2017 AM Design Hour Volumes

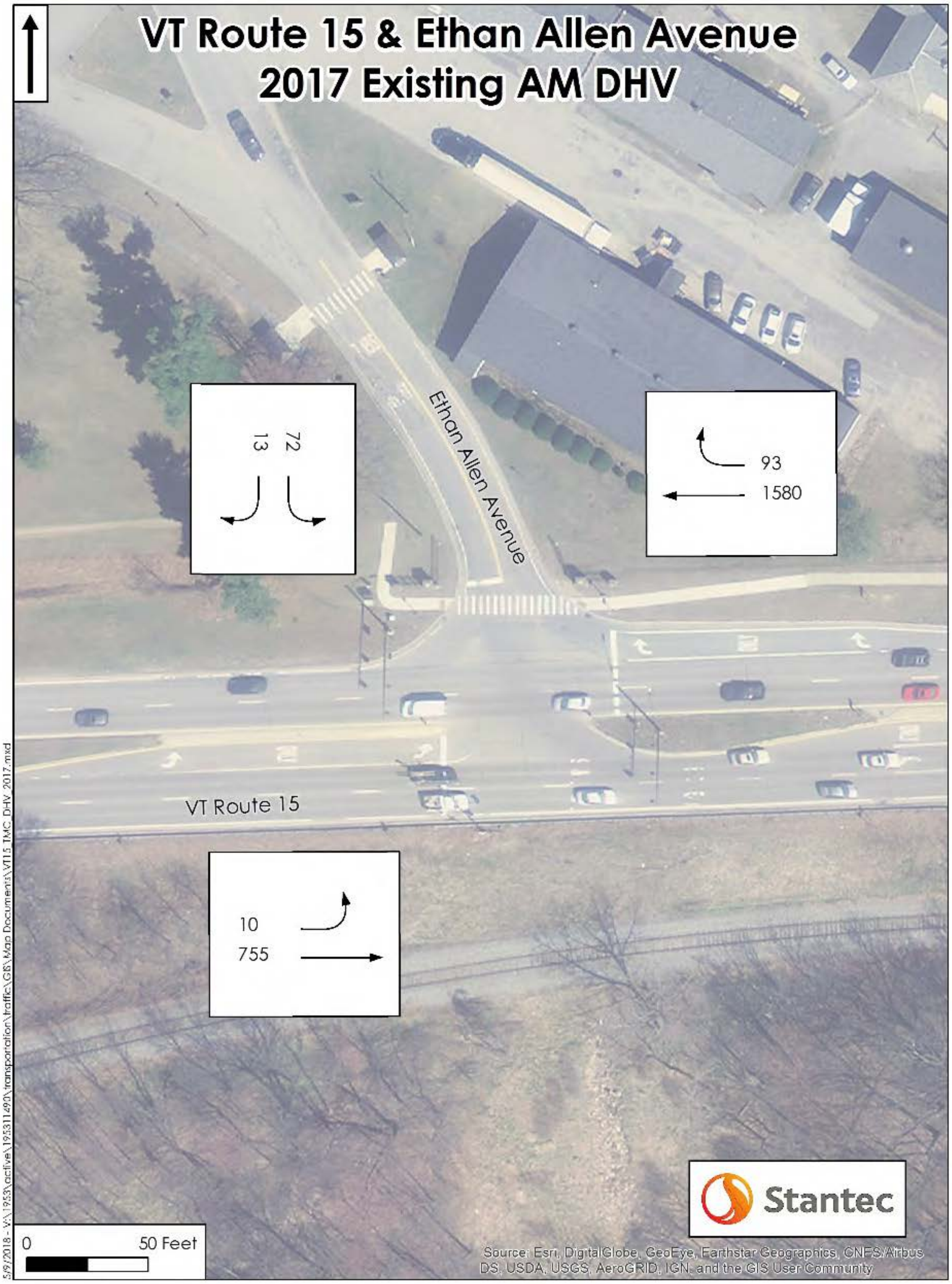


Figure 10 Existing 2017 AM Design Hour Volumes

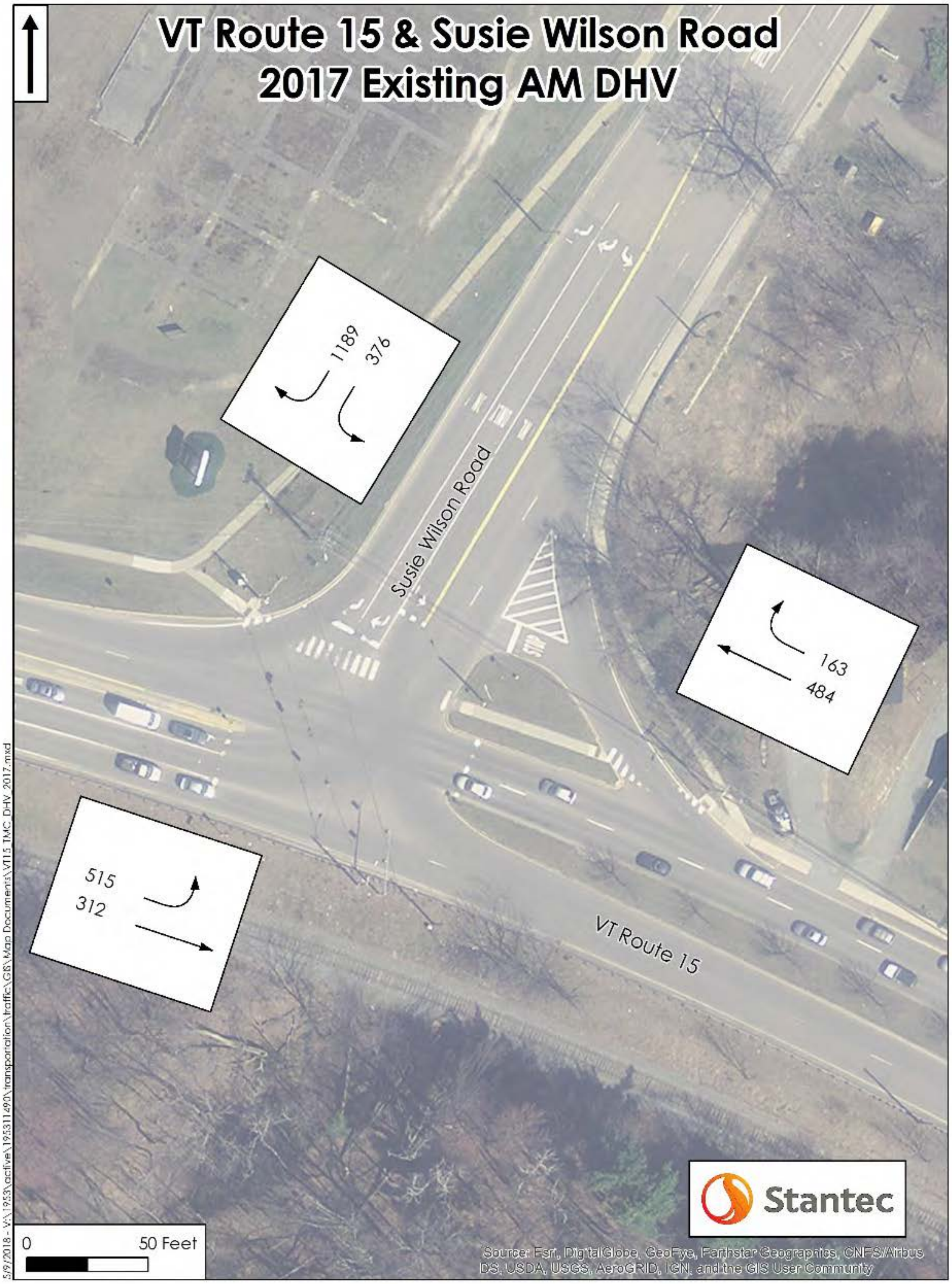


Figure 11 Existing 2017 AM Design Hour Volumes

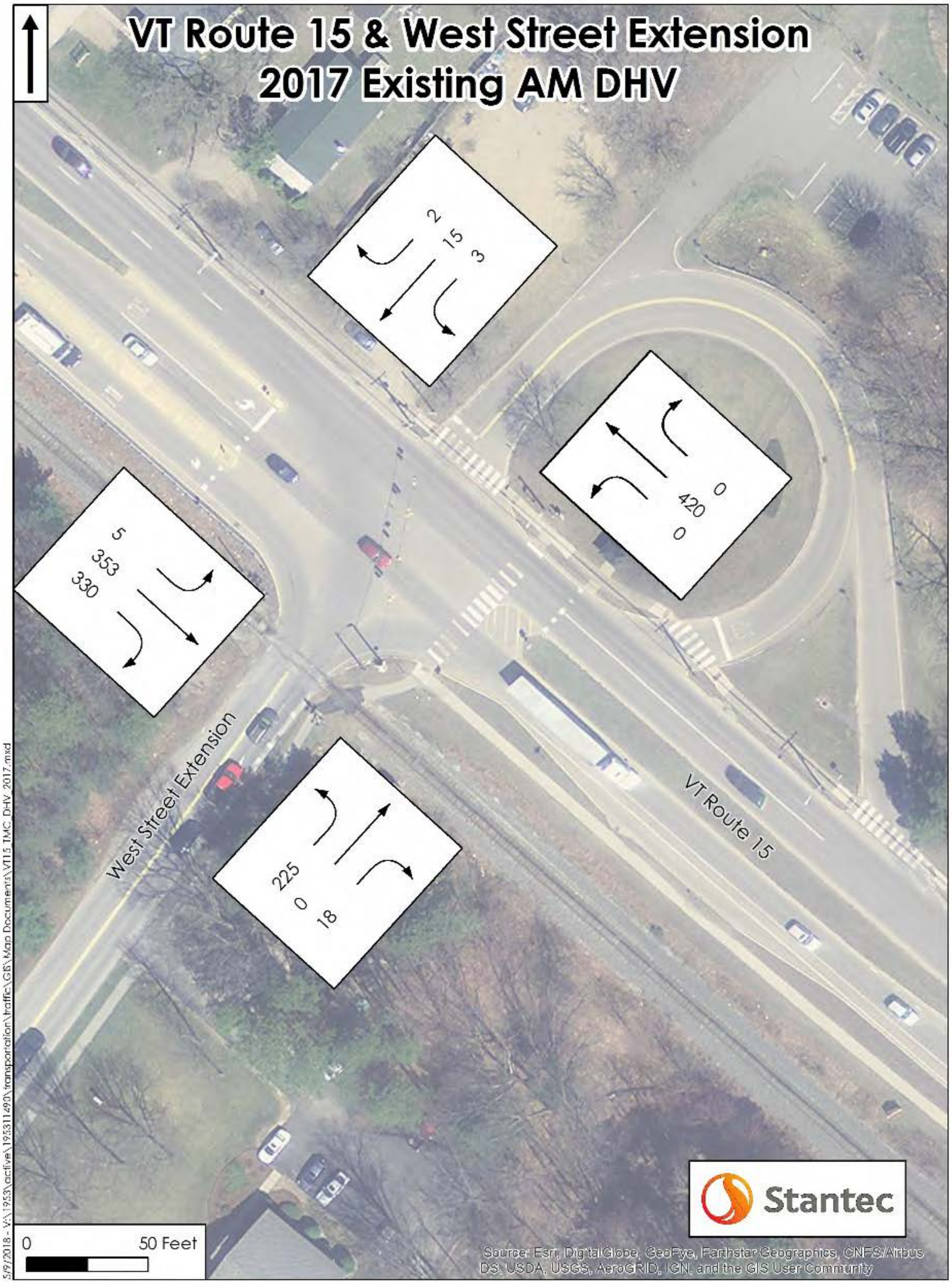


Figure 12 2017 Existing PM Design Hour Volumes

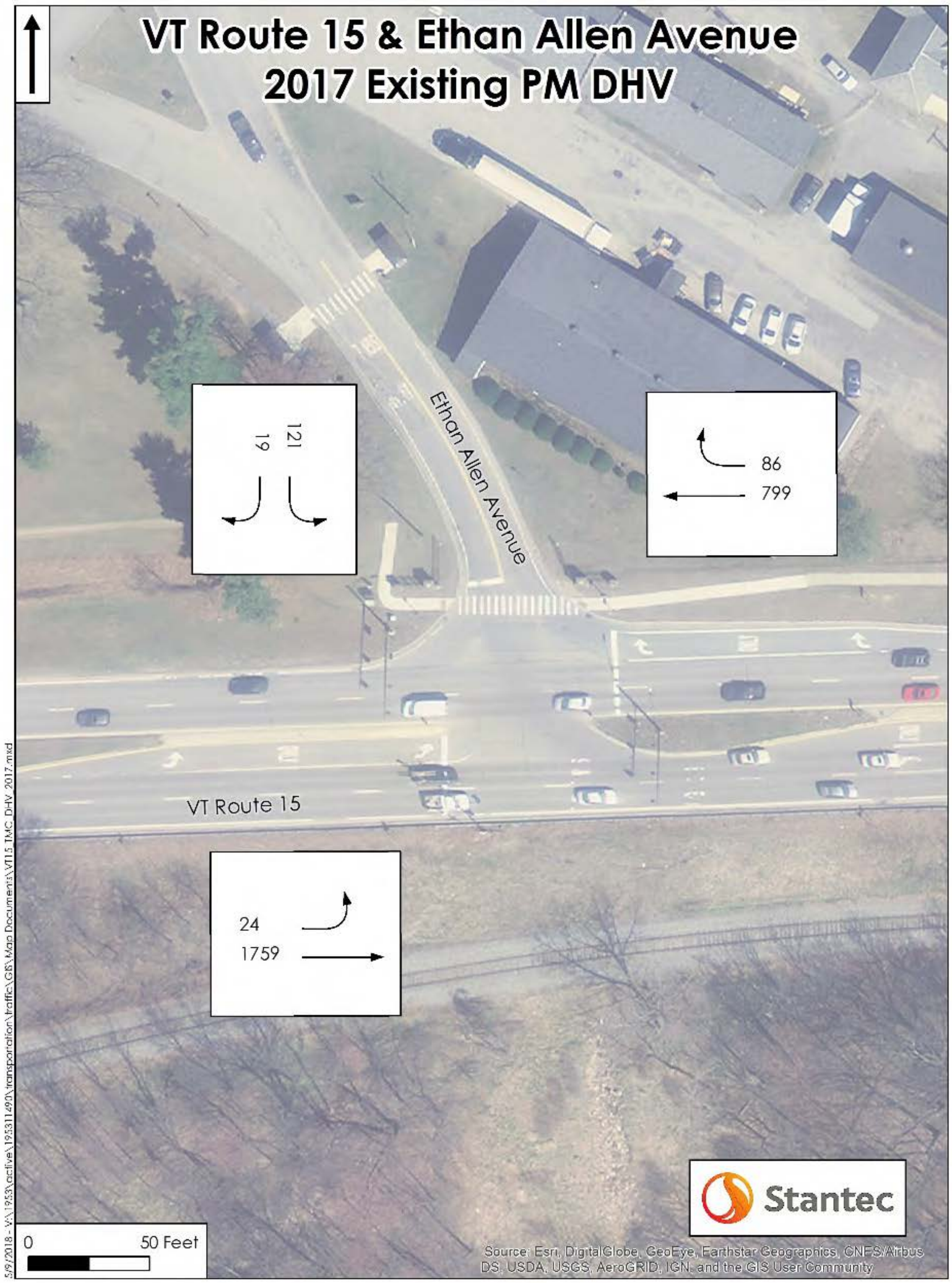


Figure 13 Existing 2017 PM Design Hour Volumes

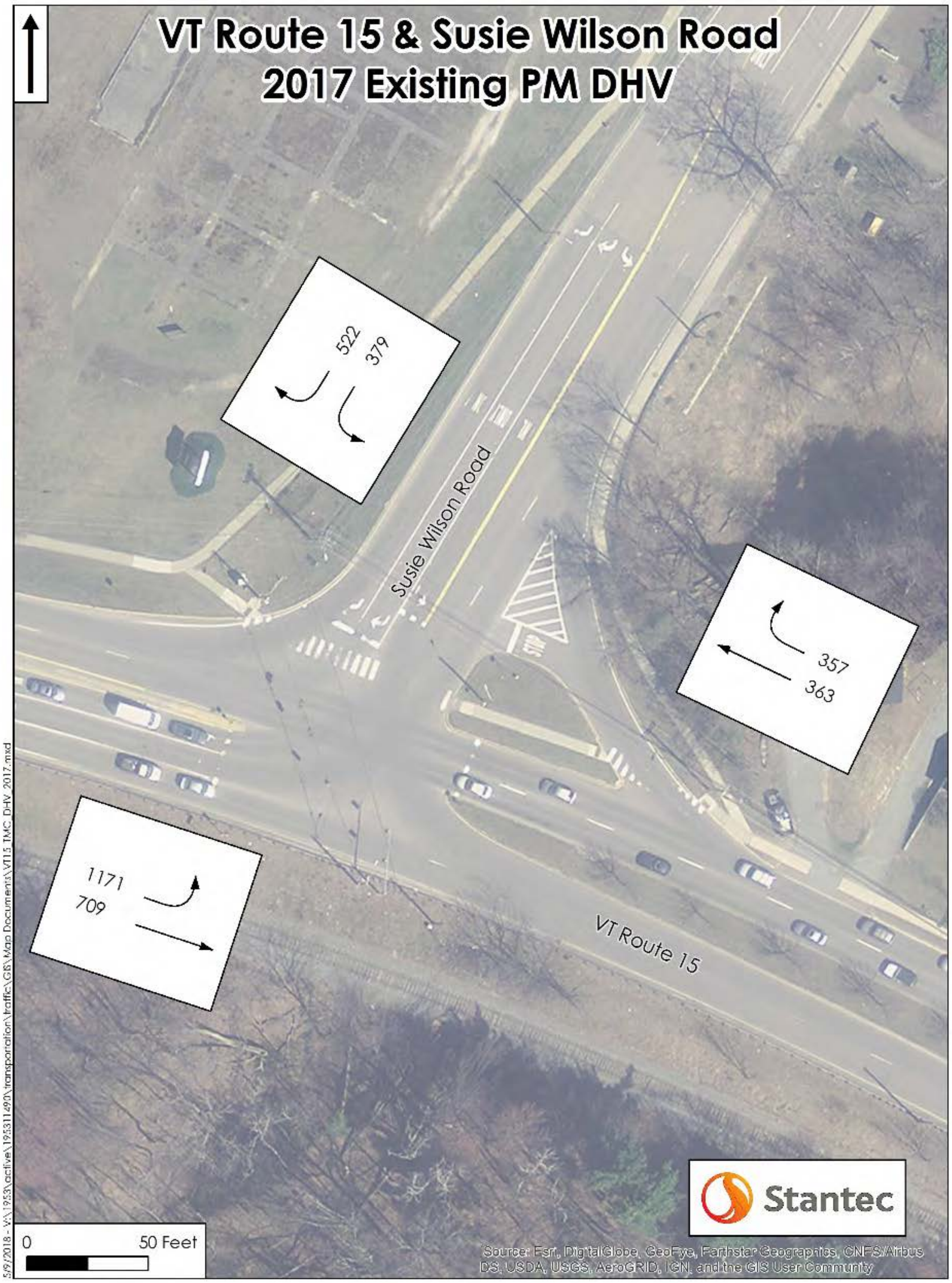
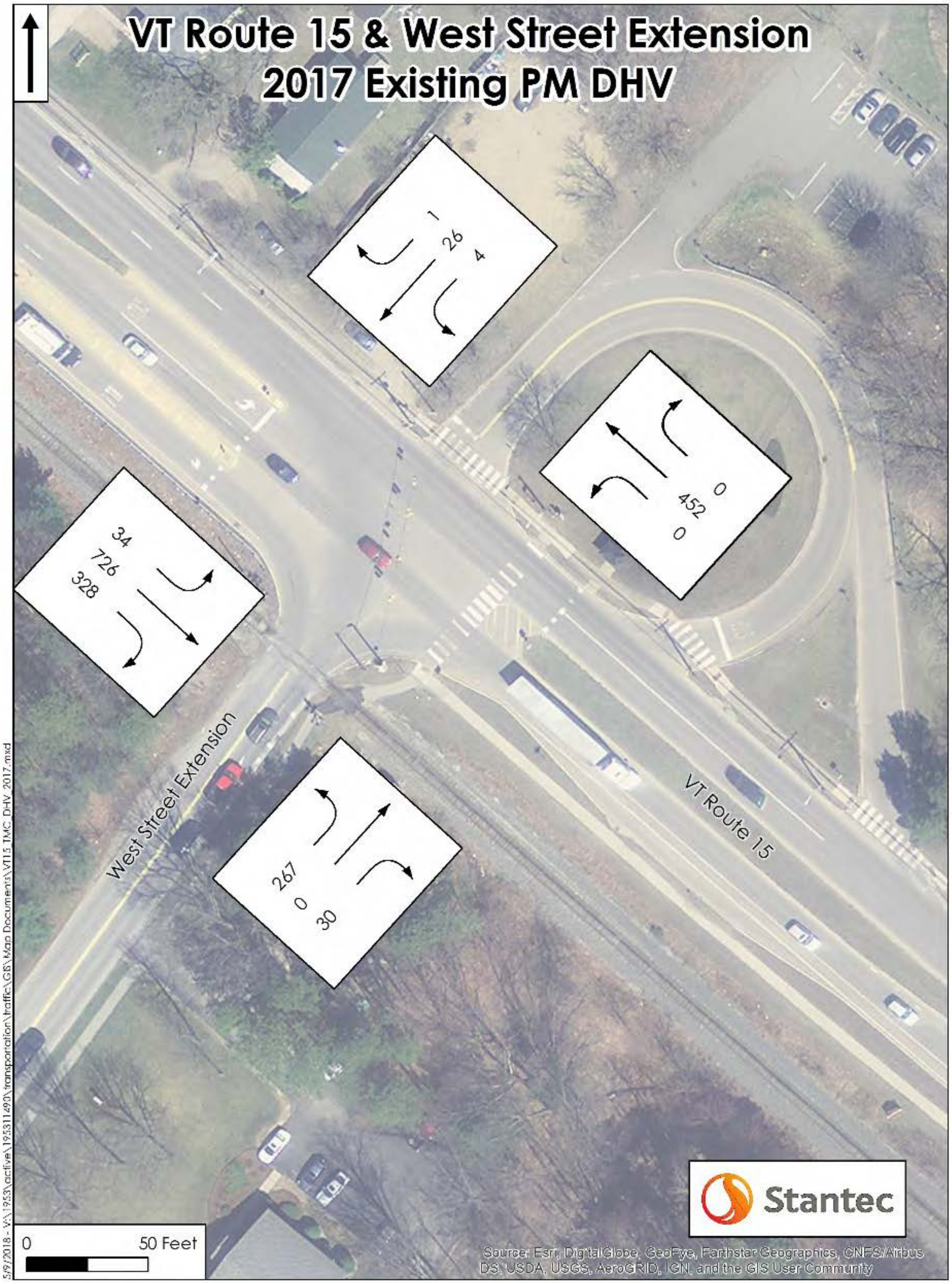


Figure 14 Existing 2017 PM Design Hour Volumes



3.4 INTERSECTION OPERATIONS

Intersection and roadway operating levels of service (LOS) have been calculated for the study area intersections based on the traffic volume, geometry and traffic control type previously mentioned. The results of these calculations, which are intended to quantify intersection operations, are presented below.

3.4.1 Level of Service Criteria

Level of service (LOS) is a term used to describe the quality of the traffic flow on a roadway facility at a particular point in time. It is an aggregate measure of travel delay, travel speed, congestion, driver discomfort, convenience, and safety based on a comparison of roadway system capacity to roadway system travel demand. Operating levels of service are reported on a scale of A to F, with A representing the best operating conditions with little or no delay to motorists, and F representing the worst operating conditions with long delays and traffic demands sometimes exceeding roadway capacity.

Intersection operating levels of service are calculated in accord with procedures defined in the *Highway Capacity Manual*, published by the Transportation Research Board. For unsignalized and signalized intersections, the operating level of service is based on travel delays. Delays can be measured in the field but generally are calculated as a function of the following: traffic volume; peaking characteristic of traffic flow; percentage of heavy vehicles in the traffic stream; type of traffic control; number of travel lanes and lane use; intersection approach grades; and pedestrian activity. Through this analysis, volume-to-capacity ratios can be calculated for individual movements or for the intersection as a whole. A volume-to-capacity ratio of 1.0 indicates that a movement or intersection is operating at its theoretical capacity. The specific delay criteria applied per the *2010 Highway Capacity Manual* to determine operating levels of service are summarized in Table 2.

Table 2: Intersection Level of Service Criteria

	Average Delay per Vehicle (Seconds)	
Level of Service	Signalized Intersections	Unsignalized Intersections
A	≤10.0	≤10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F[1]	>80.0	>50.0

[1]Level of Service F is also assigned if the volume-to-capacity ratio exceeds 1.0 for a specific movement or lane group. For approach-based and intersection assessments, LOS is defined solely by delay. (Source: *HCM 2010 Highway Capacity Manual*, Transportation Research Board, National Academy of Sciences, Washington, DC, 2010.)

3.4.2 Calculated Operating Levels of Service

The intersection PM peak hour operating levels of service were calculated following procedures described in the *2010 Highway Capacity Manual* and as applied by the Synchro software package. Analysis results for existing conditions are reported in Table 3. Results are presented for estimated 2017 Design Hour Volumes. The VT Route 15/Susie Wilson Road intersection is the controlling intersection in the area. It operates with higher volume-to-capacity ratios than the other two intersections. Capacity analysis worksheets for existing and future analysis conditions are presented in Appendix D.

Table 3: Existing Intersection Capacity Analysis Results

		2017 Existing PM DHV		
	Peak Hour	LOS[1]	Delay[2]	V/C[3]
Signalized Intersection				
VT Route 15 / Ethan Allen Ave				
	AM	B	17.5	0.69
	PM	B	20.0	0.81
VT Route 15 / Susie Wilson Rd				
	AM	C	27	0.76
	PM	D	44	0.87
VT Route 15 / West Street Ext				
	AM	A	9.6	0.48
	PM	B	14.9	0.79

[1] LOS= Level of Service
[2] Delay = Average delay expressed in seconds per vehicle
[3] V/C = Volume-to-capacity ratio for critical movements

3.5 PEDESTRIAN AND BICYCLE FACILITIES

A network of sidewalks and a shared use path are provided or planned within and adjacent to the project area. There is an existing 5-foot wide asphalt sidewalk along the northside of VT Route 15 in the project area. This connects to sidewalks along VT Route 15 east and west of the project area and to sidewalks on Susie Wilson Road and West Street Extension. Marked crosswalks exist at the signalized intersections and include a protected signal phase crosswalk on VT Route 15 at West Street Extension. As the southside of VT Route 15 is bordered by the railroad and is not developed, pedestrian crossings are not needed.

There are no dedicated bike facilities along VT Route 15 in the project area. Bicycles currently use the existing 5-foot wide sidewalk or share a lane with traffic on VT Route 15. The existing lanes are 12 feet wide with no shoulder. There is a regional direct bicycle network planned and being developed along VT Route 15. Buffered bike lanes exist east of the project area and connect to the Five Corners. A shared use path west of the project area and connecting to Lime Kiln Road is in the design phase.

The Essex Bicycle Plan, dated January 15, 2015, identified this section of VT Route 15 as an important gap in the planned direct bicycle network and listed it as an implementation project.

3.6 TRANSIT SERVICE

Green Mountain Transit (GMT) has a local bus route, Route #2: Essex Junction, through the project area. This route loops from the Downtown Transit Center in Burlington to the Essex Junction Amtrak Station using VT Route 15.

There are six designated bus stops in the project area. One stop services the eastbound bus and 5 service the westbound bus. There is no eastbound stop between Ethan Allen Avenue and West Street Extension.

Table 4 summarizes bus route schedule and fare information.

Table 4: GMT Bus Schedule

Route	Start Location	End Location	Cost*	Schedule	Frequency
#2: Essex Junction	Downtown Burlington	Essex Junction	$1.25	M-F: 5:45AM-9:30PM SAT: 6:10AM-7:15PM	M-F: 15 min (on peak); 30min (off-peak); SAT: 30 min (on peak), 1hr (off peak)

*Fare for one-way ride

3.7 CRASH HISTORY

The crash history for the study area was investigated using the VTrans crash database. VTrans keeps records of reported crashes by milepost along State and Federal Aid highways in Vermont. General Yearly Summaries can be requested from VTrans for given roadway segments. The summaries note the location (mile marker), date, time of day, weather conditions, contributing circumstances and severity for reported crashes. Crash data for 2012 through 2016 were reviewed for VT Route 15 between mile marker 0.3 and mile marker 1.10 including the Susie Wilson Road intersection at 0.60 and the West Street Extension intersection at 1.00. Crash data for 2012 through 2016 were also reviewed for Susie Wilson Road between mile marker 0.0 and mile marker 0.2. The Town of Essex / Village of Essex municipal boundary is at Susie Wilson Road and VT Route 15, approximately mile marker 0.6.

Table 5 provides a summary of the crash data. VT Route 15 experienced the greatest number of crashes with 141 reported over a five-year period (2012-2016). The most prominent crash types at both intersections were rear-end collisions. Crashes were most often observed during the midday and afternoon commuter peak hours. Thirteen crashes involved injuries, and none involved a fatality.

Table 5 Crash Summary (2012-2016)

Year	Susie Wilson Road	VT Route 15	TOTAL
2012	15	21	**36**
2013	13	28	**41**
2014	25	37	**62**
2015	26	29	**55**
2016	13	26	**39**
Total	**92**	**141**	**233**
Type			
Angle	11	10	**21**
Rear-end	42	69	**111**
Head-on	0	3	**3**
Single Vehicle	0	10	**10**
Sideswipe	30	38	**68**
Unknown-other	9	11	**20**
Total	**92**	**141**	**233**
Severity			
Property Damage	83	126	**209**
Personal Injury	8	15	**23**
Fatality	0	0	**0**
Other	1	0	**1**
Total	**92**	**141**	**233**
Weather			
Clear	58	68	**126**
Cloudy	22	44	**66**
Rain	1	5	**6**
Snow/Ice	6	8	**14**
Fog	0	0	**0**
Unknown	5	16	**21**
Total	**92**	**141**	**233**
Time of Day			
7:00AM to 9:00AM	5	13	**18**
9:00AM to 4:00PM	57	60	**117**
4:00PM to 6:00PM	18	36	**54**
6:00PM to 7:00AM	12	32	**44**
Unknown	0	0	**0**
Total	**92**	**141**	**233**

3.7.1 High Crash Locations

VTrans maintains a listing of High Crash Locations (HCL) within the state. A 0.3 mile highway segment or intersection must have at least 5 crashes over a 5-year period and the actual crash rate (number of crashes per million vehicles) must exceed a critical crash rate to be classified as an HCL. The critical crash rate is based on the average crash rate for similar highways.
The VTrans High Crash Report: Sections and Intersections 2012-2016 lists two intersections and one roadway section as HCLs within the project study area. These are summarized in Table 6.

Table 6 High Crash Locations

	Name	HCL No.	Mile Marker	AADT	Crashes	Fatalities	Injuries	Actual/ Critical Ratio	Severity Index
Intersections	VT Route 15 / Susie Wilson Rd	9	0.510 - 0.660	26,772	84	0	8	2.225	$19,056
	VT Route 15 / West St Ext	19	0.960 - 1.080	15,566	43	0	8	1.785	$26,451
Segment	Susie Wilson Rd	210	0.000 - 0.300	19,933	80	0	14	1.738	$25,092

3.8 NATURAL RESOURCES

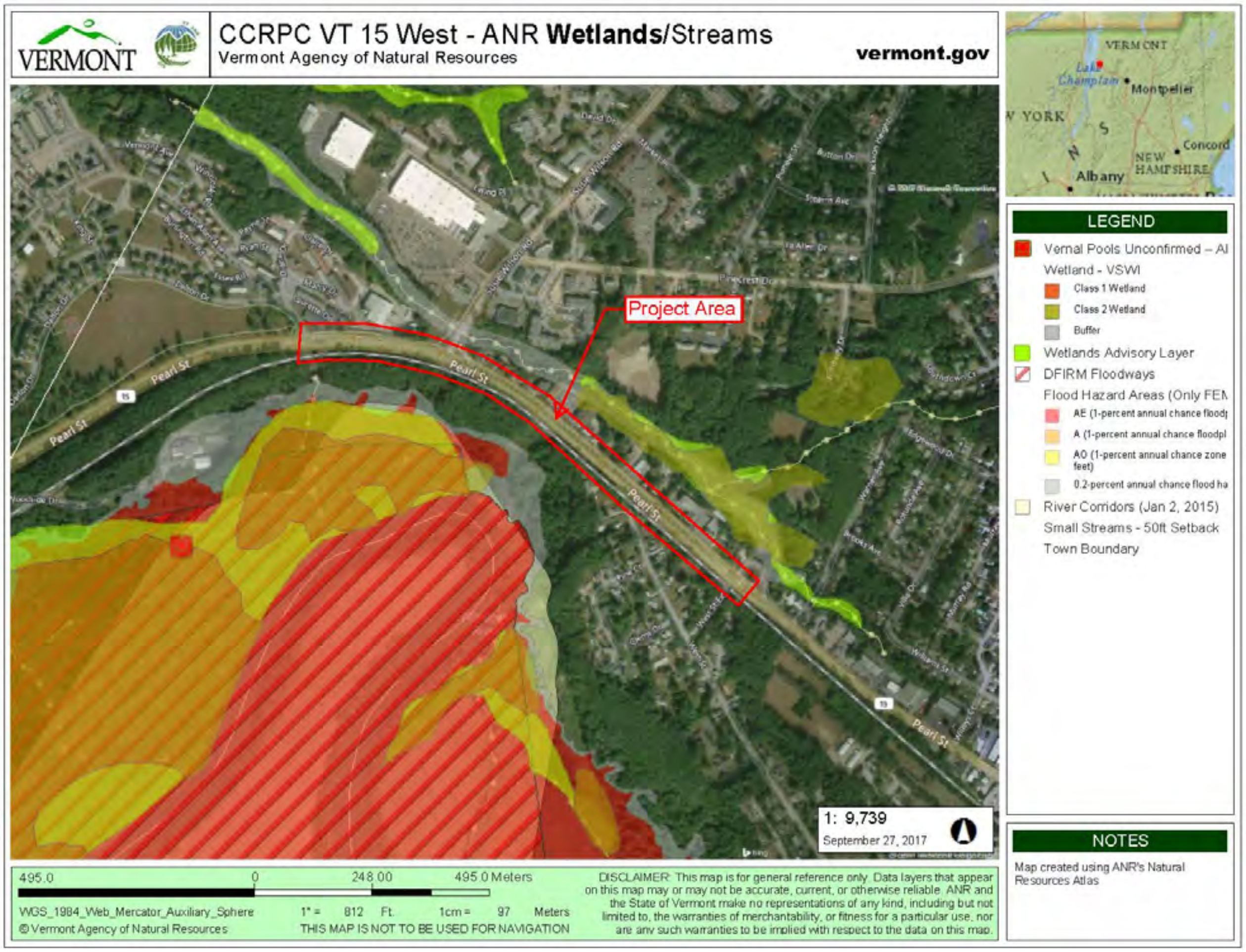
Stantec Consulting Services Inc. (Stantec) conducted a preliminary review of the natural resources present within the project area. Specifically, as part of this investigation, Stantec identified and characterized wetlands, streams, rare, threatened, or endangered (RTE) species, wildlife habitat, agricultural land, 4(f) and 6(f) public lands, and hazardous waste sites. Following is a summary of the findings.

Natural Resource Review Summary – Review of Existing Materials
Stantec used the Vermont Agency of Natural Resources (ANR) Natural Resources Atlas mapping Program to evaluate known natural resources within the Project Area.

<u>Wetlands and Streams.</u> According to the ANR program, there are Vermont Significant Wetland Inventory (VSWI) wetlands mapped along Sunderland Brook to the north of the project area (see attached ANR Wetlands/Streams figure 15). These are Class II wetlands with a regulated 50-foot buffer.

Sunderland Brook flows from east to west to the north of the project area. This is a perennial stream with an ANR 50-foot river corridor (see ANR Wetlands/Streams figure 15 below). Sunderland Brook is stormwater-impaired.

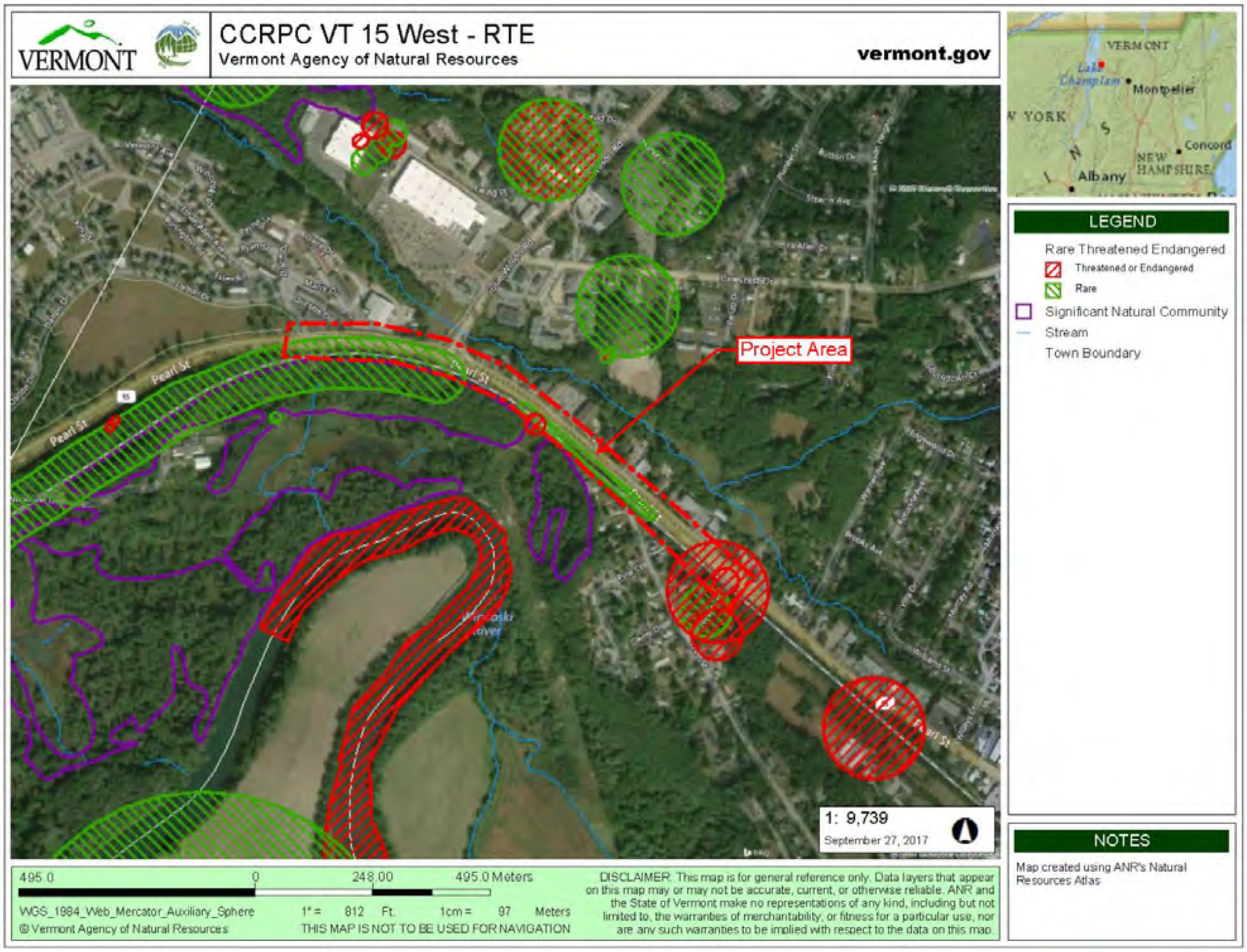
Figure 15 River Flood Zones and Impaired



Additional wetlands are floodplain areas are mapped along the Winooski River to the south (and outside) of the project area.

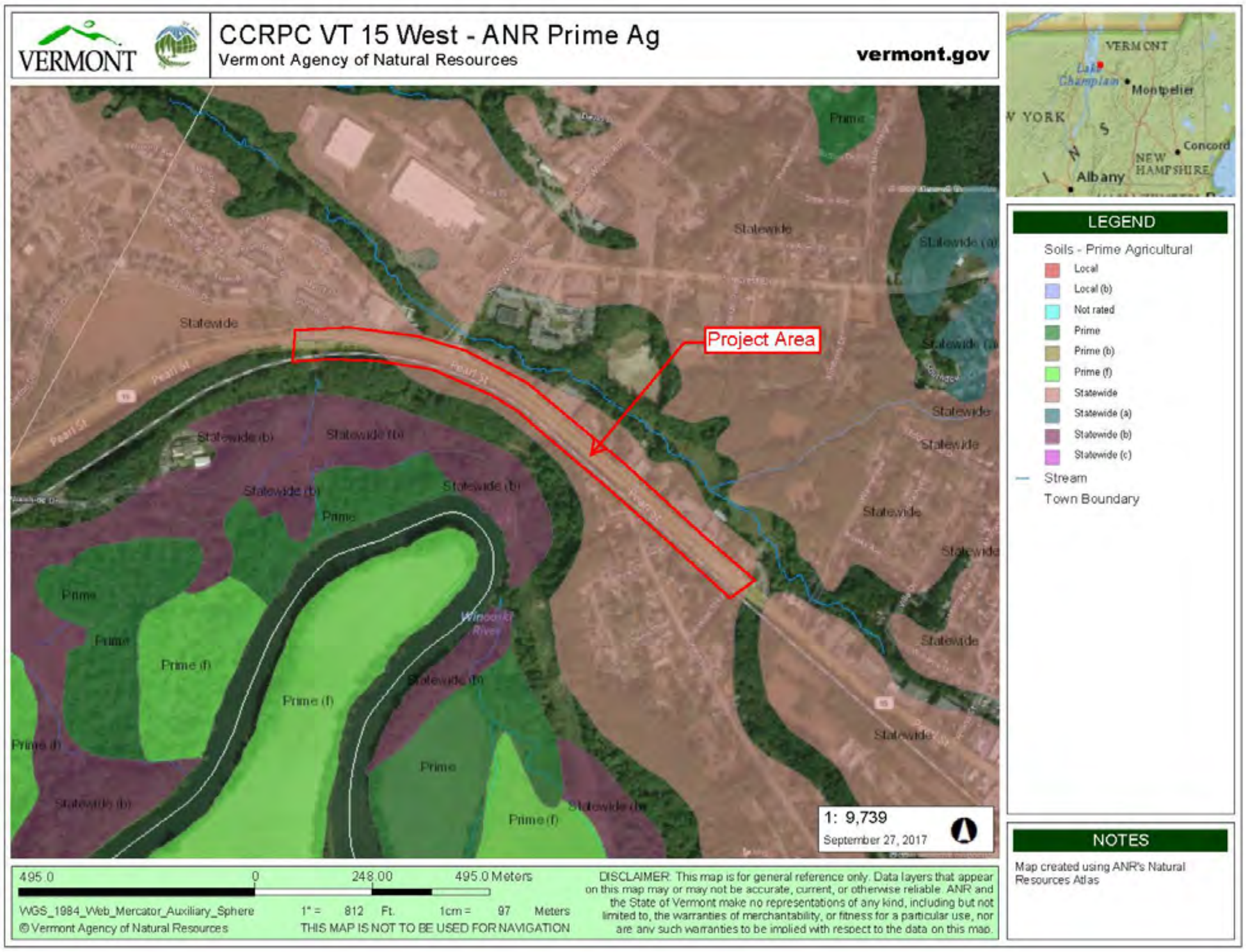
RTE Review. Several state-Threatened and rare plant species and rare habitat types are mapped by ANR within the project area (see ANR RTE figure below). These plants and habitat types are all located along the south side of VT Route 15.

Figure 16 VT Route 15 West - RTE



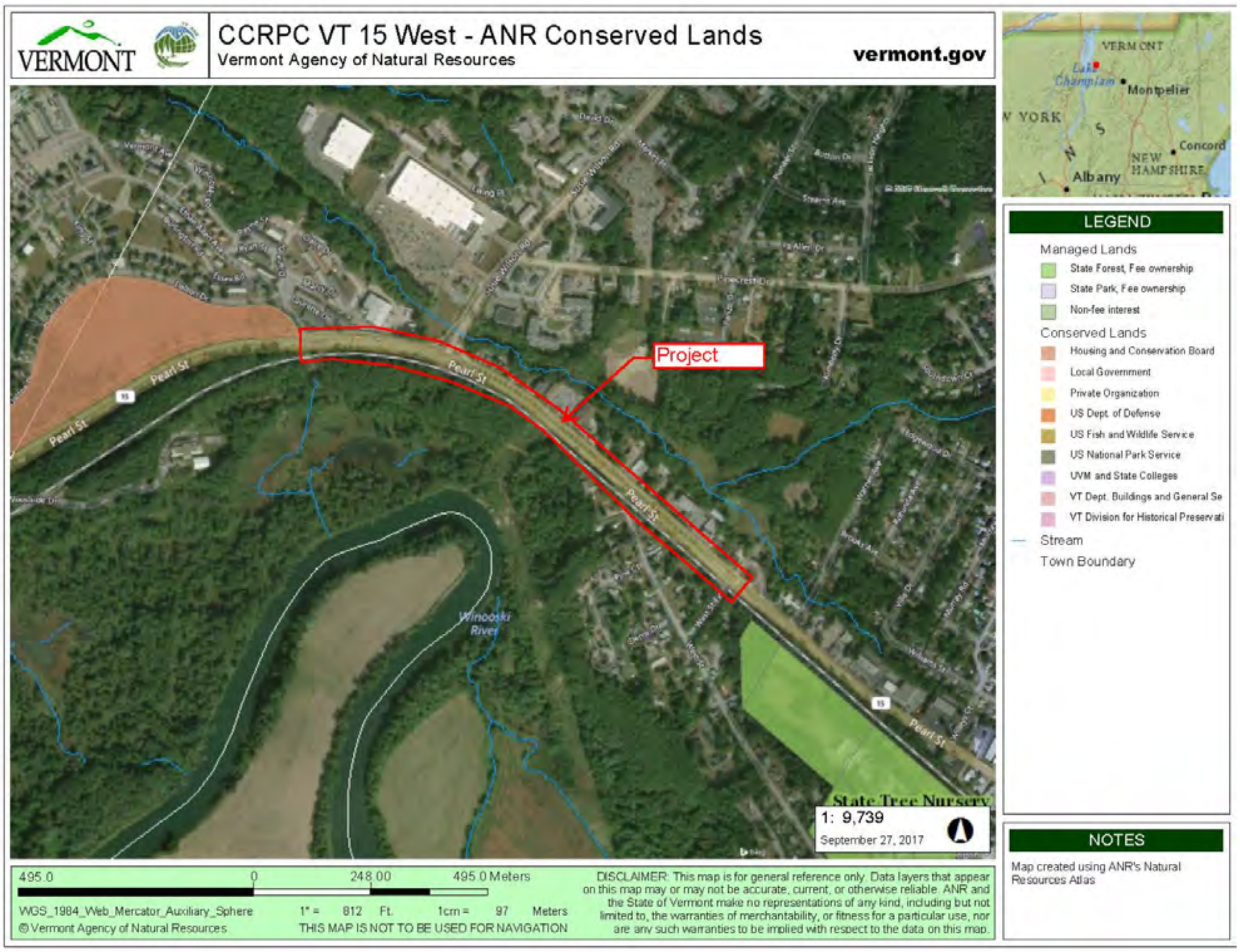
Agricultural Soils. According to the *Natural Resources Atlas,* the soils within the project area include Statewide agricultural soils (see attached ANR Prime Ag Figure). The Farmland Policy Protection Act does not apply to projects within existing road ROWs. If any work is proposed outside of existing ROW, authorization from the NRCS via form AD-1006, the Farmland Conversion Impact Rating form, may be required.

