



To: Sai Sarepalli, P.E., CCRPC

Date: January 19, 2018

Memorandum

Project #: TBD

From: David Saladino, P.E., AICP

Re: **Technical & Cost Proposal**

VT 117-Skunk Hollow Road Intersection Scoping Study  
Jericho, Vermont

This proposal outlines the background, proposed scope of work, and budget to identify a preferred approach for improving safety and mobility at the VT 117/Skunk Hollow Road intersection in Jericho, Vermont.

## Project Overview

This project will involve a collaboration between the Town of Jericho, the Chittenden County Regional Planning Commission (CCRPC), the Vermont Agency of Transportation (VTrans), and project stakeholders to identify a preferred approach for improving safety and mobility at the VT 117/Skunk Hollow Road intersection in Jericho, Vermont.

The segment of VT 117 adjacent to Skunk Hollow Road was classified as a High Crash Location (HCL) segment in the 2012-2016 VTrans HCL report with 15 reported crashes (including 3 involving injuries) and an Actual/Critical ratio of 1.83. VT 117 is identified as "High Use/Priority" in the VTrans Bicycle Corridor Priority Map and a proposed facility in the CCRPC Active Transportation Plan. The 2015 Jericho Transportation Plan identified the VT 117/Skunk Hollow Road intersection as in need of safety improvements and recommended improvements be investigated in the near term.

**Figure 1: Project Study Area**



40 IDX Drive  
Building 100, Suite 200  
South Burlington, VT 05403  
P 802.497.6100

## Scope of Work

### Task 1 – Project Kick-off Meeting & Project Management

VHB will work with the Town and CCRPC to identify a project technical group and key stakeholders to keep informed about the project. The Mount Mansfield Modified Union School District will be included on the stakeholders list.

VHB will prepare for and attend a project kick-off meeting with the project team to review the scope of work and schedule, discuss previous investigations at the intersection, discuss potential issues related to private property impacts, terrain, and the adjacent stream and culvert, and review overall project goals. VHB will prepare a meeting agenda and preliminary base map for use during the meeting.

**Deliverables:** Meeting agenda, preliminary base map, meeting notes

### Task 2 – Existing Conditions Assessment

- **Existing Conditions Map:** For scoping purposes, we have assumed that the CCRPC will prepare the following existing conditions maps and provide PDF documents to VHB for use in the Study:
  - Existing Conditions Base Map: Base map to include high-resolution aerial imagery, contours, parcel boundaries, VTrans right-of-way (if available), water features, 2012-2016 reported crashes, and labeling.
  - Natural Resources Map(s): Natural resources map(s) to include all available natural resources information such as wetlands, rare, threatened, and endangered species, deer wintering areas, river corridors, public/private wells, underground storage tanks, hazardous waste sites, flood zones, and conserved lands.
- **Peak Hour Turning Movement Counts:** The VTrans Transportation Data Management System does not show any recent peak hour turning movement count data at the study intersection. VHB will conduct weekday morning and evening peak hour turning movement counts at the VT 117/Skunk Hollow Road intersection.
- **Culvert Assessment and Hydrologic Analysis:** An unnamed tributary to the Winooski River passes through an existing culvert under VT 117 southeast of the Skunk Hollow Road intersection. VHB will conduct a site visit to document the existing structure, the size and characteristics of the stream channel, and verify the calculated drainage area for this stream. A hydrologic analysis will be performed to estimate the design flows through the structure, using methods outlined in the VTrans Hydraulics Manual (2015 edition) that are appropriate for the size of the contributing drainage area. Functional issues of the culvert will also be assessed, such as the alignment, scour, perching, ponding, debris accumulation, etc. The site and channel conditions will be documented with photographs and a sketch of the site layout. VHB will prepare an existing conditions Hydrology and Hydraulic (H&H) analysis which summarizes this information.
- **Archeological Resource Assessment:** VHB will review existing archeological assessment results completed for the VT 117 reclamation project and contract with UVM-CAP to complete an Archeological Resource Assessment to cover any portion of the project study area not included in previous assessments.

- **Existing Conditions Assessment:** VHB will prepare a summary of existing conditions through the project study area, including the following items: existing roadway geometry, current traffic volumes, reported crashes, natural and cultural resources, speed limits, sight distances, utilities, and AM and PM peak hour Level of Service, delay, volume/capacity, and queuing.
- **Project Team Meeting #2:** VHB will prepare for and attend a project team meeting to review the Existing Conditions Assessment and prepare for the Local Concerns Meeting.

**Deliverables:** Existing Conditions Assessment summary, project team meeting agenda and notes

### Task 3 – Local Concerns Meeting and Purpose & Need Statement

VHB, in coordination with the CCRPC, the Town and VTrans, will organize, facilitate, and document a Local Concerns Meeting. The meeting will include an overview of the existing conditions and gather input from attendees on issues and opportunities for enhancing safety and mobility at the intersection. VHB will compile and summarize comments from the meeting. For scoping purposes, we have assumed that the Town and/or CCRPC will assist with publicizing the meeting (e.g. Front Porch Forum posts, notification of websites, outreach to stakeholders and adjacent land owners). Following the completion of the meeting, a draft Purpose & Need Statement will be circulated to the project team.

**Deliverables:** Public meeting presentation, materials, and notes; draft and final Purpose & Need Statement

### Task 4 – Alternatives Analysis

Based on findings from the Existing Conditions Assessment and input provided by the project stakeholders and public at the Local Concerns Meeting, VHB will complete the following:

- **Design Criteria:** Prepare a Design Criteria table based on appropriate local, state, and federal design standards that includes criteria for lane and shoulder widths, design speed, design vehicle, horizontal and vertical alignments, bicyclist and pedestrian safety, and minimum sight distances. The Design Criteria will be circulated to the project team for review and input.
- **Turn Lane Warrants:** Using forecast Design Hour Volumes, evaluate left- and right-turn lane warrants to assess the potential need for auxiliary lanes on the VT 117 and/or Skunk Hollow Road approaches.
- **Hydrology & Hydraulics Analysis:** If the Alternatives Analysis