Figure 17 VT Route 15 West – ANR Prime Ag



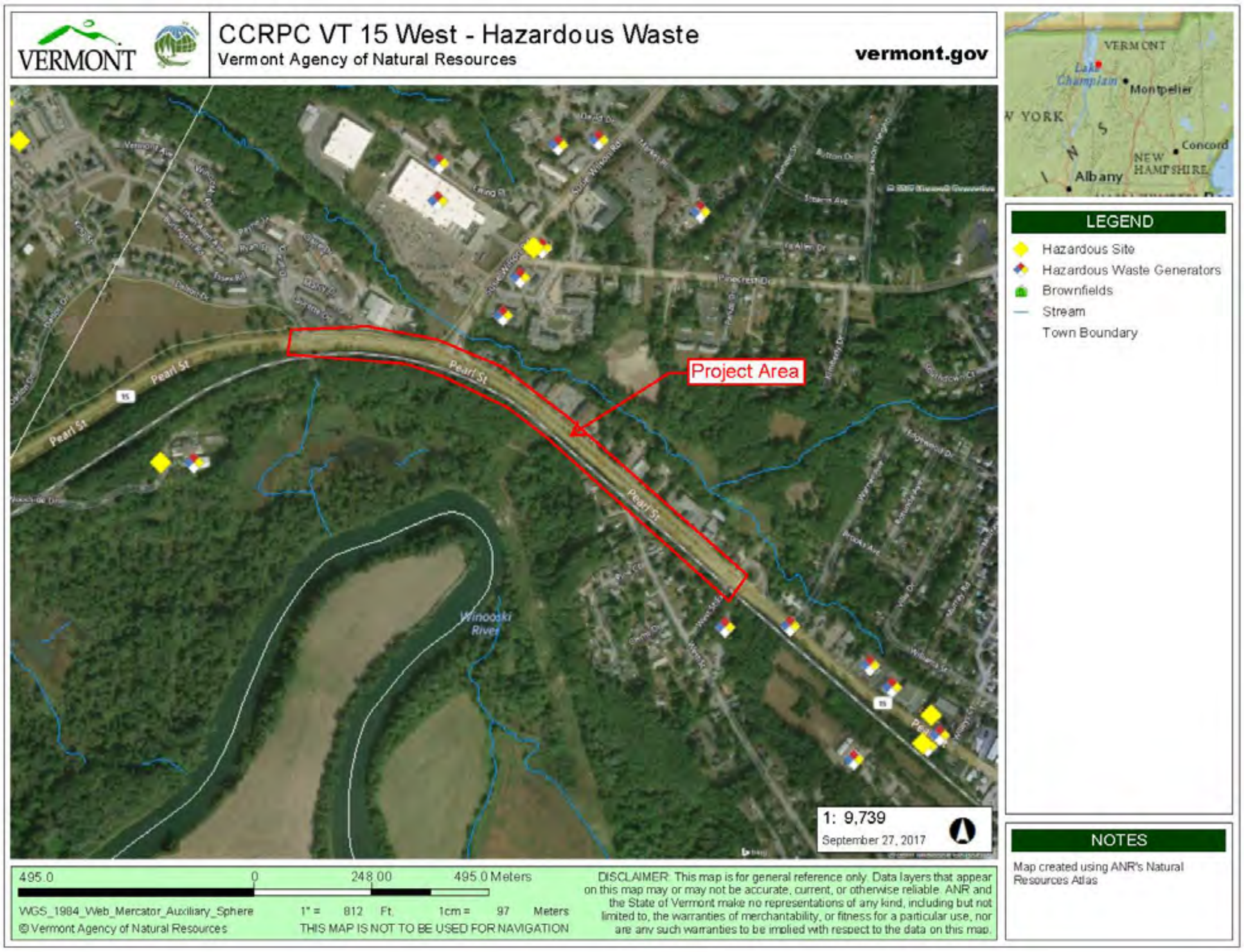
Public Lands. The project area does not include public recreation lands (a Section 4(f) resource) or public lands developed with Land and Water Conservation Funds (a Section 6(f) resource) (see attached ANR Conserved Lands figure). Note, however, that the Dalton Drive Parade Grounds at Fort Ethan Allen and the State Tree Nursery along West Street are in the project vicinity.

Figure 18 West - ANR Conserved Lands



Hazardous Waste Sites. The ANR mapping program was reviewed for information on Hazardous Waste Sites in the project vicinity. No active Hazardous Waste Sites or Hazardous Waste Generators are located within the project area (see attached ANR Hazardous Waste figure).

Figure 19 VT Route 15 West - Hazardous Waste



Natural Resource Review Summary – Site Investigation

Stantec conducted a site visit on October 18, 2017 to evaluate natural resources present within the project area.

Wetlands/Streams. The wetlands associated with Sunderland Brook were verified during the site investigation. These wetlands are located to the north of and outside of the project corridor. One additional wetland area was identified during the site visit. This wetland is located at the northeast corner of the VT Route 15 and Susie Wilson Road intersection. The wetland is associated Sunderland Brook. This palustrine emergent and scrub/shrub wetland is likely a Vermont Class II wetland with a regulated 50-foot buffer.

RTE Species. Stantec did not verify the presence of RTE species during the October 18, 2017 site visit since it was late in the growing season. Much of the corridor has been disturbed to some degree by mowing, clearing, or adjacent development. Further RTE surveys should be conducted during the growing season to verify the presence of any RTE species within the corridor.

Wildlife Habitat. The project area provides habitat for various wildlife species common to Vermont's suburban areas such as black-capped chickadee (*Poecile atricapillus*), blue jay (*Cyanocitta cristata*), raccoon (*Procyon lotor*), skunk (*Mephitis mephitis*), and gray squirrel (*Sciurus carolinensis*), as well as other species that may travel through the area. The proximity to VT Route 15 limits the value of the wildlife habitat.

Federal and State Wetland/Stream Regulations. The US Army Corps of Engineers (Corps) regulates wetlands and streams under the provisions of Section 404 of the Clean Water Act. The Corps has issued a Programmatic General Permit for the State of Vermont. Typically, wetland and stream impacts of less than one acre may be covered by a Programmatic General Permit (GP), with impacts of less than 3,000 s.f. often eligible for approval via a one-page Self-Verification Form. Note that the current GP will expire in December 2017, and the new GP may have different conditions and requirements.

The Vermont ANR regulates Class I and II wetlands and their buffers. The wetland area associated with Sunderland Brook is likely a Class II wetland. Therefore, any impacts to this wetland or its 50-foot buffer would likely require authorization under the Vermont Wetland Permit or Vermont General Permit. The classification of this wetland must be verified by ANR. Stormwater designs must address the impaired status of Sunderland Brook.

4.0 PURPOSE AND NEED STATEMENT

The following statement was developed based on the existing conditions assessment, public input, and project advisory committee discussions.

Purpose: The purpose of this project is to provide a safe, visible, comfortable, convenient, and direct bicycle facility connecting existing and/or planned facilities on VT Route 15 between (Ethan Allen Avenue) Susie Wilson Road and West Street extension, for bicyclists of various ages and abilities, while maintaining safe and efficient vehicular and pedestrian conditions on VT Route 15.

Need:

1. **Complete a missing bicycle facility link in the town, village, and regional bicycle network.** VT Route 15 is an important regional transportation corridor that was reconstructed in the 1960's as a median divided highway with four (4) 12-foot lanes. It has long been recognized that this area of VT Route 15 lacks bicycle facilities and while some improvements have been constructed, gaps remain. East of the study area bicycle lanes exist along VT Route 15 from West Street Extension to the Five Corners intersection and beyond. West of the study area a shared use path from Lime Kiln Road to Susie Wilson Road has been designed and construction is expected in 2022. This leaves a missing link in the bicycle network from Susie Wilson Road to West Street extension.

2. **Provide an inviting travel corridor for a growing number of residents and bicycle commuters that reinforces the Town's, Village's and Region's goals for pedestrian and bicycle mobility.** Land use and zoning changes in the project area have introduced a greater need to connect corridor residents to surrounding destinations. The 2016 Essex Town Plan states the following specific transportation policy: "Multiple modes of transportation that connect residents to schools, work places, shopping centers and recreational areas shall be supported." The 2014 Village Comprehensive Plan objectives include: continuing to increase the number of sidewalks and other facilities to support bike and pedestrian travel, making it easier for residents to visit downtown businesses; provide well-marked bike and pedestrian lanes, to encourage safety by allowing residents to comfortably and securely navigate the community; and promote and implement strategies to encourage the use of bicycles as alternate transportation modes.

3. **Facilitate use by all age groups, experience levels, and trip purposes.** The current facility – VT Route 15 roadway and existing sidewalk - is challenging for all bicycle users, including the most experienced and confident cyclists. The existing roadway is posted at 45 mph and has 4 lanes, 12-feet wide, and no shoulders for much of the corridor. This discourages would-be commuters and recreational cyclists needing to travel along VT Route 15. This connection would provide access to schools, shopping centers, and work places and therefore it is expected to be used by a wide range of ages and abilities.

5.0 FUTURE CONDITIONS

5.1 FUTURE TRAFFIC VOLUMES

Roadway and traffic conditions in the study area were projected to a future design year of 2030. Existing Design Hour traffic volumes were increased by 8 percent. This growth rate was obtained from the 2015 VTrans *Red Book* which compiles and analyzes traffic volume data collected by VTrans. The VTrans recommended growth factor to increase 2017 volumes to 2030 is 1.08. Intersection operations were then analyzed for the future travel demands. The resulting 2030 AM and PM peak hour traffic flow networks are shown in Figure 20 through Figure 25.

Figure 20 2030 AM Design Hour Volumes

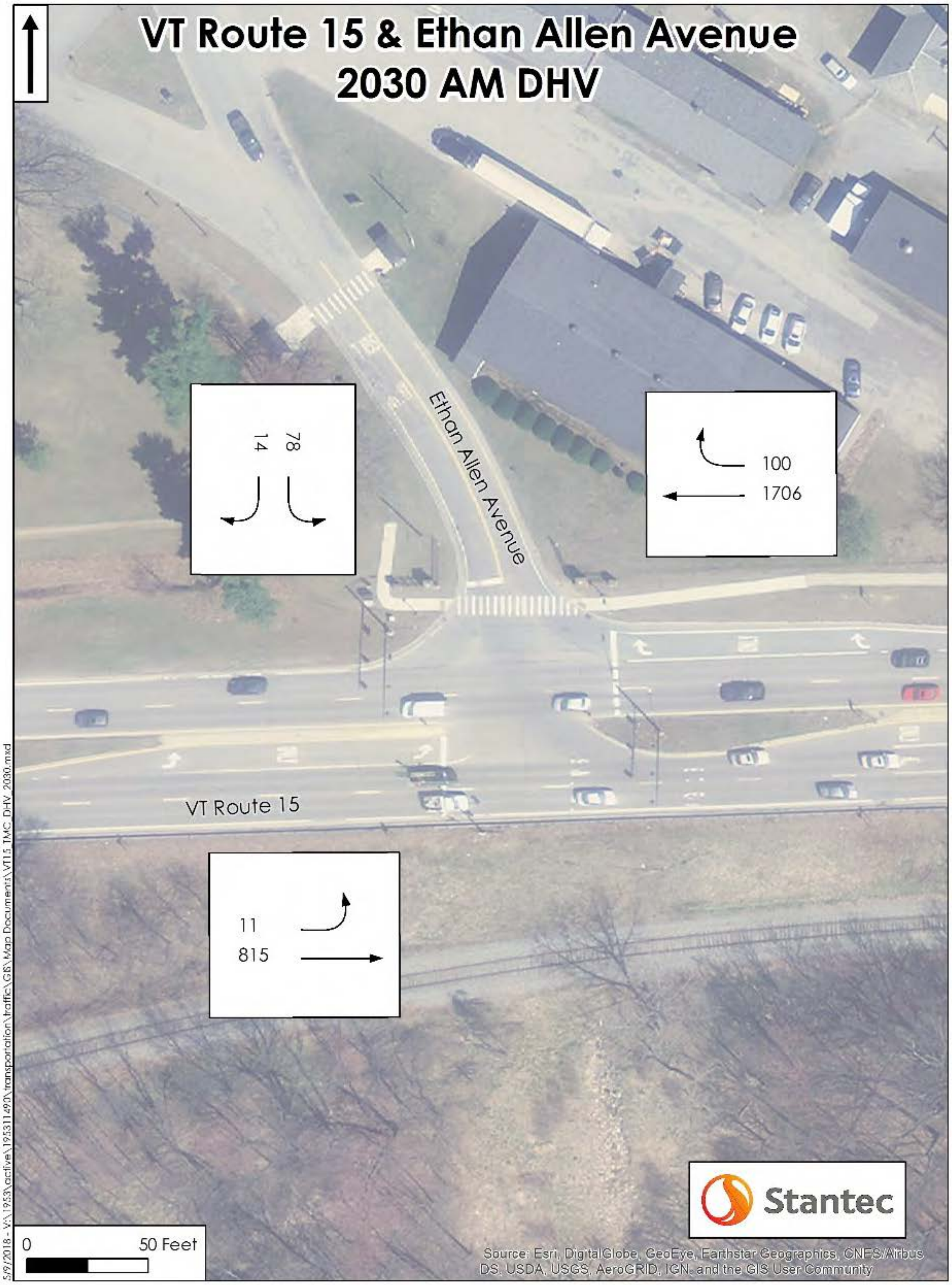


Figure 21 2030 AM Design Hour Volumes

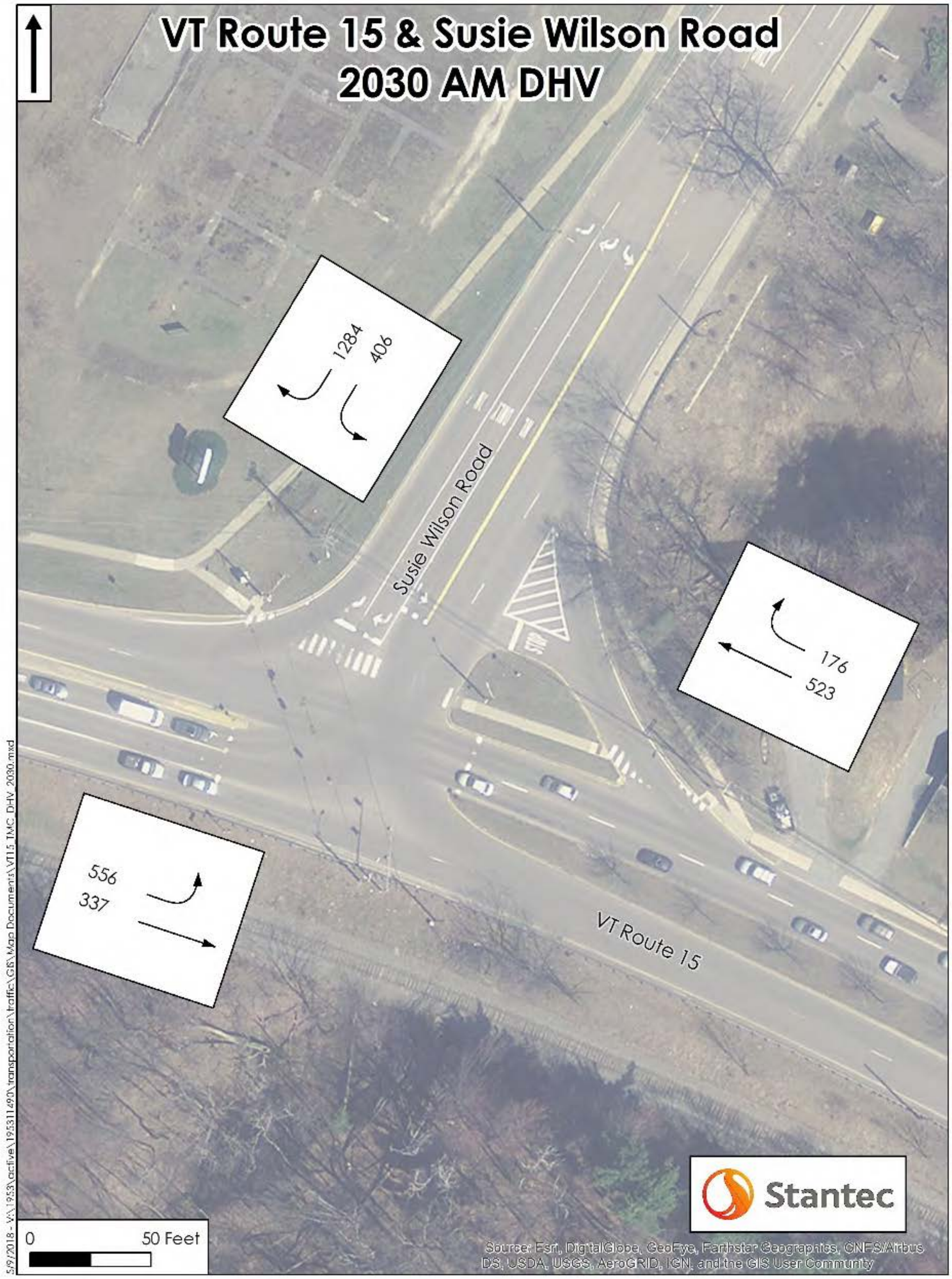


Figure 22 2030 AM Design Hour Volumes

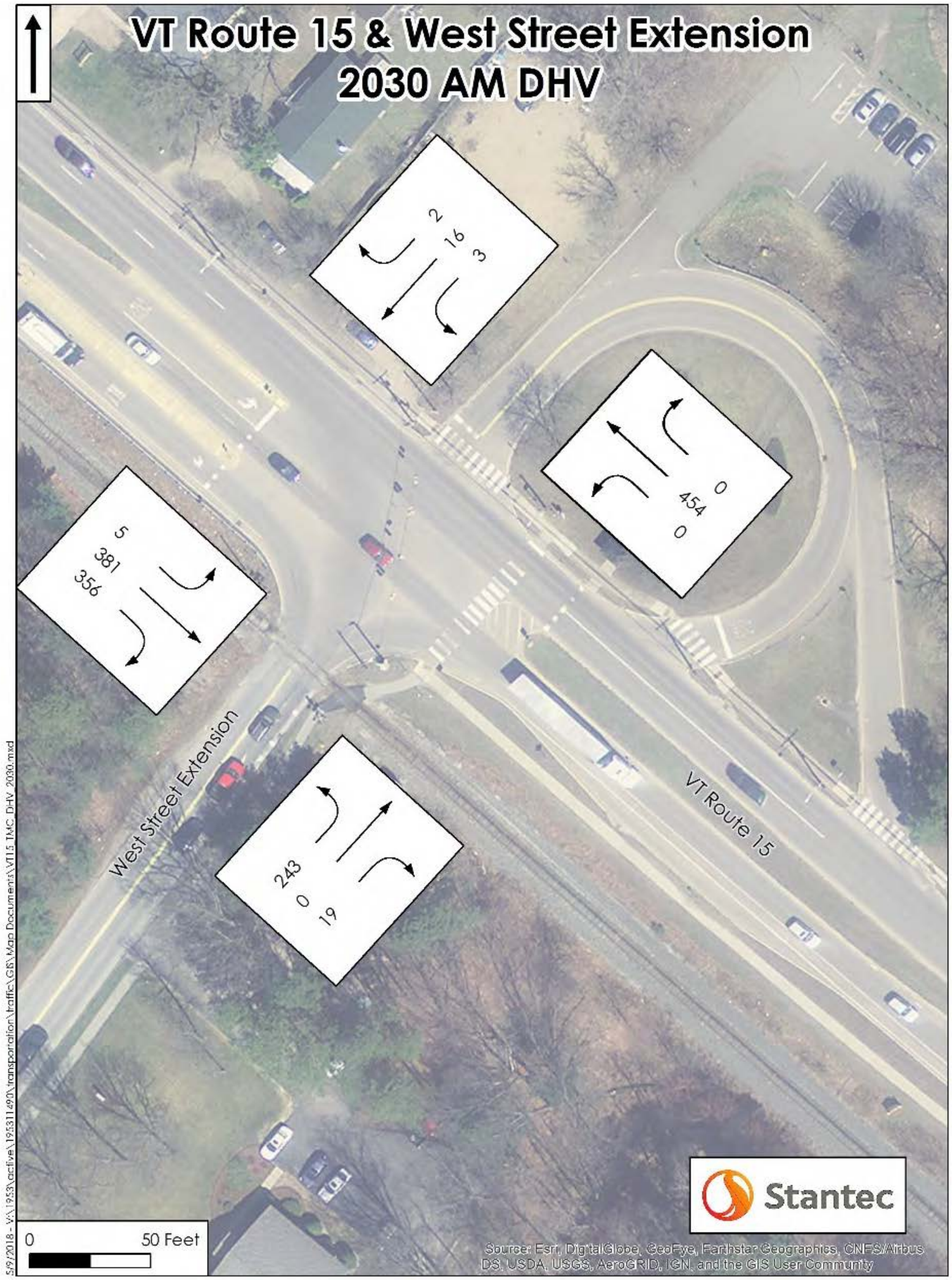


Figure 23 2030 PM Design Hour Volumes

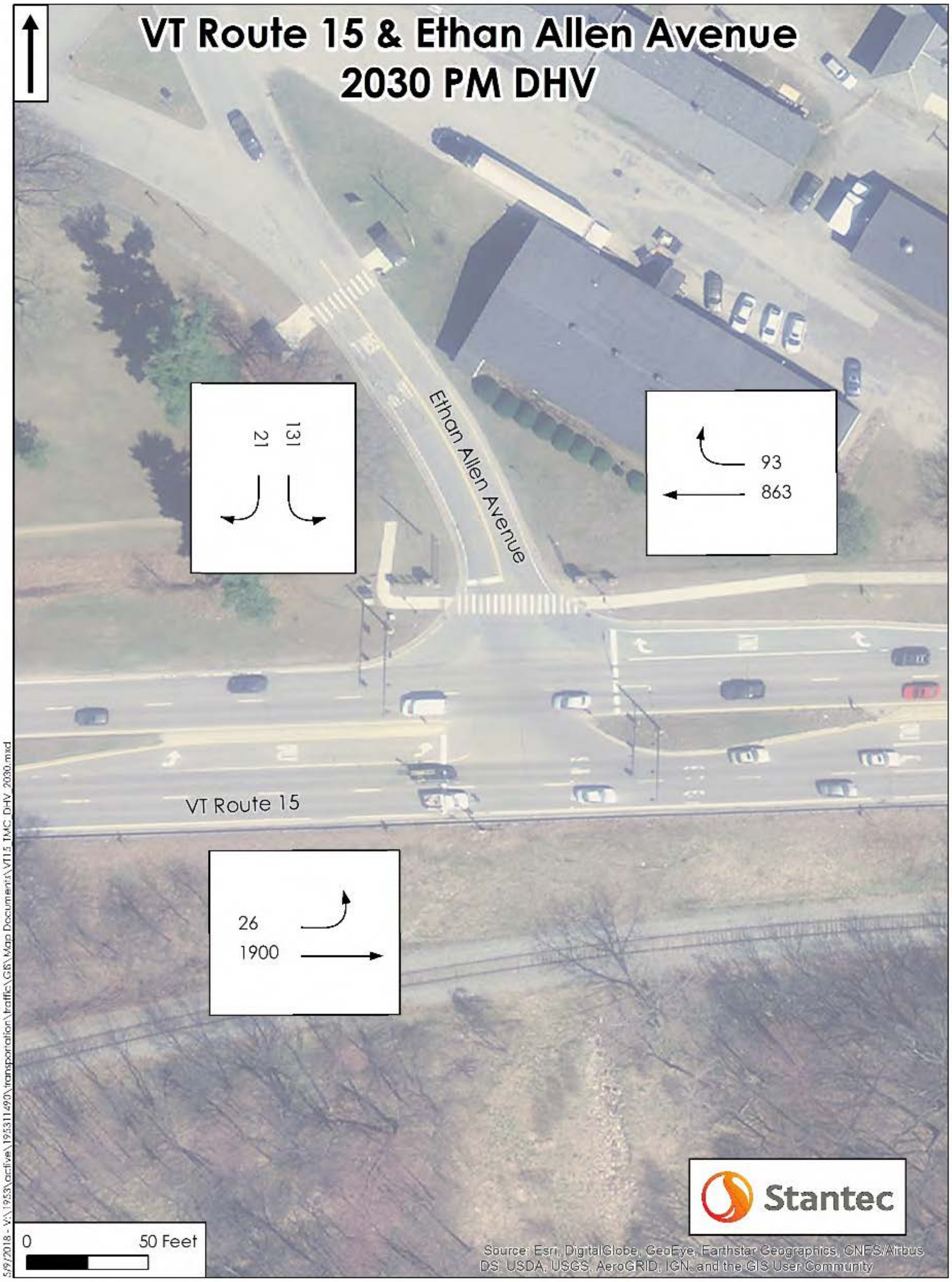


Figure 24 2030 PM Design Hour Volumes

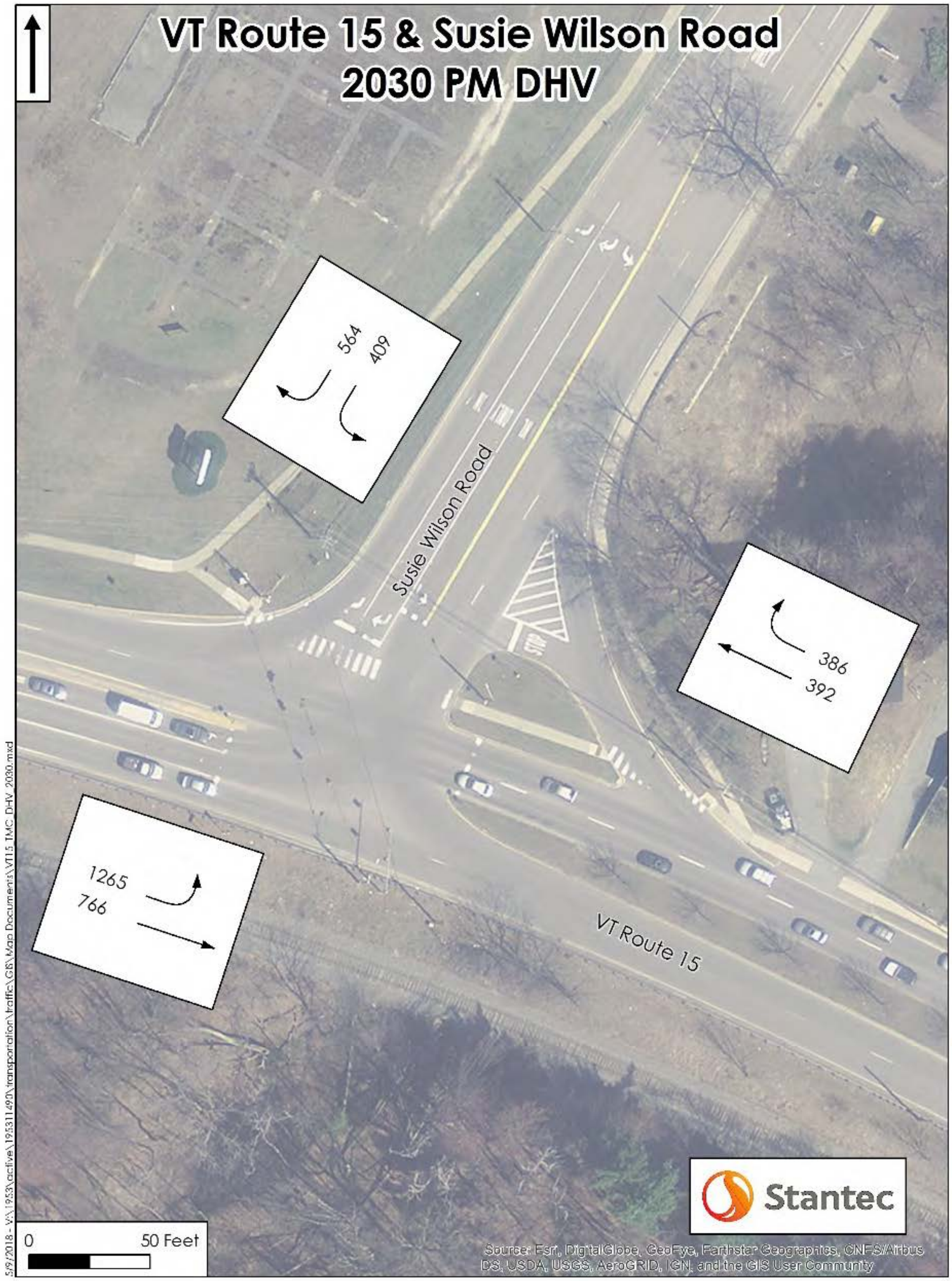
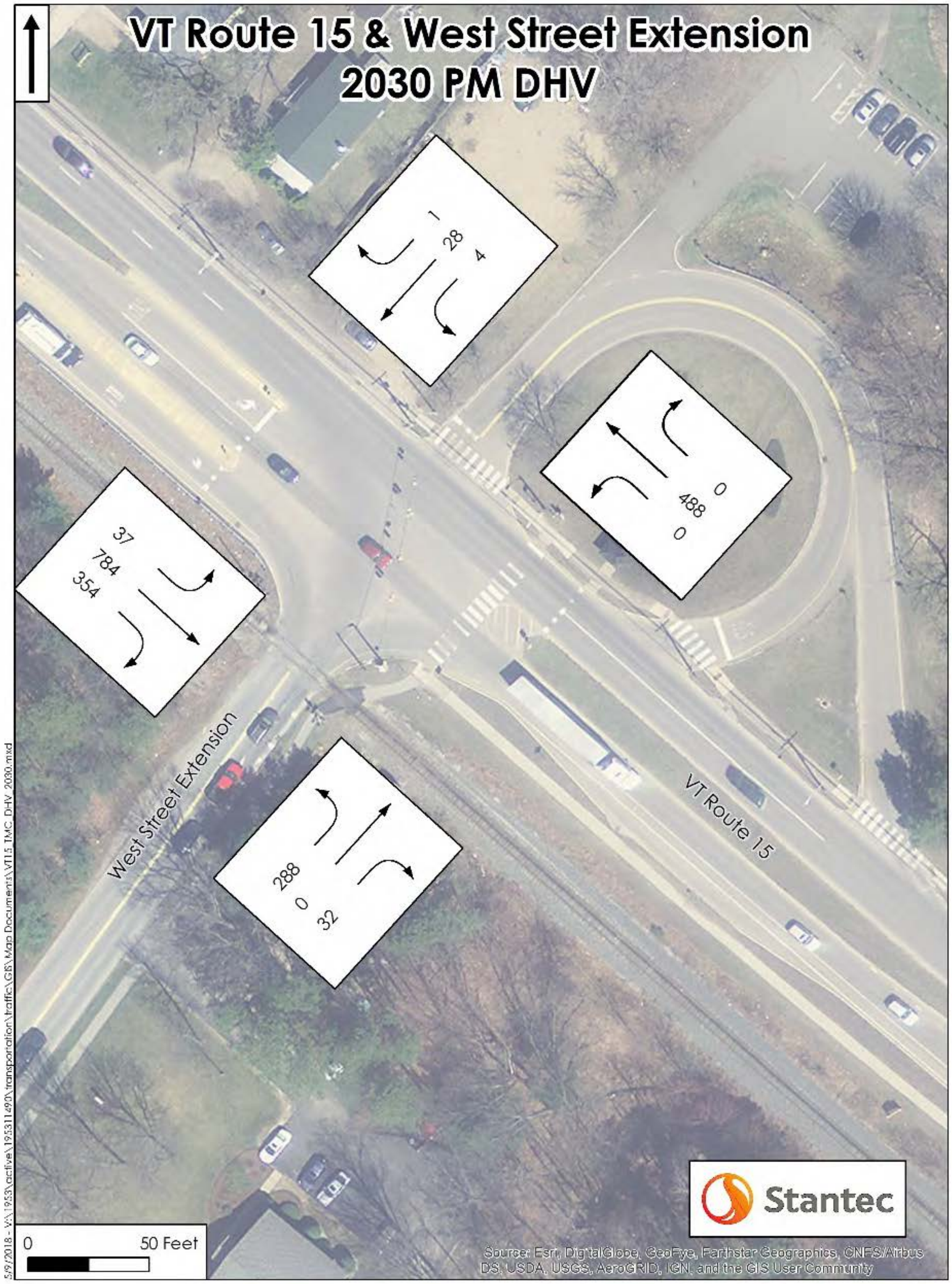


Figure 25 2030 PM Design Hour Volumes



5.2 FUTURE TRAFFIC OPERATIONS

The traffic operations analysis conducted for existing traffic conditions were repeated for the future conditions based on the traffic growth assumptions described above. The analysis again examined the three intersections. As shown in Table 7 below, new traffic growth will increase utilization (V/C) during both the AM and PM peak hours for each of the intersections, with the most significant increase occurring at the controlling intersection of VT Route 15/Susie Wilson Road. However, LOS will remain unchanged at this intersection, and will stay at LOS C or above for the other two intersections.

Table 7 Existing Intersection Capacity Analysis Results

		Existing DHV			Future DHV (2030)		
	Peak Hour	LOS[1]	Delay[2]	V/C[3]	LOS[1]	Delay[2]	V/C[3]
Signalized Intersection							
VT Route 15 / Ethan Allen Ave							
	AM	B	17.5	0.69	C	23.0	0.74
	PM	B	20.0	0.81	B	18.3	0.84
VT Route 15 / Susie Wilson Rd							
	AM	C	27	0.76	C	27.2	0.94
	PM	D	44	0.87	D	48.2	0.99
VT Route 15 / West Street Ext							
	AM	A	9.6	0.48	B	10.1	0.52
	PM	B	14.9	0.79	B	17.4	0.85

[1] LOS= Level of Service
[2] Delay = Average delay expressed in seconds per vehicle
[3] V/C = Volume-to-capacity ratio for critical movements

6.0 ALTERNATIVES

The project advisory committee (PAC) considered a wide range of improvements to address the project's purpose and need. Replacing the existing 5-foot wide sidewalk along the north side from Susie Wilson Road to West Street extension with a 10-foot wide shared use path was considered. This improvement was discarded as it creates a conflict and safety concern with all bicyclists, including higher speed users, when crossing the numerous driveways and there were viable alternatives to accommodate higher speed on-road cyclists.

The PAC also discussed the need to consider potential future improvements at the VT Route 15/Susie Wilson Road intersection which could include two left-turn lanes from Susie Wilson Road to VT Route 15 eastbound. If two left-turn lanes are constructed on Susie Wilson Road, two receiving lanes on VT Route15 eastbound will be needed at the intersection. The preferred alternative selected should not preclude accommodation of two receiving lanes.

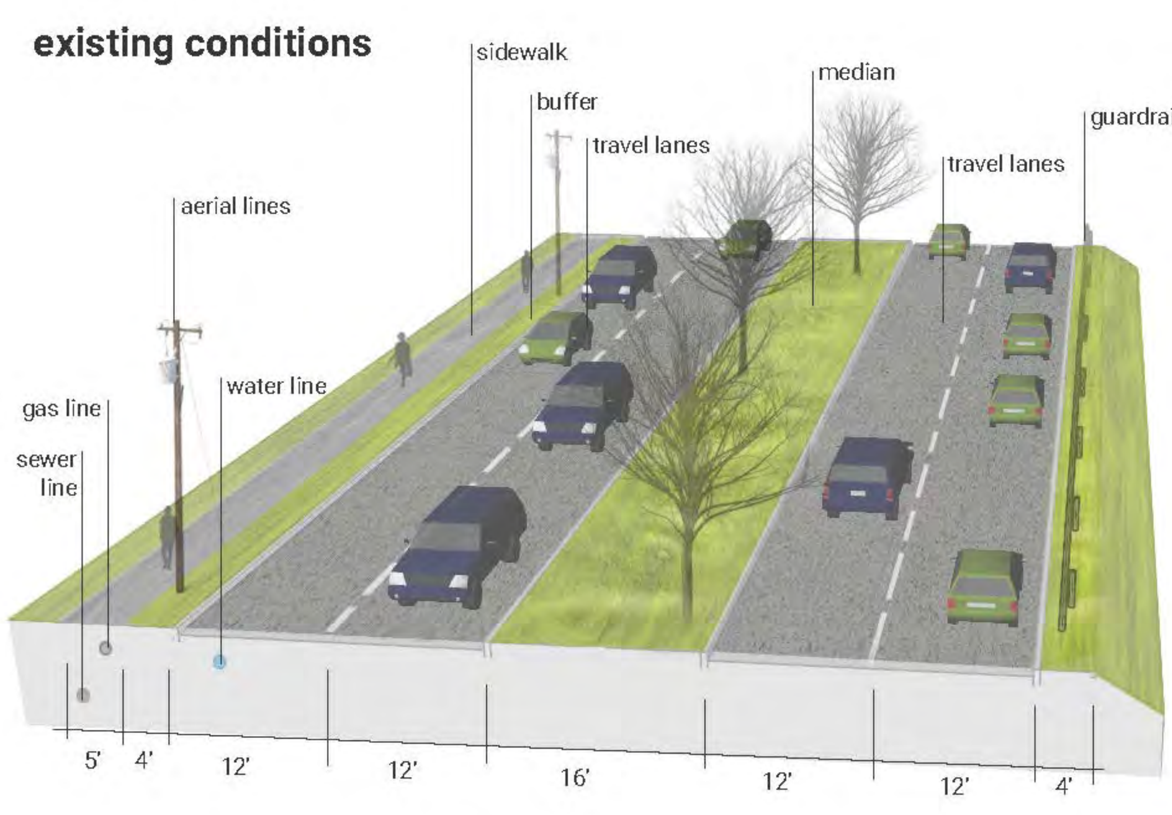
The resulting alternatives developed and evaluated include the following:

- Alternative 1: No Action
- Alternative 2: Two Lanes with Median
- Alternative 3: Three Lanes No Median

6.1 ALTERNATIVE 1: NO ACTION

For the No Action alternative, the existing transportation facilities in the project area remain as they exist today. The roadway would remain a four-lane facility with a median and no shoulders or bicycle facilities beyond the existing 5-foot sidewalk. Bicyclists traveling along VT Route 15 would continue to leave a shared use path to the west or bike lane from the east, and either assume a lane or use the existing 5-foot sidewalk. There would be no additional bicycle facilities or improvements. This alternative would have no construction costs and there would be no impacts to right-of-way, resources, or traffic. The No Action Alternative would not address the project's purpose and need and a missing link in the regional bike network would remain.

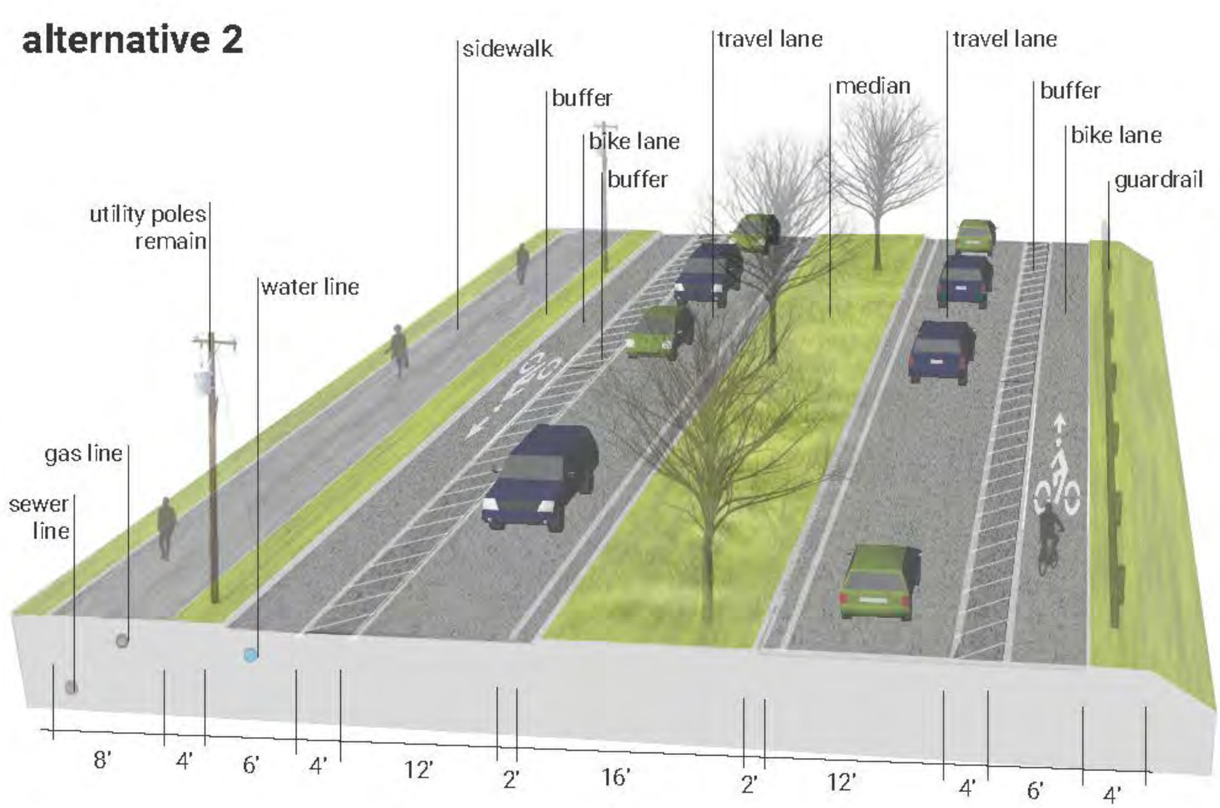
Figure 26 Alternative 1 Typical Section



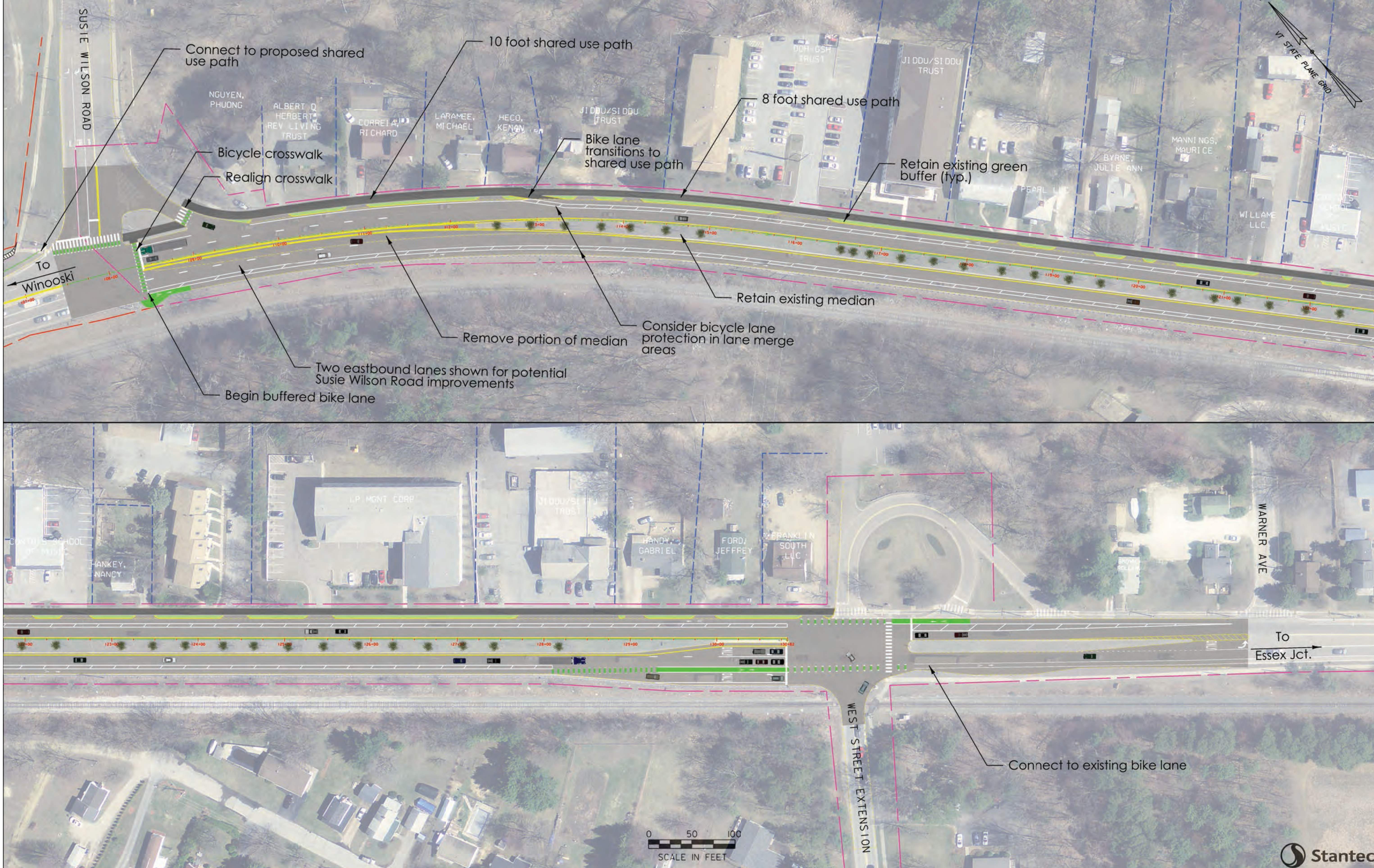
6.2 ALTERNATIVE 2: TWO LANES WITH MEDIAN

This alternative retains most of the existing median and converts the existing 2 travel lanes in each direction into a single travel lane with a buffered bike lane in each direction. One goal of this alternative was to develop a design that would have minimal impacts and costs, as well as being readily implemented. Most of the improvements with this alternative are accomplished with pavement markings and signage. A typical section and plan of this alternative is shown in Figures 27 and 28.

Figure 27 Alternative 2 Typical Section



Alternative 2: Two Lanes with Median



As shown on the plan this alternative includes the following features:

- Eastbound and Westbound buffered bike lanes on VT Route 15 and single travel lanes.
- Connection to the planned shared use path to the west of the Susie Wilson Road intersection via crosswalk.
- A bicycle signal and bicycle crosswalk on the VT Route 15 westbound approach at the Susie Wilson Road intersection, to access an eastbound buffered bike lane. This provides for the potential of a future eastbound bus stop.
- Two (2) VT Route 15 eastbound receiving lanes at the Susie Wilson road intersection if needed for the Susie Wilson road improvements. This requires removing the existing median for approximately 300 feet. The median removal could be deferred until the Susie Wilson Road improvements require them. Bike lane separation using vertical elements, such as flexible posts, should be considered in the vehicle merge areas.
- Westbound buffered bike lane exits to a shared use path approximately 400 feet prior to Susie Wilson Road.
- Median is retained, restricting left turns, and requiring continued use of jug handles for U-turns at the Susie Wilson Road and West Street Extension intersections.
- Provisions for westbound bus stops are included via pavement markings and signs.
- VT Route 15 eastbound buffered bike lane connects to buffered bike lane east of the West Street Extension intersection.
- VT Route 15 westbound buffered bike lane extends approximately 200 feet east of the West Street extension intersection and connects to the existing buffered bike lane. This reduces the VT Route 15 westbound approach lanes from two to one lane.
- VT Route 15 eastbound right turn lane crosses eastbound buffered bike lane on west approach to the West Street extension intersection.
- VT Route 15 continues to provide for temporary 4 lane operation during the CVE, by using traffic cones, but will restrict bicycle traffic in the buffered bike lanes.
- The existing northside 5-foot asphalt sidewalk is widened to 8 feet.
- Estimated construction cost is $800,000

These improvements do not impact drainage, right-of-way or utilities, or require permits, allowing this alternative to be readily implemented, subject to available funding. Many of the improvements could be eligible for a VTrans Class One town highway resurfacing project and therefore minimizing the local cost.

Based on the VTrans' 1964 plans, the existing highway right-of-way is approximately 8 feet north of the northern edge of the existing 5-foot sidewalk. This allows for the existing sidewalk to be widened by 3 feet in the northerly direction, to a width of 8 feet. This puts the north edge of sidewalk 3 feet closer to development and would require some construction and/or grading easements.

Operational Impacts

Analyses were performed to assess the potential traffic impacts of reducing the number of travel lanes on VT Route 15, from four lanes to two lanes, between Susie Wilson Road and West Street Extension. These analyses are documented in a memo in Appendix D. The assessment includes the two endpoint intersections at Susie Wilson Road and at West Street Extension. The analyses indicate that capacity along the roadway segment from Susie Wilson Road to West Street Extension is sufficient with the lane reduction. The analyses also indicate the need to maintain two lanes on the westbound approach to the intersection with Susie Wilson Road. At the West Street intersection there is adequate capacity to permit elimination of one of the two westbound through lanes.

CCRPC staff used the regional travel demand model to estimate the increase in vehicle travel delay and resulting decrease in traffic volume due to a lane reduction in each direction along this segment. The model predicts that the lane loss/capacity reduction would cause some motorists to divert to an alternate route, Susie Wilson Road and VT Route 289. The model only considered reducing from 4 to 2 lanes in the roadway segment without assuming changes to the intersections. It was based on the 2015 PM peak hour traffic volumes. Results are displayed below. Given the posted speed limit of 45 MPH, with a roadway segment length of approximately 2,250 FT, a baseline travel time was determined to be 34 seconds. A lane reduction increases travel time 41% to 48 seconds for westbound travel and increases travel time 32% to 45 seconds for eastbound travel along this segment.

Table 8 Anticipated Changes in Travel Delay and Roadway Volumes Due to Lane Reduction

	Delay Increase Per Vehicle (Seconds)	PM Peak Hour Volume Changes (Vehicles)
Westbound	**14**	**-73**
Eastbound	**11**	**-27**

The carrying capacity of the VT Route 15 roadway segment between the two intersections was first considered. The *2010 Highway Capacity Manual* provides a baseline capacity for a multilane highway segment with a speed limit of 45 MPH of 1,900 pc/h/ln (passenger cars per hour per lane). With two lanes in each direction along this segment, 3,800 vehicles per hour is assumed to be the directional capacity. The table below displays volume-to-capacity (V/C) ratios calculated for the baseline and reduced lane conditions, using 2017 directional PM peak hour volumes obtained from VTrans. As shown, volume-to-capacity ratios will increase with the lane reduction, however the resulting operating ratios remain well below capacity.

Table 9 Roadway Segment Operations Analysis

	Existing			Lane Reduction		
Direction	**Volume**	**Capacity**	**V/C Ratio**	**Volume**	**Capacity**	**V/C Ratio**
Westbound	555	3800	0.15	482	1900	0.25
Eastbound	749	3800	0.20	722	1900	0.38

Intersection operations analyses were conducted to determine if the road diet treatment could be carried through both intersections. Conditions with and without the lane reduction were compared. For the "with lane reduction" conditions, the estimated changes in volume reported in Table 8 were assumed. From a geometric perspective, the "with lane reduction" conditions eliminated a VT Route 15 westbound through travel lane at both intersections. (The eastbound VT Route 15 approaches would be unaffected by the lane reduction as they each provide only a single through lane under existing conditions.) Results, displayed below, indicate no change to the overall LOS B for the West Street Extension intersection, with intersection delay remaining the same, and the Volume-to-Capacity ratio essentially remaining the same. Results of analyzing having only one through lane on the VT Route 15 westbound approach at Susie Wilson Road indicate the need to maintain two lanes for at least 300 feet, tapered to one westbound lane upstream. This is based on the queue calculations and signal green phase duration for this approach. That analysis is documented in the memo in Appendix D. Results below show that Alternative 2 has no significant impact to traffic operations compared with Alternative 1, the No Action alternative.

Table 10 Intersection Capacity Analysis Results

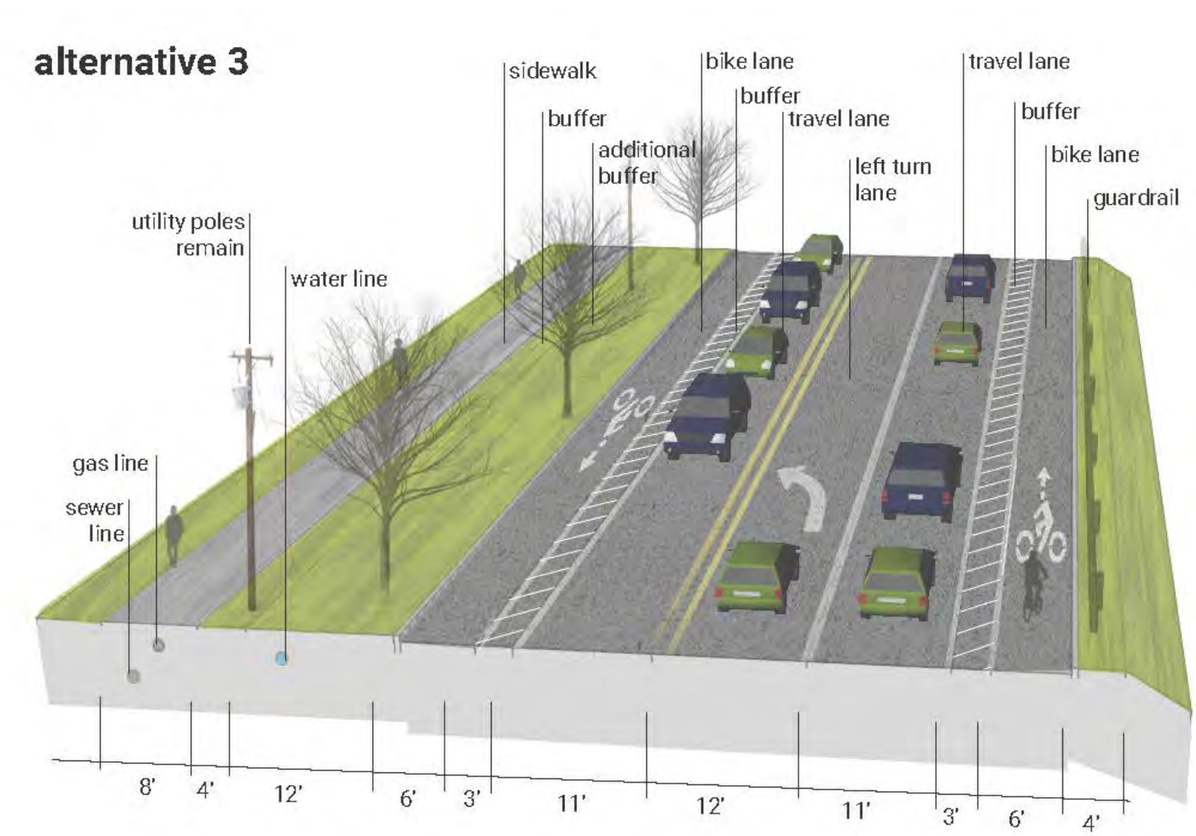
		Future DHV (2030)					
		Alternative 1 (No Action)			Alternative 2		
	Peak Hour	LOS[1]	Delay[2]	V/C[3]	LOS[1]	Delay[2]	V/C[3]
Signalized Intersection							
VT Route 15 / Susie Wilson Rd							
	AM	C	27.2	0.94	C	27.2	0.94
	PM	D	48.2	0.99	D	48.2	0.99
VT Route 15 / West Street Ext							
	AM	B	10.1	0.52	B	11.1	0.58
	PM	B	17.4	0.85	B	18.2	0.85

[1] V/C = Volume-to-capacity ratio for critical movements
[2] Delay = Average delay expressed in seconds per vehicle
[3] LOS= Level of Service

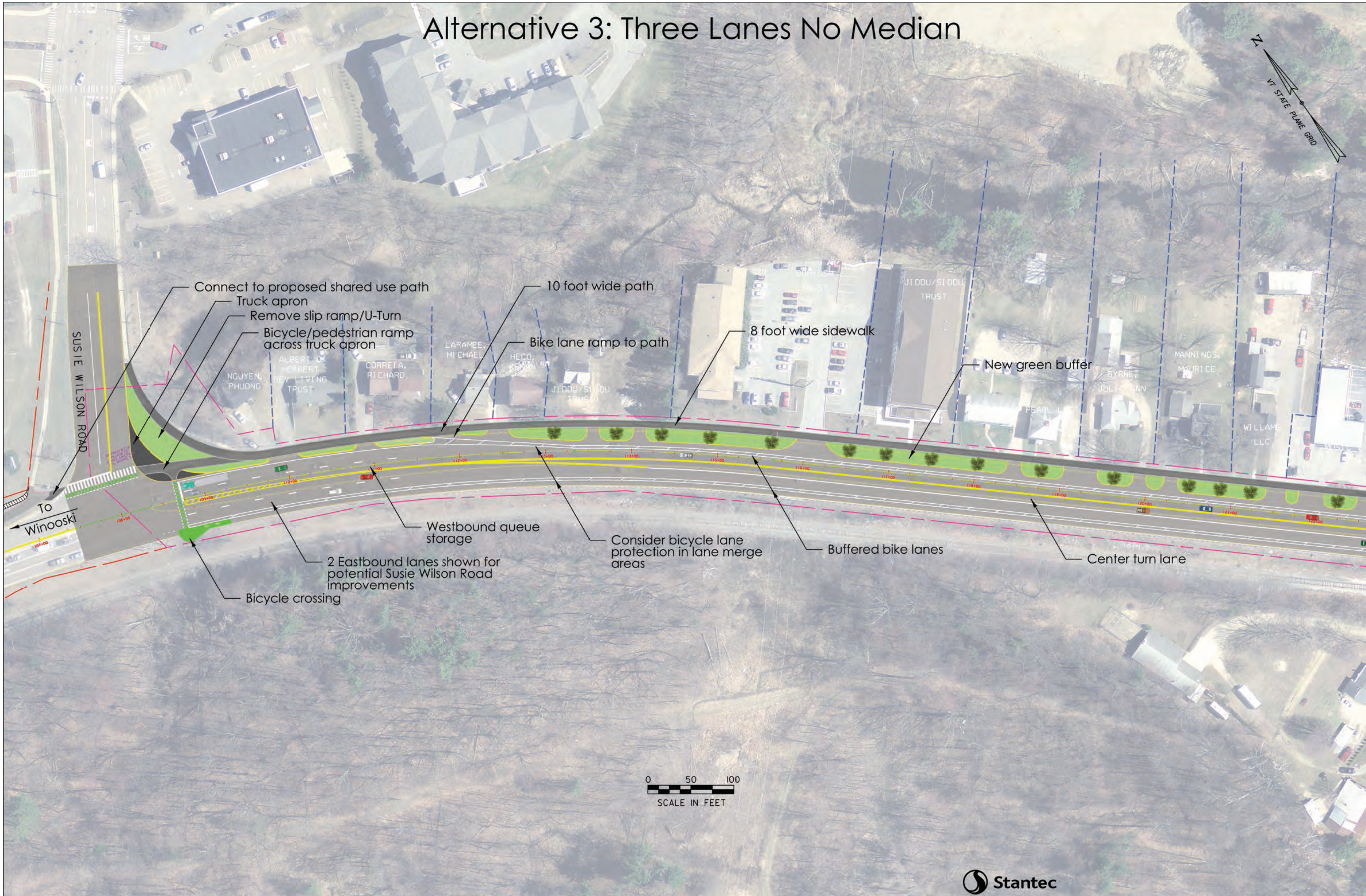
6.3 ALTERNATIVE 3: THREE LANES NO MEDIAN

This alternative removes the existing median and converts the existing 2 travel lanes in each direction into a single travel lane, with a left turn lane for eastbound traffic, and a buffered bike lane in each direction. A typical section of this alternative is shown below, and an alternative plan is on the following page.

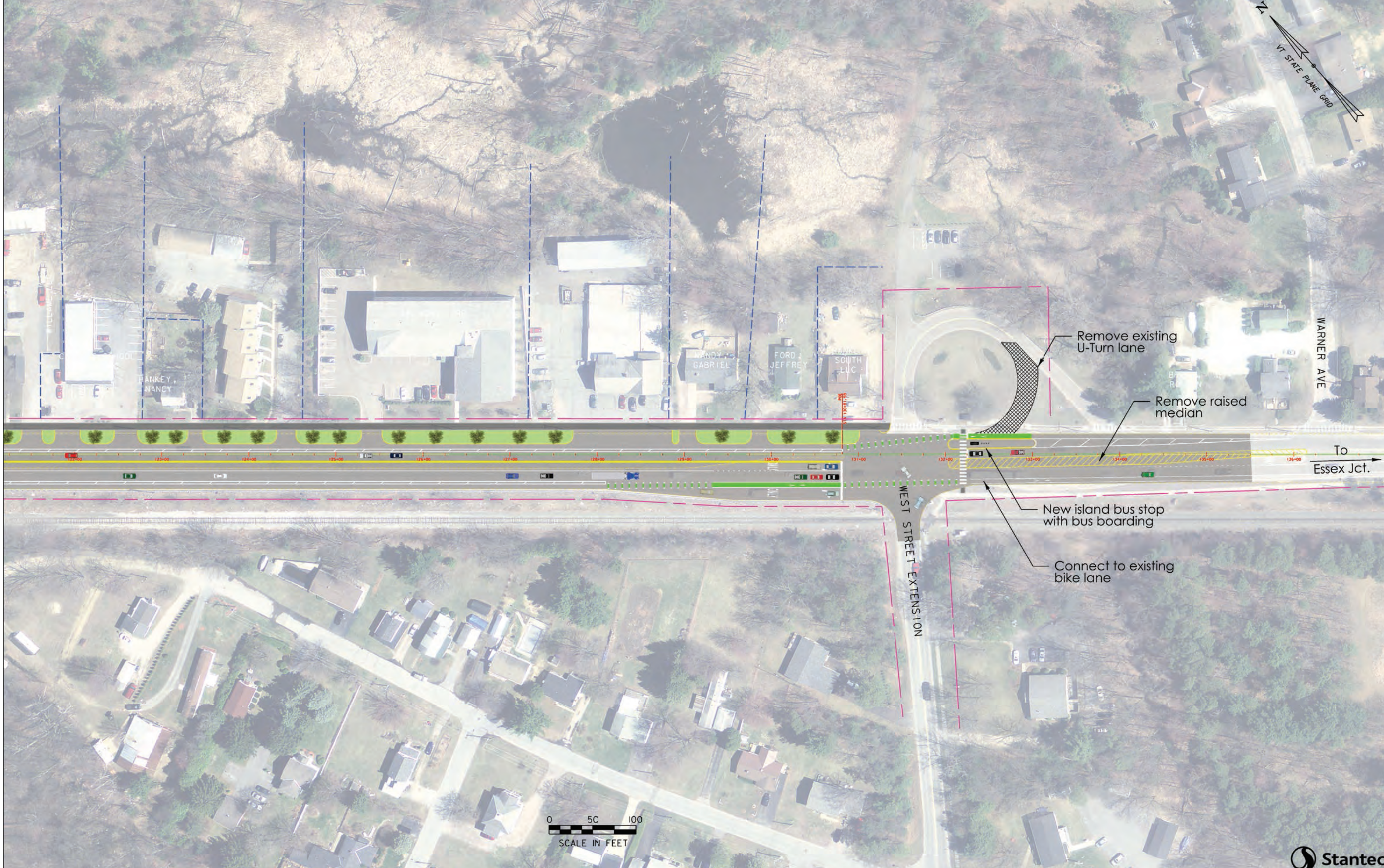
Figure 29 Alternative 3 Typical Section



Alternative 3: Three Lanes No Median



Alternative 3: Three Lanes No Median



As shown on the plan this alternative includes the following features:

- Eastbound and westbound buffered bike lanes on VT Route 15, single travel through lanes, and a left turn lane for eastbound traffic, to access north side driveways.
- Connection to the planned shared use path at the west of the Susie Wilson Road via a crosswalk.
- A bicycle signal and bicycle crosswalk on the VT Route 15 east approach to access eastbound buffered bike lane. This does provide for the potential of a future eastbound bus stop.
- Two (2) VT Route 15 eastbound receiving lanes at the Susie Wilson road intersection. This requires reducing the existing median from 16 feet wide to 4 feet for approximately 300 feet. The median removal could be deferred until the Susie Wilson Road improvements required them. Vertical bike lane separation vertical elements, such as flexible posts or armadillos, should be considered in the vehicle merge area.
- Westbound buffered bike lane transitions to shared use path approximately 400 feet prior to Susie Wilson Road.
- Median is removed, allowing left turns into and out of north side driveways.
- Provisions for westbound bus stops are included via pavement markings and signs.
- VT Route 15 eastbound buffered bike lane connects to buffered bike lane on the east side of West Street Extension intersection.
- VT Route 15 westbound buffered bike lane extends approximately 200 feet east of the West Street extension intersection and connects to the existing buffered bike lane. This reduces the VT Route 15 westbound approach lanes here from two to one lane.
- VT Route 15 eastbound right turn lane crosses eastbound buffered bike lane on west approach to the West Street extension intersection.
- VT Route 15 continues to provide for temporary 4-lane operation during the CVE, by using traffic cones, but will restrict bicycle traffic in the buffered bike lanes.
- The estimated construction cost is $1,800,000.

This alternative results in over one acre of new and expanded impervious surface which surpasses the threshold and will require an operational stormwater permit. Because some of the existing impervious will be replaced by the new grass buffer areas, however, the total new and expanded impervious can be offset. The net total requiring treatment is roughly 1/3 of an acre.

This can be treated within the proposed green buffers, in a relatively low-maintenance manner, with bioretention, box filters or a combination of the two.

These improvements impact curbs and drainage, require some road reconstruction and a stormwater operational permit and have a greater construction cost. Many of the improvements could be eligible for a VTrans Class One town highway resurfacing project and therefore reducing the project and/or local cost.

Operational Impacts

The same traffic operations analyses performed for Alternative 2 were also applied to Alternative 3. Results below also show that Alternative 3 has no significant negative impact to traffic operations compared with Alternative 1, the No Action alternative.

Table 11 Intersection Capacity Analysis Results

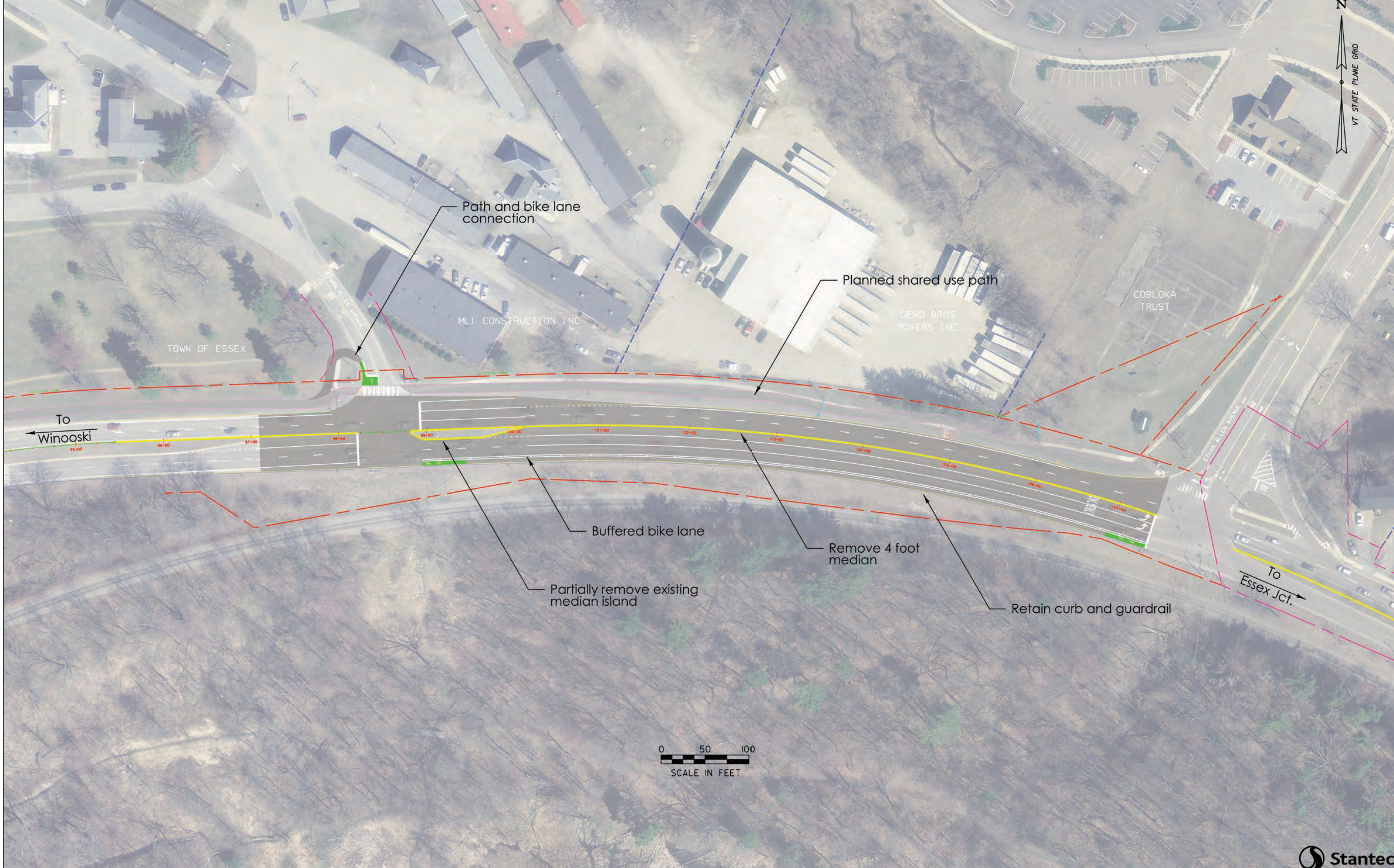
		Future DHV (2030)					
		Alternative 1 (No Action)			Alternative 3		
	Peak Hour	LOS[1]	Delay[2]	V/C[3]	LOS[1]	Delay[2]	V/C[3]
Signalized Intersection							
VT Route 15 / Susie Wilson Rd							
	AM	C	27.2	0.94	C	27.2	0.94
	PM	D	48.2	0.99	D	48.2	0.99
VT Route 15 / West Street Ext							
	AM	B	10.1	0.52	B	11.1	0.58
	PM	B	17.4	0.85	B	18.2	0.85

[1] V/C = Volume-to-capacity ratio for critical movements
[2] Delay = Average delay expressed in seconds per vehicle
[3] LOS= Level of Service

6.4 OPTION A: ETHAN ALLEN TO SUSIE WILSON BIKE LANE

During PAC discussions, it was pointed out that bicyclists traveling eastbound on the future shared use path, who intend to continue eastbound on VT Route 15, would have to cross Susie Wilson Road and then VT Route 15, likely requiring two signal phases. To address this and provide an additional and more direct connection for eastbound bicyclists, an option, that could be added to either of the previously described alternatives, was developed. Option A provides a 5-foot bike lane and 2-foot buffer for eastbound bicyclists between Ethan Allen Avenue and Susie Wilson Road along VT Route 15. This is accomplished by removing the existing median, which varies from 4 to 16 feet wide, from Ethan Allen Avenue to Susie Wilson Road, and reducing the eastbound travel lanes from 12 feet to 11 feet. The existing westbound lanes would remain 12 feet wide and the planned 10-foot shared use path on the northside would remain.

Option A: Ethan Allen to Susie Wilson Bike Lane



This option includes a connection from the planned shared use path on the north side of VT Route 15 to a short on-road bike lane segment on Ethan Allen Avenue. Eastbound bicyclists enter the southbound Ethan Allen Avenue bike lane, use the existing traffic signal phase to turn left across VT Route 15 and enter the eastbound bike lane. This bike lane connects to the proposed eastbound bike lane east of the Susie Wilson Road intersection, where users are controlled by the signal. This option is compatible with Alternatives 2 and 3 and retains the crossings at the Susie Wilson Road Intersection as proposed in these alternatives. This option has no right-of-way or utility impacts and requires no permits. As this portion of VT Route 15 is a state highway, owned and maintained by VTrans, it requires their concurrence and can be part of a future state highway resurfacing project. A plan of this alternative follows.

A westbound bike lane was discussed but is not recommended. Westbound bicyclists, whether on the shared use path or on a bike lane, still need to cross with a signal phase at Susie Wilson Road. It was concluded it would be safer to encourage westbound bicyclists onto the shared use path east of Susie Wilson Road.

6.5 COMPARISON OF ALTERNATIVES

6.5.1 Alternative Impacts

Traffic Operations

The most significant variance in traffic operations between Alternatives 2 and 3 is the effects on the existing westbound VT Route 15 U-turn operation at Susie Wilson Road. This U-turn operation is problematic in that is does not have a dedicated signal phase but operates concurrently with the Susie Wilson Road left turn signal phase. This requires motorists using the U-turn to make use of gaps in Susie Wilson Road left turning traffic during their green phase. Alternative 2 does not address this condition and the current operation remains, pending the Susie Wilson Road improvements currently being developed by VTrans.

Alternative 3 removes the VT Route 15 median between Susie Wilson Road and West Street Extension which allows left turns to and from the VT route 15 driveways and removes the U-turn operation. Alternative 3 also removes the channelized right turn on the westbound VT Route 15 approach to the intersection with Susie Wilson Road, which has little impact on the intersection performance.

Alternatives 2 and 3 maintain the existing lane configuration at the Susie Wilson Road intersection, including the 2 westbound and eastbound approach lanes on VT Route 15. Although a VT Route 15 bike crossing phase is added to the signal phasing, this phase is concurrent with the VT Route 15 left turn phase and does affect the intersection’s capacity.

VT Route 15 eastbound currently has two lanes east of the Susie Wilson Road intersection. The right lane becomes an exclusive right turn only lane approaching the West Street Extension intersection. Alternatives 2 and 3 address this by providing a VT Route 15 eastbound merge after the Susie Wilson Road Intersection and then right turns diverge into an eastbound right turn lane on the approach to West Street Extension. This right turn lane is approximately 150 feet long. The future year traffic analysis indicates the eastbound through traffic lane at the West Street Extension intersection, will have 95% queues greater than 400 feet. In peak periods there will be queues and delay greater than the analysis since right turning vehicles will not be able to access the right turn lane due to the queued through vehicles. This condition on this eastbound approach is unchanged by the alternatives and suggests further traffic improvements may be needed at this intersection in the future regardless of implementing the alternatives or not.

The westbound approach on the VT Route 15/West Street Extension intersection is reduced from two lanes to one lane in both alternatives. This has little impact on the intersection performance and reduces the number of lanes pedestrian must cross.

The table below indicates no significant difference in traffic operations among Alternative 1 (No Action), Alternative 2, and Alternative 3. Alternative 2 and Alternative 3 are both acceptable in terms of traffic operations.

Table 12 Comparison of Intersection Capacity Analysis Results Among Alternatives

		Future DHV (2030)								
		Alternative 1 (No Action)			Alternative 2			Alternative 3		
	Peak Hour	LOS[1]	Delay[2]	V/C[3]	LOS[1]	Delay[2]	V/C[3]	LOS[1]	Delay[2]	V/C[3]
Signalized Intersection										
VT Route 15 / Ethan Allen Ave										
	AM	C	23.0	0.74	No Change from Alt 1					
	PM	B	18.3	0.84	No Change from Alt 1					
VT Route 15 / Susie Wilson Rd										
	AM	C	27.2	0.94	No Change from Alt 1					
	PM	D	48.2	0.99	No Change from Alt 1					
VT Route 15 / West Street Ext										
	AM	B	10.1	0.52	B	11.1	0.58	No Change from Alt 2		
	PM	B	17.4	0.85	B	18.2	0.85	No Change from Alt 2		

[1] V/C = Volume-to-capacity ratio for movements
[2] Delay = Average delay expressed in seconds per vehicle
[3] LOS= Level of Service

Safety Impacts

Safety for pedestrians and bicyclists is improved in Alternatives 2 and 3. Bicyclists have the choice of a buffered bike lane or an 8-foot path along VT Route 15. Alternative 3 removes the westbound right turn slip ramp and corresponding non-signalized crosswalk at Susie Wilson Road. Since U-turns need to be provided, Alternative 2 retains the westbound right turn slip ramp crosswalk at the Susie Wilson Road intersection. This is a yield control condition and the slip ramp radius encourages higher turning speeds. The slip ramp crossing in Alternative 2 is improved by realigning the crossing and providing a yield condition.

Right-of-Way (ROW) Impacts

Based on the 1964 record plans, the Right-of-Way width varies but generally is 90 feet wide, is 8 feet north of the northside sidewalk, and is 10 feet south of the southside curb. Alternatives 2, 3 and Option A do not require permanent acquisitions but may require easements for construction.

Environmental Resource Impacts

Based on the desktop research and site visit there are no known impacts to natural resources, such as wetlands, streams, wildlife, or rare and endangered species, for any alternatives.

Cultural Resource Impacts

A preliminary cultural resources assessment was done as part of the 2013 VT Route 15 Bicycle and Pedestrian Study. The assessment area was limited to west of Susie Wilson Road, and therefore does not include the project area east of Susie Wilson Road. Due to this being a scoping report update, a cultural resource assessment was not conducted. Given the disturbance of the 1964 construction and the limited nature of the alternative's construction, impacts to cultural resources are not anticipated. This will need to be confirmed if a National Environmental Policy Act (NEPA) process is required.

Utility Impacts

Existing utilities in the project area includes aerial electric distribution and communication lines, underground sewer, water, gas, electric and communications. The limited construction of the alternatives does not impact utilities and does not require their wholesale relocation. Alternative 3, which relocates the northside curb, does require new curbside drainage inlets and may require isolated waterline and hydrant relocations.

Stormwater Impacts

Alternatives 1 and 2 add less than the 1 acre threshold of new impervious and therefore stormwater treatment and a stormwater permit is not required. Alternative 3 does exceed the threshold and stormwater treatment and a stormwater permit is required.

3.4.4 Project Costs

The following table is a summary of the project costs for alternatives. The costs include a full overlay of the roadway and much of the cost could be eligible for a VTrans Class 1 Town Highway paving project. A Right-of-way cost has been included when construction easements are anticipated.

Table 13 Summary of Project Costs

Item	Alternative 1: No Action	Alternative 2 (2 lanes with Median)	Alternative 3 (3 Lanes No Median)	Option A (EAA to SWR Bike Lane)
Construction Costs	$0	$800,000	$1,800,000	$240,000
Right-of-Way Costs	$0	$10,000	$10,000	$0
Design Engineering	$0	$120,000	$270,000	$40,000
Construction Engineering	$0	$80,000	$180,000	$30,000
TOTAL PROJECT COSTS	$0	**$1,010,000**	**$2,260,000**	**$310,000**

6.5.2 Evaluation Matrix

The following table provides an evaluation matrix summarizing the above information pertaining to traffic operations, safety, right-of-way, environmental, cultural resources, utilities, and project costs. The major difference is traffic operations and project costs. Alternative 3 eliminates the problematic U-Turn at Susie Wilson Road and reduces the U-Turn's user costs by providing a more direct route. Alternative 3 does remove the median and its vegetation but replaces it by providing a greater buffer and separation between the northside development and the travel lanes. This buffer allows for vegetation and an enhanced separation. Alternative 3 does come at an additional cost but not substantially greater impacts.

CRITERIA	Alternative 1: No Action	Alternative 2: Two Lanes with Median	Alternative 3: Three Lanes No Median	Option A: EEA to SWR Bike Lane
Project Costs	**$0**	**$1,010,000**	**$2,260,000**	**$310,000**
PURPOSE AND NEED				
Complete a missing bicycle link	**No**	**Yes**	**Yes**	**Yes**
Support goals for active mobility	**No**	**Yes**	**Yes**	**Yes**
Facilitate use by all ages and experience	**No**	**Yes**	**Yes**	**Yes**
IMPACTS				
Traffic Operations	**Does not address U-turn at SWR**	**Does not address U-turn at SWR**	**Addresses U-turn at SWR**	**None**
Safety	**No Improvement**	**Improved**	**Improved**	**Improved**
Right-of-way	**None**	**Minor**	**Minor**	**None**
Environmental	**None**	**None**	**None**	**None**
Cultural Resources	**None**	**None**	**None**	**None**

CRITERIA	Alternative 1: No Action	Alternative 2: Two Lanes with Median	Alternative 3: Three Lanes No Median	Option A: EEA to SWR Bike Lane
Utilities/ Drainage	None	None	Minor Light Pole Relocation and Drainage Modifications	None
Stormwater	No Change	Minor Change/ No Permit	Change w/Treatment Opportunity	Minor Change/No Permit

Table 14 Evaluation Matrix

7.0 STAKEHOLDER INPUT AND RECOMMENDATIONS

An alternatives presentation meeting was noticed and then conducted on June 27, 2018 at the Essex Town Offices. Some attendees expressed a concern on the traffic impacts of a reduction from four to three lanes. It was pointed out that VT Route 15 westbound traffic often queues back from the Susie Wilson Road intersection eastward to West Street Extension. Discussions concluded these queuing is due to VT Route 15 traffic turning traffic onto Susie Wilson block the westbound traffic and create the queue. The proposed alternatives do not address the Susie Wilson Road intersection operational issues as this is part of the VTrans Scoping project and the proposed alternatives do not impact the capacity of the intersection.

All attendees who voiced a preference supported Alternative 3 as it is likely to meet the needs of more users compared to Alternative 2 and it addresses the Susie Wilson Road intersection U-turn operation.

8.0 MUNICIPAL PREFERRED ALTERNATIVE

With input received at the public meetings considered, Village and Town Engineering and Planning Staffs worked cooperatively to produce a series of recommendations relative to the project. The Staff recommendations are:

1. The Preferred Alternative is Alternative 3, with Option A: Three Lanes, no median, on-road bike lanes and a multi-use path on the north side to replace the current sidewalk and
2. The VTrans Susie Wilson Road Corridor Project should be split into three separate projects as per the following:
    a. VTrans would continue to design the Susie Wilson Road/VT15 intersection but track that project both for timing and funding with the Route 15 Bicycle/Pedestrian Improvements project, using Alternative 3
    b. The bike lane portion of the Susie Wilson Road Corridor work should be turned over to the Town to run as a VTRANS local project and

c. VTrans would continue to design the Kellogg Road/ Susie Wilson Road intersection and

3. Funding for the Route 15 Bicycle/Pedestrian Improvements project would utilize the unused Class 1 paving funds to help defray the project costs (promised Class 1 paving was delayed until this scoping study was completed) and

4. Consideration be given by VTrans to include Option A: Ethan Allen to Susie Wilson Road Bike Lane in the project to be constructed as presented in the scoping study.

A memo outlining the Village and Town recommendations can be found in Appendix A. These recommendations will be provided to the Village Trustees and Town Selectboard for discussion and to seek their endorsement.

APPENDIX A

Meeting Notes and Correspondence

Stantec

Meeting Notes

Kickoff Meeting

VT 15/Pearl Street Scoping Study Alternatives Analysis & VT 15 Athens Drive to I-289 Shared Use Path, 195311490 & 19531507

Date/Time:	October 16, 2017 / 11:00 AM
Place:	Stantec, Mt. Mansfield Conference Room
Next Meeting:	TBD
Attendees:	Christine Forde (CCRPC), Greg Edwards (Stantec), Erik Alling (Stantec), Sean Neely (Stantec), Polly Harris (Stantec)
Absentees:	N/A
Distribution:	Attendees

Item:	Action:
Updated Proposal There are a few minor errors in the most recently submitted version of the SOW	Greg will update and resubmit the proposal
Susie Wilson/VT 15 Intersection Scoping Study VTrans is currently scoping intersection improvements to the Susie Wilson/VT 15 intersection. Christine requests that Stantec keep in contact with VTrans so that the two studies do not end up contradicting each other.	Stantec will contact VTrans PM Patti Coburn to establish communication to be maintained throughout the scoping process.
Base Mapping The CCRPC has developed base mapping for the Pearl St. study and will also provide base mapping for the shared use path study. Christine requests that Stantec work with Pam Brannigan directly.	Sean will contact Pam and will work with her to receive base mapping and associated GIS files.
Permanent Project FTP Site An FTP site will be established to facilitate the transfer of project files.	Erik will create the permanent FTP site and will distribute a link to the team members.
Traffic Analysis Stantec will perform analysis on Susie Wilson/VT 15 to determine impacts of adding a pedestrian phase.	Stantec has crash data for shared use path project, Sean to obtain crash data for Pearl Street project.
Pearl Street Median Island	

Christine mentioned that an acceptable alternative to explore would be the removal of the median island along VT 15.	Christine to verify with Robin that removal of the island is an option that may be considered.
Local Concerns Meeting Greg mentioned that a LCM should be organized as soon as is practical. After some discussion, attendees agreed that early to mid-December would be a good time to hold the meeting	Greg to provide a sample LCM presentation. Christine will reach out to the Town and the Village to find some potential dates. Christine to determine if holding a combined meeting for both projects is feasible. Greg/Stantec to obtain property owner addresses to use for meeting invitations.
Environmental/Permitting For the scoping of each project, Stantec will need to determine permitting needs. This will potentially include NEPA, CGP, Wetlands & Corps permits.	Polly to conduct desktop reviews of each project area. Permitting needs will be assessed and included in the reports.
Utilities Utility information will need to be included in the alternative analyses of both studies.	Greg will contact utility companies to obtain available relevant information.
Town/Village path/Pedestrian Commissions Both the Town and the Village have path and pedestrian commissions. They should be involved throughout the scoping process. Additionally, the State should be made aware of the projects.	Erik will coordinate with Village and Town representatives. Erik will coordinate with VTrans bike/ped program manager Jon Kaplan.

The meeting adjourned at 12:00 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

Erik Alling, PE
Project Manager
Phone: (802) 864-0223
Erik.Alling@stantec.com

Attachments: Sign-in Sheet
c. Design File

Stantec

Meeting Notes

Local Concerns Meeting

VT 15 Susie Wilson Road to West St. Extension Scoping Study / 195311490

Date/Time:	January 22, 2018 / 6:00 PM
Place:	Village of Essex Junction Municipal Offices
Next Meeting:	TBD
Attendees:	Christine Forde (CCRPC), Sai Sarepalli (CCRPC), Sean Neely (Stantec), Erik Alling (Stantec) Robin Pierce (Village of Essex), and public attendees (see attached sign-in sheet)
Absentees:	Greg Edwards
Distribution:	CCRPC, Stantec, Village of Essex

Item:	Action:
Project Limits An attendee asked about why the project overlaps with the Colchester Essex Path project. I.e. why will there be two bike related projects between Ethan Allen Avenue and Susie Wilson Road.	Sean explained that Ethan Allen Ave may prove to be a safer location to transition bicyclists from the side path to on-road facilities
Street Trees A few of the attendees expressed concerns regarding the removal of the center island and its trees. Other attendees were OK with the trees being removed if it meant reducing lanes and slowing vehicles through this corridor.	Sean explained that if a road diet is pursued, there will not be enough space to keep the median island and trees without widening outside the existing limits of the roadway. This is problematic from a cost and ROW standpoint. These factors, however, will be addressed and weighed as part of the alternative selection process of the scoping study.
Speed Limit An attendee said that the speed limit should be lowered as vehicles travel at high speeds along this corridor.	Speed limit reduction alone often has no effect on vehicle speeds. A road diet, however will reduce the number of travel lanes and should have a significant impact in reducing vehicle speeds.
Lane Reductions An attendee asked if reducing travel lanes was the preference at this point.	Sean replied that this is one option among others that will be considered during the scoping process.
Colchester Essex Path Crossing of VT15 Jason Van Driesch asked if the Colchester Essex Path could be extended along the southern/eastern edge of VT 15 all the way to the intersection of Susie Wilson Road	Christine replied that this area is out of the project area for this current scoping study.

Item:	Action:
West Street Extension Right Turn Lane An attendee commented that the right turn lane for VT 15 eastbound/West Street Extension is very long.	Sean said that this area will be analyzed during the scoping process and may be able to be reduced in length.
Traffic Volumes vs. Reduced Lanes An attendee asked if reducing lanes will work from a traffic standpoint given the high volume of vehicles.	Sean replied that this will be analyzed during scoping.
Bike Specific Signals An attendee asked if the bike lanes could have their own signals.	Sean replied that this may not be feasible for this application.
Susie Wilson U-Turn An attendee asked if the U-Turn at Susie Wilson/VT 15 is necessary.	This U-turn is currently needed for eastbound traffic exiting from the north side of VT 15 between Susie Wilson and West Street extension. This is because the median prevents left hand turns from these properties. If the median is removed, the need for the U-turn will be eliminated and it can likely be decommissioned.
Protected Bike Lanes There was general support for physically separated bike lanes as they will allow many users to use the bike lanes. Even with the painted buffers, many attendees were concerned that the bike lanes will not be safe enough for children.	Sean remarked that the maintenance issues that will arise due to the inclusion of physical barriers may make it difficult to justify them for this project.
Bike Path vs. Bike Lanes The attendees were drawn over the benefits of a dedicated bike path vs. on-road bike lanes.	Sean mentioned that the issue with a bike path is that it cannot go on the southern side of VT 15 because of the steep slopes and railroad. The northern side is also a challenge due to the many driveways. The drives create conflict points/safety concerns.
Pedestrian Island at Susie Wilson Attendees were in favor of making the Susie Wilson crosswalk safer by adding a refuge island.	Sean said that this may be possible and that it will be considered during scoping.

The meeting adjourned at 7:30 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.

Erik Alling, PE, ENV SP
Project Manager

Phone: Sender's Phone
Fax: Sender's Fax
Sender's Email Address

Attachment: Attachment

c. Cc List

Alternatives Meeting

VT 15 Susie Wilson to West Street Extension Bike/Pedestrian Improvements Scoping Study / 195311490

Date/Time:	June 27, 2018 / 7:30 PM
Place:	Essex Town Offices
Next Meeting:	N/A
Attendees:	See attached attendance list
Absentees:	N/A
Distribution:	Project Advisory Committee

An alternatives presentation was provided that described existing conditions, purpose and need and the developed alternatives. The 3 alternatives evaluated include No action, 2 lanes with Median, and 3 Lanes No Median. The following are questions and comments received from the public.

Item:	Action:
ROW Impacts How much land would need to be taken to complete this project?	It is expected that only temporary easements, such as those necessary for grading, will be needed for this project.
Impact to Existing Trees Will widening the existing sidewalk to 8' necessitate the removal of existing mature trees? Will the trees that would be removed along with the median be replaced?	The path could potentially be narrowed to avoid mature trees. Yes, the new green strip created on the north side of the road would provide space for replacement trees.
Reduction in the Speed Limit Will the speed limit along the corridor be reduced?	The speed limit could be reduced with or without this project, however reducing the roadway from 4 lanes to 2 through lanes will slow traffic.
New Development Between Susie Wilson and West Street Extension Did the traffic data used for the analysis of the intersection consider the new condo development to be constructed along this corridor?	Not specifically, however the analysis did assume a 0.5% growth rate which has proven to be quite accurate for the region.
Traffic Concerns General concern related to the existing traffic, and the perception that reducing	The existing traffic issues are not related to the capacity of VT 15 rather the coordination of the Susie Wilson/VT 15 signal and the signals along Susie Wilson Road. Spillback from the Susie Wilson signals causes the Susie Wilson/VT 15 intersection to

travel lanes may exacerbate the problem, was expressed by several attendees.	be blocked during peak hours. This project will not reduce capacity through the intersection and will therefore have a neutral impact on traffic issues. VTrans, however, is currently studying the Susie Wilson/VT 15 intersection and improvements to this intersection, along with coordination with the Susie Wilson signals, could potentially improve signal operations at this intersection. The Project Team has been, and will continue to be, in coordination with VTrans related to the two projects.
Existing Slip Ramp/Eastbound U-Turn Would removing the U-Turn at Susie Wilson Road improve the operation of this intersection?	It potentially could have a positive impact on the operation of the intersection depending on how U-turns are accomplished without it.
Left Turn for Westbound Traffic to the First Few Drives Along VT 15 West of Susie Wilson Since the first 3-4 drives west of the Susie Wilson/VT 15 intersection are within the 2-lane merging area, how will people using these drives access them when driving westbound on VT 15.	They will have to use the left thru-lane to access the drives and will cross 2 eastbound lanes.
Construction Issues of Alternate 2 vs. 3 Will Alternative 3 substantially increase construction activities, especially at night?	Alternative 3 is a more involved concept and will require a longer construction duration compared to Alternative 2, however, long term benefits to traffic and the added green space may make the additional construction worthwhile in the long term.
Preferred Alternative All attendees who voiced a preference supported Alternative 3 as it is likely to meet the needs of more users compared to Alternative 2	

The meeting adjourned at 8:30 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.

Erik Alling

Erik Alling PE, ENV SP
Project Manager

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Phone: (802) 864-0223
Erik.alling@stantec.com

Attachment: Attendance List

c. Design File

Memorandum

TO: Evan Teich, Municipal Manager
Essex Selectboard
Essex Junction Trustees
FROM: Dennis Lutz, P.E, Public Works Director
Darren Schibler, Town Planner
Rick Hamlin, P.E., Village Engineer
Robin Pierce, Village Planner
Ricky Jones, Village Public Works Superintendent
DATE: 17 July 2018
SUBJECT: Preferred Alternative for the Route 15 Sidewalk/Path Study for the Section from Susie Wilson Road to West Street Extension

ISSUE: The issue is whether or not the Selectboard and Trustees will approve the staff recommendation for Alternative 3 (with added comments) as outlined in the Scoping Study prepared by Stantec Engineering.

DISCUSSION: A revised Scoping Study has been prepared to address the completion of the remaining bicycle link between Susie Wilson Road and the Five Corners. The remaining link falls between Susie Wilson Road and West Street Extension. This project was identified as a component element of the Circumferential Highway Alternative Project Process from the off-ramp of the interstate in Winooski to West Street extension. The original scoping project was split into three separate components with the project under consideration being the third leg of the original Circumferential Highway VT15 Bicycle/Path Scoping Project.

The current Scoping Study was performed using funding provided by both communities, VTRANS and the CCRPC and looked specifically at the location from Susie Wilson Road to West Street Extension. Stantec Engineering recently completed the referenced Scoping Study, reviews have been made by staff on the project and public hearings have been held for input on the proposed link. In order to apply for funding to prepare final designs, obtain right-of-way and construct the project, the local municipal governing board must select a preferred alternative. Since the project limits fall within both the Town and the Village, both Boards need to take action and agree on the selected alternative.

Village and Town Engineering and Planning Staffs have worked cooperatively to produce a unanimous series of recommendations relative to the project. Staff will be available to provide more information on the rationale leading to the recommendation to the two Boards when this memorandum is presented. However, it is important to provide information on one aspect of the recommendations in this memorandum.

Another Circumferential Highway Alternative project is underway concurrent with this Scoping Study and the two projects impact each other. VTRANS has hired WSP USA to provide engineering services to …"advance the concepts towards a design…" on the Susie Wilson Corridor between the intersections at VT Route 15 and at Kellogg Road. The conceptual design project arose from the CENTS study for the Circumferential Highway that involved both Essex and Colchester. The CENTS project includes three improvements in the Susie Wilson Road corridor, including 1) the VT15/Susie Wilson Road Intersection to the intersection at Pinecrest Drive 2) the addition of bike lanes along Susie Wilson Road and 3) the Kellogg Road/ Susie Wilson Road intersection. This is a very costly project with three separate components that are for the most part not linked to each other. Each could be done as a separate project. This would reduce costs on the most critical portions of the combined corridor project, enable the portions that need to be done now to move forward more quickly, and result in a coordinated and integrated design at the important location where both projects meet.

The issue with respect to the proposed Route 15 Bicycle/Pedestrian Improvements Study for the section from Susie Wilson Road to West Street Extension is that the VT15/Susie Wilson Road Intersection design must be coordinated with the design of the preferred alternative for the Route 15 Bicycle/Pedestrian Improvements Study. To properly and efficiently coordinate these two important projects, the Susie Wilson Road corridor work should be split into three components with the VT15/ Susie Wilson Road Intersection designed and constructed in tandem with the Route 15 Bicycle/Pedestrian Improvements. From the perspective of VTRANS, this would spread the funding over a number of years for the corridor work and for the Town and Village, this critical intersection would likely be fixed sooner.

The Staff recommendations are:

1) The Preferred Alternative is Alternative 3, with Option A: Three Lanes, no median, on-road bike lanes and a multi-use path on the north side to replace the current sidewalk and
2) The VTRANS Susie Wilson Road Corridor Project should be split into three separate projects as per the following:
   a) VTRANS would continue to design the Susie Wilson Road/VT15 intersection but track that project both for timing and funding with the Route 15 Bicycle/Pedestrian Improvements project, using Alternative 3
   b) The bike lane portion of the Susie Wilson Road Corridor work should be turned over to the Town to run as a VTRANS local project and
   c) VTRANS would continue to design the Kellogg Road/ Susie Wilson Road intersection and
3) Funding for the Route 15 Bicycle/Pedestrian Improvements project would utilize the unused Class 1 paving funds to help defray the project costs (promised Class 1 paving was delayed until this scoping study was completed) and
4) Consideration be given by VTRANS to include Option A: Ethan Allen to Susie Wilson Road Bike Lane in the project to be constructed as presented in the scoping study.

RECOMMENDATION: It is recommended that the Board of Selectmen and the Village Trustees approve Alternative 3, with Option A, as the preferred project alternative including the recommendations by Staff as outlined in this document.

APPENDIX B

Construction Cost

Quantity Summary

Essex Village/Essex Town

195311490

VT Route 15 West - Alternative 2

55 Green Mountain Drive
South Burlington, VT 05403
Tel: (802) 864-0223

	Initials	Date
Calc'd By:	ENA	5/15/2018
Checked By:	DMY	5/17/2018
Revised By:		
Checked By:		

Item No.	Item Description	Unit	Unit Price	Alternative A Description Quantity	$
201.10	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	LS	$10,000.00	1	$10,000.00
203.15	COMMON EXCAVATION	CY	$30.00	1550	$46,500.00
203.16	SOLID ROCK EXCAVATION	CY	$50.00	80	$4,000.00
210.10	COLD PLANING, BITUMINOUS PAVEMENT	SY	$2.00	19200	$38,400.00
301.35	SUBBASE OF DENSE GRADED CRUSHED STONE	CY	$35.00	1550	$54,250.00
490.30	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	TON	$100.00	3650	$365,000.00
616.41	REMOVAL OF EXISTING CURB	LF	$10.00	1155	$11,550.00
630.10	UNIFORMED TRAFFIC OFFICERS	HR	$50.00	500	$25,000.00
630.15	FLAGGERS	HR	$25.00	500	$12,500.00
635.11	MOBILIZATION/DEMOBILIZATION	LS	$54,284.00	1	$54,284.00
641.10	TRAFFIC CONTROL	LS	$15,000.00	1	$15,000.00
646.400	DURABLE 4 INCH WHITE LINE	LF	$1.50	10700	$16,050.00
646.410	DURABLE 4 INCH YELLOW LINE	LF	$1.50	5300	$7,950.00
646.480	DURABLE 24 INCH STOP BAR	LF	$25.00	170	$4,250.00
646.490	DURABLE LETTER OR SYMBOL	EACH	$120.00	20	$2,400.00
646.50	DURABLE CROSSWALK MARKING	LF	$15.00	130	$1,950.00
900.645	SPECIAL PROVISION (ADD PED PHASE TO EX. SIGNAL SYSTEM)	LS	$20,000.00	1	$20,000.00
900.675	SPECIAL PROVISION (GREEN BIKE LANE PAINT)	SY	$125.00	350	$43,750.00
				Subtotal	$732,834.00
				Contingency	20.00%
				Total	**$879,400.80**

Stantec

55 Green Mountain Drive
South Burlington, VT 05403
Tel: (802) 864-0223

Quantity Summary

Essex Village/Essex Town

195311490

VT Route 15 West - Alternative 3

	Initials	Date
Calc'd By:	ENA	5/15/2018
Checked By:	DMY	5/18/2018
Revised By:		
Checked By:		

Item No.	Item Description	Unit	Unit Price	Alternative A Description Quantity	$
201.10	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	LS	$20,000.00	1	$20,000.00
203.15	COMMON EXCAVATION	CY	$30.00	7200	$216,000.00
203.16	SOLID ROCK EXCAVATION	CY	$50.00	360	$18,000.00
210.10	COLD PLANING, BITUMINOUS PAVEMENT	SY	$2.00	14200	$28,400.00
301.35	SUBBASE OF DENSE GRADED CRUSHED STONE	CY	$35.00	5900	$206,500.00
490.30	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	TON	$100.00	6000	$600,000.00
601.2615	18" CPEP(SL)	LF	$50.00	320	$16,000.00
604.20	PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE	EACH	$5,000.00	4	$20,000.00
604.412	REHAB. DROP INLETS, CATCH BASINS, OR MANHOLES, CLASS I	EACH	$1,000.00	16	$16,000.00
616.21	VERTICAL GRANITE CURB	LF	$35.00	2800	$98,000.00
616.41	REMOVAL OF EXISTING CURB	LF	$10.00	1155	$11,550.00
630.10	UNIFORMED TRAFFIC OFFICERS	HR	$50.00	1300	$65,000.00
630.15	FLAGGERS	HR	$25.00	1300	$32,500.00
635.11	MOBILIZATION/DEMOBILIZATION	LS	$123,144.00	1	$123,144.00
641.10	TRAFFIC CONTROL	LS	$15,000.00	1	$15,000.00
646.400	DURABLE 4 INCH WHITE LINE	LF	$1.50	10700	$16,050.00
646.410	DURABLE 4 INCH YELLOW LINE	LF	$1.50	5300	$7,950.00
646.480	DURABLE 24 INCH STOP BAR	LF	$25.00	170	$4,250.00
646.490	DURABLE LETTER OR SYMBOL	EACH	$120.00	20	$2,400.00
646.50	DURABLE CROSSWALK MARKING	LF	$15.00	130	$1,950.00
900.645	SPECIAL PROVISION (STORMWATER TREATMENT)	LS	$30,000.00	1	$30,000.00
900.645	SPECIAL PROVISION (LANDSCAPING)	LS	$50,000.00	1	$50,000.00
900.645	SPECIAL PROVISION (ADD PED PHASE TO EX. SIGNAL SYSTEM)	LS	$20,000.00	1	$20,000.00
900.675	SPECIAL PROVISION (GREEN BIKE LANE PAINT)	SY	$125.00	350	$43,750.00
				Subtotal	$1,662,444.00
				Contingency	20.00%
				Total	**$1,994,932.80**

Quantity Summary

Essex Village/Essex Town

195311490

VT Route 15 West - Sub Alternative A

55 Green Mountain Drive
South Burlington, VT 05403
Tel: (802) 864-0223

	Initials	Date
Calc'd By:	ENA	5/15/2018
Checked By:	DMY	5/18/2018
Revised By:		
Checked By:		

Alternative A Description

Item No.	Item Description	Unit	Unit Price	Quantity	$
201.10	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	LS	$10,000.00	1	$10,000.00
203.15	COMMON EXCAVATION	CY	$30.00	900	$27,000.00
203.16	SOLID ROCK EXCAVATION	CY	$50.00	300	$15,000.00
301.35	SUBBASE OF DENSE GRADED CRUSHED STONE	CY	$35.00	500	$17,500.00
490.30	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	TON	$100.00	300	$30,000.00
616.41	REMOVAL OF EXISTING CURB	LF	$10.00	1700	$17,000.00
630.10	UNIFORMED TRAFFIC OFFICERS	HR	$50.00	250	$12,500.00
630.15	FLAGGERS	HR	$25.00	250	$6,250.00
635.11	MOBILIZATION/DEMOBILIZATION	LS	$14,854.00	1	$14,854.00
641.10	TRAFFIC CONTROL	LS	$15,000.00	1	$15,000.00
646.400	DURABLE 4 INCH WHITE LINE	LF	$1.50	5000	$7,500.00
646.410	DURABLE 4 INCH YELLOW LINE	LF	$1.50	1600	$2,400.00
646.480	DURABLE 24 INCH STOP BAR	LF	$25.00	120	$3,000.00
646.490	DURABLE LETTER OR SYMBOL	EACH	$120.00	80	$9,600.00
646.85	REMOVAL OF EXISTING PAVEMENT MARKINGS	SF	$1.00	2300	$2,300.00
900.675	SPECIAL PROVISION	SY	$125.00	85	$10,625.00
				Subtotal	$200,529.00
				Contingency	20.00%
				Total	**$240,634.80**

APPENDIX C

Natural Resources

Memo

To:	Greg Edwards South Burlington, VT	From:	Polly Harris South Burlington, VT
File:	CCRPC VT 15 Susie Wilson Road to West Street Extension Scoping Study 195311490	Date:	November 9, 2017

Reference: CCRPC VT 15 Susie Wilson Road to West Street Extension Scoping Project Natural Resources Review

Stantec Consulting Services Inc. (Stantec) conducted a preliminary review of the natural resources present within CCRPC VT 15 Susie Wilson Road to West Street Extension Scoping Study Project area in the Village and Town of Essex, Vermont. Specifically, as part of this investigation, Stantec identified and characterized wetlands, streams, rare, threatened or endangered (RTE) species, wildlife habitat, agricultural land, 4(f) and 6(f) public lands, and hazardous waste sites. Following is a summary of the findings.

General Site Description

This VT 15 corridor project area extends along VT 15 from Ethan Allen Avenue east to West Street Extension. VT 15 is a busy travel corridor, and the scoping study will evaluate bicycle lane alternatives for this corridor. A shared use path is currently being designed for the VT 15 section from Winooski to Susie Wilson Road, and bicycle lanes have been added to VT 15 from West Street Extension to the Champlain Valley Exposition. The scoping study focuses on the missing link between these two areas. The project corridor includes residential and commercial developments along the north side of VT 15, and a railroad along the south side of VT 15.

Natural resources were reviewed within 50 feet of the existing road.

Natural Resource Review Summary – Review of Existing Materials

Stantec used the Vermont Agency of Natural Resources (ANR) Natural Resources Atlas mapping program[1] to evaluate known natural resources within the Project Area.

Wetlands and Streams. According to the ANR program, there are Vermont Significant Wetland Inventory (VSWI) wetlands mapped along Sunderland Brook to the north of the project area (see attached ANR Wetlands/Streams figure). These are Class II wetlands with a regulated 50-foot buffer.

Sunderland Brook flows from east to west to the north of the project area. This is a perennial stream with an ANR 50-foot river corridor (see attached ANR Wetlands/Streams figure). Sunderland Brook is stormwater-impaired.

Additional wetlands are floodplain areas are mapped along the Winooski River to the south (and outside) of the project area.

[1] http://anrmaps.vermont.gov/websites/anra/

RTE Review. Several state-Threatened and rare plant species and rare habitat types are mapped by ANR within the project area (see attached ANR RTE figure). These plants and habitat types are all located along the south side of VT 15.

Agricultural Soils. According to the *Natural Resources Atlas,* the soils within the project area include Statewide agricultural soils (see attached ANR Prime Ag Figure). The Farmland Policy Protection Act does not apply to projects within existing road ROWs. If any work is proposed outside of existing ROW, authorization from the NRCS via form AD-1006, the Farmland Conversion Impact Rating form, may be required.

Public Lands. The project area does not include public recreation lands (a Section 4(f) resource) or public lands developed with Land and Water Conservation Funds (a Section 6(f) resource) (see attached ANR Conserved Lands figure). Note, however, that the Dalton Drive Parade Grounds at Fort Ethan Allen and the State Tree Nursery along West Street are in the project vicinity.

Hazardous Waste Sites. The ANR mapping program was reviewed for information on Hazardous Waste Sites in the project vicinity. No active Hazardous Waste Sites or Hazardous Waste Generators are located within the project area (see attached ANR Hazardous Waste figure).

Natural Resource Review Summary – Site Investigation

Stantec conducted a site visit on October 18, 2017 to evaluate natural resources present within the project area.

Wetlands/Streams. The wetlands associated with Sunderland Brook were verified during the site investigation. These wetlands are located to the north of and outside of the project corridor.

One additional wetland area was identified during the site visit. This wetland is located at the northeast corner of the VT 15 and Susie Wilson Road intersection. The wetland is associated Sunderland Brook. This palustrine emergent and scrub/shrub wetland is likely a Vermont Class II wetland with a regulated 50-foot buffer.

RTE Species. Stantec did not verify the presence of RTE species during the October 18, 2017 site visit since it was late in the growing season. Much of the corridor has been disturbed to some degree by mowing, clearing, or adjacent development. Further RTE surveys should be conducted during the growing season to verify the presence of any RTE species within the corridor.

Wildlife Habitat. The project area provides habitat for various wildlife species common to Vermont's suburban areas such as black-capped chickadee (*Poecile atricapillus*), blue jay (*Cyanocitta cristata*), raccoon (*Procyon lotor*), skunk (*Mephitis mephitis*), and gray squirrel (*Sciurus carolinensis*), as well as other species that may travel through the area. The proximity to VT 15 limits the value of the wildlife habitat.

Federal and State Wetland/Stream Regulations. The US Army Corps of Engineers (Corps) regulates wetlands and streams under the provisions of Section 404 of the Clean Water Act. The Corps has issued a Programmatic General Permit for the State of Vermont. Typically, wetland and stream impacts of less than one acre may be covered by a Programmatic General Permit (GP), with

Reference: Natural Resources Review

impacts of less than 3,000 s.f. often eligible for approval via a one-page Self-Verification Form. Note that the current GP will expire in December 2017, and the new GP may have different conditions and requirements.

The Vermont ANR regulates Class I and II wetlands and their buffers. The wetland area associated with Sunderland Brook is likely a Class II wetland. Therefore, any impacts to this wetland or its 50-foot buffer would likely require authorization under the Vermont Wetland Permit or Vermont General Permit. The classification of this wetland must be verified by ANR.

Stormwater designs must address the impaired status of Sunderland Brook.

STANTEC CONSULTING SERVICES, INC.

Polly Harris
Environmental Project Manager
Phone: (802) 497-6407
Fax: (802) 864-0165
Polly.Harris@stantec.com

Attachments: Photos, ANR Mapping

Reference: Natural Resources Review

CCRPC VT 15 Susie Wilson Road to West Street Extension Study Area Photographs

Photo 1. View looking east across Susie Wilson Road intersection adjacent to VT 15. 10/18/17

Photo 2. View looking east along the north side of VT 15 showing existing sidewalk and residences (to left). 10/18/17

Photo 3. View to east along south side of VT 15 showing typical roadside habitat and railroad. 10/18/17

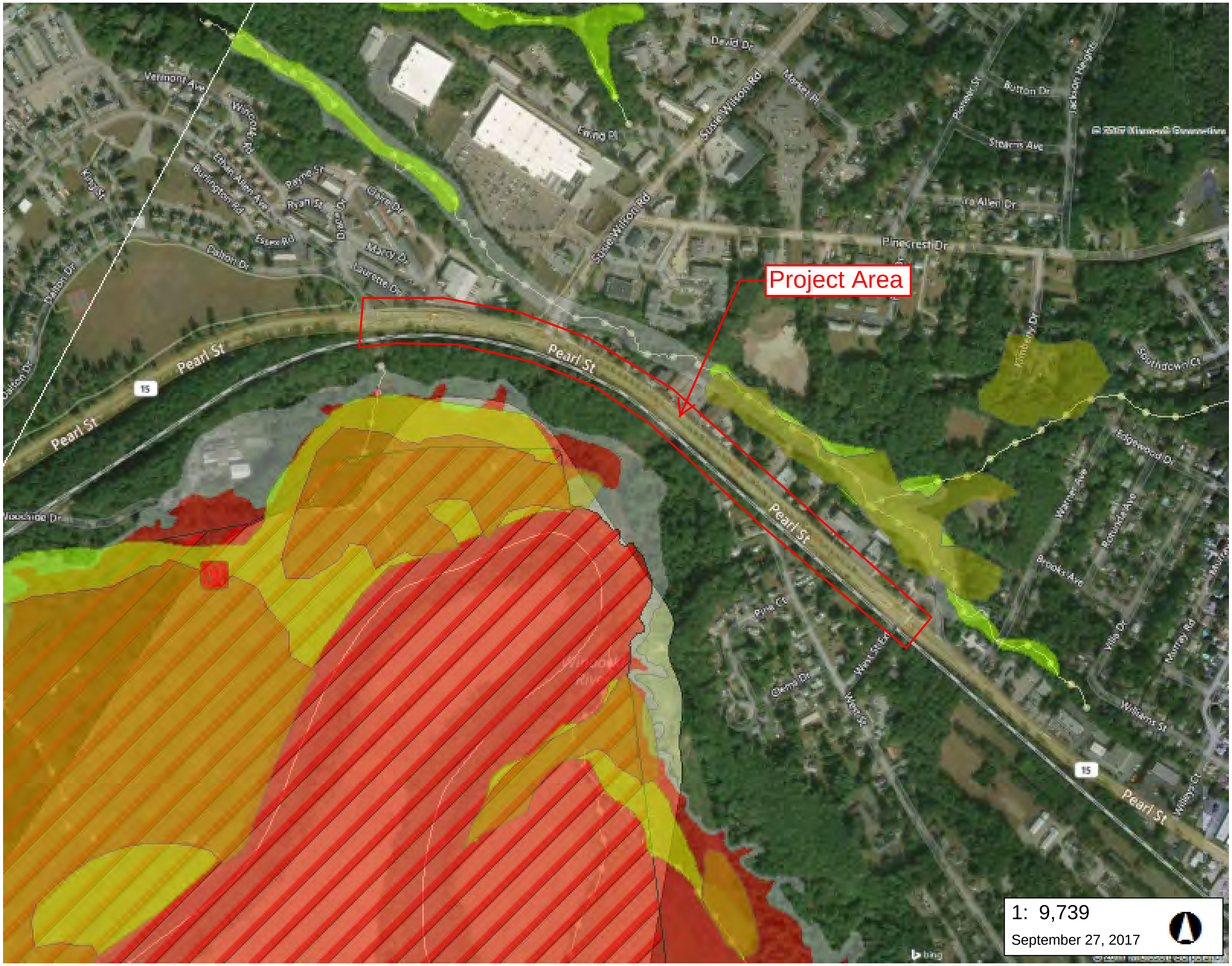
Photo 4. View to west of narrow vegetated corridor between VT 15 and railroad tracks, with power line poles also shown. 10/18/17

Photo 5. View to northeast showing wetland area at base of slope at northeast corner of VT 15 and Susie Wilson Road. This wetland is adjacent to Sunderland Brook. 10/18/17

CCRPC VT 15 West - ANR **Wetlands/**Streams

Vermont Agency of Natural Resources

vermont.gov



LEGEND

- Vernal Pools Unconfirmed – Al
- Wetland - VSWI
  - Class 1 Wetland
  - Class 2 Wetland
  - Buffer
- Wetlands Advisory Layer
- DFIRM Floodways
- Flood Hazard Areas (Only FEN
  - AE (1-percent annual chance flood
  - A (1-percent annual chance floodpl
  - AO (1-percent annual chance zone feet)
  - 0.2-percent annual chance flood ha
- River Corridors (Jan 2, 2015)
- Small Streams - 50ft Setback
- Town Boundary

1: 9,739

September 27, 2017

495.0   0   248.00   495.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere   1" = 812 Ft.   1cm = 97 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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. ANR 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.

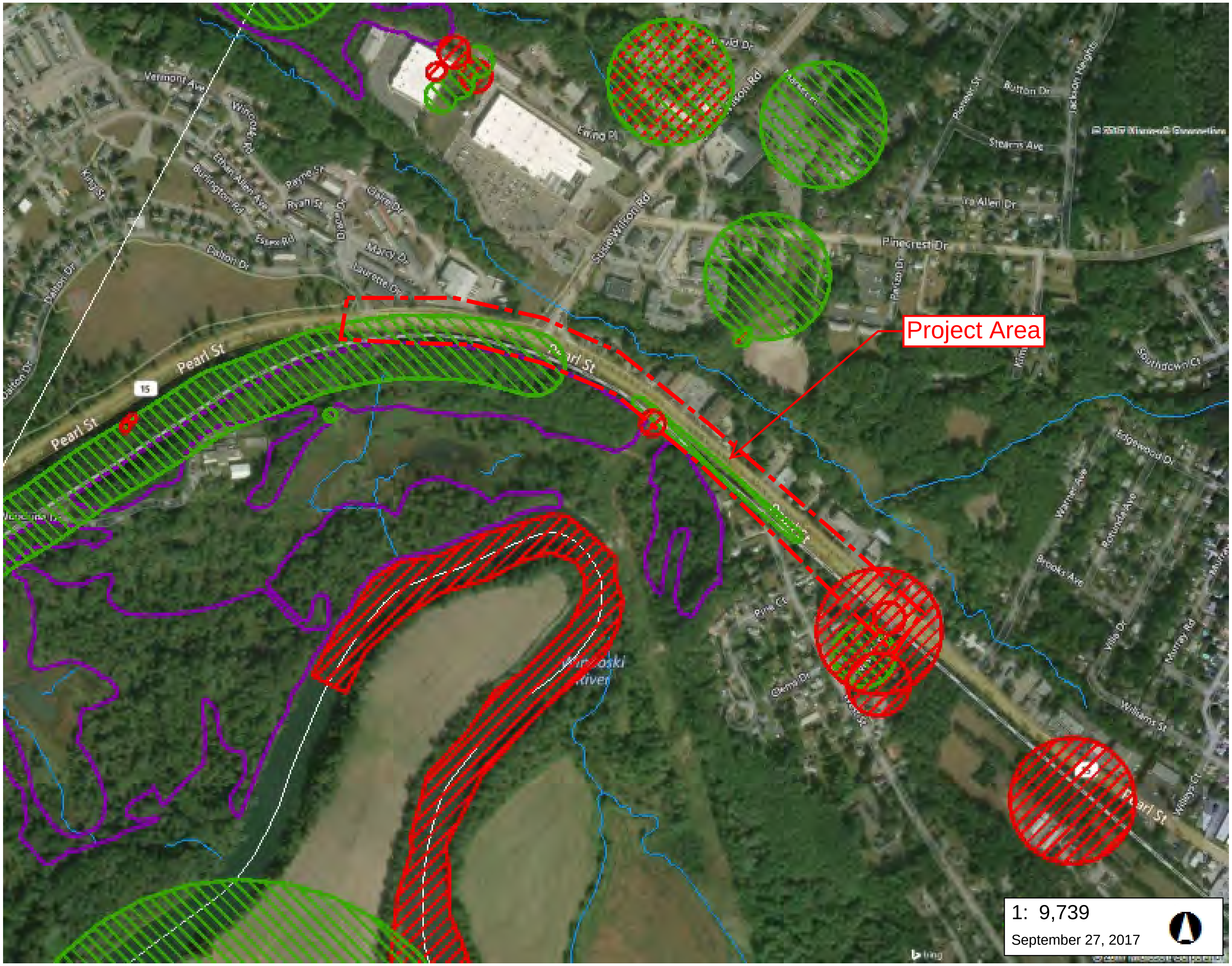
NOTES

Map created using ANR's Natural Resources Atlas

CCRPC VT 15 West - RTE

Vermont Agency of Natural Resources

vermont.gov



1: 9,739

September 27, 2017

LEGEND

Rare Threatened Endangered

- Threatened or Endangered
- Rare

Significant Natural Community

Stream

Town Boundary

495.0 | 0 | 248.00 | 495.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

1" = 812 Ft. 1cm = 97 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

NOTES

Map created using ANR's Natural Resources Atlas

CCRPC VT 15 West - ANR Prime Ag

Vermont Agency of Natural Resources

vermont.gov

LEGEND

Soils - Prime Agricultural

- Local
- Local (b)
- Not rated
- Prime
- Prime (b)
- Prime (f)
- Statewide
- Statewide (a)
- Statewide (b)
- Statewide (c)

Stream

Town Boundary

495.0 0 248.00 495.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 812 Ft. 1cm = 97 Meters

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NOTES

Map created using ANR's Natural Resources Atlas

CCRPC VT 15 West - ANR Conserved Lands

Vermont Agency of Natural Resources

vermont.gov

LEGEND

Managed Lands

- State Forest, Fee ownership
- State Park, Fee ownership
- Non-fee interest

Conserved Lands

- Housing and Conservation Board
- Local Government
- Private Organization
- US Dept. of Defense
- US Fish and Wildlife Service
- US National Park Service
- UVM and State Colleges
- VT Dept. Buildings and General Se
- VT Division for Historical Preservati

- Stream
- Town Boundary

NOTES

Map created using ANR's Natural Resources Atlas

495.0 0 248.00 495.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

1" = 812 Ft. 1cm = 97 Meters

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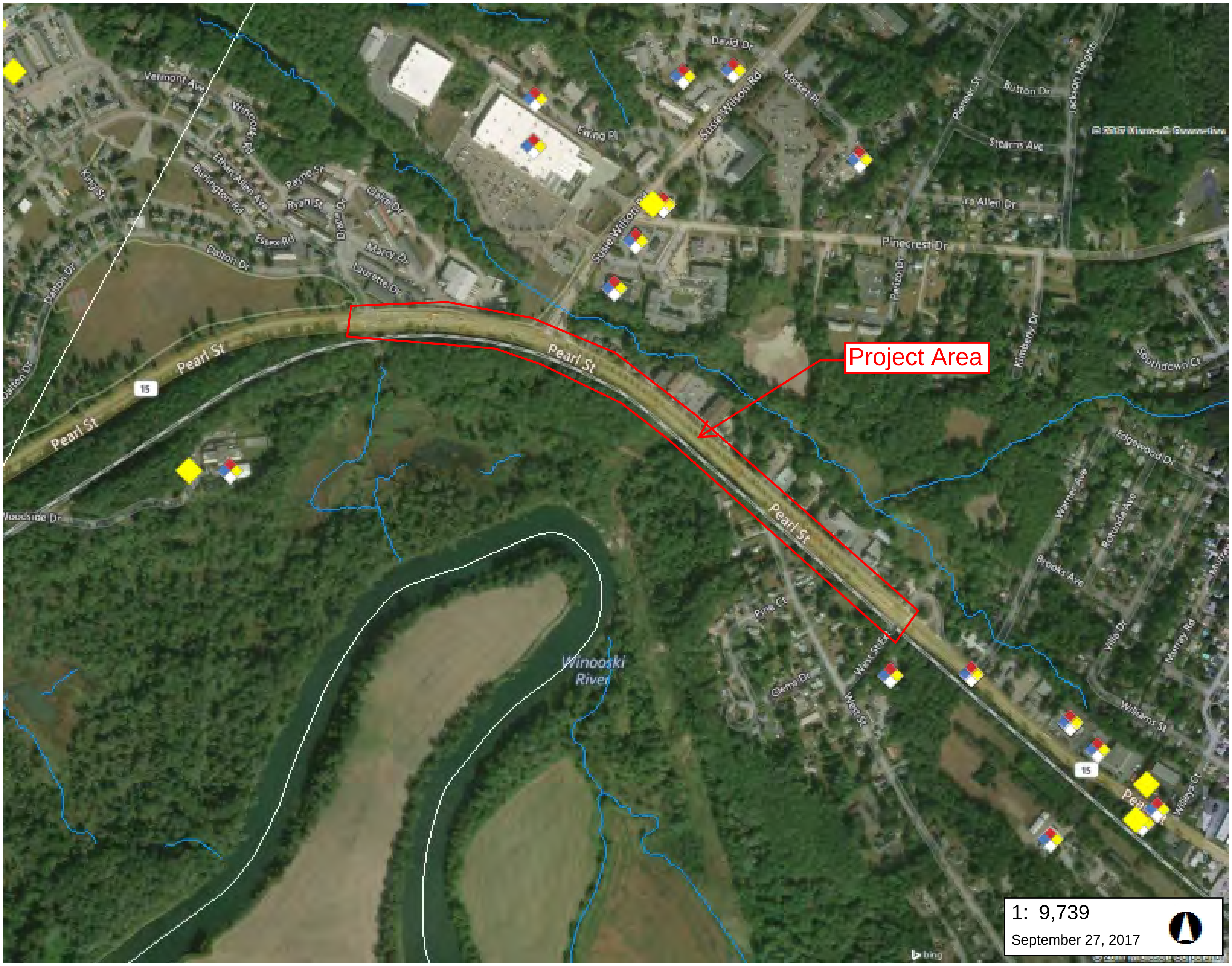
CCRPC VT 15 West - Hazardous Waste

Vermont Agency of Natural Resources

vermont.gov



LEGEND

- Hazardous Site
- Hazardous Waste Generators
- Brownfields
- Stream
- Town Boundary

495.0 | 0 | 248.00 | 495.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

1" = 812 Ft. 1cm = 97 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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. ANR 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.

NOTES

Map created using ANR's Natural Resources Atlas

APPENDIX D

Traffic Information

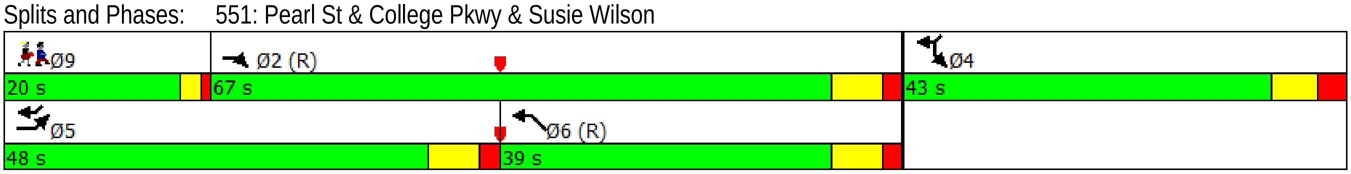
Lane Group	EBL	EBR	NWL	NWR	SWL	SWR	Ø9
Lane Configurations							
Traffic Volume (vph)	1207	716	367	374	400	542	
Future Volume (vph)	1207	716	367	374	400	542	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Storage Length (ft)	725	0	0	0	200	0	
Storage Lanes	1	1	2	0	1	2	
Taper Length (ft)	25		25		25		
Satd. Flow (prot)	3467	1599	3308	0	1787	2787	
Flt Permitted	0.950		0.976		0.950		
Satd. Flow (perm)	3467	1599	3308	0	1787	2787	
Right Turn on Red		Yes		Yes		No	
Satd. Flow (RTOR)		460	188				
Link Speed (mph)	35		35		30		
Link Distance (ft)	1793		1325		557		
Travel Time (s)	34.9		25.8		12.7		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1207	716	741	0	400	542	
Turn Type	Prot	Prot	Prot		Prot	pt+ov	
Protected Phases	5	2	6		4	4 5	9
Permitted Phases							
Detector Phase	5	2	6		4	4 5	
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0		8.0		4.0
Minimum Split (s)	15.0	15.0	15.0		15.5		20.0
Total Split (s)	48.0	67.0	39.0		43.0		20.0
Total Split (%)	36.9%	51.5%	30.0%		33.1%		15%
Maximum Green (s)	41.0	60.0	32.0		35.5		17.0
Yellow Time (s)	5.0	5.0	5.0		4.5		2.0
All-Red Time (s)	2.0	2.0	2.0		3.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		
Total Lost Time (s)	7.0	7.0	7.0		7.5		
Lead/Lag	Lead		Lag				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0
Recall Mode	None	C-Max	C-Max		None		Ped
Walk Time (s)							7.0
Flash Dont Walk (s)							10.0
Pedestrian Calls (#/hr)							0
Act Effct Green (s)	43.5	62.5	32.0		33.0	83.5	
Actuated g/C Ratio	0.33	0.48	0.25		0.25	0.64	
v/c Ratio	1.04	0.71	0.78		0.88	0.30	
Control Delay	79.8	13.5	40.1		70.7	10.3	
Queue Delay	15.0	0.0	0.0		0.0	0.0	
Total Delay	94.8	13.5	40.1		70.7	10.3	
LOS	F	B	D		E	B	
Approach Delay	64.5		40.1		35.9		

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR	Ø9
Approach LOS	E		D		D		
Queue Length 50th (ft)	~595	171	229		214	75	
Queue Length 95th (ft)	#731	334	304		#493	139	
Internal Link Dist (ft)	1713		1245		477		
Turn Bay Length (ft)	725				200		
Base Capacity (vph)	1160	1007	956		487	1773	
Starvation Cap Reductn	0	0	0		0	0	
Spillback Cap Reductn	42	0	1		0	0	
Storage Cap Reductn	0	0	0		0	0	
Reduced v/c Ratio	1.08	0.71	0.78		0.82	0.31	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBR and 6:NWL, Start of Green, Master Intersection	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 52.0	Intersection LOS: D
Intersection Capacity Utilization 96.8%	ICU Level of Service F
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 551: Pearl St & College Pkwy & Susie Wilson



Movement	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1207	716	367	374	400	542
Future Volume (vph)	1207	716	367	374	400	542
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	7.0	7.0	7.0		7.5	7.5
Lane Util. Factor	0.97	1.00	0.97		1.00	0.88
Frt	1.00	0.85	0.92		1.00	0.85
Flt Protected	0.95	1.00	0.98		0.95	1.00
Satd. Flow (prot)	3467	1599	3308		1787	2787
Flt Permitted	0.95	1.00	0.98		0.95	1.00
Satd. Flow (perm)	3467	1599	3308		1787	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1207	716	367	374	400	542
RTOR Reduction (vph)	0	239	142	0	0	0
Lane Group Flow (vph)	1207	477	599	0	400	542
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)	43.5	62.5	32.0		33.0	84.0
Effective Green, g (s)	43.5	62.5	32.0		33.0	84.0
Actuated g/C Ratio	0.33	0.48	0.25		0.25	0.65
Clearance Time (s)	7.0	7.0	7.0		7.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	1160	768	814		453	1800
v/s Ratio Prot	c0.35	0.30	c0.18		c0.22	0.19
v/s Ratio Perm						
v/c Ratio	1.04	0.62	0.74		0.88	0.30
Uniform Delay, d1	43.2	25.0	45.1		46.6	10.1
Progression Factor	1.00	1.00	1.00		1.08	0.95
Incremental Delay, d2	37.6	3.8	5.9		17.2	0.1
Delay (s)	80.8	28.7	51.0		67.6	9.7
Level of Service	F	C	D		E	A
Approach Delay (s)	61.4		51.0		34.2	
Approach LOS	E		D		C	

Intersection Summary			
HCM 2000 Control Delay	52.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

To:	File Recipient's Office	From:	Sean Neely Stantec South Burlington
File:	VT 15 Road Diet Alternative Traffic Analysis	Date:	March 26, 2018

Analyses were performed to assess the potential traffic impacts of reducing the number of travel lanes on Vermont Route 15 (VT 15), from four lanes to two lanes, with a two-way-left-turn-lane (TWLTL), between Susie Wilson Road and West Street Extension. The assessment includes the two endpoint intersections at Susie Wilson Road and at West Street Extension. The analyses indicate that capacity along the roadway segment from Susie Wilson Road to West Street Extension is sufficient with the lane reduction. The analyses also indicate the need to maintain two lanes, on the westbound approach to the intersection with Susie Wilson Road. At the West Street intersection there is adequate capacity to permit elimination of one of the two westbound through lanes.

Road Diets

FHWA considers roadways with volumes between 10,000-15,000 Average Daily Traffic (ADT) volumes to have good potential for road diets in many cases, while roadways with between 15,000-20,000 ADT volumes to have good potential for road diets in certain cases (recommending a corridor analysis)[1]. Based on data collected by the Vermont State Agency of Transportation (VTrans), the VT 15 roadway segment from Susie Wilson Road to West Street Extension has an Annual Average Daily Traffic (AADT) volume of 16,300 (2016).

Traffic Forecasts

Chittenden County Regional Planning Commission (CCRPC) staff used the regional travel demand model to estimate the increase in vehicle travel delay and resulting decrease in traffic volume due to a lane reduction in each direction along this segment. The model predicts that the lane loss/capacity reduction will cause some motorists to divert to an alternate route, Susie Wilson Road and VT Route 289. The model only considered lane reductions to the roadway segment without assuming changes to the intersections. It was based on the 2015 PM peak hour traffic volumes. Results are displayed below. Given the posted speed limit of 45 MPH, with a roadway segment length of approximately 2,250 FT, a baseline travel time was determined to be 34 sec. A lane reduction increases travel time 41% to 48 seconds for westbound travel, and increases travel time 32% to 45 seconds for eastbound travel along this segment.

	Delay Per Vehicle (Seconds)	PM Peak Hour Volume Changes (Vehicles)
Westbound	14	-73
Eastbound	11	-27

Table 1 Anticipated Changes in Travel Delay and Roadway Volumes Due To Road Diet

[1] FHWA, Road Diet - FHWA Safety. Accessible at: https://safety.fhwa.dot.gov/road_diets/resources/pdf/fhwasa17021.pdf

Reference: Error! Reference source not found.

Roadway Segment Operations

The carrying capacity of the VT 15 roadway segment between the two intersections was first considered. The *2010 Highway Capacity Manual* provides a baseline capacity for a multilane highway segment with a speed limit of 45 MPH of 1,900 pc/h/ln (passenger cars per hour per lane). With two lanes in each direction along this segment, 3,800 vehicles per hour is assumed to be the directional capacity. The table below displays volume-to-capacity (V/C) ratios calculated for the baseline and reduced lane conditions, using 2017 directional PM peak hour volumes obtained from VTrans. As shown, volume-to-capacity ratios will increase with the road diet however the resulting operating ratios remain well below capacity.

	Existing			Road Diet		
Direction	Volume	Capacity	V/C Ratio	Volume	Capacity	V/C Ratio
Westbound	555	3800	0.15	482	1900	0.25
Eastbound	749	3800	0.20	722	1900	0.38

Table 2 Roadway Segment Operations Analysis

Intersection Operations

Intersection operations analyses were conducted to determine if the road diet treatment could be carried through both intersections. Operating level of service (LOS) is a term used to describe the quality of traffic flow on a roadway. It is an aggregate measure of travel delay, travel speed, congestion, driver discomfort, convenience, and safety, based on a comparison of roadway capacity to travel demand. Operating levels of service are reported on a scale of A to F, with LOS A representing the best operating conditions (little or no delay to motorists) and LOS F representing the worst operating conditions (long delays and with traffic demands sometimes exceeding roadway capacity). Delay criteria are shown in Table 3 below.

Level of Service	Average Delay per Vehicle (Seconds)
A	≤10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

Table 3 Signalized Intersection Level of Service Criteria

The intersection PM peak hour operating levels of service were calculated following procedures described in the *2010 Highway Capacity Manual* and as applied by the Synchro software package. Conditions with and without the road diet were compared. For the “with road diet” conditions, the estimated changes in volume reported in Table 1 were assumed. From a geometric perspective, the “with road diet” conditions eliminated a VT 15 westbound through travel lane at both intersections. (The eastbound VT 15 approaches would be unaffected by the road diet as they each provide only a single through lane under existing conditions.) Results, displayed below, indicate no change to the overall LOS B for the West Street Extension intersection, with intersection delay remaining the same, and the Volume-to-Capacity ratio essentially remaining the same.

Intersection	Existing PM Operations			Future PM Operations with Road Diet		
West St Ext	LOS	Delay	V/C	LOS	Delay	V/C
EB (VT 15)	B	16	0.82	B	16	0.83
WB (VT 15)	A	9	0.32	B	12	0.55
NB (West)	D	45	0.90	D	38	0.88
SB (West)	B	16	0.06	B	15	0.06
Overall	**B**	**19**	**0.85**	**B**	**19**	**0.84**

Table 4 West Street Extension Intersection Operations

Results displayed below indicate having only one through lane on the VT 15 westbound approach at Susie Wilson Road would result in LOS F operations with travel demands in excess of intersection capacity.

	Future PM Operations[2] with Current Geometry			Future PM Operations[2] with Single Lane WB Approach		
Intersection	LOS	Delay	V/C	LOS	Delay	V/C
Susie Wilson Road	D	50	0.90	F	115.1	1.18

Table 5 Susie Wilson Road Intersection Operations

Summary

Based on analysis described above, capacity along the VT 15 roadway segment from Susie Wilson Road to West Street Extension is sufficient to support a lane reduction from four lanes to two lanes with a TWLTL. The analysis of applying the lane reduction through adjacent intersections however, suggests the need for maintaining two lanes on the westbound approach of the intersection with Susie Wilson Road. Maintaining two lanes on the westbound approach, tapered to one westbound lane upstream, would require the two-lane section to be 300 feet long, based on the queue calculations and signal green phase duration for this approach. Results suggest no substantial negative traffic impacts for applying the lane reduction through the intersection with West Street Extension.

[2] with Proposed Private Development

Reference: Error! Reference source not found.

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Attachment: Attachment

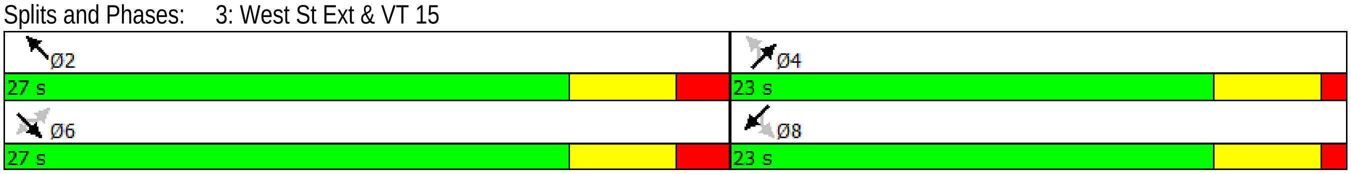
c. C.C.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	5	353	330	0	420	0	225	0	18	2	15	3
Future Volume (vph)	5	353	330	0	420	0	225	0	18	2	15	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.990			0.981	
Flt Protected	0.950							0.956			0.995	
Satd. Flow (prot)	1770	1863	1583	0	3539	0	0	1763	0	0	1818	0
Flt Permitted	0.489							0.727			0.965	
Satd. Flow (perm)	911	1863	1583	0	3539	0	0	1341	0	0	1763	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			359					65			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		874			969			437			389	
Travel Time (s)		19.9			22.0			9.9			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	384	359	0	457	0	245	0	20	2	16	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	384	359	0	457	0	0	265	0	0	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2		1	2		1	2	
Detector Template	Left	Thru	Right		Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20		100		20	100		20	100	
Trailing Detector (ft)	0	0	0		0		0	0		0	0	
Detector 1 Position(ft)	0	0	0		0		0	0		0	0	
Detector 1 Size(ft)	20	6	20		6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6		2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0	24.0		24.0		23.0	23.0		23.0	23.0	
Total Split (s)	27.0	27.0	27.0		27.0		23.0	23.0		23.0	23.0	
Total Split (%)	54.0%	54.0%	54.0%		54.0%		46.0%	46.0%		46.0%	46.0%	
Maximum Green (s)	21.0	21.0	21.0		21.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max		Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effct Green (s)	23.6	23.6	23.6		23.6			12.5			12.5	
Actuated g/C Ratio	0.50	0.50	0.50		0.50			0.26			0.26	
v/c Ratio	0.01	0.41	0.37		0.26			0.66			0.04	
Control Delay	8.0	10.3	2.6		8.1			19.0			10.4	
Queue Delay	0.0	0.0	0.0		0.0			0.0			0.0	
Total Delay	8.0	10.3	2.6		8.1			19.0			10.4	
LOS	A	B	A		A			B			B	
Approach Delay		6.6			8.1			19.0			10.4	
Approach LOS		A			A			B			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 50	
Actuated Cycle Length: 47.2	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 9.3	Intersection LOS: A
Intersection Capacity Utilization 48.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: West St Ext & VT 15



Lane Group	SEL	SET	SER	NWT	NET	SWT
Lane Group Flow (vph)	5	384	359	457	265	21
v/c Ratio	0.01	0.41	0.37	0.26	0.66	0.04
Control Delay	8.0	10.3	2.6	8.1	19.0	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	10.3	2.6	8.1	19.0	10.4
Queue Length 50th (ft)	1	57	0	32	42	3
Queue Length 95th (ft)	5	139	37	70	98	14
Internal Link Dist (ft)		794		889	357	309
Turn Bay Length (ft)	150					
Base Capacity (vph)	455	932	971	1771	556	680
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.41	0.37	0.26	0.48	0.03

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	5	353	330	0	420	0	225	0	18	2	15	3
Future Volume (vph)	5	353	330	0	420	0	225	0	18	2	15	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lane Util. Factor	1.00	1.00	1.00		0.95			1.00			1.00	
Frt	1.00	1.00	0.85		1.00			0.99			0.98	
Flt Protected	0.95	1.00	1.00		1.00			0.96			1.00	
Satd. Flow (prot)	1770	1863	1583		3539			1762			1818	
Flt Permitted	0.49	1.00	1.00		1.00			0.73			0.97	
Satd. Flow (perm)	910	1863	1583		3539			1340			1763	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	384	359	0	457	0	245	0	20	2	16	3
RTOR Reduction (vph)	0	0	179	0	0	0	0	48	0	0	2	0
Lane Group Flow (vph)	5	384	180	0	457	0	0	217	0	0	19	0
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		
Actuated Green, G (s)	23.6	23.6	23.6		23.6			12.5			12.5	
Effective Green, g (s)	23.6	23.6	23.6		23.6			12.5			12.5	
Actuated g/C Ratio	0.50	0.50	0.50		0.50			0.27			0.27	
Clearance Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)	455	933	793		1773			355			467	
v/s Ratio Prot		c0.21			0.13							
v/s Ratio Perm	0.01		0.11					c0.16			0.01	
v/c Ratio	0.01	0.41	0.23		0.26			0.61			0.04	
Uniform Delay, d1	5.9	7.4	6.6		6.7			15.2			12.8	
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2	0.0	1.3	0.7		0.4			3.1			0.0	
Delay (s)	5.9	8.7	7.3		7.1			18.3			12.9	
Level of Service	A	A	A		A			B			B	
Approach Delay (s)		8.0			7.1			18.3			12.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	47.1	Sum of lost time (s)	11.0
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

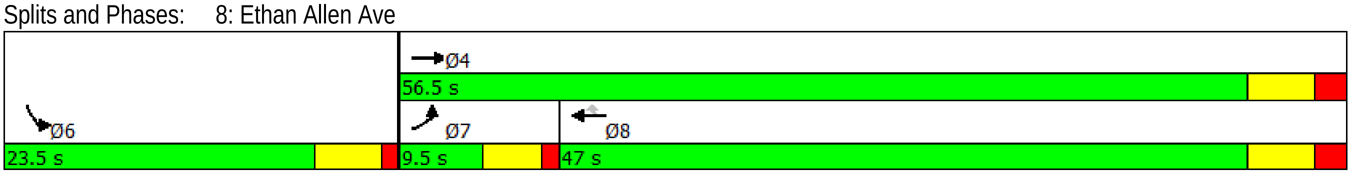
c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	755	1580	93	72	13
Future Volume (vph)	10	755	1580	93	72	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			200	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.979	
Flt Protected	0.950				0.959	
Satd. Flow (prot)	1770	3539	3539	1583	1749	0
Flt Permitted	0.950				0.959	
Satd. Flow (perm)	1770	3539	3539	1583	1749	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				93	11	
Link Speed (mph)		30	30		30	
Link Distance (ft)		408	498		215	
Travel Time (s)		9.3	11.3		4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	821	1717	101	78	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	821	1717	101	92	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Perm	Prot	
Protected Phases	7	4	8		6	
Permitted Phases				8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	
Switch Phase						
Minimum Initial (s)	5.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	9.5	24.0	24.0	24.0	23.0	
Total Split (s)	9.5	56.5	47.0	47.0	23.5	
Total Split (%)	11.9%	70.6%	58.8%	58.8%	29.4%	
Maximum Green (s)	5.0	50.5	41.0	41.0	18.5	
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.0	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	Max	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	5.0	42.5	40.8	40.8	18.6	
Actuated g/C Ratio	0.07	0.59	0.57	0.57	0.26	
v/c Ratio	0.09	0.39	0.86	0.11	0.20	
Control Delay	35.0	8.5	19.8	2.8	21.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	35.0	8.5	19.8	2.8	21.2	
LOS	C	A	B	A	C	
Approach Delay		8.8	18.9		21.2	
Approach LOS		A	B		C	

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 72.1	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 15.9	Intersection LOS: B
Intersection Capacity Utilization 59.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Ethan Allen Ave



Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	11	821	1717	101	92
v/c Ratio	0.09	0.39	0.86	0.11	0.20
Control Delay	35.0	8.5	19.8	2.8	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	8.5	19.8	2.8	21.2
Queue Length 50th (ft)	5	92	286	1	27
Queue Length 95th (ft)	21	123	#583	24	71
Internal Link Dist (ft)		328	418		135
Turn Bay Length (ft)				200	
Base Capacity (vph)	123	2486	2018	942	458
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.33	0.85	0.11	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	755	1580	93	72	13
Future Volume (vph)	10	755	1580	93	72	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	6.0	5.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.98	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1770	3539	3539	1583	1750	
Flt Permitted	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	1770	3539	3539	1583	1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	821	1717	101	78	14
RTOR Reduction (vph)	0	0	0	43	8	0
Lane Group Flow (vph)	11	821	1717	58	84	0
Turn Type	Prot	NA	NA	Perm	Prot	
Protected Phases	7	4	8		6	
Permitted Phases				8		
Actuated Green, G (s)	0.9	46.2	40.8	40.8	18.6	
Effective Green, g (s)	0.9	46.2	40.8	40.8	18.6	
Actuated g/C Ratio	0.01	0.61	0.54	0.54	0.25	
Clearance Time (s)	4.5	6.0	6.0	6.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	21	2157	1904	852	429	
v/s Ratio Prot	0.01	c0.23	c0.49		c0.05	
v/s Ratio Perm				0.04		
v/c Ratio	0.52	0.38	0.90	0.07	0.20	
Uniform Delay, d1	37.2	7.5	15.7	8.4	22.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	21.6	0.1	6.4	0.0	1.0	
Delay (s)	58.8	7.6	22.1	8.4	23.7	
Level of Service	E	A	C	A	C	
Approach Delay (s)		8.3	21.3		23.7	
Approach LOS		A	C		C	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	75.8	Sum of lost time (s)	15.5
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	515	312	484	163	376	1189
Future Volume (vph)	515	312	484	163	376	1189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	200	0
Storage Lanes	2			0	1	2
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	1.00	0.95	0.95	1.00	0.88
Frt			0.962			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1863	3405	0	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	1863	3405	0	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			62			236
Link Speed (mph)		45	45		45	
Link Distance (ft)		265	874		480	
Travel Time (s)		4.0	13.2		7.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	560	339	526	177	409	1292
Shared Lane Traffic (%)						
Lane Group Flow (vph)	560	339	703	0	409	1292
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		8	8 1
Permitted Phases						

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Detector Phase	1	6	2		8	8 1
Switch Phase						
Minimum Initial (s)	12.0	8.0	8.0		10.0	
Minimum Split (s)	19.0	15.0	33.0		17.5	
Total Split (s)	21.0	54.5	33.5		25.5	
Total Split (%)	26.3%	68.1%	41.9%		31.9%	
Maximum Green (s)	14.0	47.5	26.5		19.5	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0		6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	Max	Max		None	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	14.0	47.5	26.5		19.5	40.5
Actuated g/C Ratio	0.18	0.59	0.33		0.24	0.51
v/c Ratio	0.93	0.31	0.60		0.95	0.85
Control Delay	57.8	9.0	22.8		64.6	20.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	57.8	9.0	22.8		64.6	20.4
LOS	E	A	C		E	C
Approach Delay		39.4	22.8		31.0	
Approach LOS		D	C		C	

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 31.6	Intersection LOS: C
Intersection Capacity Utilization 71.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 10: VT 15 & Susie Wilson Rd

Lane Group	SEL	SET	NWT	SWL	SWR
Lane Group Flow (vph)	560	339	703	409	1292
v/c Ratio	0.93	0.31	0.60	0.95	0.85
Control Delay	57.8	9.0	22.8	64.6	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	9.0	22.8	64.6	20.4
Queue Length 50th (ft)	143	76	138	201	250
Queue Length 95th (ft)	#238	122	194	#373	361
Internal Link Dist (ft)		185	794	400	
Turn Bay Length (ft)				200	
Base Capacity (vph)	600	1106	1169	431	1527
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.93	0.31	0.60	0.95	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	515	312	484	163	376	1189
Future Volume (vph)	515	312	484	163	376	1189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0		6.0	6.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.88
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	1863	3406		1770	2787
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	1863	3406		1770	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	560	339	526	177	409	1292
RTOR Reduction (vph)	0	0	41	0	0	119
Lane Group Flow (vph)	560	339	662	0	409	1173
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		8	8 1
Permitted Phases						
Actuated Green, G (s)	14.0	47.5	26.5		19.5	39.5
Effective Green, g (s)	14.0	47.5	26.5		19.5	39.5
Actuated g/C Ratio	0.18	0.59	0.33		0.24	0.49
Clearance Time (s)	7.0	7.0	7.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	600	1106	1128		431	1376
v/s Ratio Prot	0.16	0.18	c0.19		0.23	c0.42
v/s Ratio Perm						
v/c Ratio	0.93	0.31	0.59		0.95	0.85
Uniform Delay, d1	32.5	8.1	22.2		29.8	17.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	21.7	0.7	2.2		30.3	5.3
Delay (s)	54.2	8.8	24.4		60.0	23.0
Level of Service	D	A	C		E	C
Approach Delay (s)		37.1	24.4		31.9	
Approach LOS		D	C		C	

Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

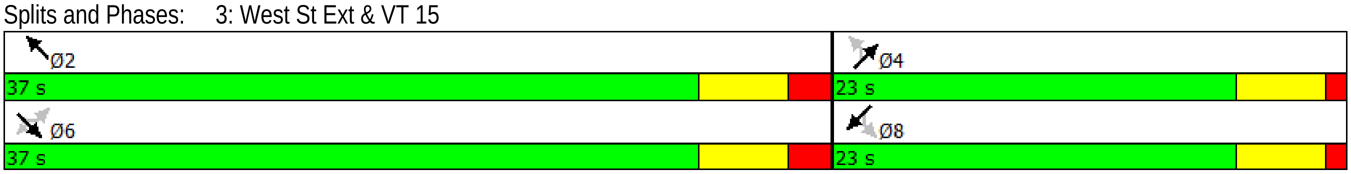
c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	34	726	328	0	452	0	267	0	30	1	26	4
Future Volume (vph)	34	726	328	0	452	0	267	0	30	1	26	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.986			0.984	
Flt Protected	0.950							0.957			0.998	
Satd. Flow (prot)	1770	1863	1583	0	3539	0	0	1758	0	0	1829	0
Flt Permitted	0.473							0.724			0.990	
Satd. Flow (perm)	881	1863	1583	0	3539	0	0	1330	0	0	1815	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			357					55			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		874			969			437			389	
Travel Time (s)		19.9			22.0			9.9			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	789	357	0	491	0	290	0	33	1	28	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	789	357	0	491	0	0	323	0	0	33	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2		1	2		1	2	
Detector Template	Left	Thru	Right		Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20		100		20	100		20	100	
Trailing Detector (ft)	0	0	0		0		0	0		0	0	
Detector 1 Position(ft)	0	0	0		0		0	0		0	0	
Detector 1 Size(ft)	20	6	20		6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6		2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0	24.0		24.0		23.0	23.0		23.0	23.0	
Total Split (s)	37.0	37.0	37.0		37.0		23.0	23.0		23.0	23.0	
Total Split (%)	61.7%	61.7%	61.7%		61.7%		38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	31.0	31.0	31.0		31.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max		Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effct Green (s)	31.6	31.6	31.6		31.6			15.6			15.6	
Actuated g/C Ratio	0.54	0.54	0.54		0.54			0.27			0.27	
v/c Ratio	0.08	0.78	0.35		0.26			0.82			0.07	
Control Delay	7.9	18.9	2.1		8.0			34.9			14.2	
Queue Delay	0.0	0.0	0.0		0.0			0.0			0.0	
Total Delay	7.9	18.9	2.1		8.0			34.9			14.2	
LOS	A	B	A		A			C			B	
Approach Delay		13.5			8.0			34.9			14.2	
Approach LOS		B			A			C			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 58.2	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 15.6	Intersection LOS: B
Intersection Capacity Utilization 70.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: West St Ext & VT 15



Lane Group	SEL	SET	SER	NWT	NET	SWT
Lane Group Flow (vph)	37	789	357	491	323	33
v/c Ratio	0.08	0.78	0.35	0.26	0.82	0.07
Control Delay	7.9	18.9	2.1	8.0	34.9	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	18.9	2.1	8.0	34.9	14.2
Queue Length 50th (ft)	6	219	0	47	85	7
Queue Length 95th (ft)	19	#429	33	73	#202	24
Internal Link Dist (ft)		794		889	357	309
Turn Bay Length (ft)	150					
Base Capacity (vph)	479	1012	1023	1923	449	564
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.78	0.35	0.26	0.72	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	34	726	328	0	452	0	267	0	30	1	26	4
Future Volume (vph)	34	726	328	0	452	0	267	0	30	1	26	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lane Util. Factor	1.00	1.00	1.00		0.95			1.00			1.00	
Frt	1.00	1.00	0.85		1.00			0.99			0.98	
Flt Protected	0.95	1.00	1.00		1.00			0.96			1.00	
Satd. Flow (prot)	1770	1863	1583		3539			1758			1829	
Flt Permitted	0.47	1.00	1.00		1.00			0.72			0.99	
Satd. Flow (perm)	881	1863	1583		3539			1330			1813	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	789	357	0	491	0	290	0	33	1	28	4
RTOR Reduction (vph)	0	0	163	0	0	0	0	40	0	0	3	0
Lane Group Flow (vph)	37	789	194	0	491	0	0	283	0	0	30	0
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		
Actuated Green, G (s)	31.6	31.6	31.6		31.6			15.6			15.6	
Effective Green, g (s)	31.6	31.6	31.6		31.6			15.6			15.6	
Actuated g/C Ratio	0.54	0.54	0.54		0.54			0.27			0.27	
Clearance Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)	478	1011	859		1921			356			485	
v/s Ratio Prot		c0.42			0.14							
v/s Ratio Perm	0.04		0.12					c0.21			0.02	
v/c Ratio	0.08	0.78	0.23		0.26			0.79			0.06	
Uniform Delay, d1	6.3	10.5	6.9		7.1			19.8			15.9	
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2	0.3	6.0	0.6		0.3			11.6			0.1	
Delay (s)	6.7	16.5	7.5		7.4			31.4			15.9	
Level of Service	A	B	A		A			C			B	
Approach Delay (s)		13.5			7.4			31.4			15.9	
Approach LOS		B			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	11.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

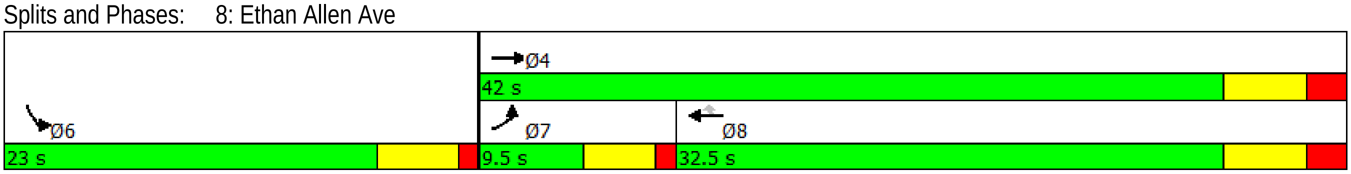
c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	1759	799	86	121	19
Future Volume (vph)	24	1759	799	86	121	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			200	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.981	
Flt Protected	0.950				0.959	
Satd. Flow (prot)	1770	3539	3539	1583	1752	0
Flt Permitted	0.950				0.959	
Satd. Flow (perm)	1770	3539	3539	1583	1752	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				93	12	
Link Speed (mph)		30	30		30	
Link Distance (ft)		408	498		215	
Travel Time (s)		9.3	11.3		4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	1912	868	93	132	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	1912	868	93	153	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Perm	Prot	
Protected Phases	7	4	8		6	
Permitted Phases				8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	
Switch Phase						
Minimum Initial (s)	5.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	9.5	24.0	24.0	24.0	23.0	
Total Split (s)	9.5	42.0	32.5	32.5	23.0	
Total Split (%)	14.6%	64.6%	50.0%	50.0%	35.4%	
Maximum Green (s)	5.0	36.0	26.5	26.5	18.0	
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.0	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	Max	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	5.0	36.0	32.2	32.2	18.0	
Actuated g/C Ratio	0.08	0.55	0.50	0.50	0.28	
v/c Ratio	0.19	0.98	0.50	0.11	0.31	
Control Delay	31.7	31.2	13.2	3.6	19.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.7	31.2	13.2	3.6	19.2	
LOS	C	C	B	A	B	
Approach Delay		31.2	12.3		19.2	
Approach LOS		C	B		B	

Intersection Summary	
Area Type: Other	
Cycle Length: 65	
Actuated Cycle Length: 65	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 24.7	Intersection LOS: C
Intersection Capacity Utilization 65.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: Ethan Allen Ave



Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	26	1912	868	93	153
v/c Ratio	0.19	0.98	0.50	0.11	0.31
Control Delay	31.7	31.2	13.2	3.6	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	31.2	13.2	3.6	19.2
Queue Length 50th (ft)	10	350	96	0	44
Queue Length 95th (ft)	31	#545	191	23	88
Internal Link Dist (ft)		328	418		135
Turn Bay Length (ft)				200	
Base Capacity (vph)	136	1960	1753	831	493
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.98	0.50	0.11	0.31

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	1759	799	86	121	19
Future Volume (vph)	24	1759	799	86	121	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	6.0	5.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.98	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1770	3539	3539	1583	1753	
Flt Permitted	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	1770	3539	3539	1583	1753	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	1912	868	93	132	21
RTOR Reduction (vph)	0	0	0	49	9	0
Lane Group Flow (vph)	26	1912	868	44	144	0
Turn Type	Prot	NA	NA	Perm	Prot	
Protected Phases	7	4	8		6	
Permitted Phases				8		
Actuated Green, G (s)	2.0	38.7	32.2	32.2	18.0	
Effective Green, g (s)	2.0	38.7	32.2	32.2	18.0	
Actuated g/C Ratio	0.03	0.57	0.48	0.48	0.27	
Clearance Time (s)	4.5	6.0	6.0	6.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	52	2023	1683	752	466	
v/s Ratio Prot	0.01	c0.54	0.25		c0.08	
v/s Ratio Perm				0.03		
v/c Ratio	0.50	0.95	0.52	0.06	0.31	
Uniform Delay, d1	32.4	13.5	12.3	9.6	19.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.4	9.9	0.3	0.0	1.7	
Delay (s)	39.7	23.4	12.6	9.6	21.6	
Level of Service	D	C	B	A	C	
Approach Delay (s)		23.6	12.3		21.6	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	15.5
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1171	709	363	357	379	522
Future Volume (vph)	1171	709	363	357	379	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	200	0
Storage Lanes	2			0	1	2
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	1.00	0.95	0.95	1.00	0.88
Frt			0.926			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1863	3277	0	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	1863	3277	0	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			330			405
Link Speed (mph)		45	45		45	
Link Distance (ft)		265	874		480	
Travel Time (s)		4.0	13.2		7.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1273	771	395	388	412	567
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1273	771	783	0	412	567
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		8	8 1
Permitted Phases						

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Detector Phase	1	6	2		8	8 1
Switch Phase						
Minimum Initial (s)	12.0	8.0	8.0		10.0	
Minimum Split (s)	19.0	15.0	33.0		17.5	
Total Split (s)	21.0	54.5	33.5		25.5	
Total Split (%)	26.3%	68.1%	41.9%		31.9%	
Maximum Green (s)	14.0	47.5	26.5		19.5	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0		6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	Max	Max		None	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	14.0	47.5	26.5		19.5	40.5
Actuated g/C Ratio	0.18	0.59	0.33		0.24	0.51
v/c Ratio	2.12	0.70	0.60		0.96	0.35
Control Delay	532.6	15.5	14.6		66.0	3.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	532.6	15.5	14.6		66.0	3.9
LOS	F	B	B		E	A
Approach Delay		337.6	14.6		30.0	
Approach LOS		F	B		C	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 80		
Natural Cycle: 110		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 2.12		
Intersection Signal Delay: 192.0		Intersection LOS: F
Intersection Capacity Utilization 92.6%		ICU Level of Service F
Analysis Period (min) 15		

Splits and Phases: 10: VT 15 & Susie Wilson Rd

Lane Group	SEL	SET	NWT	SWL	SWR
Lane Group Flow (vph)	1273	771	783	412	567
v/c Ratio	2.12	0.70	0.60	0.96	0.35
Control Delay	532.6	15.5	14.6	66.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	532.6	15.5	14.6	66.0	3.9
Queue Length 50th (ft)	~529	242	93	203	22
Queue Length 95th (ft)	#653	372	151	#376	51
Internal Link Dist (ft)		185	794	400	
Turn Bay Length (ft)				200	
Base Capacity (vph)	600	1106	1306	431	1610
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	2.12	0.70	0.60	0.96	0.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1171	709	363	357	379	522
Future Volume (vph)	1171	709	363	357	379	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0		6.0	6.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.88
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	1863	3276		1770	2787
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	1863	3276		1770	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1273	771	395	388	412	567
RTOR Reduction (vph)	0	0	221	0	0	205
Lane Group Flow (vph)	1273	771	562	0	412	362
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		8	8 1
Permitted Phases						
Actuated Green, G (s)	14.0	47.5	26.5		19.5	39.5
Effective Green, g (s)	14.0	47.5	26.5		19.5	39.5
Actuated g/C Ratio	0.18	0.59	0.33		0.24	0.49
Clearance Time (s)	7.0	7.0	7.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	600	1106	1085		431	1376
v/s Ratio Prot	c0.37	c0.41	0.17		c0.23	0.13
v/s Ratio Perm						
v/c Ratio	2.12	0.70	0.52		0.96	0.26
Uniform Delay, d1	33.0	11.3	21.6		29.8	11.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	510.4	3.6	1.8		31.9	0.1
Delay (s)	543.4	14.9	23.4		61.8	11.9
Level of Service	F	B	C		E	B
Approach Delay (s)		344.0	23.4		32.9	
Approach LOS		F	C		C	

Intersection Summary			
HCM 2000 Control Delay	198.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

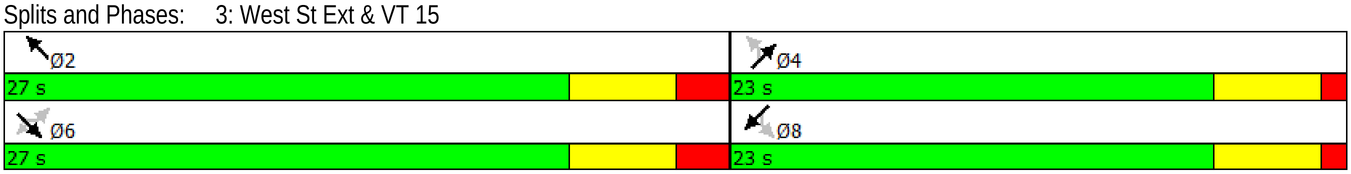
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Future Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.990			0.988	
Flt Protected	0.950							0.956			0.993	
Satd. Flow (prot)	1770	1863	1583	0	3539	0	0	1763	0	0	1828	0
Flt Permitted	0.472							0.726			0.949	
Satd. Flow (perm)	879	1863	1583	0	3539	0	0	1339	0	0	1747	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			387					65			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		874			969			437			389	
Travel Time (s)		19.9			22.0			9.9			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	414	387	0	493	0	264	0	21	3	17	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	414	387	0	493	0	0	285	0	0	22	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2		1	2		1	2	
Detector Template	Left	Thru	Right		Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20		100		20	100		20	100	
Trailing Detector (ft)	0	0	0		0		0	0		0	0	
Detector 1 Position(ft)	0	0	0		0		0	0		0	0	
Detector 1 Size(ft)	20	6	20		6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6		2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0	24.0		24.0		23.0	23.0		23.0	23.0	
Total Split (s)	27.0	27.0	27.0		27.0		23.0	23.0		23.0	23.0	
Total Split (%)	54.0%	54.0%	54.0%		54.0%		46.0%	46.0%		46.0%	46.0%	
Maximum Green (s)	21.0	21.0	21.0		21.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max		Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effct Green (s)	23.0	23.0	23.0		23.0			12.9			12.9	
Actuated g/C Ratio	0.49	0.49	0.49		0.49			0.28			0.28	
v/c Ratio	0.01	0.45	0.40		0.28			0.69			0.05	
Control Delay	8.2	11.0	2.7		8.5			20.2			10.6	
Queue Delay	0.0	0.0	0.0		0.0			0.0			0.0	
Total Delay	8.2	11.0	2.7		8.5			20.2			10.6	
LOS	A	B	A		A			C			B	
Approach Delay		7.0			8.5			20.2			10.6	
Approach LOS		A			A			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 50
Actuated Cycle Length: 46.9
Natural Cycle: 50
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 9.9 Intersection LOS: A
Intersection Capacity Utilization 50.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: West St Ext & VT 15



Lane Group	SEL	SET	SER	NWT	NET	SWT
Lane Group Flow (vph)	5	414	387	493	285	22
v/c Ratio	0.01	0.45	0.40	0.28	0.69	0.05
Control Delay	8.2	11.0	2.7	8.5	20.2	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	11.0	2.7	8.5	20.2	10.6
Queue Length 50th (ft)	1	65	0	36	48	4
Queue Length 95th (ft)	5	152	39	76	108	14
Internal Link Dist (ft)		794		889	357	309
Turn Bay Length (ft)	150					
Base Capacity (vph)	431	913	973	1735	556	674
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.45	0.40	0.28	0.51	0.03

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↑	↱		↑↱			✣			✣	
Traffic Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Future Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lane Util. Factor	1.00	1.00	1.00		0.95			1.00			1.00	
Frt	1.00	1.00	0.85		1.00			0.99			0.99	
Flt Protected	0.95	1.00	1.00		1.00			0.96			0.99	
Satd. Flow (prot)	1770	1863	1583		3539			1763			1827	
Flt Permitted	0.47	1.00	1.00		1.00			0.73			0.95	
Satd. Flow (perm)	879	1863	1583		3539			1338			1745	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	414	387	0	493	0	264	0	21	3	17	2
RTOR Reduction (vph)	0	0	197	0	0	0	0	47	0	0	1	0
Lane Group Flow (vph)	5	414	190	0	493	0	0	238	0	0	21	0
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		
Actuated Green, G (s)	23.0	23.0	23.0		23.0			12.9			12.9	
Effective Green, g (s)	23.0	23.0	23.0		23.0			12.9			12.9	
Actuated g/C Ratio	0.49	0.49	0.49		0.49			0.28			0.28	
Clearance Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)	431	913	776		1735			368			479	
v/s Ratio Prot		c0.22			0.14							
v/s Ratio Perm	0.01		0.12					c0.18			0.01	
v/c Ratio	0.01	0.45	0.24		0.28			0.65			0.04	
Uniform Delay, d1	6.1	7.8	6.9		7.1			15.0			12.5	
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2	0.0	1.6	0.7		0.4			3.9			0.0	
Delay (s)	6.2	9.5	7.7		7.5			18.9			12.5	
Level of Service	A	A	A		A			B			B	
Approach Delay (s)		8.6			7.5			18.9			12.5	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	46.9	Sum of lost time (s)	11.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

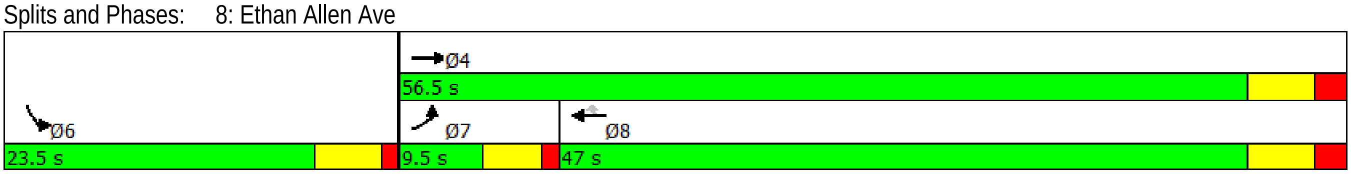
c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	815	1706	100	78	14
Future Volume (vph)	11	815	1706	100	78	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			200	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.980	
Flt Protected	0.950				0.959	
Satd. Flow (prot)	1770	3539	3539	1583	1751	0
Flt Permitted	0.950				0.959	
Satd. Flow (perm)	1770	3539	3539	1583	1751	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				93	10	
Link Speed (mph)		30	30		30	
Link Distance (ft)		408	498		215	
Travel Time (s)		9.3	11.3		4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	886	1854	109	85	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	886	1854	109	100	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Perm	Prot	
Protected Phases	7	4	8		6	
Permitted Phases				8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	
Switch Phase						
Minimum Initial (s)	5.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	9.5	24.0	24.0	24.0	23.0	
Total Split (s)	9.5	56.5	47.0	47.0	23.5	
Total Split (%)	11.9%	70.6%	58.8%	58.8%	29.4%	
Maximum Green (s)	5.0	50.5	41.0	41.0	18.5	
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.0	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	Max	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	5.0	42.8	41.1	41.1	18.5	
Actuated g/C Ratio	0.07	0.59	0.57	0.57	0.26	
v/c Ratio	0.10	0.42	0.92	0.12	0.22	
Control Delay	35.2	8.7	24.6	3.1	21.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	35.2	8.7	24.6	3.1	21.6	
LOS	D	A	C	A	C	
Approach Delay		9.1	23.4		21.6	
Approach LOS		A	C		C	

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 72.4	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 19.0	Intersection LOS: B
Intersection Capacity Utilization 63.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Ethan Allen Ave



Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	12	886	1854	109	100
v/c Ratio	0.10	0.42	0.92	0.12	0.22
Control Delay	35.2	8.7	24.6	3.1	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	8.7	24.6	3.1	21.6
Queue Length 50th (ft)	5	101	335	3	30
Queue Length 95th (ft)	22	135	#661	27	77
Internal Link Dist (ft)		328	418		135
Turn Bay Length (ft)				200	
Base Capacity (vph)	122	2475	2009	938	455
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.36	0.92	0.12	0.22

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	815	1706	100	78	14
Future Volume (vph)	11	815	1706	100	78	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	6.0	5.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.98	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1770	3539	3539	1583	1751	
Flt Permitted	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	1770	3539	3539	1583	1751	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	886	1854	109	85	15
RTOR Reduction (vph)	0	0	0	43	8	0
Lane Group Flow (vph)	12	886	1854	66	92	0
Turn Type	Prot	NA	NA	Perm	Prot	
Protected Phases	7	4	8		6	
Permitted Phases				8		
Actuated Green, G (s)	0.9	46.5	41.1	41.1	18.5	
Effective Green, g (s)	0.9	46.5	41.1	41.1	18.5	
Actuated g/C Ratio	0.01	0.61	0.54	0.54	0.24	
Clearance Time (s)	4.5	6.0	6.0	6.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	20	2165	1913	856	426	
v/s Ratio Prot	0.01	c0.25	c0.52		c0.05	
v/s Ratio Perm				0.04		
v/c Ratio	0.60	0.41	0.97	0.08	0.22	
Uniform Delay, d1	37.4	7.6	16.8	8.4	23.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	40.2	0.1	13.9	0.0	1.2	
Delay (s)	77.5	7.8	30.7	8.4	24.1	
Level of Service	E	A	C	A	C	
Approach Delay (s)		8.7	29.5		24.1	
Approach LOS		A	C		C	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	556	337	523	176	406	1284
Future Volume (vph)	556	337	523	176	406	1284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	200	0
Storage Lanes	2			0	1	2
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	1.00	0.95	0.95	1.00	0.88
Frt			0.962			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1863	3405	0	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	1863	3405	0	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			52			155
Link Speed (mph)		45	45		45	
Link Distance (ft)		265	874		480	
Travel Time (s)		4.0	13.2		7.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	604	366	568	191	441	1396
Shared Lane Traffic (%)						
Lane Group Flow (vph)	604	366	759	0	441	1396
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		8	8 1
Permitted Phases						

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Detector Phase	1	6	2		8	8 1
Switch Phase						
Minimum Initial (s)	12.0	8.0	8.0		10.0	
Minimum Split (s)	19.0	15.0	33.0		17.5	
Total Split (s)	24.0	58.0	34.0		32.0	
Total Split (%)	26.7%	64.4%	37.8%		35.6%	
Maximum Green (s)	17.0	51.0	27.0		26.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0		6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	Max	Max		None	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	17.0	51.0	27.0		26.0	50.0
Actuated g/C Ratio	0.19	0.57	0.30		0.29	0.56
v/c Ratio	0.93	0.35	0.72		0.86	0.86
Control Delay	59.3	11.7	30.6		49.1	22.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	59.3	11.7	30.6		49.1	22.2
LOS	E	B	C		D	C
Approach Delay		41.3	30.6		28.6	
Approach LOS		D	C		C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 32.5 — Intersection LOS: C
Intersection Capacity Utilization 75.8% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 10: VT 15 & Susie Wilson Rd

Lane Group	SEL	SET	NWT	SWL	SWR
Lane Group Flow (vph)	604	366	759	441	1396
v/c Ratio	0.93	0.35	0.72	0.86	0.86
Control Delay	59.3	11.7	30.6	49.1	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	59.3	11.7	30.6	49.1	22.2
Queue Length 50th (ft)	175	105	188	237	326
Queue Length 95th (ft)	#277	161	254	#403	452
Internal Link Dist (ft)		185	794	400	
Turn Bay Length (ft)				200	
Base Capacity (vph)	648	1055	1057	511	1617
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.93	0.35	0.72	0.86	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	556	337	523	176	406	1284
Future Volume (vph)	556	337	523	176	406	1284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0		6.0	6.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.88
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	1863	3406		1770	2787
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	1863	3406		1770	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	604	366	568	191	441	1396
RTOR Reduction (vph)	0	0	36	0	0	71
Lane Group Flow (vph)	604	366	723	0	441	1325
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		8	8 1
Permitted Phases						
Actuated Green, G (s)	17.0	51.0	27.0		26.0	49.0
Effective Green, g (s)	17.0	51.0	27.0		26.0	49.0
Actuated g/C Ratio	0.19	0.57	0.30		0.29	0.54
Clearance Time (s)	7.0	7.0	7.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	648	1055	1021		511	1517
v/s Ratio Prot	0.18	0.20	c0.21		0.25	c0.48
v/s Ratio Perm						
v/c Ratio	0.93	0.35	0.71		0.86	0.87
Uniform Delay, d1	35.9	10.5	28.0		30.3	17.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	20.3	0.9	4.1		14.0	5.9
Delay (s)	56.3	11.4	32.1		44.3	23.7
Level of Service	E	B	C		D	C
Approach Delay (s)		39.3	32.1		28.7	
Approach LOS		D	C		C	

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

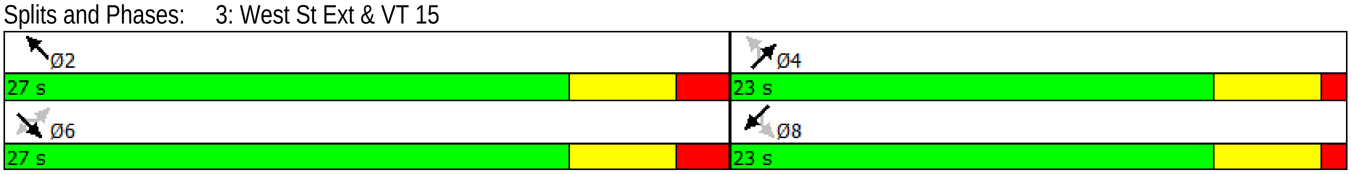
c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Future Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.990			0.988	
Flt Protected	0.950							0.956			0.993	
Satd. Flow (prot)	1770	1863	1583	0	1863	0	0	1763	0	0	1828	0
Flt Permitted	0.420							0.726			0.949	
Satd. Flow (perm)	782	1863	1583	0	1863	0	0	1339	0	0	1747	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			387					65			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1139			969			437			389	
Travel Time (s)		25.9			22.0			9.9			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	414	387	0	493	0	264	0	21	3	17	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	414	387	0	493	0	0	285	0	0	22	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2		1	2		1	2	
Detector Template	Left	Thru	Right		Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20		100		20	100		20	100	
Trailing Detector (ft)	0	0	0		0		0	0		0	0	
Detector 1 Position(ft)	0	0	0		0		0	0		0	0	
Detector 1 Size(ft)	20	6	20		6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6		2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0	24.0		24.0		23.0	23.0		23.0	23.0	
Total Split (s)	27.0	27.0	27.0		27.0		23.0	23.0		23.0	23.0	
Total Split (%)	54.0%	54.0%	54.0%		54.0%		46.0%	46.0%		46.0%	46.0%	
Maximum Green (s)	21.0	21.0	21.0		21.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max		Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effct Green (s)	23.0	23.0	23.0		23.0			12.9			12.9	
Actuated g/C Ratio	0.49	0.49	0.49		0.49			0.28			0.28	
v/c Ratio	0.01	0.45	0.40		0.54			0.69			0.05	
Control Delay	8.2	11.0	2.7		12.3			20.2			10.6	
Queue Delay	0.0	0.0	0.0		0.0			0.0			0.0	
Total Delay	8.2	11.0	2.7		12.3			20.2			10.6	
LOS	A	B	A		B			C			B	
Approach Delay		7.0			12.3			20.2			10.6	
Approach LOS		A			B			C			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 50	
Actuated Cycle Length: 46.9	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 54.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: West St Ext & VT 15



Lane Group	SEL	SET	SER	NWT	NET	SWT
Lane Group Flow (vph)	5	414	387	493	285	22
v/c Ratio	0.01	0.45	0.40	0.54	0.69	0.05
Control Delay	8.2	11.0	2.7	12.3	20.2	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	11.0	2.7	12.3	20.2	10.6
Queue Length 50th (ft)	1	65	0	83	48	4
Queue Length 95th (ft)	5	152	39	189	108	14
Internal Link Dist (ft)		1059		889	357	309
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	383	913	973	913	556	674
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.45	0.40	0.54	0.51	0.03

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Future Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Frt	1.00	1.00	0.85		1.00			0.99			0.99	
Flt Protected	0.95	1.00	1.00		1.00			0.96			0.99	
Satd. Flow (prot)	1770	1863	1583		1863			1763			1827	
Flt Permitted	0.42	1.00	1.00		1.00			0.73			0.95	
Satd. Flow (perm)	782	1863	1583		1863			1338			1745	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	414	387	0	493	0	264	0	21	3	17	2
RTOR Reduction (vph)	0	0	197	0	0	0	0	47	0	0	1	0
Lane Group Flow (vph)	5	414	190	0	493	0	0	238	0	0	21	0
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		
Actuated Green, G (s)	23.0	23.0	23.0		23.0			12.9			12.9	
Effective Green, g (s)	23.0	23.0	23.0		23.0			12.9			12.9	
Actuated g/C Ratio	0.49	0.49	0.49		0.49			0.28			0.28	
Clearance Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)	383	913	776		913			368			479	
v/s Ratio Prot		0.22			c0.26							
v/s Ratio Perm	0.01		0.12					c0.18			0.01	
v/c Ratio	0.01	0.45	0.24		0.54			0.65			0.04	
Uniform Delay, d1	6.1	7.8	6.9		8.3			15.0			12.5	
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2	0.1	1.6	0.7		2.3			3.9			0.0	
Delay (s)	6.2	9.5	7.7		10.6			18.9			12.5	
Level of Service	A	A	A		B			B			B	
Approach Delay (s)		8.6			10.6			18.9			12.5	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	46.9	Sum of lost time (s)	11.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

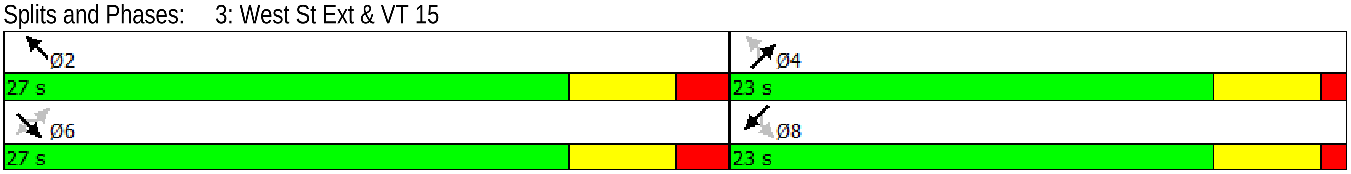
c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Future Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.990			0.988	
Flt Protected	0.950							0.956			0.993	
Satd. Flow (prot)	1770	1863	1583	0	1863	0	0	1763	0	0	1828	0
Flt Permitted	0.420							0.726			0.949	
Satd. Flow (perm)	782	1863	1583	0	1863	0	0	1339	0	0	1747	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			387					65			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1139			969			437			389	
Travel Time (s)		25.9			22.0			9.9			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	414	387	0	493	0	264	0	21	3	17	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	414	387	0	493	0	0	285	0	0	22	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2		1	2		1	2	
Detector Template	Left	Thru	Right		Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20		100		20	100		20	100	
Trailing Detector (ft)	0	0	0		0		0	0		0	0	
Detector 1 Position(ft)	0	0	0		0		0	0		0	0	
Detector 1 Size(ft)	20	6	20		6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6		2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0	24.0		24.0		23.0	23.0		23.0	23.0	
Total Split (s)	27.0	27.0	27.0		27.0		23.0	23.0		23.0	23.0	
Total Split (%)	54.0%	54.0%	54.0%		54.0%		46.0%	46.0%		46.0%	46.0%	
Maximum Green (s)	21.0	21.0	21.0		21.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max		Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effct Green (s)	23.0	23.0	23.0		23.0			12.9			12.9	
Actuated g/C Ratio	0.49	0.49	0.49		0.49			0.28			0.28	
v/c Ratio	0.01	0.45	0.40		0.54			0.69			0.05	
Control Delay	8.2	11.0	2.7		12.3			20.2			10.6	
Queue Delay	0.0	0.0	0.0		0.0			0.0			0.0	
Total Delay	8.2	11.0	2.7		12.3			20.2			10.6	
LOS	A	B	A		B			C			B	
Approach Delay		7.0			12.3			20.2			10.6	
Approach LOS		A			B			C			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 50	
Actuated Cycle Length: 46.9	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 54.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: West St Ext & VT 15



Lane Group	SEL	SET	SER	NWT	NET	SWT
Lane Group Flow (vph)	5	414	387	493	285	22
v/c Ratio	0.01	0.45	0.40	0.54	0.69	0.05
Control Delay	8.2	11.0	2.7	12.3	20.2	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	11.0	2.7	12.3	20.2	10.6
Queue Length 50th (ft)	1	65	0	83	48	4
Queue Length 95th (ft)	5	152	39	189	108	14
Internal Link Dist (ft)		1059		889	357	309
Turn Bay Length (ft)			150			
Base Capacity (vph)	383	913	973	913	556	674
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.45	0.40	0.54	0.51	0.03

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Future Volume (vph)	5	381	356	0	454	0	243	0	19	3	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Frt	1.00	1.00	0.85		1.00			0.99			0.99	
Flt Protected	0.95	1.00	1.00		1.00			0.96			0.99	
Satd. Flow (prot)	1770	1863	1583		1863			1763			1827	
Flt Permitted	0.42	1.00	1.00		1.00			0.73			0.95	
Satd. Flow (perm)	782	1863	1583		1863			1338			1745	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	414	387	0	493	0	264	0	21	3	17	2
RTOR Reduction (vph)	0	0	197	0	0	0	0	47	0	0	1	0
Lane Group Flow (vph)	5	414	190	0	493	0	0	238	0	0	21	0
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		
Actuated Green, G (s)	23.0	23.0	23.0		23.0			12.9			12.9	
Effective Green, g (s)	23.0	23.0	23.0		23.0			12.9			12.9	
Actuated g/C Ratio	0.49	0.49	0.49		0.49			0.28			0.28	
Clearance Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)	383	913	776		913			368			479	
v/s Ratio Prot		0.22			c0.26							
v/s Ratio Perm	0.01		0.12					c0.18			0.01	
v/c Ratio	0.01	0.45	0.24		0.54			0.65			0.04	
Uniform Delay, d1	6.1	7.8	6.9		8.3			15.0			12.5	
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2	0.1	1.6	0.7		2.3			3.9			0.0	
Delay (s)	6.2	9.5	7.7		10.6			18.9			12.5	
Level of Service	A	A	A		B			B			B	
Approach Delay (s)		8.6			10.6			18.9			12.5	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	46.9	Sum of lost time (s)	11.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

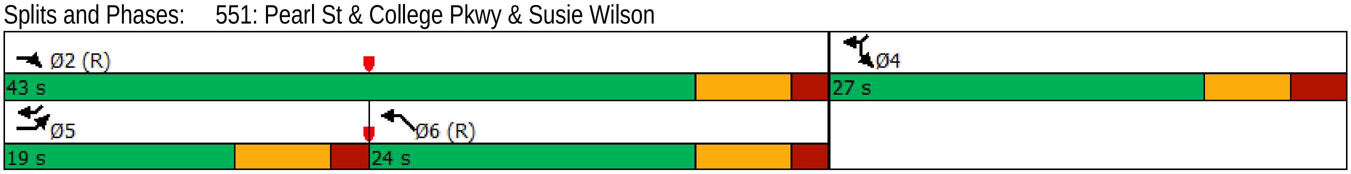
Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	556	337	523	176	406	1284
Future Volume (vph)	556	337	523	176	406	1284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Storage Length (ft)	725	0	0	0	200	0
Storage Lanes	1	1	2	0	1	2
Taper Length (ft)	25		25		25	
Lane Util. Factor	0.97	1.00	0.97	0.95	1.00	0.88
Frt		0.850	0.962			0.850
Flt Protected	0.950		0.964		0.950	
Satd. Flow (prot)	3467	1599	3393	0	1787	2787
Flt Permitted	0.950		0.964		0.950	
Satd. Flow (perm)	3467	1599	3393	0	1787	2787
Right Turn on Red		Yes		Yes		No
Satd. Flow (RTOR)		160	65			
Link Speed (mph)	35		35		30	
Link Distance (ft)	1793		1325		557	
Travel Time (s)	34.9		25.8		12.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Adj. Flow (vph)	556	337	523	176	406	1284
Shared Lane Traffic (%)						
Lane Group Flow (vph)	556	337	699	0	406	1284
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	24		24		12	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	15	9
Number of Detectors	1	1	1		1	1
Detector Template						
Leading Detector (ft)	35	35	35		35	35
Trailing Detector (ft)	-5	-5	-5		-5	-5
Detector 1 Position(ft)	-5	-5	-5		-5	-5
Detector 1 Size(ft)	40	40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Minimum Split (s)	15.0	15.0	15.0		15.5	
Total Split (s)	19.0	43.0	24.0		27.0	
Total Split (%)	27.1%	61.4%	34.3%		38.6%	
Maximum Green (s)	12.0	36.0	17.0		19.5	
Yellow Time (s)	5.0	5.0	5.0		4.5	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0		7.5	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	12.0	36.0	17.0		19.5	38.5
Actuated g/C Ratio	0.17	0.51	0.24		0.28	0.55
v/c Ratio	0.94	0.37	0.80		0.82	0.84
Control Delay	55.1	6.5	31.0		39.3	19.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	55.1	6.5	31.0		39.3	19.7
LOS	E	A	C		D	B
Approach Delay	36.7		31.0		24.4	
Approach LOS	D		C		C	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBR and 6:NWL, Start of Green, Master Intersection
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 29.2 Intersection LOS: C
Intersection Capacity Utilization 76.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 551: Pearl St & College Pkwy & Susie Wilson



Lane Group	EBL	EBR	NWL	SWL	SWR
Lane Group Flow (vph)	556	337	699	406	1284
v/c Ratio	0.94	0.37	0.80	0.82	0.84
Control Delay	55.1	6.5	31.0	39.3	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	6.5	31.0	39.3	19.7
Queue Length 50th (ft)	123	39	132	163	239
Queue Length 95th (ft)	#214	86	#211	#304	#347
Internal Link Dist (ft)	1713		1245	477	
Turn Bay Length (ft)	725			200	
Base Capacity (vph)	594	900	873	497	1532
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.94	0.37	0.80	0.82	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	556	337	523	176	406	1284
Future Volume (vph)	556	337	523	176	406	1284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	7.0	7.0	7.0		7.5	7.5
Lane Util. Factor	0.97	1.00	0.97		1.00	0.88
Frt	1.00	0.85	0.96		1.00	0.85
Flt Protected	0.95	1.00	0.96		0.95	1.00
Satd. Flow (prot)	3467	1599	3393		1787	2787
Flt Permitted	0.95	1.00	0.96		0.95	1.00
Satd. Flow (perm)	3467	1599	3393		1787	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	556	337	523	176	406	1284
RTOR Reduction (vph)	0	78	49	0	0	0
Lane Group Flow (vph)	556	259	650	0	406	1284
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)	12.0	36.0	17.0		19.5	39.0
Effective Green, g (s)	12.0	36.0	17.0		19.5	39.0
Actuated g/C Ratio	0.17	0.51	0.24		0.28	0.56
Clearance Time (s)	7.0	7.0	7.0		7.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	594	822	824		497	1552
v/s Ratio Prot	0.16	0.16	c0.19		0.23	c0.46
v/s Ratio Perm						
v/c Ratio	0.94	0.32	0.79		0.82	0.83
Uniform Delay, d1	28.6	9.9	24.8		23.6	12.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	22.2	1.0	7.5		10.0	3.8
Delay (s)	50.8	10.9	32.4		33.6	16.5
Level of Service	D	B	C		C	B
Approach Delay (s)	35.8		32.4		20.6	
Approach LOS	D		C		C	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

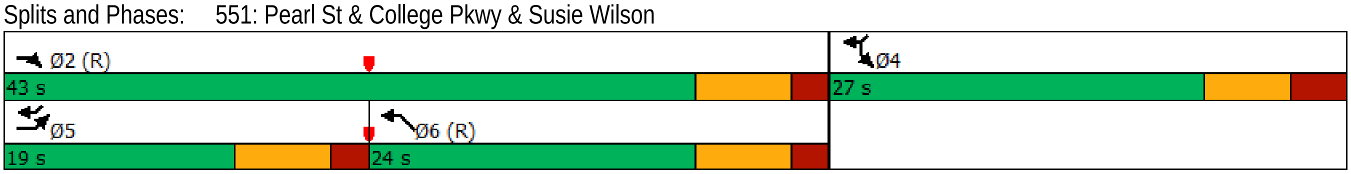
c Critical Lane Group

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	556	337	523	176	406	1284
Future Volume (vph)	556	337	523	176	406	1284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Storage Length (ft)	725	0	0	0	200	0
Storage Lanes	1	1	2	0	1	2
Taper Length (ft)	25		25		25	
Lane Util. Factor	0.97	1.00	0.97	0.95	1.00	0.88
Frt		0.850	0.962			0.850
Flt Protected	0.950		0.964		0.950	
Satd. Flow (prot)	3467	1599	3393	0	1787	2787
Flt Permitted	0.950		0.964		0.950	
Satd. Flow (perm)	3467	1599	3393	0	1787	2787
Right Turn on Red		Yes		Yes		No
Satd. Flow (RTOR)		160	65			
Link Speed (mph)	35		35		30	
Link Distance (ft)	1793		1325		557	
Travel Time (s)	34.9		25.8		12.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Adj. Flow (vph)	556	337	523	176	406	1284
Shared Lane Traffic (%)						
Lane Group Flow (vph)	556	337	699	0	406	1284
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	24		24		12	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	15	9
Number of Detectors	1	1	1		1	1
Detector Template						
Leading Detector (ft)	35	35	35		35	35
Trailing Detector (ft)	-5	-5	-5		-5	-5
Detector 1 Position(ft)	-5	-5	-5		-5	-5
Detector 1 Size(ft)	40	40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Minimum Split (s)	15.0	15.0	15.0		15.5	
Total Split (s)	19.0	43.0	24.0		27.0	
Total Split (%)	27.1%	61.4%	34.3%		38.6%	
Maximum Green (s)	12.0	36.0	17.0		19.5	
Yellow Time (s)	5.0	5.0	5.0		4.5	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0		7.5	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	12.0	36.0	17.0		19.5	38.5
Actuated g/C Ratio	0.17	0.51	0.24		0.28	0.55
v/c Ratio	0.94	0.37	0.80		0.82	0.84
Control Delay	55.1	6.5	31.0		39.3	19.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	55.1	6.5	31.0		39.3	19.7
LOS	E	A	C		D	B
Approach Delay	36.7		31.0		24.4	
Approach LOS	D		C		C	

Intersection Summary	
Area Type: Other	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:EBR and 6:NWL, Start of Green, Master Intersection	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 29.2	Intersection LOS: C
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 551: Pearl St & College Pkwy & Susie Wilson



Lane Group	EBL	EBR	NWL	SWL	SWR
Lane Group Flow (vph)	556	337	699	406	1284
v/c Ratio	0.94	0.37	0.80	0.82	0.84
Control Delay	55.1	6.5	31.0	39.3	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	6.5	31.0	39.3	19.7
Queue Length 50th (ft)	123	39	132	163	239
Queue Length 95th (ft)	#214	86	#211	#304	#347
Internal Link Dist (ft)	1713		1245	477	
Turn Bay Length (ft)	725			200	
Base Capacity (vph)	594	900	873	497	1532
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.94	0.37	0.80	0.82	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	556	337	523	176	406	1284
Future Volume (vph)	556	337	523	176	406	1284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	7.0	7.0	7.0		7.5	7.5
Lane Util. Factor	0.97	1.00	0.97		1.00	0.88
Frt	1.00	0.85	0.96		1.00	0.85
Flt Protected	0.95	1.00	0.96		0.95	1.00
Satd. Flow (prot)	3467	1599	3393		1787	2787
Flt Permitted	0.95	1.00	0.96		0.95	1.00
Satd. Flow (perm)	3467	1599	3393		1787	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	556	337	523	176	406	1284
RTOR Reduction (vph)	0	78	49	0	0	0
Lane Group Flow (vph)	556	259	650	0	406	1284
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)	12.0	36.0	17.0		19.5	39.0
Effective Green, g (s)	12.0	36.0	17.0		19.5	39.0
Actuated g/C Ratio	0.17	0.51	0.24		0.28	0.56
Clearance Time (s)	7.0	7.0	7.0		7.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	594	822	824		497	1552
v/s Ratio Prot	0.16	0.16	c0.19		0.23	c0.46
v/s Ratio Perm						
v/c Ratio	0.94	0.32	0.79		0.82	0.83
Uniform Delay, d1	28.6	9.9	24.8		23.6	12.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	22.2	1.0	7.5		10.0	3.8
Delay (s)	50.8	10.9	32.4		33.6	16.5
Level of Service	D	B	C		C	B
Approach Delay (s)	35.8		32.4		20.6	
Approach LOS	D		C		C	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

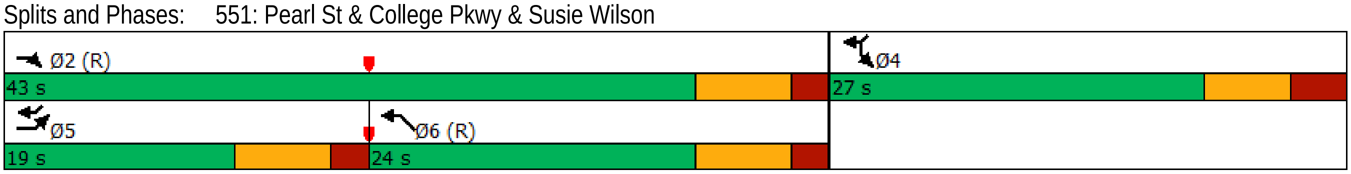
c Critical Lane Group

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	556	337	523	176	406	1284
Future Volume (vph)	556	337	523	176	406	1284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Storage Length (ft)	725	0	0	0	200	0
Storage Lanes	1	1	2	0	1	2
Taper Length (ft)	25		25		25	
Lane Util. Factor	0.97	1.00	0.97	0.95	1.00	0.88
Frt		0.850	0.962			0.850
Flt Protected	0.950		0.964		0.950	
Satd. Flow (prot)	3467	1599	3393	0	1787	2787
Flt Permitted	0.950		0.964		0.950	
Satd. Flow (perm)	3467	1599	3393	0	1787	2787
Right Turn on Red		Yes		Yes		No
Satd. Flow (RTOR)		160	65			
Link Speed (mph)	35		35		30	
Link Distance (ft)	1793		1325		557	
Travel Time (s)	34.9		25.8		12.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Adj. Flow (vph)	556	337	523	176	406	1284
Shared Lane Traffic (%)						
Lane Group Flow (vph)	556	337	699	0	406	1284
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	24		24		12	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	15	9
Number of Detectors	1	1	1		1	1
Detector Template						
Leading Detector (ft)	35	35	35		35	35
Trailing Detector (ft)	-5	-5	-5		-5	-5
Detector 1 Position(ft)	-5	-5	-5		-5	-5
Detector 1 Size(ft)	40	40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Minimum Split (s)	15.0	15.0	15.0		15.5	
Total Split (s)	19.0	43.0	24.0		27.0	
Total Split (%)	27.1%	61.4%	34.3%		38.6%	
Maximum Green (s)	12.0	36.0	17.0		19.5	
Yellow Time (s)	5.0	5.0	5.0		4.5	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0		7.5	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	12.0	36.0	17.0		19.5	38.5
Actuated g/C Ratio	0.17	0.51	0.24		0.28	0.55
v/c Ratio	0.94	0.37	0.80		0.82	0.84
Control Delay	55.1	6.5	31.0		39.3	19.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	55.1	6.5	31.0		39.3	19.7
LOS	E	A	C		D	B
Approach Delay	36.7		31.0		24.4	
Approach LOS	D		C		C	

Intersection Summary	
Area Type: Other	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:EBR and 6:NWL, Start of Green, Master Intersection	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 29.2	Intersection LOS: C
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 551: Pearl St & College Pkwy & Susie Wilson



Lane Group	EBL	EBR	NWL	SWL	SWR
Lane Group Flow (vph)	556	337	699	406	1284
v/c Ratio	0.94	0.37	0.80	0.82	0.84
Control Delay	55.1	6.5	31.0	39.3	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	6.5	31.0	39.3	19.7
Queue Length 50th (ft)	123	39	132	163	239
Queue Length 95th (ft)	#214	86	#211	#304	#347
Internal Link Dist (ft)	1713		1245	477	
Turn Bay Length (ft)	725			200	
Base Capacity (vph)	594	900	873	497	1532
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.94	0.37	0.80	0.82	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	556	337	523	176	406	1284
Future Volume (vph)	556	337	523	176	406	1284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	7.0	7.0	7.0		7.5	7.5
Lane Util. Factor	0.97	1.00	0.97		1.00	0.88
Frt	1.00	0.85	0.96		1.00	0.85
Flt Protected	0.95	1.00	0.96		0.95	1.00
Satd. Flow (prot)	3467	1599	3393		1787	2787
Flt Permitted	0.95	1.00	0.96		0.95	1.00
Satd. Flow (perm)	3467	1599	3393		1787	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	556	337	523	176	406	1284
RTOR Reduction (vph)	0	78	49	0	0	0
Lane Group Flow (vph)	556	259	650	0	406	1284
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)	12.0	36.0	17.0		19.5	39.0
Effective Green, g (s)	12.0	36.0	17.0		19.5	39.0
Actuated g/C Ratio	0.17	0.51	0.24		0.28	0.56
Clearance Time (s)	7.0	7.0	7.0		7.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	594	822	824		497	1552
v/s Ratio Prot	0.16	0.16	c0.19		0.23	c0.46
v/s Ratio Perm						
v/c Ratio	0.94	0.32	0.79		0.82	0.83
Uniform Delay, d1	28.6	9.9	24.8		23.6	12.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	22.2	1.0	7.5		10.0	3.8
Delay (s)	50.8	10.9	32.4		33.6	16.5
Level of Service	D	B	C		C	B
Approach Delay (s)	35.8		32.4		20.6	
Approach LOS	D		C		C	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

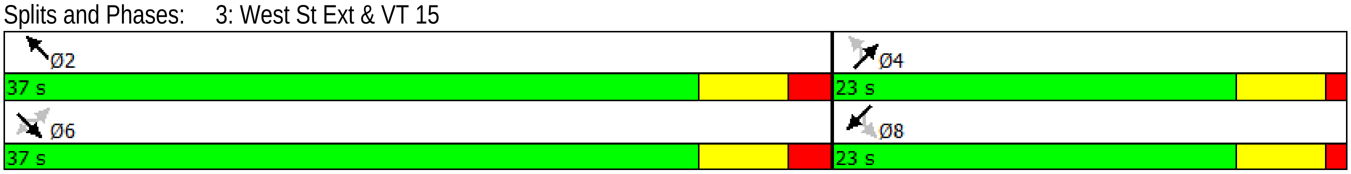
c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Future Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.986			0.996	
Flt Protected	0.950							0.957			0.994	
Satd. Flow (prot)	1770	1863	1583	0	3539	0	0	1758	0	0	1844	0
Flt Permitted	0.455							0.722			0.955	
Satd. Flow (perm)	848	1863	1583	0	3539	0	0	1326	0	0	1772	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			385					55			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		874			969			437			389	
Travel Time (s)		19.9			22.0			9.9			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	852	385	0	530	0	313	0	35	4	30	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	852	385	0	530	0	0	348	0	0	35	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2		1	2		1	2	
Detector Template	Left	Thru	Right		Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20		100		20	100		20	100	
Trailing Detector (ft)	0	0	0		0		0	0		0	0	
Detector 1 Position(ft)	0	0	0		0		0	0		0	0	
Detector 1 Size(ft)	20	6	20		6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6		2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0	24.0		24.0		23.0	23.0		23.0	23.0	
Total Split (s)	37.0	37.0	37.0		37.0		23.0	23.0		23.0	23.0	
Total Split (%)	61.7%	61.7%	61.7%		61.7%		38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	31.0	31.0	31.0		31.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max		Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effct Green (s)	31.2	31.2	31.2		31.2			16.2			16.2	
Actuated g/C Ratio	0.53	0.53	0.53		0.53			0.28			0.28	
v/c Ratio	0.09	0.86	0.38		0.28			0.86			0.07	
Control Delay	8.0	23.8	2.2		8.3			39.1			15.3	
Queue Delay	0.0	0.0	0.0		0.0			0.0			0.0	
Total Delay	8.0	23.8	2.2		8.3			39.1			15.3	
LOS	A	C	A		A			D			B	
Approach Delay		16.8			8.3			39.1			15.3	
Approach LOS		B			A			D			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 58.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 18.3	Intersection LOS: B
Intersection Capacity Utilization 75.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: West St Ext & VT 15



Lane Group	SEL	SET	SER	NWT	NET	SWT
Lane Group Flow (vph)	40	852	385	530	348	35
v/c Ratio	0.09	0.86	0.38	0.28	0.86	0.07
Control Delay	8.0	23.8	2.2	8.3	39.1	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	23.8	2.2	8.3	39.1	15.3
Queue Length 50th (ft)	7	251	0	52	96	9
Queue Length 95th (ft)	20	#483	34	78	#227	26
Internal Link Dist (ft)		794		889	357	309
Turn Bay Length (ft)	150					
Base Capacity (vph)	453	996	1025	1892	447	547
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.86	0.38	0.28	0.78	0.06

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Future Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lane Util. Factor	1.00	1.00	1.00		0.95			1.00			1.00	
Frt	1.00	1.00	0.85		1.00			0.99			1.00	
Flt Protected	0.95	1.00	1.00		1.00			0.96			0.99	
Satd. Flow (prot)	1770	1863	1583		3539			1758			1845	
Flt Permitted	0.46	1.00	1.00		1.00			0.72			0.95	
Satd. Flow (perm)	848	1863	1583		3539			1327			1772	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	852	385	0	530	0	313	0	35	4	30	1
RTOR Reduction (vph)	0	0	179	0	0	0	0	40	0	0	1	0
Lane Group Flow (vph)	40	852	206	0	530	0	0	308	0	0	34	0
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		
Actuated Green, G (s)	31.2	31.2	31.2		31.2			16.2			16.2	
Effective Green, g (s)	31.2	31.2	31.2		31.2			16.2			16.2	
Actuated g/C Ratio	0.53	0.53	0.53		0.53			0.28			0.28	
Clearance Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)	453	995	845		1890			368			491	
v/s Ratio Prot		c0.46			0.15							
v/s Ratio Perm	0.05		0.13					c0.23			0.02	
v/c Ratio	0.09	0.86	0.24		0.28			0.84			0.07	
Uniform Delay, d1	6.6	11.7	7.3		7.5			19.9			15.5	
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2	0.4	9.4	0.7		0.4			15.2			0.1	
Delay (s)	7.0	21.1	8.0		7.8			35.1			15.6	
Level of Service	A	C	A		A			D			B	
Approach Delay (s)		16.7			7.8			35.1			15.6	
Approach LOS		B			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	11.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

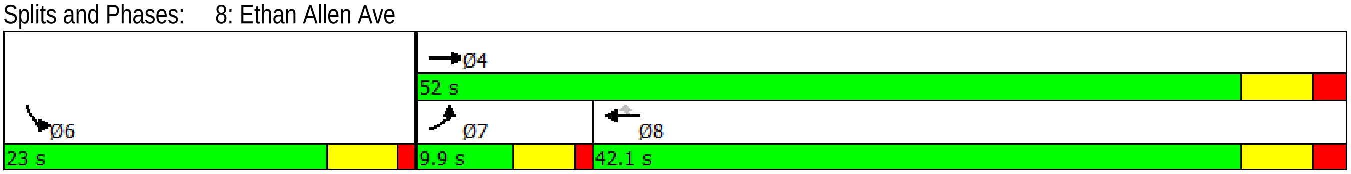
c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	26	1900	863	93	131	21
Future Volume (vph)	26	1900	863	93	131	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			200	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.981	
Flt Protected	0.950				0.959	
Satd. Flow (prot)	1770	3539	3539	1583	1752	0
Flt Permitted	0.950				0.959	
Satd. Flow (perm)	1770	3539	3539	1583	1752	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				101	10	
Link Speed (mph)		30	30		30	
Link Distance (ft)		408	498		215	
Travel Time (s)		9.3	11.3		4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	2065	938	101	142	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	2065	938	101	165	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Perm	Prot	
Protected Phases	7	4	8		6	
Permitted Phases				8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	
Switch Phase						
Minimum Initial (s)	5.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	9.5	24.0	24.0	24.0	23.0	
Total Split (s)	9.9	52.0	42.1	42.1	23.0	
Total Split (%)	13.2%	69.3%	56.1%	56.1%	30.7%	
Maximum Green (s)	5.4	46.0	36.1	36.1	18.0	
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.0	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	Max	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	5.4	46.0	42.0	42.0	18.0	
Actuated g/C Ratio	0.07	0.61	0.56	0.56	0.24	
v/c Ratio	0.22	0.95	0.47	0.11	0.39	
Control Delay	37.3	25.7	11.8	2.9	25.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.3	25.7	11.8	2.9	25.5	
LOS	D	C	B	A	C	
Approach Delay		25.8	10.9		25.5	
Approach LOS		C	B		C	

Intersection Summary	
Area Type: Other	
Cycle Length: 75	
Actuated Cycle Length: 75	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 21.1	Intersection LOS: C
Intersection Capacity Utilization 70.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: Ethan Allen Ave



Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	28	2065	938	101	165
v/c Ratio	0.22	0.95	0.47	0.11	0.39
Control Delay	37.3	25.7	11.8	2.9	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	25.7	11.8	2.9	25.5
Queue Length 50th (ft)	13	416	107	0	60
Queue Length 95th (ft)	37	#643	207	23	113
Internal Link Dist (ft)		328	418		135
Turn Bay Length (ft)				200	
Base Capacity (vph)	127	2170	1983	931	428
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.95	0.47	0.11	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	26	1900	863	93	131	21
Future Volume (vph)	26	1900	863	93	131	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	6.0	5.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.98	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1770	3539	3539	1583	1752	
Flt Permitted	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	1770	3539	3539	1583	1752	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	2065	938	101	142	23
RTOR Reduction (vph)	0	0	0	46	8	0
Lane Group Flow (vph)	28	2065	938	55	157	0
Turn Type	Prot	NA	NA	Perm	Prot	
Protected Phases	7	4	8		6	
Permitted Phases				8		
Actuated Green, G (s)	2.2	48.7	42.0	42.0	18.0	
Effective Green, g (s)	2.2	48.7	42.0	42.0	18.0	
Actuated g/C Ratio	0.03	0.63	0.54	0.54	0.23	
Clearance Time (s)	4.5	6.0	6.0	6.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	50	2218	1912	855	405	
v/s Ratio Prot	0.02	c0.58	0.27		c0.09	
v/s Ratio Perm				0.03		
v/c Ratio	0.56	0.93	0.49	0.06	0.39	
Uniform Delay, d1	37.3	13.0	11.2	8.5	25.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.6	7.8	0.2	0.0	2.8	
Delay (s)	50.8	20.8	11.4	8.5	28.0	
Level of Service	D	C	B	A	C	
Approach Delay (s)		21.2	11.1		28.0	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	77.7	Sum of lost time (s)	15.5
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

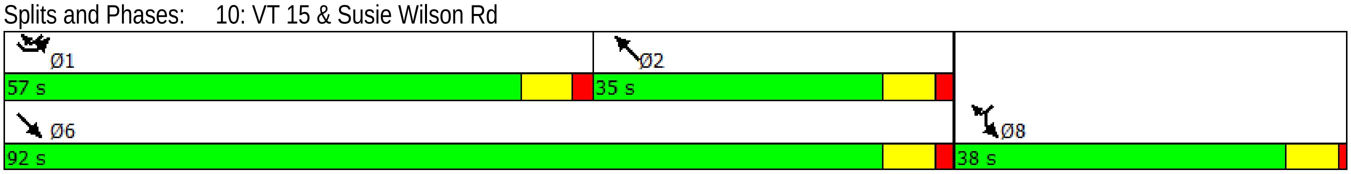
c Critical Lane Group

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1265	766	392	386	409	564
Future Volume (vph)	1265	766	392	386	409	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	200	0
Storage Lanes	2			0	1	2
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	1.00	0.95	0.95	1.00	0.88
Frt			0.926			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1863	3277	0	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	1863	3277	0	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			174			138
Link Speed (mph)		45	45		45	
Link Distance (ft)		265	874		480	
Travel Time (s)		4.0	13.2		7.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1375	833	426	420	445	613
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1375	833	846	0	445	613
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		8	8 1
Permitted Phases						

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Detector Phase	1	6	2		8	8 1
Switch Phase						
Minimum Initial (s)	12.0	8.0	8.0		10.0	
Minimum Split (s)	19.0	15.0	33.0		17.5	
Total Split (s)	57.0	92.0	35.0		38.0	
Total Split (%)	43.8%	70.8%	26.9%		29.2%	
Maximum Green (s)	50.0	85.0	28.0		32.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0		6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	Max	Max		None	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	50.0	85.0	28.0		32.0	89.0
Actuated g/C Ratio	0.38	0.65	0.22		0.25	0.68
v/c Ratio	1.04	0.68	1.00		1.02	0.31
Control Delay	75.5	17.8	72.4		97.2	6.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	75.5	17.8	72.4		97.2	6.6
LOS	E	B	E		F	A
Approach Delay		53.7	72.4		44.7	
Approach LOS		D	E		D	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Natural Cycle: 130	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 55.2	Intersection LOS: E
Intersection Capacity Utilization 98.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 10: VT 15 & Susie Wilson Rd



Lane Group	SEL	SET	NWT	SWL	SWR
Lane Group Flow (vph)	1375	833	846	445	613
v/c Ratio	1.04	0.68	1.00	1.02	0.31
Control Delay	75.5	17.8	72.4	97.2	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	75.5	17.8	72.4	97.2	6.6
Queue Length 50th (ft)	~644	408	~315	~398	80
Queue Length 95th (ft)	#781	555	#459	#608	110
Internal Link Dist (ft)		185	794	400	
Turn Bay Length (ft)				200	
Base Capacity (vph)	1320	1218	842	435	1951
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.04	0.68	1.00	1.02	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1265	766	392	386	409	564
Future Volume (vph)	1265	766	392	386	409	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0		6.0	6.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.88
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	1863	3276		1770	2787
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	1863	3276		1770	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1375	833	426	420	445	613
RTOR Reduction (vph)	0	0	137	0	0	45
Lane Group Flow (vph)	1375	833	709	0	445	568
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		8	8 1
Permitted Phases						
Actuated Green, G (s)	50.0	85.0	28.0		32.0	88.0
Effective Green, g (s)	50.0	85.0	28.0		32.0	88.0
Actuated g/C Ratio	0.38	0.65	0.22		0.25	0.68
Clearance Time (s)	7.0	7.0	7.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	1320	1218	705		435	1886
v/s Ratio Prot	c0.40	0.45	c0.22		c0.25	0.20
v/s Ratio Perm						
v/c Ratio	1.04	0.68	1.01		1.02	0.30
Uniform Delay, d1	40.0	14.1	51.0		49.0	8.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	36.3	3.1	35.5		49.1	0.1
Delay (s)	76.3	17.2	86.5		98.1	8.6
Level of Service	E	B	F		F	A
Approach Delay (s)		54.0	86.5		46.3	
Approach LOS		D	F		D	

Intersection Summary			
HCM 2000 Control Delay	58.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

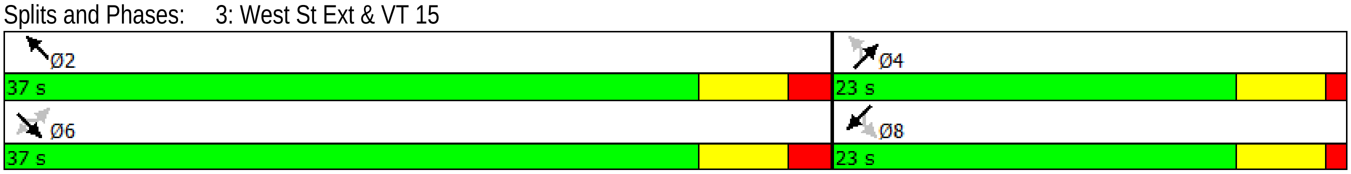
c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Future Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.986			0.996	
Flt Protected	0.950							0.957			0.994	
Satd. Flow (prot)	1770	1863	1583	0	1863	0	0	1758	0	0	1844	0
Flt Permitted	0.387							0.722			0.955	
Satd. Flow (perm)	721	1863	1583	0	1863	0	0	1326	0	0	1772	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			385					55			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1139			969			437			389	
Travel Time (s)		25.9			22.0			9.9			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	852	385	0	530	0	313	0	35	4	30	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	852	385	0	530	0	0	348	0	0	35	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2		1	2		1	2	
Detector Template	Left	Thru	Right		Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20		100		20	100		20	100	
Trailing Detector (ft)	0	0	0		0		0	0		0	0	
Detector 1 Position(ft)	0	0	0		0		0	0		0	0	
Detector 1 Size(ft)	20	6	20		6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6		2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0	24.0		24.0		23.0	23.0		23.0	23.0	
Total Split (s)	37.0	37.0	37.0		37.0		23.0	23.0		23.0	23.0	
Total Split (%)	61.7%	61.7%	61.7%		61.7%		38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	31.0	31.0	31.0		31.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max		Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effct Green (s)	31.2	31.2	31.2		31.2			16.2			16.2	
Actuated g/C Ratio	0.53	0.53	0.53		0.53			0.28			0.28	
v/c Ratio	0.10	0.86	0.38		0.53			0.86			0.07	
Control Delay	8.3	23.8	2.2		11.9			39.1			15.3	
Queue Delay	0.0	0.0	0.0		0.0			0.0			0.0	
Total Delay	8.3	23.8	2.2		11.9			39.1			15.3	
LOS	A	C	A		B			D			B	
Approach Delay		16.8			11.9			39.1			15.3	
Approach LOS		B			B			D			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 58.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 19.1	Intersection LOS: B
Intersection Capacity Utilization 75.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: West St Ext & VT 15



Lane Group	SEL	SET	SER	NWT	NET	SWT
Lane Group Flow (vph)	40	852	385	530	348	35
v/c Ratio	0.10	0.86	0.38	0.53	0.86	0.07
Control Delay	8.3	23.8	2.2	11.9	39.1	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	23.8	2.2	11.9	39.1	15.3
Queue Length 50th (ft)	7	251	0	118	96	9
Queue Length 95th (ft)	21	#483	34	197	#227	26
Internal Link Dist (ft)		1059		889	357	309
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	385	996	1025	996	447	547
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.86	0.38	0.53	0.78	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Future Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Frt	1.00	1.00	0.85		1.00			0.99			1.00	
Flt Protected	0.95	1.00	1.00		1.00			0.96			0.99	
Satd. Flow (prot)	1770	1863	1583		1863			1758			1845	
Flt Permitted	0.39	1.00	1.00		1.00			0.72			0.95	
Satd. Flow (perm)	721	1863	1583		1863			1327			1772	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	852	385	0	530	0	313	0	35	4	30	1
RTOR Reduction (vph)	0	0	179	0	0	0	0	40	0	0	1	0
Lane Group Flow (vph)	40	852	206	0	530	0	0	308	0	0	34	0
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		
Actuated Green, G (s)	31.2	31.2	31.2		31.2			16.2			16.2	
Effective Green, g (s)	31.2	31.2	31.2		31.2			16.2			16.2	
Actuated g/C Ratio	0.53	0.53	0.53		0.53			0.28			0.28	
Clearance Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)	385	995	845		995			368			491	
v/s Ratio Prot		c0.46			0.28							
v/s Ratio Perm	0.06		0.13					c0.23			0.02	
v/c Ratio	0.10	0.86	0.24		0.53			0.84			0.07	
Uniform Delay, d1	6.7	11.7	7.3		8.9			19.9			15.5	
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2	0.5	9.4	0.7		2.0			15.2			0.1	
Delay (s)	7.2	21.1	8.0		10.9			35.1			15.6	
Level of Service	A	C	A		B			D			B	
Approach Delay (s)		16.7			10.9			35.1			15.6	
Approach LOS		B			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	11.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

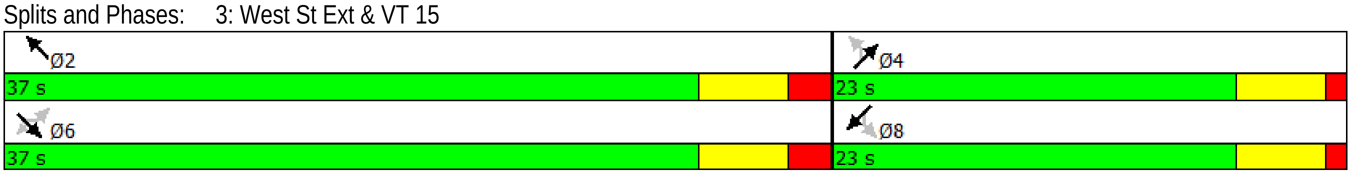
c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Future Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.986			0.996	
Flt Protected	0.950							0.957			0.994	
Satd. Flow (prot)	1770	1863	1583	0	1863	0	0	1758	0	0	1844	0
Flt Permitted	0.387							0.722			0.955	
Satd. Flow (perm)	721	1863	1583	0	1863	0	0	1326	0	0	1772	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			385					55			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1139			969			437			389	
Travel Time (s)		25.9			22.0			9.9			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	852	385	0	530	0	313	0	35	4	30	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	852	385	0	530	0	0	348	0	0	35	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1		2		1	2		1	2	
Detector Template	Left	Thru	Right		Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20		100		20	100		20	100	
Trailing Detector (ft)	0	0	0		0		0	0		0	0	
Detector 1 Position(ft)	0	0	0		0		0	0		0	0	
Detector 1 Size(ft)	20	6	20		6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	6	6	6		2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0	24.0		24.0		23.0	23.0		23.0	23.0	
Total Split (s)	37.0	37.0	37.0		37.0		23.0	23.0		23.0	23.0	
Total Split (%)	61.7%	61.7%	61.7%		61.7%		38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	31.0	31.0	31.0		31.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max		Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effct Green (s)	31.2	31.2	31.2		31.2			16.2			16.2	
Actuated g/C Ratio	0.53	0.53	0.53		0.53			0.28			0.28	
v/c Ratio	0.10	0.86	0.38		0.53			0.86			0.07	
Control Delay	8.3	23.8	2.2		11.9			39.1			15.3	
Queue Delay	0.0	0.0	0.0		0.0			0.0			0.0	
Total Delay	8.3	23.8	2.2		11.9			39.1			15.3	
LOS	A	C	A		B			D			B	
Approach Delay		16.8			11.9			39.1			15.3	
Approach LOS		B			B			D			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 58.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 19.1	Intersection LOS: B
Intersection Capacity Utilization 75.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: West St Ext & VT 15



Lane Group	SEL	SET	SER	NWT	NET	SWT
Lane Group Flow (vph)	40	852	385	530	348	35
v/c Ratio	0.10	0.86	0.38	0.53	0.86	0.07
Control Delay	8.3	23.8	2.2	11.9	39.1	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	23.8	2.2	11.9	39.1	15.3
Queue Length 50th (ft)	7	251	0	118	96	9
Queue Length 95th (ft)	21	#483	34	197	#227	26
Internal Link Dist (ft)		1059		889	357	309
Turn Bay Length (ft)			150			
Base Capacity (vph)	385	996	1025	996	447	547
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.86	0.38	0.53	0.78	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Future Volume (vph)	37	784	354	0	488	0	288	0	32	4	28	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Frt	1.00	1.00	0.85		1.00			0.99			1.00	
Flt Protected	0.95	1.00	1.00		1.00			0.96			0.99	
Satd. Flow (prot)	1770	1863	1583		1863			1758			1845	
Flt Permitted	0.39	1.00	1.00		1.00			0.72			0.95	
Satd. Flow (perm)	721	1863	1583		1863			1327			1772	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	852	385	0	530	0	313	0	35	4	30	1
RTOR Reduction (vph)	0	0	179	0	0	0	0	40	0	0	1	0
Lane Group Flow (vph)	40	852	206	0	530	0	0	308	0	0	34	0
Turn Type	Perm	NA	Perm		NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6				4			8		
Actuated Green, G (s)	31.2	31.2	31.2		31.2			16.2			16.2	
Effective Green, g (s)	31.2	31.2	31.2		31.2			16.2			16.2	
Actuated g/C Ratio	0.53	0.53	0.53		0.53			0.28			0.28	
Clearance Time (s)	6.0	6.0	6.0		6.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)	385	995	845		995			368			491	
v/s Ratio Prot		c0.46			0.28							
v/s Ratio Perm	0.06		0.13					c0.23			0.02	
v/c Ratio	0.10	0.86	0.24		0.53			0.84			0.07	
Uniform Delay, d1	6.7	11.7	7.3		8.9			19.9			15.5	
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2	0.5	9.4	0.7		2.0			15.2			0.1	
Delay (s)	7.2	21.1	8.0		10.9			35.1			15.6	
Level of Service	A	C	A		B			D			B	
Approach Delay (s)		16.7			10.9			35.1			15.6	
Approach LOS		B			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	11.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

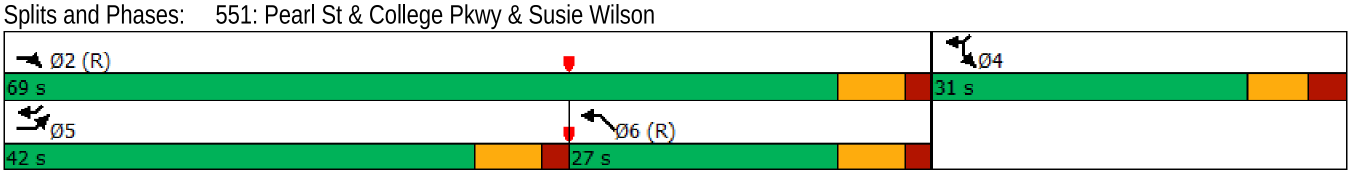
Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1265	766	392	386	409	564
Future Volume (vph)	1265	766	392	386	409	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Storage Length (ft)	725	0	0	0	200	0
Storage Lanes	1	1	2	0	1	2
Taper Length (ft)	25		25		25	
Lane Util. Factor	0.97	1.00	0.97	0.95	1.00	0.88
Frt		0.850	0.926			0.850
Flt Protected	0.950		0.975		0.950	
Satd. Flow (prot)	3467	1599	3311	0	1787	2787
Flt Permitted	0.950		0.975		0.950	
Satd. Flow (perm)	3467	1599	3311	0	1787	2787
Right Turn on Red		Yes		Yes		No
Satd. Flow (RTOR)		108	223			
Link Speed (mph)	35		35		30	
Link Distance (ft)	1793		1325		557	
Travel Time (s)	34.9		25.8		12.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Adj. Flow (vph)	1265	766	392	386	409	564
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1265	766	778	0	409	564
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	24		24		12	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	15	9
Number of Detectors	1	1	1		1	1
Detector Template						
Leading Detector (ft)	35	35	35		35	35
Trailing Detector (ft)	-5	-5	-5		-5	-5
Detector 1 Position(ft)	-5	-5	-5		-5	-5
Detector 1 Size(ft)	40	40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Minimum Split (s)	15.0	15.0	15.0		15.5	
Total Split (s)	42.0	69.0	27.0		31.0	
Total Split (%)	42.0%	69.0%	27.0%		31.0%	
Maximum Green (s)	35.0	62.0	20.0		23.5	
Yellow Time (s)	5.0	5.0	5.0		4.5	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0		7.5	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	35.0	62.0	20.0		23.5	65.5
Actuated g/C Ratio	0.35	0.62	0.20		0.24	0.66
v/c Ratio	1.04	0.74	0.93		0.98	0.31
Control Delay	70.6	16.7	46.2		77.9	8.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	70.6	16.7	46.2		77.9	8.0
LOS	E	B	D		E	A
Approach Delay	50.3		46.2		37.4	
Approach LOS	D		D		D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBR and 6:NWL, Start of Green, Master Intersection
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 46.1 Intersection LOS: D
Intersection Capacity Utilization 100.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 551: Pearl St & College Pkwy & Susie Wilson



Lane Group	EBL	EBR	NWL	SWL	SWR
Lane Group Flow (vph)	1265	766	778	409	564
v/c Ratio	1.04	0.74	0.93	0.98	0.31
Control Delay	70.6	16.7	46.2	77.9	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	16.7	46.2	77.9	8.0
Queue Length 50th (ft)	~452	273	186	260	79
Queue Length 95th (ft)	#582	432	#300	#451	108
Internal Link Dist (ft)	1713		1245	477	
Turn Bay Length (ft)	725			200	
Base Capacity (vph)	1213	1032	840	419	1825
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.04	0.74	0.93	0.98	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1265	766	392	386	409	564
Future Volume (vph)	1265	766	392	386	409	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	7.0	7.0	7.0		7.5	7.5
Lane Util. Factor	0.97	1.00	0.97		1.00	0.88
Frt	1.00	0.85	0.93		1.00	0.85
Flt Protected	0.95	1.00	0.98		0.95	1.00
Satd. Flow (prot)	3467	1599	3311		1787	2787
Flt Permitted	0.95	1.00	0.98		0.95	1.00
Satd. Flow (perm)	3467	1599	3311		1787	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1265	766	392	386	409	564
RTOR Reduction (vph)	0	41	178	0	0	0
Lane Group Flow (vph)	1265	725	600	0	409	564
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)	35.0	62.0	20.0		23.5	66.0
Effective Green, g (s)	35.0	62.0	20.0		23.5	66.0
Actuated g/C Ratio	0.35	0.62	0.20		0.24	0.66
Clearance Time (s)	7.0	7.0	7.0		7.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	1213	991	662		419	1839
v/s Ratio Prot	c0.36	0.45	c0.18		c0.23	0.20
v/s Ratio Perm						
v/c Ratio	1.04	0.73	0.91		0.98	0.31
Uniform Delay, d1	32.5	13.2	39.1		38.0	7.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	37.7	4.8	18.3		37.4	0.1
Delay (s)	70.2	18.0	57.3		75.3	7.3
Level of Service	E	B	E		E	A
Approach Delay (s)	50.5		57.3		35.9	
Approach LOS	D		E		D	

Intersection Summary			
HCM 2000 Control Delay	48.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	100.0%	ICU Level of Service	G
Analysis Period (min)	15		

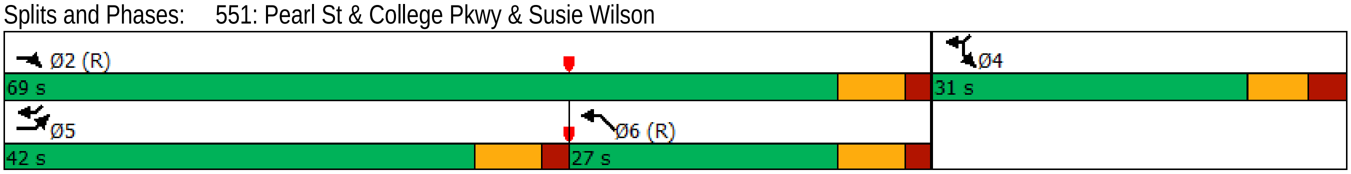
c Critical Lane Group

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1265	766	392	386	409	564
Future Volume (vph)	1265	766	392	386	409	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Storage Length (ft)	725	0	0	0	200	0
Storage Lanes	1	1	2	0	1	2
Taper Length (ft)	25		25		25	
Lane Util. Factor	0.97	1.00	0.97	0.95	1.00	0.88
Frt		0.850	0.926			0.850
Flt Protected	0.950		0.975		0.950	
Satd. Flow (prot)	3467	1599	3311	0	1787	2787
Flt Permitted	0.950		0.975		0.950	
Satd. Flow (perm)	3467	1599	3311	0	1787	2787
Right Turn on Red		Yes		Yes		No
Satd. Flow (RTOR)		108	223			
Link Speed (mph)	35		35		30	
Link Distance (ft)	1793		1325		557	
Travel Time (s)	34.9		25.8		12.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Adj. Flow (vph)	1265	766	392	386	409	564
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1265	766	778	0	409	564
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	24		24		12	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	15	9
Number of Detectors	1	1	1		1	1
Detector Template						
Leading Detector (ft)	35	35	35		35	35
Trailing Detector (ft)	-5	-5	-5		-5	-5
Detector 1 Position(ft)	-5	-5	-5		-5	-5
Detector 1 Size(ft)	40	40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Minimum Split (s)	15.0	15.0	15.0		15.5	
Total Split (s)	42.0	69.0	27.0		31.0	
Total Split (%)	42.0%	69.0%	27.0%		31.0%	
Maximum Green (s)	35.0	62.0	20.0		23.5	
Yellow Time (s)	5.0	5.0	5.0		4.5	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0		7.5	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	35.0	62.0	20.0		23.5	65.5
Actuated g/C Ratio	0.35	0.62	0.20		0.24	0.66
v/c Ratio	1.04	0.74	0.93		0.98	0.31
Control Delay	70.6	16.7	46.2		77.9	8.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	70.6	16.7	46.2		77.9	8.0
LOS	E	B	D		E	A
Approach Delay	50.3		46.2		37.4	
Approach LOS	D		D		D	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBR and 6:NWL, Start of Green, Master Intersection	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 46.1	Intersection LOS: D
Intersection Capacity Utilization 100.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 551: Pearl St & College Pkwy & Susie Wilson



Lane Group	EBL	EBR	NWL	SWL	SWR
Lane Group Flow (vph)	1265	766	778	409	564
v/c Ratio	1.04	0.74	0.93	0.98	0.31
Control Delay	70.6	16.7	46.2	77.9	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	16.7	46.2	77.9	8.0
Queue Length 50th (ft)	~452	273	186	260	79
Queue Length 95th (ft)	#582	432	#300	#451	108
Internal Link Dist (ft)	1713		1245	477	
Turn Bay Length (ft)	725			200	
Base Capacity (vph)	1213	1032	840	419	1825
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.04	0.74	0.93	0.98	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1265	766	392	386	409	564
Future Volume (vph)	1265	766	392	386	409	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	7.0	7.0	7.0		7.5	7.5
Lane Util. Factor	0.97	1.00	0.97		1.00	0.88
Frt	1.00	0.85	0.93		1.00	0.85
Flt Protected	0.95	1.00	0.98		0.95	1.00
Satd. Flow (prot)	3467	1599	3311		1787	2787
Flt Permitted	0.95	1.00	0.98		0.95	1.00
Satd. Flow (perm)	3467	1599	3311		1787	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1265	766	392	386	409	564
RTOR Reduction (vph)	0	41	178	0	0	0
Lane Group Flow (vph)	1265	725	600	0	409	564
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)	35.0	62.0	20.0		23.5	66.0
Effective Green, g (s)	35.0	62.0	20.0		23.5	66.0
Actuated g/C Ratio	0.35	0.62	0.20		0.24	0.66
Clearance Time (s)	7.0	7.0	7.0		7.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	1213	991	662		419	1839
v/s Ratio Prot	c0.36	0.45	c0.18		c0.23	0.20
v/s Ratio Perm						
v/c Ratio	1.04	0.73	0.91		0.98	0.31
Uniform Delay, d1	32.5	13.2	39.1		38.0	7.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	37.7	4.8	18.3		37.4	0.1
Delay (s)	70.2	18.0	57.3		75.3	7.3
Level of Service	E	B	E		E	A
Approach Delay (s)	50.5		57.3		35.9	
Approach LOS	D		E		D	

Intersection Summary			
HCM 2000 Control Delay	48.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	100.0%	ICU Level of Service	G
Analysis Period (min)	15		

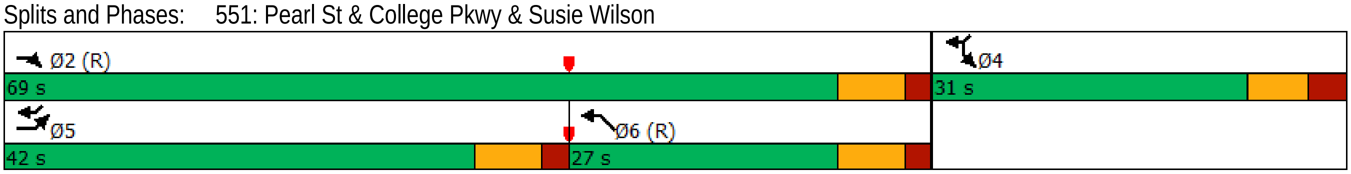
c Critical Lane Group

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1265	766	392	386	409	564
Future Volume (vph)	1265	766	392	386	409	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Storage Length (ft)	725	0	0	0	200	0
Storage Lanes	1	1	2	0	1	2
Taper Length (ft)	25		25		25	
Lane Util. Factor	0.97	1.00	0.97	0.95	1.00	0.88
Frt		0.850	0.926			0.850
Flt Protected	0.950		0.975		0.950	
Satd. Flow (prot)	3467	1599	3311	0	1787	2787
Flt Permitted	0.950		0.975		0.950	
Satd. Flow (perm)	3467	1599	3311	0	1787	2787
Right Turn on Red		Yes		Yes		No
Satd. Flow (RTOR)		108	223			
Link Speed (mph)	35		35		30	
Link Distance (ft)	1793		1325		557	
Travel Time (s)	34.9		25.8		12.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Adj. Flow (vph)	1265	766	392	386	409	564
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1265	766	778	0	409	564
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	24		24		12	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	15	9
Number of Detectors	1	1	1		1	1
Detector Template						
Leading Detector (ft)	35	35	35		35	35
Trailing Detector (ft)	-5	-5	-5		-5	-5
Detector 1 Position(ft)	-5	-5	-5		-5	-5
Detector 1 Size(ft)	40	40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		8.0	

Lane Group	EBL	EBR	NWL	NWR	SWL	SWR
Minimum Split (s)	15.0	15.0	15.0		15.5	
Total Split (s)	42.0	69.0	27.0		31.0	
Total Split (%)	42.0%	69.0%	27.0%		31.0%	
Maximum Green (s)	35.0	62.0	20.0		23.5	
Yellow Time (s)	5.0	5.0	5.0		4.5	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0		7.5	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	35.0	62.0	20.0		23.5	65.5
Actuated g/C Ratio	0.35	0.62	0.20		0.24	0.66
v/c Ratio	1.04	0.74	0.93		0.98	0.31
Control Delay	70.6	16.7	46.2		77.9	8.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	70.6	16.7	46.2		77.9	8.0
LOS	E	B	D		E	A
Approach Delay	50.3		46.2		37.4	
Approach LOS	D		D		D	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBR and 6:NWL, Start of Green, Master Intersection	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 46.1	Intersection LOS: D
Intersection Capacity Utilization 100.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 551: Pearl St & College Pkwy & Susie Wilson



Lane Group	EBL	EBR	NWL	SWL	SWR
Lane Group Flow (vph)	1265	766	778	409	564
v/c Ratio	1.04	0.74	0.93	0.98	0.31
Control Delay	70.6	16.7	46.2	77.9	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	16.7	46.2	77.9	8.0
Queue Length 50th (ft)	~452	273	186	260	79
Queue Length 95th (ft)	#582	432	#300	#451	108
Internal Link Dist (ft)	1713		1245	477	
Turn Bay Length (ft)	725			200	
Base Capacity (vph)	1213	1032	840	419	1825
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.04	0.74	0.93	0.98	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
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Movement	EBL	EBR	NWL	NWR	SWL	SWR
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Future Volume (vph)	1265	766	392	386	409	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
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Lane Util. Factor	0.97	1.00	0.97		1.00	0.88
Frt	1.00	0.85	0.93		1.00	0.85
Flt Protected	0.95	1.00	0.98		0.95	1.00
Satd. Flow (prot)	3467	1599	3311		1787	2787
Flt Permitted	0.95	1.00	0.98		0.95	1.00
Satd. Flow (perm)	3467	1599	3311		1787	2787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1265	766	392	386	409	564
RTOR Reduction (vph)	0	41	178	0	0	0
Lane Group Flow (vph)	1265	725	600	0	409	564
Heavy Vehicles (%)	1%	1%	1%	0%	1%	2%
Turn Type	Prot	Prot	Prot		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)	35.0	62.0	20.0		23.5	66.0
Effective Green, g (s)	35.0	62.0	20.0		23.5	66.0
Actuated g/C Ratio	0.35	0.62	0.20		0.24	0.66
Clearance Time (s)	7.0	7.0	7.0		7.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	1213	991	662		419	1839
v/s Ratio Prot	c0.36	0.45	c0.18		c0.23	0.20
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Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	37.7	4.8	18.3		37.4	0.1
Delay (s)	70.2	18.0	57.3		75.3	7.3
Level of Service	E	B	E		E	A
Approach Delay (s)	50.5		57.3		35.9	
Approach LOS	D		E		D	

Intersection Summary			
HCM 2000 Control Delay	48.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	100.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

TO: Village Trustees and Evan Teich, Unified Manager
FROM: Darby Mayville, Community Relations/Economic Development Assistant
Bike/Walk Advisory Committee
DATE: September 11, 2018
RE: UVM Engineering Student Capstone Project

Issue
The issue is whether or not the Village should collaborate with a team of UVM Engineering students to implement a neighborhood traffic calming study.

Discussion
The Village Bike/Walk Advisory Committee is proposing to collaborate with Prof. John Lens of the UVM Department of Civil and Environmental Engineering and a team of engineering capstone students on a neighborhood traffic calming study. This project aims to enhance the safety and overall satisfaction of walkers and bikers in the Village.

We've asked the team to address improvements that will result in a safer pedestrian and cycling experience and encourage walking and biking while reducing the impact of vehicular traffic on our residential neighborhoods. The team will prioritize making sure our infrastructure is accessible by those with physical limitations and people of all ages. Finally, we encourage the use of both well-researched solutions and innovative and experimental solutions that address the specific peculiarities of our community.

We are hoping for three phases of work as part of this project:

- Fall: Meet with stakeholders and collect traffic flow data in three different neighborhoods.
- Winter: Develop and propose treatments and conduct traffic modeling and simulations.
- Spring: Pop-up treatments and pre/post data collection. Trustee approval will be sought prior to implementation. Final report and recommendations will be prepared along with a public presentation.

Cost
Minimal staff time will be required to meet with students and assist with data collection.

Recommendation
It is recommended that the Village Trustees authorize staff and the Bike/Walk Advisory Committee to collaborate with Prof. John Lens and a team of UVM Engineering Students to implement a neighborhood traffic calming study.

DRAFT

Village of Essex Junction
Policy for Capital Improvement Projects

Purpose: To efficiently and effectively implement design and construction services for identified capital improvement projects.

General participation in periodic review and ranking of projects at the committee level by relevant staff including but not limited to the Public Works Superintendent, Water Quality Superintendent, Unified Manager, or others as needed.

1. Village capital improvement projects (projects), as defined by Village policy, shall be brought to the Village Capital Program Review Committee (Capital Committee) by Village staff (Unified Manager or designee)
2. When a project is brought to the Capital Committee a standardized staff memo shall be provided inclusive of, but not limited to:
    a. Explanation of what work will be done
    b. Staff reviews project for operational and maintenance impacts
    c. Diagram/sketch with clearly labeled project location, private property affected, any required easements or other project specific concerns
    d. Rationale for the project
    e. Anticipated life span of existing infrastructure in the project area
    f. History of relevant resident concerns
    g. Potential grant funding and co-funding opportunities inclusive of whether grants have been secured, applied for, or conceptual
    h. Additional input from the Public Works Superintendent, Water Quality Superintendent and Village Engineer
    i. Notes pertaining to unknown variables that may impact future scoring
    j. Project cost estimate and cofounding sources (water, sanitation, stormwater, etc.) less any grant potential and grant estimated match applied to the project
3. The Capital Committee shall hold a public hearing for the project to solicit resident input and rank the project utilizing the Capital Committee's rating system
4. All projects ranked to be completed within 5 years shall be released to the Village Engineer to schedule a predesign conference between the Village Engineer, Public Works and Water Quality to:
    a. Discuss the design scope of the project
    b. Determine if there are other infrastructure deficiencies in the immediate area
    c. Identify operational and maintenance access challenges to consider as part of the design
    d. Identify potential grant opportunities, permit compliance requirements/benefits or potential co-funding opportunities from grants or other capital and operational accounts or funds
    e. Other applicable information that may be important design considerations

5. At 50% design (or as agreed during the predesign meeting), have Public Works Superintendent, Water Quality Superintendent, Unified Manager, Village Engineer, Community Development Director and other Village staff as needed review project for operational and maintenance impacts, update potential funding opportunities and technical review inclusive of project conformance with the Essex Junction Land Development Code, Comprehensive Plan, as well as Public Works, Public Utility and Water Quality maintenance access, etc. Easements shall be secured at this time.
6. At 90% design (or as agreed during the predesign meeting), have Public Works Superintendent, Water Quality Superintendent, Unified Manager, Village Engineer, Community Development Director and other Village staff as needed review project for operational and maintenance impacts, update potential funding opportunities and technical review inclusive of project conformance with the Essex Junction Land Development Code, Comprehensive Plan, as well as Public Works, Public Utility and Water Quality maintenance access easements, etc., prior to release for bidding. The review should document exceptions or changes in the plans required as we do for private applicants to ensure the integrity of the general project application and review process.

Adopted by the Village Trustees on __________.

Village of Essex Junction

The economic engine of Vermont.

Community Development Department

2 Lincoln Street
Essex Junction, VT 05452
www.essexjunction.org

Office: (802) 878-6944
Fax: (802) 878-6946

MEMORANDUM

TO: Evan Teich, Unified Manager, and Village Trustees
FROM: Robin Pierce, Community Development Director RP
DATE: September 11, 2018
SUBJECT: Hash Marks

Issue
The issue is whether the Trustees wish to approve hash marks on Lincoln Street to ensure traffic does not block the access to and from the municipal parking lot on either side of the Library.

Discussion
Currently there are hash marks on the access closest to the Village Offices. With the blocking of the cut through at the side of the fire station it would be beneficial to ensure legal access to the parking area is available as often as possible from both access points. Drivers are sometimes not mindful of the fact that a driveway is in close proximity when they are in heavy traffic. The hash marks will be a visual clue and make it easier for drivers to be aware of the need to leave the area open. This is also a safety issue as it can be difficult for cars exiting the driveways to see if there is traffic on the opposite side of the road. The hash marks will increase the visibility distance.

Attached is our Street Markings policy with the section on hash marks updated to reflect all current hash marks as well as the proposed ones at the entrance to Maplehurst Florist and the Brownell Library.

Cost
This is a very low cost solution using white marking paint. The estimate is $20 plus staff time to paint the lines.

Recommendation
It is recommended that the Trustees approve this proposal, amend the Street Markings policy and authorize staff to implement the changes to improve access, visibility and safety at these locations.

VILLAGE OF ESSEX JUNCTION
TRUSTEES' POLICY REGARDING
STREET MARKINGS

Purpose: To provide staff direction regarding street markings for public safety and to maximize public resources.

Section 1. Crosswalks

- Shall be located on the sidewalk side of all Class 1 and 2 highways across all intersecting public roadways.
- All other crosswalks shall be approved on a case-by-case basis by the Village Trustees. (See Appendix for approved locations.)

Section 2. Stop Bars

Stop bars will be painted at every crosswalk where there is a stop sign, and at every signalized intersection.

Section 3. Hash Marks

Hash marks, to notify motorists not to block traffic, shall be located on Lincoln Street at the entrance to Lincoln Hall Square and at the entrance to the Maplehurst Florist and the Brownell Library, on Lincoln Street at the entrance to Lincoln Terrace, at the three entrances to 4 Park Street (Lincoln Inn), 12 Park Street (Five Corners Laundry), the main entrance to 34 Park Street, 36 Park Street, 8 Pearl Street, ~~the entrance between 8 and 10-12 Pearl Street~~, at the entrances to School Street and Summit Street on Pearl Street, and at the intersection of Main Street and Railroad Ave.

Section 4. Center Line Markings

Center line markings shall be on all Class 1 and 2 highways, on River Street and on Brickyard Road.

Section 5. Edge Line Markings

Edge line markings shall be on all Class 1 highways, and on River Street and Mill Street.

Section 6. Materials

All street markings shall be painted.

Emphasis will be placed on painting street markings as soon as weather allows in the Spring of each year. Class 1 and 2 centerline markings are maintained by the State.

MEMORANDUM

TO: Village Trustees
FROM: Evan Teich, Municipal Manager
DATE: September 11, 2018
SUBJECT: Annual Review of Ethics Policy

Issue
The issue is whether or not the Trustees review and acknowledge the Village of Essex Junction Ethics Policy and General Rules and Personnel Regulations as they pertain to public officials.

Discussion
The attached documents state that the Trustees shall annually review the Ethics Policy and each Trustee shall sign a form acknowledging that they have received and understand the Ethics Policy.

Cost
There is no cost associated with this issue.

Recommendation
It is recommended that the Trustees review Article 1 of the General Rules and Personnel Regulations and the Ethics Policy and sign the attached acknowledgement forms.

For Elected and Appointed Public Officials

ACKNOWLEDGEMENT

I acknowledge that I have received, read and understand the Village of Essex Junction Ethics Policy (dated 6/8/10) and Article 1 of the General Rules and Personnel Regulations (dated 2/27/18).

I further understand that the General Rules and Personnel Regulations, as well as the Ethics Policy, are subject to change at any time by a majority vote of the Village Trustees.

Signature: ______________________________

Print Name: ______________________________

Date: ______________________________

ARTICLE 1
GENERAL RULES FOR PUBLIC OFFICIALS, ALL EMPLOYEES AND VOLUNTEERS

101. EFFECT

The provisions of these rules shall apply alike to all public officials, volunteer firefighters and all employees of the Village, regardless of the time of the creation of the position or the time of their appointment.

These rules and regulations are subject to change at any time by majority vote of the Village Trustees.

102. DEFINITIONS

"Department Head" is the appointed Fire Chief or an employee who has direct supervision and responsibility for personnel of a municipal department.

"Employee - Full-Time" is an employee who works at least thirty (30) hours per week, year round. Full-time employees are eligible for all benefits and may only be discharged for cause. Full-time employees who work less than forty (40) hours per week will have their fringe benefits, such as vacation leave, sick leave and holiday pay, pro-rated (e.g., an employee who normally works 30 hours per week would be paid for 30 hours when taking a vacation week).

"Employee - Part-Time" is any person who routinely works less than thirty (30) hours per week, or is hired for seasonal work only. A part-time employee is an at-will employee and may be discharged at any time without cause. Part-time employees who work an average of at least 18 hours per week and are over age 18 are eligible for paid sick leave in accordance with state law. Part-time employees are not eligible for benefits, except that those who are scheduled to work at least twenty (20) hours per week year round and have completed an initial six month probationary period are entitled to vacation, holiday, and sick leave on a prorated basis. All employees have access to the Employee Assistance Program.

"Seasonal Employee" is any employee hired to perform services on a seasonal basis. Seasonal employees are not eligible for benefits and are not included in the merit pay scale. Seasonal employees may be discharged at any time without cause.

"Public Official" is any person who is elected by the voters of the Village or has been appointed by the Village Trustees.

"Volunteer Firefighter" is any person appointed to the Essex Junction Fire Department. In accordance with the Fair Labor Standards Act, they are volunteers and not employees. Volunteer firefighters are appointed by the Essex Junction Fire Chief. All appointed volunteer firefighters are at-will. They are not eligible for benefits, except for the Employee Assistance Program, and may be discharged at any time without cause by the Fire Chief or by the Village Trustees. Pay rates for volunteer firefighters are set by the Fire Chief and approved by the Village Trustees. Volunteer firefighters are not included in the merit pay scale.

"Library Substitute" is any employee hired to fill in on an "as-needed basis" at the Brownell Library. Library substitutes are not eligible for benefits and are not classified in the merit pay scale. All library substitutes are to be paid the same hourly wage as established by the Library Director and Municipal Manager. Library Substitutes may be discharged at any time without cause.

"Library Volunteer" is any person who has been offered and accepted a volunteer position at the Brownell Library. All applicants for volunteer positions at the library are required to undergo a criminal record check per Section 8 of the "Administrative Procedures Regarding Hiring."

103. EQUAL OPPORTUNITY AND NON-DISCRIMINATION
The Village of Essex Junction is committed to and adheres to equal opportunity and nondiscrimination in all aspects of employment. Candidates for employment and employees will be considered for all positions on the basis of their qualifications, abilities and job performance, regardless of race, color, religion, ancestry, national origin, genetics, place of birth, age, sex (including pregnancy), sexual orientation, genetic information, gender identity or disability, if he or she is qualified for the position. The municipality shall, without regard to these matters, recruit, hire, upgrade, assign, and train all employees. In addition, the municipality shall administer all personnel actions, such as compensation, benefits and municipal sponsored training without regard to these matters. Reasonable accommodations will be made for employees who are qualified individuals with a disability and for any qualified person with a disability seeking employment with the municipality.

104. APPOINTMENTS
Where no specific rule of the Village Charter is made to the contrary, the state statutes shall determine how appointments shall be made.

105. RECORDS
All records shall be available to the Board of Trustees or their representative if they are conducting an official investigation in accordance with the Village Charter or acting as the Personnel Board.

106. MONIES RECEIVED
Every official or employee shall turn over, as soon as practical, all monies received by him/her in their official capacity to the Treasurer with a statement showing the source from which the same was received.

107. OATH
Members of the Board of Trustees shall, before assuming their duties, take the oath prescribed by law.

108. SALARIES
All officials, employees and volunteer firefighters of the Village shall receive such salaries as may be provided by the Village Trustees. No official or employee receiving a salary from the municipality shall be entitled to retain any portion of any fees collected by him/her in the performance of their duties as municipal official or employee.
All municipal employees, with the exception of the volunteer firefighters, seasonal employees and library substitutes, will be placed in the municipality's merit pay scale and will be eligible for merit increases based on the evaluation rating received on their review dates.

109. TERMINATION OF OFFICE
Every official, volunteer firefighter and employee, upon the expiration of their term or dismissal, shall deliver to their successor all books and records which may be the property of the Village, and shall deliver to the Manager any other municipal property in their possession. If no successor has been appointed within one week after the termination of office, such property shall be delivered to the Municipal Manager or Trustees.

110. REFERENCES
The Village of Essex Junction will not provide references beyond confirming dates of employment. All reference requests are to be referred to the Municipal Manager in accordance with the "Policy Regarding Providing References for Former Employees."

111. TRAVELING EXPENSE
Request for travel expense funds for official business, special education or training shall be submitted on an authorized form. Authorization forms are to be signed by the employee's supervisor. Mileage shall be reimbursed in accordance with IRS allowance and shall be computed based on employee's

regular work site as base.
No municipal vehicle shall be used regularly for commuting to and from work, nor shall any public official receive mileage reimbursement for commuting to and from work, unless waived by the Municipal Manager on a case-by-case basis.

Employees and volunteers attending conferences or other training will be reimbursed for the cost of meals. If a meal is not provided, the municipality shall reimburse public officials and employees up to $15 for breakfast, $15 for lunch and $25 for dinner (including gratuities). In order to receive reimbursement, an Expense Voucher shall be completed and receipts provided. At no time will the municipality reimburse public officials for alcohol or tobacco related products.

112. SMOKING
Smoking will not be allowed inside any building or vehicle owned by the Village of Essex Junction. Smoking will be permitted outdoors (except at the Wastewater Treatment Plant, where no smoking is allowed within the gates).

113. EMPLOYEE ASSISTANCE PROGRAM
The services of Invest EAP, a Vermont-based Employee Assistance Program (EAP), are available for all employees as well as all of their household members. Invest EAP may be accessed 24 hours a day and seven days a week (24/7), free of charge and confidentially, for help identifying and dealing with the stressors and distractions in their life.

114. OPEN DOOR POLICY.
The Village has an open door policy for employees. In order to maintain an open door policy, employees are encouraged to discuss concerns, issues, problems, and/or ideas with Department Heads or the Manager. If employees are unable to resolve issues with their Department Head they may address their concerns or ideas to the Manager with the understanding that all discussion with the Manager may be reviewed with the Department Head. The open door policy is not intended to be a means to override department rules or circumvent proper steps to resolve issues

115. ETHICS POLICY.
The Village has an Ethics Policy. The Ethics Policy will be distributed to all employees; board, commission and committee members; elected and appointed officials; and fire fighters upon appointment and annually thereafter per Section 11 of the Ethics Policy. Each person receiving the Ethics Policy shall sign the Ethics Policy acknowledgement form.

ARTICLE 2
EMPLOYEE RULES AND REGULATIONS

201. EFFECT
These rules and regulations apply to all municipal employees and are subject to change at any time by majority vote of the Village Trustees.

202. APPOINTMENT OF SUPERVISORY PERSONNEL
The Manager, with the advice of the Trustees, shall appoint all personnel with departmental supervisory capacity. The Manager shall also seek the advice of the Library Trustees in the appointment of the Library Director.

203. ASSIGNMENT OF DUTIES
The Manager and Department Head shall have the right to assign duties. Where the duties of an office are not provided by any law, the Manager may designate such duties.

The Manager shall approve all job descriptions or any changes thereto, except the Manager's job

VILLAGE OF ESSEX JUNCTION
ETHICS POLICY

1. APPLICABILITY:

The provisions of these rules shall apply to all public officials, employees and volunteer firefighters.

2. POLICY STATEMENT:

Accepting a position as a public official, employee or volunteer firefighter carries with it the acceptance of a public trust that the official, employee or volunteer firefighter will work to further the public interest. Maintaining that public trust is critical to the continued operation of good government. In addition, public decision-making should be open and accessible to the public at large. To preserve this public trust, there are five principles to which public officials, employees or volunteer firefighters should adhere to:

(a) A public official, employee or volunteer firefighter should represent and work towards the public interest and not towards private/personal interests.

(b) A public official, employee or volunteer firefighter should accept and maintain the public trust (i.e., must preserve and enhance the public=s confidence.)

(c) A public official, employee or volunteer firefighter should exercise leadership, particularly in the form of consistently demonstrating behavior that reflects the public trust.

(d) A public official, employee or volunteer firefighter should recognize the proper role of all government bodies and the relationships between the various government bodies.

(e) A public official, employee or volunteer firefighter should always demonstrate respect for others and for other positions.

3. DEFINITIONS:

The following words shall have the following meanings:

(a) **Business Associate** is a partner or other person with whom an individual has ongoing or recurring business transactions.

(b) **Conflict of Interest** is a situation where a public official, employee or volunteer firefighter is directed by two or more competing interests, one of which is the public interest and the other is a private/personal interest. Specific conflict of interest situations are specified in the section entitled "Conflict of Interest".

(c) **Ethics** are a set of rules that guide behavior.

(d) **"Financial Interest" is defined as any of the following:**

- A self-proprietor, partner, business associate, shareholder (holding at least five percent of the outstanding shares of any class of shares), director, or managerial employee of an organization who has a matter for review before a public body.

- A self-proprietor, partner, business associate, shareholder (holding at least five percent of the outstanding shares of any class of shares), director, or managerial employee of a competitor to a business that has a matter for review before a public body.

- An applicant or property owner who has a matter for review before a public body.

- An adjoining landowner to a property owner that has a matter for review before the Planning Commission or Zoning Board of Adjustment.

(e) **Immediate Family** is spouses, civil union partners, children, stepchildren, parents, step-parents, brothers, sisters, grandparents, nephews, nieces, sons-in-law, daughters-in-law, fathers-in-law, mothers-in-law, brothers and sisters-in-law, and any dependents or other persons living in the employee's or volunteer firefighter's household.

(f) **Material** is of real importance or great consequence, substantial, requiring serious consideration by reason of having a bearing on the outcome of an unsettled matter.

(g) **Official Act or Action** is any legislative, administrative, appointive, or discretionary act of any public official, employee or volunteer firefighter of the Village (in his/her official capacity), or of any agency, board, committee or commission thereof.

(h) **Private/Personal Interest** is something that is of direct or indirect material or financial benefit accruing to an individual or a member of the individual=s immediate family.

(i) **Public Interest** is the interest of the community as a whole conferred generally upon all members of the public.

(j) **Recusal** is stepping aside from public office or duty during discussion and vote when a conflict of interest exists (as specified in Section 204).

4. CONFLICT OF INTEREST:

A public official, employee or volunteer firefighter is deemed to have a conflict of interest if s/he acts contrary to any of the following rules:

(a) **Acceptance of Gifts and Favors.** A public official, employee or volunteer firefighter shall not accept anything of economic value, such as money, service, gift, loan, promise, gratuity, or favor from any person, business or organization involved in a contract or transaction with the Village, such that the item accepted could be considered as payment for a special act or treatment. This provision shall not apply to:

(1) Attendance at a hosted meal when it is provided in conjunction with a meeting directly related to the conduct of Village business, or where official attendance by the public official, employee or volunteer firefighter as a Village representative is appropriate;

(2) An award publicly presented in recognition of public service;

(3) Occasional, non-pecuniary gifts of insignificant value.

(b) **Appointment of Immediate Family Member or Business Associate.** A public official or employee shall not participate in the appointment, vote for appointment, or discussion of any appointment of an immediate family member or business associate, to any Village office or position. A public official or employee shall not use his/her position, directly or indirectly, to affect the employment status of an immediate family member or business associate.

(c) **Supervision of Immediate Family Members.** A public official, employee or volunteer firefighter shall not supervise, hire, appoint, evaluate, or discipline the work or employment status of an immediate family member or the affairs of the organizational unit in which the immediate family member is employed.

(d) **Personal Relationships in the Workplace.** Dating shall be prohibited between co-workers in power-differentiated relationships where one of the parties has decision-making authority over the terms or conditions of employment of the other party, including performance appraisals.

(e) **Prior Knowledge of Property Purchases.** A public official, employee or volunteer firefighter shall not receive or have any financial interest in any sale to the Village of any property when such financial interest was received with prior knowledge that the Village intended to purchase said property.

(f) **Contractual Arrangements.** A public official, employee or volunteer firefighter shall not influence the Village's selection of, or its conduct of business with, a person, organization or business having business with the Village if the public official, employee or volunteer firefighter, or a member of the official, employee's or volunteer firefighter's immediate family, has a financial interest in or with the person, organization or business. The public official, employee or volunteer firefighter shall not participate in the discussion, negotiation, or vote on contracts in which the official, employee or volunteer firefighter, or a member of the official, employee's or volunteer firefighter's immediate family, has a private financial interest and performs in regard to such a contract some function requiring the exercise of discretion on behalf of the Village.

(g) **Financial Interest.** A public official, employee or volunteer firefighter shall not participate in any public business before a public body which affects his/her financial interest. Public business shall mean participating in the award of a contract, seeking or opposing a permit from a public body on which the official, employee or volunteer firefighter sits as the authority to grant or deny such permit soliciting employment from the Village, or otherwise requesting some status, right, or benefit from the Village that has financial value. This shall not include supporting or opposing the passage of a legislative measure unless such measure relates substantially to the public official, employee's or volunteer firefighter's private/personal interest rather than to the public interest.

(h) **Representation of Private Party**. A public official, employee or volunteer firefighter shall not represent a private party in any matter before any Village public body. Nothing in this section shall prohibit a public official, employee or volunteer firefighter from representing his/her own interests before any Village public body. In such cases, the public official, employee or volunteer firefighter shall act only in his/her individual capacity and not also in any official capacity on behalf of the Village.

(i) **Use of Confidential Information.** A public official, employee or volunteer firefighter shall not, without authorization, disclose or use confidential information acquired in the course of official duties. A public official, employee or volunteer firefighter shall not use any confidential information acquired in the course of official duties to further his/her personal interest.

(j) **Unusual Relationships.** Whenever a public official, employee or volunteer firefighter has special or unusual (beyond being casual or reasonably common) relationship with a party to an official action of the public body on which the official, employee or volunteer firefighter sits, the official, employee or volunteer firefighter shall disclose the relationship and the body may advise as to whether the official, employee or volunteer firefighter should recuse him/herself in accordance with the Section entitled "Definitions" of this policy.

If a conflict of interest, as defined above, is determined to exist, the public official, employee or volunteer firefighter shall disclose the conflict and recuse him/herself prior to any consideration and/or vote on the action being contemplated, in accordance with the provisions of the section entitled "Definitions".

5. EX-PARTE COMMUNICATIONS: BOARDS, COMMISSIONS AND COMMITTEES:

In any quasi-judicial matter (e.g., matter involving the issuance of a permit or approval), or the award of a contract, before a Village Board, Commission or Committee, a public official, employee or volunteer firefighter sitting on such Board, Commission or Committee, shall not, outside of that Board, Commission or Committee, communicate with or accept a communication from a person for which there are reasonable grounds for believing to be a party to the matter being considered, if such communication is designed to influence the official, employee's or volunteer firefighter's action on that matter. If such communication should occur, the public official, employee or volunteer firefighter shall disclose it at an open meeting of the Board, Commission or Committee prior to its consideration of the matter.

6. INAPPROPRIATE USE OF PUBLIC POSITION:

A public official, employee or volunteer firefighter shall not use his/her public position to further a personal interest or the interest of an immediate family member.

A public official, employee or volunteer firefighter shall not use the powers or prestige obtained through election, appointment or employment, to influence the decision of a subordinate on a matter where the official, employee or volunteer firefighter has significant private/personal pecuniary interest.

Public officials, employees or volunteer firefighters are empowered to discharge specific statutory duties in the public interest and should not interfere with the statutory duties of others.

A public official, employee or volunteer firefighter shall not attempt to influence Village staff=s recommendations regarding matters in which the public official, employee or volunteer firefighter has a personal/private or financial interest.

A public official, employee or volunteer firefighter shall not use Village staff or resources to advance a personal/private or financial interest.

7. INCOMPATIBILITY OF OFFICES:

Incompatible offices set forth in 17 V.S.A., Section 2647, shall not be held simultaneously by any Village public official, employee or volunteer firefighter.

The Village Manager shall not hold the office of Village Clerk or Village Treasurer.

A Village Trustee shall not serve as a member of the Village Planning Commission or Zoning Board of Adjustment.

A member of the Village Planning Commission shall not serve as a member of the Village Zoning Board of Adjustment.

A member of the Village Zoning Board of Adjustment shall not serve as a member of the Village Planning Commission.

A Village Trustee, Planning Commissioner, or member of the Zoning Board of Adjustment shall not be an employee of the Village of Essex Junction.

8. FAIR AND EQUAL TREATMENT:

No public official, employee or volunteer firefighter shall grant or make available to any person any consideration, treatment, advantage or favor beyond that which it is the general practice to grant or make available to the public at large.

No public official, employee or volunteer firefighter shall request, use, or permit to be used, any publicly-owned or publicly-supported property, vehicle, equipment, labor, or service for the personal convenience or the private advantage of him/herself or any other person. This rule shall not be deemed to prohibit a public official, employee or volunteer firefighter from requesting, using or permitting the use of such publicly-owned property, vehicle, equipment, or material which is provided as a matter of stated policy for the use of Village public officials, employee or volunteer firefighter in the conduct of official Village business.

No public official, employee or volunteer firefighter shall discriminate on the basis of race, color, religion, national origin, or sex.

9. DISCLOSURE AND RECUSAL PROCEDURES:

Whenever a matter comes before a Board, Commission or Committee, on which any of the conflict of interest situations described in the sections entitled “Definitions,” “Conflict of Interest” or “Ex-Parte Communications: Boards, Commission and Committees” of this Policy shall exist, the following provisions shall apply:

(a) The public official, employee or volunteer firefighter involved shall disclose to the relevant Board, Commission or Committee, in an open public meeting, the nature of the conflict of interest, prior to any consideration of the matter by said Board, Commission or Committee.

(b) Following such disclosure, such public official, employee or volunteer firefighter shall leave the room and shall not participate in any consideration, discussion or vote on the matter before the Board, Commission or Committee. If the official, employee or volunteer firefighter wishes to address the issue at an open public meeting, the official, employee or volunteer firefighter may re-enter the room as a member of the public and participate as a member of the public. During deliberation and vote on the matter, the official, employee or volunteer firefighter shall not be present. The official, employee or volunteer firefighter may attend executive session to discuss the matter at the invitation of the Board, Commission or Committee, if such attendance complies with the statutory requirements of the Open Meeting Law.

(c) The public official, employee or volunteer firefighter shall not, during any part of the Board, Commission, or Committee meeting pertaining to the matter requiring the disclosure, represent, advocate on behalf of, or otherwise act as the agent of the person or business entity in or with which the official has such an interest or relationship.

The foregoing shall not be construed as prohibiting the official, employee or volunteer firefighter from testifying as to factual matters at a hearing of the Board of Trustees, Planning Commission, Zoning Board of Adjustment, or any other committee.

10. COMPLAINT OF ETHICS VIOLATION:

A person, who believes that an appointed public official, employee or volunteer firefighter of the Village of Essex Junction has violated any portion of this policy, may send or deliver a signed, written complaint to the Village Manager. The complaint shall include the name of the person alleged to have committed the violation and the specifics of the act(s) which constitute the violation. The Manager shall forward the complaint to the appropriate public official(s) for resolution.

Any complaint against an elected official shall be directed to the elected official. A person may ask an elected body to reconsider a matter that they believe involved an unethical act by an elected official.

11. DISTRIBUTION OF ETHICS POLICY:

Village Trustees: Annually at their organizational meeting, the Village Trustees shall, in a public meeting, review the Ethics Policy of the Village of Essex Junction. Each Village Trustee shall sign a form acknowledging that they have received and understand the Ethics Policy.

Boards, Commissions and Committees: Upon appointment and annually at their organizational meetings, all boards, commissions, and committees appointed by the Village Trustees shall, in a public meeting, review the Ethics Policy of the Village of Essex Junction. Each board, commission or committee member shall sign a form acknowledging that they have received and understand the Ethics Policy of the Village of Essex Junction.

Fire Department: Upon appointment and annually thereafter, the Fire Chief shall distribute and review with the volunteer firefighters a copy of the Village of Essex Junction's Ethics Policy. Each volunteer firefighter shall sign a form acknowledging that he/she has received and understands the Ethics Policy.

Department Heads and Full-Time Employees: Upon hiring and annually thereafter, Department Heads shall be required to distribute and review with their full-time employees a copy of the General Rules and the Personnel Regulations, including Ethics Policy. Each full-time employee will be required to sign a form acknowledging that he/she has received and understands the General Rules and Personnel Regulations, and Ethics Policy.

Elected Position: Each person seeking an elected position in the Village of Essex Junction shall be given a copy of the Ethics Policy of the Village of Essex Junction along with a petition.

Appointed Position: Each person seeking an appointed position in the Village of Essex Junction shall be given a copy of the Ethics Policy of the Village of Essex Junction upon submittal of a letter requesting appointment.

Adopted by the Village Trustees on 6/8/10.

Village of
Essex Junction

MEMORANDUM

TO: Village Trustees
FROM: Evan Teich, Unified Manager
DATE: September 11, 2018
SUBJECT: Trustees Meeting Schedule

TRUSTEES MEETING SCHEDULE/EVENTS

Sept. 25 6:30 PM	Regular Meeting
Oct. 9 6:30 PM	Regular Meeting
Oct. 11 7:00 PM	Joint Meeting with Selectboard at 2 Lincoln St.
Oct. 23 6:30 PM	Regular Meeting
Nov. 13 6:30 PM	Regular Meeting
Nov. 27 6:30 PM	Regular Meeting
Dec. 11 6:30 PM	Regular Meeting

TOWN OF ESSEX
SELECTBOARD MINUTES
August 20, 2018

SELECTBOARD: Max Levy, Chair, Michael Plageman, Irene Wrenner, Andrew Watts.

OTHERS PRESENT: Evan Teich, Unified Manager; Greg Duggan, Deputy Town Manager; Rick Garey, Police Chief; Ron Hoague, Police Captain; George Tyler, Village President; Betsy Dunn, State Representative; Renee Dall; Margaret Smith; Tanya Vyhovsky; Colin Flanders, Essex Reporter.

Mr. Levy called the meeting to order at 7:00 p.m.

CALL TO ORDER/PLEDGE OF ALLEGIANCE

Mr. Levy invited those present to join him in reciting the "Pledge of Allegiance."

AGENDA ADDITIONS/CHANGES

Mr. Duggan provided the following additions or changes to the Agenda: a hard copy of the Vermont League of Cities and Towns' Draft 2019-2020 Municipal Policy, to go with item 5g.

APPROVAL AGENDA

IRENE WRENNER MOVED AND MICHAEL PLAGEMAN SECONDED A MOTION TO APPROVE THE AMENDED AGENDA. THE MOTION PASSED 4-0.

PUBLIC TO BE HEARD

There were no comments from the public.

BUSINESS ITEMS

a. Introduction of Captain Ronald Hoague – Chief Rick Garey

Chief Garey introduced the new Police Captain, Mr. Ronald Hoague. Captain Hoague joins Essex from the St. Albans Police Department. He worked for Essex Police Department (EPD) many years ago as a patrol officer before leaving for Florida to work at a sheriff's department. He then returned a few years later to work at the St. Albans Police Department, where he rose through the ranks to become a captain.

Mr. Levy welcomed Captain Hoague back to Essex and asked if there was anything he learned from working in a bigger department in Florida that would be applicable to Essex. Captain Hoague replied that he learned about working for different departments in a larger organization that had major crimes on a monthly basis. He was looking forward to a smaller agency where everyone knows each other. Captain Hoague confirmed for Mr. Plageman that there were many cases in St. Albans of domestic abuse and that he was trained on different approaches to addressing this issue that is widespread in Vermont. Mr. Levy asked what responsibilities Chief Garey will hand over to Captain Hoague. Captain Hoague replied that he has been working on updating policies and ordinances, supervising officers and looking at areas of improvement for the department. Ms. Betsy Dunn asked about his knowledge and feelings about restorative justice and a working relationship with the Essex Community Justice Center.

Captain Hoague is very supportive of restorative justice and had worked closely with the St. Alban's restorative center.

b. Determine Whether to hold a Liquor Hearing for Backstage, LLC. – Chief Rick Garey & Greg Duggan

Mr. Duggan introduced the issue of whether the Selectboard (SB) will hold a liquor license hearing for Backstage LLC, doing business as Backstage. The State Department of Liquor Control held a hearing that resulted in a seven-day suspension of Backstage's liquor license, which occurred in the beginning of August. The Police Department and the Manager's Office feel the suspension imposed by the State serves as a sufficient penalty for Backstage at this time, and members agreed. Chief Garey confirmed for Mr. Levy that the EPD changed its practice in order to notify the SB of any concerns ahead of time.

IRENE WRENNER MOVED AND ANDREW WATTS SECONDED A MOTION TO NOT HOLD A LIQUOR LICENSE HEARING FOR BACKSTAGE LLC., DOING BUSINESS AS BACKSTAGE, DUE TO THE LICENSE SUSPENSION IMPOSED BY THE STATE OF VERMONT. THE MOTION PASSED 4-0.

c. Approval of Resolution for Stephen Dunning – Chief Rick Garey

Mr. Duggan introduced the issue and summarized the following resolution for the members:

RESOLUTION IN APPRECIATION OF STEPHEN DUNNING

WHEREAS, Stephen was hired as a full-time Essex Police Officer for the Town of Essex on June 29, 2009; and,

WHEREAS, Stephen's last day as an Essex Police Officer is July 23, 2018; and,

WHEREAS, Stephen started with the Essex Police in 2008 as a civilian bike patrol member, then became a dispatcher and a part-time officer in 2009. Stephen became a full-time Essex officer and graduated from the Vermont Police Academy in December of 2009; and,

WHEREAS, Stephen finishes his Essex police career as a uniformed patrol officer, RAD instructor, police medical officer and Town Exposure Control Officer, among his other duties and assignments; and,

WHEREAS, in April of 2015, Stephen earned a Medal of Valor, the department's highest honor, for risking his life to pull a citizen from a burning building to save her life; and,

WHEREAS, Stephen has served the Essex Police Department, the Vermont law enforcement and EMS communities exceptionally well, concluding over 9 years of dedicated service; now therefore be it,

RESOLVED, that the Selectboard, Board of Trustees and Unified Manager, on behalf of the citizens of the Town of Essex, hereby extend our gratitude to Stephen Dunning for his many years of service to the people of Essex.

Adopted this 20th day of August, 2018

ANDREW WATTS MOVED AND IRENE WRENNER SECONDED A MOTION TO ADOPT AND SIGN THE RESOLUTION FOR STEPHEN DUNNING.

Ms. Wrenner commented that she has taken the Rape, Aggression, Defense (RAD) class and thanked Mr. Dunning for being a RAD instructor and the many things he did for Essex.

THE MOTION PASSED 4-0.

d. <u>Adoption of Recreation Program Budget – Ally Vile</u>

Ms. Vile reviewed the Essex Parks and Recreation Department's (EPRD) mission and spoke of the over 150 volunteers that help to provide successful programs. She explained the gifts that were given to volunteers this year and circulated one to each member. Ms. Vile reviewed the Program's highlights and Goals for FYE 2019 with the members.

With regard to the Line 19 of the Recreation Program Budget, Ms. Vile explained that enrollment in the Extended School Program has declined, but new staff with higher skills have been hired, which increases costs. The Town Recreation Program has also offered expanded evening care options with Parent Night Out opportunities. With regard to Line 18, Ms. Vile confirmed for Ms. Wrenner that the Essex Warrior Wrestlers are not included as they have not asked for financial assistance.

MICHAEL PLAGEMAN MOVED AND IRENE WRENNER SECONDED A MOTION TO ADOPT THE RECREATION PROGRAM BUDGET FOR FYE 2019. THE MOTION PASSED 4-0.

e. <u>Dissolution of Business Liaison Group – Greg Duggan</u>

Mr. Watts recused himself from this discussion due to a potential conflict of interest due to his employer. He left the room.

Mr. Duggan introduced the issue of whether the SB will dissolve the Business Liaison Group (BLG). Members agreed with the recommendation to dissolve the BLG as they did not see any reason to continue it.

MICHAEL PLAGEMAN MOVED AND IRENE WRENNER SECONDED A MOTION TO DISSOLVE THE BUSINESS LIAISON GROUP. THE MOTION PASSED 3-0.

Mr. Watts returned to the room.

f. <u>Approval of Request for Proposals for Building Needs Analysis – Greg Duggan</u>

Mr. Duggan introduced the issue of whether the SB will authorize staff to finalize and issue a Request for Proposals (RFPs) for a Building Needs Analysis (BNA).

Mr. Teich confirmed for Mr. Levy that the proposal is for an analysis of the current space and the future needs for space in a combined community and was not a proposal for a recommendation. The analysis will generate data for the members to review and use for future decisions. Mr. Plageman appreciated Mr. Lutz' specific details for the RFPs, for steering the conversation, for including other departments and for having the chosen contractor explore additions to existing buildings versus constructing new buildings. Mr. George Tyler wanted to make sure the SB consults the Trustees as well so they are aligned and are addressing issues during the process rather than afterwards. He reported that the Village Fire Department conducts building assessments routinely, which may be helpful to this process. Mr. Duggan confirmed for Mr. Tyler that the capital budget includes $40,000 for the BFN analysis, including $10,000 in Village funds to support the work.

MICHAEL PLAGEMAN MOVED AND IRENE WRENNER SECONDED A MOTION TO AUTHORIZE STAFF TO FINALIZE AND ISSUE A REQUEST FOR PROPPOSALS FOR A BUILDING NEEDS ANALYSIS. THE MOTION PASSED 4-0.

g. Appoint Delegate for VLCT Annual Meeting

Mr. Duggan introduced the issue of whether the SB will appoint a voting delegate to attend the VLCT's annual meeting.

IRENE WRENNER MOVED AND ANDREW WATTS SECONDED A MOTION TO APPOINT ANDREW WATTS AS DELEGATE AND MICHAEL PLAGEMAN AS ALTERNATE TO ATTEND THE VERMONT LEAGUE OF CITIES AND TOWNS' ANNUAL MEETING. THE MOTION PASSED 4-0.

6. CONSENT ITEMS

IRENE WRENNER MOVED AND ANDREW WATTS SECONDED A MOTION TO APPROVE THE CONSENT AGENDA WITH SELECTBOARD MEMBERS COMMENTS. a.

a. Check Warrants: August 10, 2018 & August 17, 2018

There were no comments from the members.

THE MOTION PASSED 4-0.

READING FILE

a. Board member comments
b. Email from Irene Wrenner re: Give and Take: 7D Journalists Examine Vermont's Non-Profit Economy
c. OP ED re: the CLF - Wastewater Treatment Plants Lawsuit
d. 2018 Vermont Hunting, Fishing & Trapping Seasons and 20 18-2019 Syllabus of State and Federal Hunting Regulations for Migratory Birds in Vermont
e. Letter from Justin Barnard re: Essex Selectboard's Consideration of Changes to Firearms Ordinance
f. Letter from Dunkiel Saunders re: PUC Case No. 1 8-2902-PET
g. Article from Rights & Democracy VT re: Essex Open Letter to support UVMMC Nurses
Ms. Tanya Vyhovsky asked for support from the SB regarding this resolution and stated that Ms. Dunn, current state representative and former nurse, had to leave the meeting, but had been present to also support this resolution in support of a fair resolving of negotiations. Mr. Levy stated that the nurses do an incredible job, but he was not in favor of an outside party getting in the middle of negotiations. Mr. Plageman agreed that for the SB to get involved with labor negotiations is inappropriate, even with a resolution. He confirmed for Mr. Levy that he was not in support of placing this issue on a future agenda. Mr. Watts thought that any resident could ask

for an item to be placed on an agenda. Members discussed what the SB's policy states about this issue. Ms. Renee Dall, a resident and Practice Supervisor at The University of Vermont Medical Center, urged the SB against signing a resolution for this issue as she believed there was misinformation and that a resolution would deepen the divide and lack of trust that has developed between the parties involved. With regard to the issue of placing an item on the agenda, Mr. Duggan would review the SB's policy on this issue. None of the SB members asked to place this issue on a future agenda.

h. VLCT Town Fair 2018 Brochure

Mr. Watts noted that this was not the brochure for those attending the Fair.

i. Invitation from Champlain Valley Fair to Essex Selectboard

Mr. Levy asked that the Champlain Valley Fair be notified of the correct names for the SB members.

j. Human Service thank you letter from Vermont Works for Women

k. 2018 Town Map

l. Letter from Downs Rachlin Martin re: AT&T Mobility: Attachment on New Utility Pole

Mr. Levy ask that Downs Rachlin Martin be notified of the change in Town Manager.

m. Letter from Downs Rachlin Martin re: AT&T Mobility: Attachment on Replacement Utility Pole

n. Memo to Selectboard from Travis Sabataso re: Meeting Schedules and Events

THE MOTION PASSED 4-0.

IRENE WRENNER MOVED AND MICHAEL PLAGEMAN SECONDED A MOTION TO ADJOURN AT 7:55 P.M. THE MOTION PASSED 4-0.

Respectfully submitted,

Saramichelle Stultz
Recording Secretary

Approved this _______________ day of _____________, 2018

(See minutes of this date for corrections, if any).

____

Elaine H. Sopchak, Clerk, Selectboard

(THESE MINUTES ARE SUBJECT TO CHANGE AT THE NEXT SELECTBOARD MEETING)

MINUTES SUBJECT TO CORRECTION BY THE ESSEX JUNCTION TREE ADVISORY COMMITTEE. CHANGES, IF ANY, WILL BE RECORDED IN THE MINUTES OF THE NEXT MEETING OF THE COMMITTEE.

VILLAGE OF ESSEX JUNCTION
TREE ADVISORY COMMITTEE
MINUTES OF MEETING
AUGUST 21, 2018

MEMBERS PRESENT: Nick Meyer, Mary Jo Engel, Warren Spinner, and Tim Kemerer

ADMIN PRESENT: Darby Mayville

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1. CALL TO ORDER

The meeting was called to order at 5:40 PM by Nick.

2. PLANTING UPDATE

Nick said that most of the recent plantings look good, except for an elm planted near the train station that appears stressed. Nick said that he received a phone call from a resident suggesting that the committee plant additional trees near the high school. Warren suggested planting on Old Colchester Road, near the large rocks. Tim suggested considering Maple Street near ADL.

Warren noted that a dead tree in front of 4 Pearl Street should be replaced.

Mary Jo suggested interplanting with ash trees in the Wilkinson Drive neighborhood. Warren said that he rode with Public Works Superintendent Rick Jones today and looked at this area. The majority of ash trees in the Village are located here.

Nick noted that due to roadway changes on Pearl Street, the trees in in the middle of the road might need to be replanted.

Nick noted that the missing signs for the tree walk are back up at Maple Street Park. EJRP Director Brad Luck is interested in doing a large planting and has reached out to the committee to assist with selection.

3. DARKROOM GALLERY EXIBIT

The gallery will be doing an exhibit called "Our Trees." Submissions close on 8/23. The reception will be on 10/13, and the committee has agreed to help with refreshments.

4. BUDGET

Mary Jo noted that the committee had spent the majority of their budget for the last fiscal year. There are a few remaining invoices she is still working on coding. Darby will check in with finance to see if there could be separate account numbers for the removal and planting budgets.

Tim brought up the use of the landscaping fund and said that the committee needs to continue to look into it. With the assistance of the Planning Commission, Nick hopes to look at past projects to determine which ones could contribute to the landscaping fund.

5. ASH TREES

Warren noted that there are 136 ash trees in the Village and that 90% of them are in the Wilkinson Drive neighborhood. He is suggesting that the Village begin removal (at a rate of 15-20 trees a year) before emerald ash borer hits, because the price will increase significantly then. This is because the infected trees will splinter apart when cut down, causing additional cleanup costs. It is possible that the Village Public Works Department may be able to help with removal.

Mary Jo asked if there were any grant opportunities for this type of work?

Warren said just for planning, and that the Village could take care of this on our own. Mary Jo said that she would be willing to assist with this project. The Village could replant immediately after removal. Darby will provide contact information for the homeowner's association in the Wilkinson Drive neighborhood.

Once the committee gets additional information together, they will approach the Trustees for approval.

6. ADJOURNMENT

The meeting was adjourned at 7:00 PM.

Respectfully Submitted: Darby Mayville

VILLAGE OF ESSEX JUNCTION
CAPITAL PROGRAM REVIEW COMMITTEE
MINUTES OF MEETING
September 4, 2018

MEMBERS PRESENT:	Andrew Brown (Chairman); Kevin Collins, Amber Thibeault, Tim Dall.
ADMINISTRATION:	Evan Teich, Unified Manager; Lauren Morrisseau, Finance Director & Assistant Village Manager; Rick Jones, Public Works Superintendent; Rick Hamlin, Village Engineer.
OTHERS PRESENT:	None.

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1. CALL TO ORDER
Chairman Andrew Brown called the meeting to order at 6 PM.

2. AGENDA
There were no changes to the agenda. Tim Dall suggested discussing how to pay for the capital projects in the capital plan at a future meeting. There was agreement the committee will discuss financing options such as increasing taxes, bond issues, self-performing work, local options tax at the October meeting.

3. PUBLIC COMMENTS
None.

4. RANK PROJECTS
Project NNN – Pleasant Street Road Reconstruction, Main to Mansfield (1900 feet)
The committee discussed the existing road condition and the effectiveness of the speed tables.

Ranking of NNN (Pleasant Street): 57

Safety & Health	12
Remaining service life	18
Mandates	0
Community support	16
Financing	0
Timing/Linkages	0
Positive economic impact	0
Cost of deferral	0
Efficiencies	3
Service improvements	3
Align w/village priorities	2
Other	3

Project QQQ – North Street Water Line (including eight new drain structures and piping), Grove to Central. Project QQQ replaces Project S.

Ranking of QQQ (North Street): 60

Safety & Health	24
Remaining service life	18
Mandates	0
Community support	12
Financing	0
Timing/Linkages	0
Positive economic impact	0
Cost of deferral	0
Efficiencies	0
Service improvements	4
Align w/village priorities	0
Other	2

Project III – Rosewood Lane Road Reconstruction, Sidewalk, Curb, Mansfield to Briar. Project III replaces Project BB.

Ranking of III (Rosewood Lane): 62

Safety & Health	18
Remaining service life	18
Mandates	0
Community support	13
Financing	0
Timing/Linkages	0
Positive economic impact	0
Cost of deferral	0
Efficiencies	4
Service improvements	4
Align w/village priorities	3
Other	2

Kevin Collins suggested a sidewalk fund should be established to pay for new or replacement sidewalk in the village separate from road reconstruction. Evan Teich noted there is a sidewalk repair account. Mr. Teich also noted that the cost for a single school bus route is $55,000 so it would behoove the school district to work with the village and town on a sidewalk plan to increase efficiencies and decrease the number of bus routes.

5. TOWN FUNDING FOR STORM WATER WORK

Staff has not yet discussed with Dennis Lutz the town helping with funding of storm water projects in the village.

6. POLICY FOR CAPITAL IMPROVEMENT PROJECTS

Andrew Brown noted the requested changes that add clarity to the document have been incorporated. The Board of Trustees must officially adopt the policy.

MOTION by Tim Dall, SECOND by Kevin Collins, to approve the Policy for Capital Improvement Projects. VOTING: unanimous (4-0); motion carried.

7. APPROVE MINUTES

August 7, 2018

MOTION by Andrew Brown, SECOND by Amber Thibeault, to approve the August 7, 2018 minutes with correction of the project cost for Project MMM – South Street Drainage to $542,937. VOTING: unanimous (4-0); motion carried.

8. OTHER BUSINESS

Next meeting is October 2, 2018. The agenda will include discussion of financing options for capital projects.

9. ADJOURNMENT

MOTION by Andrew Brown, SECOND by Amber Thibeault, to adjourn the meeting. VOTING: unanimous (4-0); motion carried.

The meeting was adjourned at 7:15 PM.

RScty: MERiordan

LOCAL

Study to gauge future space needs for town and village departments

By COLIN FLANDERS

Town and village officials say an upcoming study of the municipalities will help address a status quo that finds departments operating in a sub-optimal environment and could lay the ground work for future municipal construction projects.

That's the goal of an upcoming space needs analysis in which the municipalities are seeking an outside firm to gauge their current facilities and project what they might need 30 years from now – a lengthy timeframe that would give the boards significant time to obtain voter support for new facilities," according to a draft request for proposal.

Deputy town manager Greg Duggan emphasized the study will not include recommendations on specific properties or projects but rather inform officials of what's needed to perform municipal services in the future.

"From there, we can decide what's important in terms of property and where and when," he said.

The selectboard authorized staff last month to seek proposals for the study and agreed to add two village departments – recreation & parks and fire – to the four originally selected: town fire, town parks & recreation and town and village public works.

Funds for the study were included in the fiscal year 2018 capital budget. The village will pay $10,000 while the town will cover the remainder of a $40,000 budget, though staff may need to ask for more money due to the added departments. Staff planned to ask for the trustees' approval Tuesday night, after The Reporter's deadline.

The draft RFP explains the four initial departments are operating in "sufficiently old and non-code compliant" buildings that don't accommodate employees, lack space for equipment and materials, prevent departments from working efficiently and, in the case of the town recreation department, rent space for programs. The two additional departments, meanwhile, are included "with consideration for future merger."

"It is unknown at this time whether or not the two communities will remain as they are today (partially consolidated), merge into one community or separate into two independent entities," the document reads.

Indeed, the swirling questions about governance between the town and village are complicating matters by forcing the analysis to account for several futures.

"Even in a consolidated world," Duggan said, "you could need different locations or multiple facilities."

The selected firm must determine the current and future space needs of the departments and meet with department heads at least twice. It must then write up a report for the trustees and selectboard outlining its recommendations on space requirements.

Using that document, the selected firm must develop preliminary sketch plans and cost estimates for proposed building and host a public presentation of its findings. At the project's conclusion, the firm will submit a final report, plans and cost estimates to the town and again host a public presentation for the two elected boards. Each of the four phases comes with a 60-day deadline.

FILE PHOTO

The Essex Public Works department, pictured above, is one of six departments between the town and village that will be part of a study gauging the future spatial needs of the the two municipalities.

Village, AOE in dispute over preschool accreditation

8/30/18

By COLIN FLANDERS

The village plans to withdraw a court appeal over an Agency of Education decision that it says jeopordizes nearly $100,000 in revenue for its recreation department and instead work with the state on a legislative fix to their dispute.

The controversy centers on a designation under Vermont's universal pre-K law, Act 166, known as "prequalification." The status allows preschool programs to partner with school districts and pass along up to 10 hours of funding per week.

In an appeal filed this June, the village claimed the AOE incorrectly terminated Essex Jct. Recreation & Parks' prequalification status and never informed the village of the change, allowing its preschool program to continue accepting school district funds without the correct accreditation.

Downplaying the clash, village attorney Claudine Safar said she doesn't think the village is in a "completely adversarial" posture with the state, noting it has tentatively agreed to dismiss its court action without prejudice and instead pursue the legislative route. Attempts to reach AOE's legal counsel were unsuccessful.

Court documents filed in the appeal show the AOE's decisions could have ramifications not only for EJRP but also its partner districts, which can count preschoolers who attend prequalified programs in their student population numbers, or "average daily membership." Calculated on a two-year rolling average, ADM is used to determine homestead tax rates.

According to Safar, under the current AOE ruling, those partner districts can't count students who attended the EJRP program. Now, some of those districts want their money back, and the village fears others could follow suit.

EJRP began its preschool program in 2009 at its Maple Street headquarters and two years later became accredited under the Step Ahead Recognition System, or STARS, which rates adherence to state regulations and overall performance and is a condition for prequalification.

EJRP expanded its preschool program during the 2014-15 school year and started another classroom in the Park Street School. The AOE then granted EJRP prequalification status for a three-year term starting June 2015, but it only applied to the Maple Street license. A month later, EJRP consolidated its preschool program into the Park Street location, expanding that state license to include both rooms and ending the license at Maple Street.

See **PRESCHOOL**, page 3

PRESCHOOL

from page 1

That's where things get tricky.

According to the appeal, the department's STARS accreditation transferred to Park Street, but its prequalification status didn't – a fact state officials shared in an email more than a year after the move. EJRP reapplied for the prequalification the following day.

The AOE denied that request in a letter sent to Park Street – a location where the department says it doesn't receive mail – instead of the Maple Street address included on its application.

"There was no ability for them to know that the application was denied, and there was no way for them to appeal that denial," Safar said.

Meanwhile, EJRP's program remained listed on an AOE database that parents and school districts use to verify prequalification status. The department continued providing preschool services until 2017. Safar said the AOE agreed to waive its termination up until that point.

But it refused to move on the most recent school year, and some of EJRP's partner schools who say the department violated its agreement with them are asking for a reimbursement of over $5,800, with the potential for other districts to do the same, a potential cost of $92,000.

EJRP learned through one of its partner districts in April that the AOE no longer considered it a prequalified program, at which time it submitted another application.

The AOE notified the village a month later that it "cannot and will not" retroactively reinstate the program's status.

The AOE explained its position, the appeal says, by noting all prequalified programs must be currently licensed, and therefore, when the Maple Street license ended, so did its prequalification status.

The appeal says that position is inconsistent with AOE and Agency of Human Services guidance issued in 2014 that says prequalification and STARS will transfer to a program's new license number when it doesn't "substantially change."

"It was the same program providing the same services to the same kids in a location that was already being used," Safar said, later adding, "Everybody was relying on something that, from our perspective, was not very clear."

VILLAGE OF ESSEX JUNCTION
BOARD OF TRUSTEES
MINUTES OF MEETING
August 28, 2018

TRUSTEES PRESENT:	George Tyler (Village President); Andrew Brown, Dan Kerin, Lori Houghton, Elaine Sopchak.
ADMINISTRATION:	Evan Teich, Unified Manager; Lauren Morrisseau, Finance Director/Assistant Village Manager; Claudine Safar, Village Attorney.
OTHERS PRESENT:	Pauline and Michael Giancola, Dennis Lutz, Greg Duggan, Ally Vile, Rick Garey, Robert Mount, Joe Kudrle, Connie Marshall, Jeannine Cote, Jon Osala, Anne Marie Dennis.

1. CALL TO ORDER and PLEDGE OF ALLEGIANCE
Village President, George Tyler, called the meeting to order at 6:30 PM and led the assemblage in the Pledge of Allegiance.

2. AGENDA CHANGES/APPROVAL
Add to Reading File:

- Executive Session – legal issue

MOTION by Dan Kerin, SECOND by Andrew Brown, to approve the agenda as amended. VOTING: unanimous (5-0); motion carried.

3. GUESTS, PRESENTATIONS and PUBLIC HEARINGS
a) Comments from Public on Items not on Agenda
None.

b) Interview – Zoning Board of Adjustment Vacancy
Robert Mount, candidate for a position on the Zoning Board, explained his interest in serving the community as a member of the Zoning Board of Adjustment.

4. OLD BUSINESS
a) Appointment to the Zoning Board of Adjustment
MOTION by Lori Houghton, SECOND by Dan Kerin, to appoint Robert Mount to the Zoning Board of Adjustment. VOTING: unanimous (5-0); motion carried.

5. NEW BUSINESS
a) RFP for Building Needs Analysis
Greg Duggan and Dennis Lutz explained the request for proposal to do a building space needs analysis for the long term for the town and village consolidated services. The village rec department and fire department can be an addendum. The RFP is seeking conceptual layout and cost. There is $40,000 in the budget for the analysis. Once results of the study are provided the Selectboard and Trustees will discuss the results and decide which departments are included and when to move forward.

George Tyler suggested in addition to staff the Trustees should provide comment. Lori Houghton spoke in support of including EJRP and EJFD at the outset of the study, not as an addendum. Elaine Sopchak asked if the study will look at doing deferred maintenance on existing buildings to maximize their use.

There was brief discussion of the town's purchasing policy and the RFP process.

MOTION by Lori Houghton, SECOND by Elaine Sopchak, that the Board of Trustees authorize staff to finalize and issue a request for proposals for bidding a building needs analysis with the change of moving the addendum study to the body of the proposal. VOTING: unanimous (5-0); motion carried.

b) Resolution: Stephen Dunning
Evan Teich briefly outlined the service of Essex Police Officer Stephen Dunning from 2008-2018.

MOTION by Elaine Sopchak, SECOND by Andrew Brown, to approve the resolution of appreciation for Stephen Dunning. VOTING: unanimous (5-0); motion carried.

c) 2018 Annual Report Dedication
MOTION by Andrew Brown, SECOND by Lori Houghton, to approve the draft 2018 Annual Report dedication to former village trustee and Village President, George Dunbar. VOTING: unanimous (5-0); motion carried.

d) Multi-Use Safety Path
Joe Kudrle, resident, spoke of people drinking and using drugs on the multi-use path along the railroad tracks by Central Street. Mr. Kudrle suggested putting out trash cans for litter and posting signs to tell people to stay off the retaining wall and stop loitering.

Lori Houghton said some of the lights are out along the path which is a safety issue, and people are hanging out on the retaining wall.

Police Chief Garey said the police are working on some vagrancy language and getting the community outreach counselors involved to address drinking and drug use in the area. Evan Teich said staff will research options on what can be done and discuss ideas with the police department.

MOTION by George Tyler, SECOND by Elaine Sopchak, to advance the discussion of the Senior Center on the agenda. VOTING: unanimous (5-0); motion carried.

e) Senior Center: Data Collection and Analysis of Future Growth and Needs
Pauline Giancola read a statement on the Senior Center being a vital and integral part of the community, and being necessary for many senior citizens. The Trustees are urged to support the Senior Center. Ms. Giancola submitted a copy of the statement for the record.

Anne Marie Dennis said the Senior Center has its own operating budget and the members raise the money for programs. The town and village pay for the space and a staff person.

The Trustees listed the following data points that should be reviewed:

- Operation and cost
- Demand for the vans
- What other communities are doing for senior centers (look at the Montpelier Senior Center as a model)
- Membership, past and current and future growth as well as where the members are from (village or town)
- Potential age pool
- Access to the facility when the drive through by the fire station closes
- Costs for service (what has increased, what has been initiated, what has been cancelled due to cost)
- Housing growth for senior citizens in the community
- Survey of seniors for input on the Senior Center and what could be offered
- Input from the Senior Center Activities Director
- History of the amount of dues paid by members
- Population projections for 55 and older in the village, town, and county
- Long distance driving needs of the Senior Center versus local appointments or local stops
- Meal options
- Current staffing, volunteer hours
- Organizational structure

Essex Recreation Director, Ally Vile, briefed the Trustees on the current operation of the Senior Center including use of the vans, and growth in membership that is requiring more staff support. Participants pay for the programs, but the programs are part of the budget approval process.

Elaine Sopchak suggested talking with the Selectboard about hiring an outside expert to analyze the Senior Center issues and make recommendations. George Tyler added both short and long term changes should be analyzed. Lori Houghton said policy, programs, and resources need to be discussed. Dan Kerin suggested what could be done if there were more money should be looked at, and if cost is a burden on members.

Staff will compile the following information:

- Current operational structure
- Growth in membership over the last three years
- Funding and resources from the town, the village, and the members
- Senior Bus schedule, how this is organized, anticipated growth, needs, conflicts
- Current volunteer hours and anticipated staffing needs
- Current conflicts with transportation liabilities, HR regulations, town and village policy, transportation needs

f) Animated Infrastructure Grant
Elaine Sopchak suggested Darby Mayville be asked to flesh out details for a mural on the McLure Building (cost, call for artists, public involvement) then apply for a grant.

MOTION by George Tyler, SECOND by Dan Kerin, to authorize staff to move forward with applying for an animated infrastructure grant. VOTING: unanimous (5-0); motion carried.

6. MANAGER'S REPORT

a) Meeting Schedule – Regular Trustees Meetings @ 6:30 PM

- September 11, 2018
- September 25, 2018
- October 9, 2018
- October 23, 2018
- November 13, 2018
- November 27, 2018

* October 11, 2018 @ 7 PM – Joint Meeting with Selectboard, 2 Lincoln Street

b) Meetings with School District
Village staff has been meeting with the school district to discuss busing, data, mapping, and parking.

7. TRUSTEES COMMENTS AND CONCERNS/READING FILE

a) Board Member Comments

- George Tyler mentioned the email on the deteriorating apartment building in the village.

b) Reading File

- Minutes
    - Essex Selectboard 8/6/18, 8/16/18
    - Capital Program Review Committee 8/7/18
- VLCT Town Fair, South Burlington, 10/3/18 – 10/4/18
- VHFA Statewide Housing Conference 11/13/18 – 11/14/18

8. CONSENT AGENDA

MOTION by Andrew Brown, SECOND by Dan Kerin, to approve the consent agenda as follows:

a) Approve Minutes of Previous Meeting(s) 8/14/18
b) Expense Warrant #17109, dated 8/17/18, in the amount of $62,822.18.
c) Expense Warrant #17110, dated 8/24/18, in the amount of $354,438.80.
d) FYE19 Budget Study Report as of 7/31/18

VOTING: unanimous (5-0); motion carried.

9. EXECUTIVE SESSION

Legal Issue

MOTION by George Tyler, SECOND by Dan Kerin, pursuant to 1VSA313 to go into Executive Session to discuss a legal issue where premature public knowledge would place the Village of Essex Junction at a substantial disadvantage, and to invite the Unified Manager, Assistant Manager, and Village Attorney to attend. VOTING: unanimous (5-0); motion carried.

Executive Session was convened at 8:37 PM.

MOTION by Dan Kerin, SECOND by Andrew Brown, to adjourn Executive Session. VOTING: unanimous (5-0); motion carried.

Executive Session was adjourned at 8:55 PM.

10. ADJOURNMENT

MOTION by Andrew Brown, SECOND by Dan Kerin, to adjourn the meeting. VOTING: unanimous (5-0); motion carried.

The meeting was adjourned at 8:56 PM.

RScty: M.E.Riordan

Vendor		Invoice Date	Invoice Description / Invoice Number	Account	Amount Paid	Check Number	Check Date
V0210	BLACKSTONE AUDIOBOOKS	08/14/18	BL book 1028419	210-49346.001 ADULT COLLECTION-PRINT &	12.95	18612	08/31/18
00530	BRODART CO	08/13/18	BL 5392634 B5392634	210-45551.641 JUVEN COLLECTION-PRNT & E	67.67	18613	08/31/18
00530	BRODART CO	08/13/18	BL 5392634 B5392634	210-45551.610 SUPPLIES	4.00	18613	08/31/18
00530	BRODART CO	08/14/18	BL books B5394114	210-45551.641 JUVEN COLLECTION-PRNT & E	150.49	18613	08/31/18
00530	BRODART CO	08/14/18	BL books B5394114	210-45551.610 SUPPLIES	10.40	18613	08/31/18
00530	BRODART CO	08/14/18	BL books B5394141	210-45551.641 JUVEN COLLECTION-PRNT & E	7.84	18613	08/31/18
00530	BRODART CO	08/14/18	BL books B5394141	210-45551.610 SUPPLIES	1.60	18613	08/31/18
00530	BRODART CO	08/14/18	BL book B5394321	210-45551.641 JUVEN COLLECTION-PRNT & E	15.09	18613	08/31/18
00530	BRODART CO	08/14/18	BL book B5394321	210-45551.610 SUPPLIES	0.80	18613	08/31/18
00530	BRODART CO	08/20/18	BL books B5398432	210-45551.641 JUVEN COLLECTION-PRNT & E	45.28	18613	08/31/18
00530	BRODART CO	08/20/18	BL books B5398432	210-45551.610 SUPPLIES	3.20	18613	08/31/18
00530	BRODART CO	08/20/18	BL book B5398521	210-45551.640 ADULT COLLECTION-PRINT &	14.30	18613	08/31/18
00530	BRODART CO	08/20/18	BL book B5398521	210-45551.610 SUPPLIES	0.80	18613	08/31/18
00530	BRODART CO	08/20/18	BL books B5398522	210-45551.641 JUVEN COLLECTION-PRNT & E	161.57	18613	08/31/18
00530	BRODART CO	08/20/18	BL books B5398522	210-45551.610 SUPPLIES	13.60	18613	08/31/18
00530	BRODART CO	08/20/18	BL book B5398618	210-45551.640 ADULT COLLECTION-PRINT &	19.35	18613	08/31/18
00530	BRODART CO	08/20/18	BL books B5398622	210-49346.001 ADULT COLLECTION-PRINT &	52.71	18613	08/31/18
00530	BRODART CO	08/20/18	BL book B5398754	210-45551.640 ADULT COLLECTION-PRINT &	35.20	18613	08/31/18
00530	BRODART CO	08/13/18	BF book B540.3915	210-49345.000 LIBRARY DONATION EXPENDIT	16.74	18613	08/31/18
00530	BRODART CO	08/21/18	BL book B5400142	210-45551.640 ADULT COLLECTION-PRINT &	13.16	18613	08/31/18
00530	BRODART CO	08/21/18	BL book B5400142	210-45551.610 SUPPLIES	0.80	18613	08/31/18
00530	BRODART CO	08/22/18	BF books B5402120	210-49345.000 LIBRARY DONATION EXPENDIT	33.46	18613	08/31/18
00530	BRODART CO	08/23/18	BL books B5404043	210-45551.640 ADULT COLLECTION-PRINT &	37.02	18613	08/31/18
00530	BRODART CO	08/23/18	BL books B5404043	210-45551.610 SUPPLIES	2.40	18613	08/31/18
38280	CRYSTAL ROCK BOTTLED WATE	08/21/18	Lincoln Hall water 17722277 8/2	210-41320.610 SUPPLIES	23.47	18622	08/31/18

Vendor		Invoice Date	Invoice Description / Invoice Number	Account	Amount Paid	Check Number	Check Date
25390	FIRST NATIONAL BANK OMAHA	08/17/18	EJRP Supplies 081718D	210-45110.610 SUPPLIES	32.82	18631	08/31/18
25390	FIRST NATIONAL BANK OMAHA	08/17/18	EJRP Supplies 081718D	210-45110.330 OTHER PROFESSIONAL SVCS	20.14	18631	08/31/18
21845	FIRST NATIONAL BANK OMAHA	08/17/18	BL postage 072618A	210-45551.536 POSTAGE/DELIVERY	6.70	18632	08/31/18
21845	FIRST NATIONAL BANK OMAHA	08/17/18	BL youth program supplies 072918B	210-45551.837 CHILDRENS PROGRAMS	20.64	18632	08/31/18
21845	FIRST NATIONAL BANK OMAHA	08/17/18	BL youth programs 080618C	210-45551.837 CHILDRENS PROGRAMS	29.27	18632	08/31/18
21845	FIRST NATIONAL BANK OMAHA	08/17/18	BL adult materials 080618D	210-45551.640 ADULT COLLECTION-PRINT &	35.00	18632	08/31/18
21840	FIRST NATIONAL BANK OMAHA	08/17/18	PW refreshments 072318D	210-43110.610 SUPPLIES	12.72	18634	08/31/18
15045	GLOBAL FOUNDRIES US2 LLC	09/01/18	GF Lease ESSX091801	210-45220.441 LAND LEASE	500.00	18638	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/15/18	VA August consolidated 08180206201	210-41940.622 ELECTRICAL SERVICE	685.88	18642	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/15/18	VA August consolidated 08180206201	210-42220.622 ELECTRICAL SERVICE	685.88	18642	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/15/18	VA August consolidated 08180206201	210-43110.622 ELECTRICAL SERVICE	290.80	18642	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/15/18	VA August consolidated 08180206201	210-45551.622 ELECTRICAL SERVICE	1450.06	18642	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/15/18	VA August consolidated 08180206201	210-43160.622 STREET LIGHTS - ELECTRICI	9080.82	18642	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/15/18	VA August consolidated 08180206201	210-43123.622 TRAFFIC LIGHTS - ELECTRIC	581.90	18642	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/21/18	PSS 7/23-8/21/18 436252726738	210-41940.624 PARK ST. ELECTRICITY	384.44	18643	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	210-41320.210 HEALTH INS & OTHER BENEFI	142.81	18647	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	210-43110.210 HEALTH INS & OTHER BENEFI	155.46	18647	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	210-43151.210 HEALTH INS & OTHER BENEFI	25.39	18647	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	210-45551.210 HEALTH INS & OTHER BENEFI	285.60	18647	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	210-41970.210 HEALTH INS & OTHER BENEFI	95.20	18647	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	210-41335.210 HEALTH INS & OTHER BENEFI	42.76	18647	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	210-45110.210 HEALTH INS & OTHER BENEFI	190.40	18647	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	210-45220.210 HEALTH INS & OTHER BENEFI	169.14	18647	08/31/18
05940	MAHEUX HEATING & REFRIGER	08/22/18	LH a/c repair 5111	210-41940.434 MAINT. BUILDINGS/GROUNDS	265.53	18651	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	210-41320.210 HEALTH INS & OTHER BENEFI	233.91	18655	08/31/18

Vendor		Invoice Date	Invoice Description / Invoice Number	Account	Amount Paid	Check Number	Check Date
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	210-43110.210 HEALTH INS & OTHER BENEFI	346.53	18655	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	210-43151.210 HEALTH INS & OTHER BENEFI	50.33	18655	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	210-45551.210 HEALTH INS & OTHER BENEFI	467.80	18655	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	210-41970.210 HEALTH INS & OTHER BENEFI	71.94	18655	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	210-41335.210 HEALTH INS & OTHER BENEFI	129.40	18655	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	210-45110.210 HEALTH INS & OTHER BENEFI	456.73	18655	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	210-45220.210 HEALTH INS & OTHER BENEFI	68.53	18655	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	210-15109.000 EXCHANGE - COBRA	258.79	18655	08/31/18
00275	SB SIGNS INC	08/22/18	CD signs 21712	210-41970.610 SUPPLIES	195.00	18676	08/31/18
25180	SOLLACE ADAM	08/06/18	Vehicle&Capra Projects 1	210-45110.330 OTHER PROFESSIONAL SVCS	975.00	18678	08/31/18
V2124	STAPLES ADVANTAGE	08/18/18	ADCD supplies 3387255678	210-41320.610 SUPPLIES	100.59	18680	08/31/18
V2124	STAPLES ADVANTAGE	08/18/18	ADCD supplies 3387255678	210-41970.610 SUPPLIES	49.54	18680	08/31/18
03320	TYLER TECHNOLOGIES INC	09/01/18	capital assets support 025232534	210-41320.340 COMPUTER EXPENSES	737.33	18689	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	210-41320.210 HEALTH INS & OTHER BENEFI	45.57	18693	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	210-43110.210 HEALTH INS & OTHER BENEFI	65.32	18693	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	210-43151.210 HEALTH INS & OTHER BENEFI	9.62	18693	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	210-45551.210 HEALTH INS & OTHER BENEFI	91.12	18693	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	210-41970.210 HEALTH INS & OTHER BENEFI	18.04	18693	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	210-41335.210 HEALTH INS & OTHER BENEFI	23.46	18693	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	210-45110.210 HEALTH INS & OTHER BENEFI	83.46	18693	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	210-45220.210 HEALTH INS & OTHER BENEFI	13.08	18693	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	210-15109.000 EXCHANGE - COBRA	9.01	18693	08/31/18
29825	VT GAS SYSTEMS	08/21/18	VA 7/17-8/17 0818D	210-43110.623 HEATING/NATURAL GAS	64.64	18695	08/31/18
29825	VT GAS SYSTEMS	08/21/18	VA 7/17-8/17 0818D	210-45551.623 HEATING/NATURAL GAS	56.68	18695	08/31/18
29825	VT GAS SYSTEMS	08/21/18	VA 7/17-8/17 0818D	210-41940.623 HEATING/NATURAL GAS	56.53	18695	08/31/18

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29825	VT GAS SYSTEMS	08/21/18	VA 7/17-8/17 0818D	210-42220.623 HEATING/NATURAL GAS	48.16	18695	08/31/18
29825	VT GAS SYSTEMS	08/21/18	PSS 7/18-8/17/18 226201208212	210-41940.625 PARK ST. SCHOOL NAT GAS	50.05	18695	08/31/18
V10238	VT AIR TESTING SVC	08/23/18	CD relay for life 2018 431	210-15101.000 EXCHANGE - GENERAL	740.00	18697	08/31/18
07565	W B MASON CO INC	08/14/18	Supplies I57797168	210-45110.610 SUPPLIES	153.58	18703	08/31/18
21570	PETTY CASH - LOU ANN PIOL	08/24/18	SC misc for center,trips 180824D	225-45122.810 TRIP EXPENSES	122.00	18660	08/31/18
21570	PETTY CASH - LOU ANN PIOL	08/24/18	SC misc for center,trips 180824D	225-45122.610 OPERATIONAL SUPP/EXP	2.00	18660	08/31/18
21570	PETTY CASH - LOU ANN PIOL	08/24/18	SC misc for center,trips 180824D	225-45122.614 PROGRAM EXPENSES	28.63	18660	08/31/18
12265	RICOH USA, INC	08/22/18	sc monthly copier lease 100996882	225-45122.610 OPERATIONAL SUPP/EXP	27.91	18670	08/31/18
31545	COSTCO #314	08/22/18	Preschool End of Summer 082218D	226-45121.610 SUPPLIES	53.73	18621	08/31/18
02800	DISCOUNT SCHOOL SUPPLY IN	08/16/18	PS Art Supplies P37313930001	226-45121.610 SUPPLIES	158.32	18624	08/31/18
25075	ESSEX HIGH SCHOOL STUDENT	08/24/18	YH Football Camp 8484137A	226-45115.330 OTHER PROFESSIONAL SVCS	1205.00	18628	08/31/18
25390	FIRST NATIONAL BANK OMAHA	08/17/18	EJRP Supplies 081718D	226-45124.610 SUPPLIES	74.72	18631	08/31/18
25390	FIRST NATIONAL BANK OMAHA	08/17/18	EJRP Supplies 081718D	226-45124.610 SUPPLIES	28.68	18631	08/31/18
25390	FIRST NATIONAL BANK OMAHA	08/17/18	EJRP Supplies 081718D	226-45122.580 TRAVEL	123.00	18631	08/31/18
25390	FIRST NATIONAL BANK OMAHA	08/17/18	EJRP Supplies 081718D	226-45115.610 SUPPLIES	70.44	18631	08/31/18
25390	FIRST NATIONAL BANK OMAHA	08/17/18	EJRP Supplies 081718D	226-45120.330 OTHER PROFESSIONAL SVCS	20.00	18631	08/31/18
25390	FIRST NATIONAL BANK OMAHA	08/17/18	EJRP Supplies 081718D	226-45124.610 SUPPLIES	27.96	18631	08/31/18
25390	FIRST NATIONAL BANK OMAHA	08/17/18	EJRP Supplies 081718D	226-45122.580 TRAVEL	189.00	18631	08/31/18
25390	FIRST NATIONAL BANK OMAHA	08/17/18	EJRP Supplies 081718D	226-45122.610 Supplies	35.50	18631	08/31/18
25450	GORDON DREW	08/24/18	YH Football Camp 082418D	226-45115.330 OTHER PROFESSIONAL SVCS	575.00	18639	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	226-45120.210 HEALTH INS & OTHER BENEFI	143.68	18647	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	226-45121.210 HEALTH INS & OTHER BENEFI	229.42	18647	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	226-45110.210 HEALTH INS & OTHER BENEFI	47.59	18647	08/31/18
25035	LIQUID STUDIO	08/24/18	Brochure Design 18095	226-45110.330 OTHER PRFESSIONAL SVCS	1620.00	18648	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	226-45120.210 HEALTH INS & OTHER BENEFI	176.44	18655	08/31/18

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24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	226-45121.210 HEALTH INS & OTHER BENEFI	366.71	18655	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	226-45110.210 HEALTH INS & OTHER BENEFI	35.97	18655	08/31/18
29340	O'BRIEN & SONS, INC.	08/09/18	Benches I180961IN	226-45220.610 PARKS & FACILITIES SUPPLI	4763.00	18657	08/31/18
25835	PLUNKETT-DUNNING, SUSAN	08/09/18	Yoga Inst 082718D	226-45115.330 OTHER PROFESSIONAL SVCS	126.00	18663	08/31/18
20410	PRESKA CHARLES	08/23/18	EHSPN Camp 082318D	226-45115.330 OTHER PROFESSIONAL SVCS	1320.00	18665	08/31/18
25845	SWIM WITH ANNIE	08/23/18	Fall Swim Registrations 082318D	226-45115.330 OTHER PROFESSIONAL SVCS	12500.00	18681	08/31/18
25940	TEACHING STRATEGIES LLC	08/10/18	Teaching Strategies Q39537	226-45121.330 OTHER PROFESSIONAL SVCS	305.50	18682	08/31/18
03905	THE EDGE	08/14/18	Gym Rental 8/23 081418D	226-45115.440 RENTAL	137.50	18684	08/31/18
25315	VESPA'S PIZZA PASTA & DEL	08/22/18	PS End of Summer 082218D	226-45121.610 SUPPLIES	120.00	18692	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	226-45120.210 HEALTH INS & OTHER BENEFI	40.14	18693	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	226-45121.210 HEALTH INS & OTHER BENEFI	73.98	18693	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	226-45110.210 HEALTH INS & OTHER BENEFI	9.02	18693	08/31/18
23015	VT DEPT OF TAXES	08/17/18	Meals Tax Late Pymt 081718D	226-34725.000 CONCESSION SALES	30.27	18698	08/31/18
01430	VT UNDERGROUND LOCATOR IN	08/24/18	VC- Main St Ped Bridge 541	230-46801.016 MAIN PED BRIDGE BC1828	150.00	18702	08/31/18
29340	O'BRIEN & SONS, INC.	08/09/18	Benches I180961IN	233-46801.005 RESURFACING	2840.00	18657	08/31/18
29340	O'BRIEN & SONS, INC.	08/09/18	Benches I180961IN	233-46801.002 NEW SIGN LEASE	6540.00	18657	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/15/18	VA August consolidated 08180206201	254-43200.622 ELECTRICAL SERVICE	42.01	18642	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	254-43200.210 HEALTH INS & OTHER BENEFI	116.14	18647	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	254-43200.210 HEALTH INS & OTHER BENEFI	159.86	18655	08/31/18
36130	VERIZON WIRELESS	06/19/18	VW-NEW PHONE-R.JONES 980934560000	254-43200.535 TELEPHONE SERVICES	-467.94	18691	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	254-43200.210 HEALTH INS & OTHER BENEFI	32.39	18693	08/31/18
29825	VT GAS SYSTEMS	08/21/18	VA 7/17-8/17 0818D	254-43200.623 HEATING/NATURAL GAS	34.90	18695	08/31/18
06870	ENDYNE INC	08/14/18	WW weekly tkn 273105	255-43200.577 CONTRACT LABORATORY SERVI	25.00	18626	08/31/18
06870	ENDYNE INC	08/17/18	WW Q3 cake 273583	255-43200.577 CONTRACT LABORATORY SERVI	590.00	18626	08/31/18
06870	ENDYNE INC	08/22/18	WW weekly tkn 273829	255-43200.577 CONTRACT LABORATORY SERVI	25.00	18626	08/31/18

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06870	ENDYNE INC	08/28/18	WW weekly tkn 274332	255-43200.577 CONTRACT LABORATORY SERVI	25.00	18626	08/31/18
38955	F W WEBB COMPANY	08/09/18	WW chem feed line repair 59760188	255-43200.570 MAINTENANCE OTHER	34.54	18630	08/31/18
21740	FIRST NATIONAL BANK OMAHA	08/17/18	WW Free Press 073118A	255-43200.610 SUPPLIES	23.00	18633	08/31/18
21740	FIRST NATIONAL BANK OMAHA	08/17/18	WW open house supplies 073118C	255-43200.500 TRAINING, CONFERENCES, DU	65.16	18633	08/31/18
21740	FIRST NATIONAL BANK OMAHA	08/17/18	WW LaJoy hep B 080118B	255-43200.210 HEALTH INS & OTHER BENEFI	97.86	18633	08/31/18
21740	FIRST NATIONAL BANK OMAHA	08/17/18	WW munchkins, open house 080318D	255-43200.500 TRAINING, CONFERENCES, DU	26.47	18633	08/31/18
21740	FIRST NATIONAL BANK OMAHA	08/17/18	WW open house supplies 080318E	255-43200.500 TRAINING, CONFERENCES, DU	11.55	18633	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/21/18	WW 7/23-8/21/18 0818013247	255-43200.622 ELECTRICAL SERVICE	8771.83	18641	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	255-43200.210 HEALTH INS & OTHER BENEFI	244.17	18647	08/31/18
V1661	NORTH CENTRAL LABORATORIE	08/09/18	WW asstd reagemts,filters 410800	255-43200.618 SUPPLIES - LABORATORY	1409.37	18654	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	255-43200.210 HEALTH INS & OTHER BENEFI	500.11	18655	08/31/18
06510	OMEGA ELECTRIC CONSTRUCTI	07/26/18	WW account consolidaton 66417	255-43200.570 MAINTENANCE OTHER	118.50	18658	08/31/18
11695	PIONEER MOTORS & DRIVES,	08/08/18	WW flare capacitor M3292	255-43200.570 MAINTENANCE OTHER	9.80	18662	08/31/18
12265	RICOH USA, INC	08/22/18	WW Aug/Sept copier 100996264	255-43200.610 SUPPLIES	115.94	18669	08/31/18
03180	SAFETY SYSTEMS OF VT LLC	07/12/18	WW account consolidation 17859	255-43200.570 MAINTENANCE OTHER	195.00	18675	08/31/18
21050	TEMPERATURE CONTROLS OF V	08/21/18	WW ch4 loop troubleshoot 18826	255-43200.570 MAINTENANCE OTHER	210.90	18683	08/31/18
36825	THE SMALL ENGINE CO INC	08/28/18	WW starter rope 079241	255-43200.570 MAINTENANCE OTHER	14.00	18685	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	255-43200.210 HEALTH INS & OTHER BENEFI	93.23	18693	08/31/18
29825	VT GAS SYSTEMS	08/21/18	VA 7/17-8/17 0818D	255-43200.623 HEATING/NATURAL GAS	1312.53	18695	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/15/18	VA August consolidated 08180206201	256-43200.622 ELECTRICAL SERVICE	947.85	18642	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/15/18	VA August consolidated 08180206201	256-43220.001 SUSIE WILSON PS COSTS	364.52	18642	08/31/18
07010	GREEN MOUNTAIN POWER CORP	08/15/18	VA August consolidated 08180206201	256-43220.002 WEST ST PS COSTS	522.37	18642	08/31/18
14025	LINCOLN NATIONAL LIFE INS	08/15/18	VA village Sept ins 090118D	256-43200.210 HEALTH INS & OTHER BENEFI	108.30	18647	08/31/18
24960	NORTHEAST DELTA DENTAL	08/15/18	VA village dental Sept 090118D	256-43200.210 HEALTH INS & OTHER BENEFI	137.57	18655	08/31/18
25375	VISION SERVICE PLAN (CT)	08/21/18	VA Village VSP 9/1 090118D	256-43200.210 HEALTH INS & OTHER BENEFI	28.60	18693	08/31/18

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29825	VT GAS SYSTEMS	08/21/18	VA 7/17-8/17 0818D	256-43220.001 SUSIE WILSON PS COSTS	37.13	18695	08/31/18
29825	VT GAS SYSTEMS	08/21/18	VA 7/17-8/17 0818D	256-43220.002 WEST ST PS COSTS	38.62	18695	08/31/18
29825	VT GAS SYSTEMS	08/21/18	VA 7/17-8/17 0818D	256-43200.623 HEATING/NATURAL GAS	42.74	18695	08/31/18
	Report Total				71984.13		

Vendor		Invoice Date	Invoice Description / Invoice Number	Account	Amount Paid	Check Number	Check Date
05290	ADVANCE AUTO PARTS	08/13/18	ST-ELECTRONIC FLASHER 2529319	210-43110.570 MAINTENANCE OTHER	15.19	18708	09/07/18
05290	ADVANCE AUTO PARTS	08/14/18	ST-TRAILER ADAPTER 2629345	210-43110.610 SUPPLIES	8.99	18708	09/07/18
05290	ADVANCE AUTO PARTS	08/14/18	ST-ATO BLADE 2638451	210-43110.570 MAINTENANCE OTHER	3.59	18708	09/07/18
05290	ADVANCE AUTO PARTS	08/14/18	ST-CURRENT TESTER 2638453	210-43110.610 SUPPLIES	15.66	18708	09/07/18
05290	ADVANCE AUTO PARTS	08/14/18	ST-ATO BLADE 2638459	210-43110.570 MAINTENANCE OTHER	6.84	18708	09/07/18
05290	ADVANCE AUTO PARTS	07/31/18	ST degreaser, glass clean 552821229065	210-43110.610 SUPPLIES	80.55	18708	09/07/18
05290	ADVANCE AUTO PARTS	08/17/18	VF DEF fluid 552822938545	210-42220.610 SUPPLIES	23.99	18708	09/07/18
05290	ADVANCE AUTO PARTS	06/28/18	ST replacement check R52817937202	210-43110.570 MAINTENANCE OTHER	8.37	18708	09/07/18
05290	ADVANCE AUTO PARTS	06/28/18	ST replacement check R52817937202	210-43110.610 SUPPLIES	25.13	18708	09/07/18
23635	BAY STATE ELEVATOR COMPAN	09/01/18	BL elevator maint 483384	210-45551.434 MAINT. BUILDINGS/GROUNDS	288.70	18711	09/07/18
10510	BLUE TARP FINANCIAL INC	08/01/18	VF-PORTABLE FAN 718113	210-42220.610 SUPPLIES	22.49	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/02/18	VF-EXTENSION CORDS 718122	210-42220.889 ROUTINE EQUIPMENT PURCHAS	50.38	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/09/18	ST-FEBREZE AIR 718169	210-43110.610 SUPPLIES	8.53	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/11/18	VF-SILICONE 718182	210-42220.610 SUPPLIES	6.56	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/14/18	ST-2 GAL GRAB & GO 718192	210-43110.610 SUPPLIES	19.34	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/15/18	ST-PLASTIC 718203	210-43110.610 SUPPLIES	35.98	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/17/18	ST-TROWEL 718218	210-43110.610 SUPPLIES	17.53	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/17/18	ST-PAIL 718219	210-43110.610 SUPPLIES	3.59	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/20/18	ST-BLADE 718259	210-43110.610 SUPPLIES	33.28	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/20/18	VF-HARDWARE 718262	210-42220.610 SUPPLIES	9.56	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/21/18	ST-SCREWS 718274	210-43110.610 SUPPLIES	22.02	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/22/18	VF-CANNED FUEL 718296	210-42220.610 SUPPLIES	43.14	18715	09/07/18
00530	BRODART CO	05/08/18	BF books B5320833	210-49345.000 LIBRARY DONATION EXPENDIT	16.84	18718	09/07/18
00530	BRODART CO	07/24/18	BL books B5379918	210-45551.641 JUVEN COLLECTION-PRNT & E	27.23	18718	09/07/18
00530	BRODART CO	07/24/18	BL books B5379918	210-45551.610 SUPPLIES	2.40	18718	09/07/18

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00530	BRODART CO	07/24/18	BF books B5379922	210-49345.000 LIBRARY DONATION EXPENDIT	15.65	18718	09/07/18
16030	BROWN ELECTRIC	08/21/18	ST-MISC 33205	210-43160.610 STREET LIGHTS SUPPLIES/MA	229.70	18719	09/07/18
V10473	CITY DIRECTORIES / INFOGR	07/20/18	BL city directory 10003384441	210-45551.640 ADULT COLLECTION-PRINT &	310.00	18722	09/07/18
23525	CLARK'S TRUCK CENTER INC	08/22/18	ST-FLTFP 407511	210-43110.432 VEHICLE MAINTENANCE	15.98	18723	09/07/18
38280	CRYSTAL ROCK BOTTLED WATE	08/21/18	Water 082118D	210-45110.610 SUPPLIES	104.94	18730	09/07/18
24305	DEMCO INC	08/23/18	BL supplies 6436022	210-45551.610 SUPPLIES	333.32	18732	09/07/18
35260	EAST COAST PRINTERS INC	08/10/18	ST-HATS 08021816	210-43110.612 UNIFORMS,BOOTS,ETC	360.00	18735	09/07/18
35260	EAST COAST PRINTERS INC	08/24/18	ST-RICK JONES 08241811	210-43110.612 UNIFORMS,BOOTS,ETC	196.15	18735	09/07/18
25920	FIRE PRO TEC INC	08/28/18	VF SCBA bottle svc 231749	210-42220.570 MAINTENANCE OTHER	89.05	18739	09/07/18
09165	FIRST NATIONAL BANK OMAHA	07/25/18	FN-PAYROLL COMPLIANCE SEM 382782447	210-41320.500 TRAINING, CONFERENCES, DU	149.50	18741	09/07/18
19005	FIRSTLIGHT FIBER	08/15/18	ST-TELEPHONE SERVICE 4323925	210-43110.535 TELEPHONE SERVICES	71.36	18742	09/07/18
19005	FIRSTLIGHT FIBER	08/15/18	VF phone 7/15-8/14/18 4323944	210-42220.535 TELEPHONE SERVICES	51.20	18742	09/07/18
34895	GAUTHIER TRUCKING, INC.	09/01/18	LH-AUG TRASH PU 21 PARK S 091827759	210-41940.566 PRK ST SCHL-RUBBISH REM	74.19	18746	09/07/18
34895	GAUTHIER TRUCKING, INC.	09/01/18	LH-AUGUST 2018 LINCOLN HL 1335821	210-41940.565 RUBBISH REMOVAL	181.55	18746	09/07/18
34895	GAUTHIER TRUCKING, INC.	08/15/18	Trash Removal MSP 1336550	210-45220.330 OTHER PROFESSIONAL SVCS	296.76	18746	09/07/18
20470	GLOBAL MONTELLO GROUP	08/31/18	VA-AUGUST FUEL CL227542	210-45220.626 GAS, GREASE & OIL	364.36	18748	09/07/18
20470	GLOBAL MONTELLO GROUP	08/31/18	VA-AUGUST FUEL CL227542	210-42220.626 GAS,GREASE AND OIL	1004.10	18748	09/07/18
20470	GLOBAL MONTELLO GROUP	08/31/18	VA-AUGUST FUEL CL227542	210-43110.626 GAS,GREASE AND OIL	2106.18	18748	09/07/18
20445	HD SUPPLY CONSTRUCTION &	08/15/18	ST-GATOR 48" ROUND END 447253500	210-43110.610 SUPPLIES	534.60	18752	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	210-45110.210 HEALTH INS & OTHER BENEFI	162.00	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	210-45220.210 HEALTH INS & OTHER BENEFI	40.50	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	210-43110.210 HEALTH INS & OTHER BENEFI	137.70	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	210-43151.210 HEALTH INS & OTHER BENEFI	21.47	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	210-41320.210 HEALTH INS & OTHER BENEFI	121.49	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	210-45551.210 HEALTH INS & OTHER BENEFI	243.00	18753	09/07/18

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21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	210-41335.210 HEALTH INS & OTHER BENEFI	40.50	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	210-41970.210 HEALTH INS & OTHER BENEFI	81.00	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	210-45110.210 HEALTH INS & OTHER BENEFI	158.05	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	210-45220.210 HEALTH INS & OTHER BENEFI	39.51	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	210-41335.210 HEALTH INS & OTHER BENEFI	39.51	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	210-43110.210 HEALTH INS & OTHER BENEFI	134.34	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	210-41320.210 HEALTH INS & OTHER BENEFI	118.55	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	210-43151.210 HEALTH INS & OTHER BENEFI	20.94	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	210-45551.210 HEALTH INS & OTHER BENEFI	237.07	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	210-41970.210 HEALTH INS & OTHER BENEFI	79.02	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	210-45110.210 HEALTH INS & OTHER BENEFI	158.57	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	210-45220.210 HEALTH INS & OTHER BENEFI	39.64	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	210-43110.210 HEALTH INS & OTHER BENEFI	134.79	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	210-43151.210 HEALTH INS & OTHER BENEFI	21.01	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	210-41320.210 HEALTH INS & OTHER BENEFI	158.58	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	210-45551.210 HEALTH INS & OTHER BENEFI	237.86	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	210-41335.210 HEALTH INS & OTHER BENEFI	39.64	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	210-41970.210 HEALTH INS & OTHER BENEFI	79.29	18753	09/07/18
V9454	LENNY'S SHOE & APP	07/31/18	ST uniforms 3200195	210-43110.612 UNIFORMS,BOOTS,ETC	243.98	18758	09/07/18
05010	LYNN PUBLICATIONS	08/02/18	TMAD ad recording sect 125073	210-41320.572 INTERVIEW COSTS	63.75	18760	09/07/18
V10668	MISTRAS GROUP	08/16/18	VF ladder testing CD10944524	210-42220.432 VEHICLE MAINTENANCE	1281.80	18762	09/07/18
V9862	PERCY RENTALS, SALES & SE	08/27/18	ST-FLYWHEEL ASSEMBLY 35524	210-43110.570 MAINTENANCE OTHER	545.42	18765	09/07/18
24100	PERMA-LINE CORP.OF NEW EN	08/21/18	ST-SIGNS 169572	210-43110.617 SIGNS AND POSTS	99.60	18766	09/07/18
24855	PETTY CASH - CAITLIN FAY	09/04/18	Petty Cash Reimbursement 090418D	210-45110.330 OTHER PROFESSIONAL SVCS	35.00	18767	09/07/18
24855	PETTY CASH - CAITLIN FAY	09/04/18	Petty Cash Reimbursement 090418D	210-45110.330 OTHER PROFESSIONAL SVCS	35.00	18767	09/07/18

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25140	PIKE INDUSTRIES INC	08/21/18	ST-ASPHALT 991961	210-43120.610 PAVEMENT MAINTENANCE	129.92	18768	09/07/18
25140	PIKE INDUSTRIES INC	08/27/18	ST-ASPHALT 993380	210-43120.610 PAVEMENT MAINTENANCE	68.96	18768	09/07/18
23465	PITNEY BOWES,INC.	08/23/18	AD-9/20-12/19/18 LEASE 3306902972	210-41320.442 LEASED SERVICES	281.88	18769	09/07/18
37430	R R CHARLEBOIS INC	08/22/18	VF 8E5 brake svc RC66743	210-42220.432 VEHICLE MAINTENANCE	1558.98	18770	09/07/18
24325	RADIO NORTH GROUP INC	08/22/18	VF radio batteries 24139999	210-42220.443 RADIO MAINTENANCE	1470.00	18771	09/07/18
24325	RADIO NORTH GROUP INC	08/23/18	VF radio svc 24140007	210-42220.443 RADIO MAINTENANCE	459.00	18771	09/07/18
18010	REYNOLDS & SON, INC.	06/12/18	ST gas detection meter 3329164	210-43110.610 SUPPLIES	798.00	18773	09/07/18
24775	ROBERGE & SONS MOWING INC	08/28/18	ST-MOWING 254516	210-43125.570 CONTRACT SERVICES	935.00	18777	09/07/18
37965	S D IRELAND CONCRETE	08/13/18	ST-11 JACKSON STREET 70824	210-43120.570 SIDEWALK AND CURB MAINTEN	276.00	18778	09/07/18
37965	S D IRELAND CONCRETE	08/15/18	ST-SUMMIT STREET 70900	210-43120.570 SIDEWALK AND CURB MAINTEN	539.50	18778	09/07/18
37965	S D IRELAND CONCRETE	08/21/18	ST-13 NAHMA AVENUE 71073	210-43120.570 SIDEWALK AND CURB MAINTEN	464.00	18778	09/07/18
43320	SAMMEL SIGN CO	08/30/18	AD-BANNER UPDATE 6224	210-41320.835 HOLIDAY EXPENSE	45.00	18779	09/07/18
V20401	SCHOLASTIC LIBRARY PUBLIS	08/24/18	BL books 17630497	210-45551.641 JUVEN COLLECTION-PRNT & E	152.10	18781	09/07/18
V10656	SOUTHERN VERMONT NATURAL	09/01/18	BL youth program 518379118	210-45551.837 CHILDRENS PROGRAMS	298.37	18784	09/07/18
36130	VERIZON WIRELESS	08/19/18	STVW 7/20-8/19/18 9813054915	210-43110.535 TELEPHONE SERVICES	61.05	18789	09/07/18
11935	VIKING-CIVES USA	08/21/18	ST-PILOT CHECK VALVE 4483404	210-43110.432 VEHICLE MAINTENANCE	180.88	18791	09/07/18
22070	VILLAGE COPY & PRINT INC.	08/28/18	AD/CD-ENVELOPES 7291	210-41320.610 SUPPLIES	92.46	18792	09/07/18
22070	VILLAGE COPY & PRINT INC.	08/28/18	AD/CD-ENVELOPES 7291	210-41970.610 SUPPLIES	45.54	18792	09/07/18
22045	VT DEPT OF PUBLIC SAFETY	07/31/18	Fingerprints 76325	210-45110.330 OTHER PROFESSIONAL SVCS	108.00	18794	09/07/18
30210	VT LEAGUE OF CITIES & TOW	11/28/17	AD-Q4 2018 UNEMPLOYMENT 2674604	210-20215.000 STATE UNEMPLOYMENT PAYABL	373.00	18796	09/07/18
07565	W B MASON CO INC	08/28/18	LHADCD supplies I58234707	210-41320.610 SUPPLIES	37.51	18800	09/07/18
07565	W B MASON CO INC	08/28/18	LHADCD supplies I58234707	210-41970.610 SUPPLIES	18.47	18800	09/07/18
07565	W B MASON CO INC	08/28/18	LHADCD supplies I58234707	210-41940.610 SUPPLIES	116.64	18800	09/07/18
23000	WHITCOMB	06/28/18	ST-SHUR PAC 00689231	210-43110.616 GRAVEL,TOPSOIL	936.38	18802	09/07/18
23000	WHITCOMB	08/03/18	ST-SHUR PAC 00690597	210-43110.616 GRAVEL,TOPSOIL	118.13	18802	09/07/18

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23000	WHITCOMB	08/06/18	ST-SHUR PAC 00690650	210-43110.616 GRAVEL,TOPSOIL	629.63	18802	09/07/18
20455	WORK AREA PROTECTION, A H	08/16/18	ST-CONES 52486	210-43110.610 SUPPLIES	257.00	18803	09/07/18
31545	COSTCO #314	08/29/18	SC for potluck, center 180829D	225-45122.812 MEAL SITE EXPENSES	49.96	18728	09/07/18
31545	COSTCO #314	08/29/18	SC for potluck, center 180829D	225-45122.610 OPERATIONAL SUPP/EXP	44.57	18728	09/07/18
25190	A C MOORE ARTS & CRAFTS A	08/25/18	MSP VK Supplies 007784	226-45120.610 SUPPLIES	97.51	18706	09/07/18
25190	A C MOORE ARTS & CRAFTS A	08/30/18	Fleming VK Supplies 008432	226-45120.610 SUPPLIES	58.46	18706	09/07/18
25590	FUN EXPRESS LLC	08/15/18	Halloween Celebration 69149687001	226-45115.610 SUPPLIES	53.90	18744	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	226-45120.210 HEALTH INS & OTHER BENEFI	202.50	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	226-45121.210 HEALTH INS & OTHER BENEFI	162.00	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	226-45110.210 HEALTH INS & OTHER BENEFI	40.50	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	226-45110.210 HEALTH INS & OTHER BENEFI	39.51	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	226-45121.210 HEALTH INS & OTHER BENEFI	158.05	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	226-45120.210 HEALTH INS & OTHER BENEFI	197.56	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	226-45120.210 HEALTH INS & OTHER BENEFI	198.21	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	226-45110.210 HEALTH INS & OTHER BENEFI	39.64	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	226-45121.210 HEALTH INS & OTHER BENEFI	158.57	18753	09/07/18
25685	LETGO YOUR MIND	08/29/18	Lego Camps 082918D	226-45115.330 OTHER PROFESSIONAL SVCS	8706.00	18759	09/07/18
24855	PETTY CASH - CAITLIN FAY	09/04/18	Petty Cash Reimbursement 090418D	226-45120.610 SUPPLIES	39.89	18767	09/07/18
24855	PETTY CASH - CAITLIN FAY	09/04/18	Petty Cash Reimbursement 090418D	226-45120.610 SUPPLIES	44.73	18767	09/07/18
24855	PETTY CASH - CAITLIN FAY	09/04/18	Petty Cash Reimbursement 090418D	226-45120.330 OTHER PROFESSIONAL SVCS	40.00	18767	09/07/18
24830	REINHART FOODSERVICE	08/27/18	Fleming VK Snack 911368	226-45120.610 SUPPLIES	273.75	18772	09/07/18
24830	REINHART FOODSERVICE	08/29/18	Summit VK Snack 913414	226-45120.610 SUPPLIES	190.16	18772	09/07/18
24830	REINHART FOODSERVICE	08/29/18	CMS Snack 913508	226-45122.610 Supplies	60.38	18772	09/07/18
24830	REINHART FOODSERVICE	08/29/18	MSP VK Snack 913509	226-45120.610 SUPPLIES	106.27	18772	09/07/18
24830	REINHART FOODSERVICE	08/29/18	Hiawatha VK Snack 913517	226-45120.610 SUPPLIES	25.25	18772	09/07/18

Vendor		Invoice Date	Invoice Description / Invoice Number	Account	Amount Paid	Check Number	Check Date
24830	REINHART FOODSERVICE	09/04/18	Summit VK Snack 915482	226-45120.610 SUPPLIES	156.00	18772	09/07/18
24830	REINHART FOODSERVICE	09/04/18	Summit VK Snack 915541	226-45120.610 SUPPLIES	30.63	18772	09/07/18
42565	SEVEN DAYS	08/22/18	VK Ad 188015	226-45120.330 OTHER PROFESSIONAL SVCS	90.00	18782	09/07/18
25845	SWIM WITH ANNIE	08/30/18	Fall Swim Registration 083018D	226-45115.330 OTHER PROFESSIONAL SVCS	13933.00	18785	09/07/18
25315	VESPA'S PIZZA PASTA & DEL	08/28/18	VK Staff Meeting 082818D	226-45120.610 SUPPLIES	81.50	18790	09/07/18
38200	VT RECREATION & PARKS ASS	09/04/18	Summer Ticket Closeout 090418D	226-34780.000 ADULT PROGRAMS	2060.00	18798	09/07/18
07565	W B MASON CO INC	08/17/18	Preschool Supplies I57929189	226-45121.610 SUPPLIES	173.94	18800	09/07/18
07565	W B MASON CO INC	08/22/18	Supplies I58071278	226-45121.610 SUPPLIES	126.99	18800	09/07/18
07565	W B MASON CO INC	08/22/18	Supplies I58071278	226-45120.610 SUPPLIES	6.76	18800	09/07/18
07565	W B MASON CO INC	08/23/18	Summit VK Supplies I58116671	226-45120.610 SUPPLIES	67.60	18800	09/07/18
07565	W B MASON CO INC	08/23/18	Summit VK Supplies I58117518	226-45120.610 SUPPLIES	134.96	18800	09/07/18
25715	DONALD L. HAMLIN CONSULT	09/04/18	CD-CRESCENT CONNT JULY 18 09041812833	230-46801.008 CRESCENT CONNECTOR	1703.75	18733	09/07/18
25715	DONALD L. HAMLIN CONSULT	09/04/18	CD-PEARL ST LINK JULY 18 09041817820	230-46801.007 PEARL ST. LINKING SIDEWAL	384.25	18733	09/07/18
20470	GLOBAL MONTELLO GROUP	08/31/18	VA-AUGUST FUEL CL227542	254-43200.626 GAS,GREASE AND OIL	159.20	18748	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	254-43200.210 HEALTH INS & OTHER BENEFI	60.75	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	254-43200.210 HEALTH INS & OTHER BENEFI	98.78	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	254-43200.210 HEALTH INS & OTHER BENEFI	59.46	18753	09/07/18
36130	VERIZON WIRELESS	08/19/18	STVW 7/20-8/19/18 9813054915	254-43200.535 TELEPHONE SERVICES	139.53	18789	09/07/18
10510	BLUE TARP FINANCIAL INC	07/31/18	WW-SHOVEL HEADWORKS 718100	255-43200.577 CONTRACT LABORATORY SERVI	16.19	18715	09/07/18
10510	BLUE TARP FINANCIAL INC	08/22/18	WW-BROOMS POLES 718298	255-43200.570 MAINTENANCE OTHER	60.98	18715	09/07/18
20470	GLOBAL MONTELLO GROUP	08/31/18	VA-AUGUST FUEL CL227542	255-43200.626 GAS,GREASE AND OIL	267.51	18748	09/07/18
21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	255-43200.210 HEALTH INS & OTHER BENEFI	209.39	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	255-43200.210 HEALTH INS & OTHER BENEFI	204.28	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	255-43200.210 HEALTH INS & OTHER BENEFI	244.60	18753	09/07/18
20470	GLOBAL MONTELLO GROUP	08/31/18	VA-AUGUST FUEL CL227542	256-43200.626 GAS,GREASE AND OIL	387.85	18748	09/07/18

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21240	HICKOK & BOARDMAN HRI	03/31/18	TV-JAN-MAR 2018 HB FEES 033118	256-43200.210 HEALTH INS & OTHER BENEFI	97.20	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	06/30/18	TV-APR-JUNE 2018 HB FEES- 063018	256-43200.210 HEALTH INS & OTHER BENEFI	94.83	18753	09/07/18
21240	HICKOK & BOARDMAN HRI	12/31/17	VA-OCT-DEC 2017 HB FEES 123117D	256-43200.210 HEALTH INS & OTHER BENEFI	95.14	18753	09/07/18
V9454	LENNY'S SHOE & APP	04/23/18	ST uniform 3187078	256-43200.612 UNIFORMS,BOOTS,ETC	39.99	18758	09/07/18
	Report Total				54756.88		

Patricia Benoit

Subject: FW: Essex Homecoming Request 2018

Dear Village Trustees,

This request pertains to the upcoming Essex High School Homecoming. It has been an annual tradition that we include a short fireworks display prior to kick-off of our Football Game and more recently a post game bonfire.

This year's date for homecoming is Friday September, 21st 2018 with a 7 pm start time.

I am requesting two waivers in order to hold these two events. 1) Waiver of the Noise Ordinance for the fireworks at approximate 7:03 pm on 9/21/18 for approximately 3 minutes 2) Waiver for the no burn ordinance to hold the bonfire from approximately 9 pm to 10:30 pm at 2 Educational Drive Essex Jct.

I will be sending the permit for the fireworks from Northstar when it arrives. They anticipate in the next day or two.

I have communicated with EJFD (John Rowell) about the date of Homecoming and in the past he has coordinated having a crew on site for the bonfire.

Thank you for your consideration.

Best,

Jeff

Jefferson Goodrich, CAA
Academic Dean of Student Activities
Essex High School
2 Educational Drive
Essex Junction, VT 05452
(802) 857-7012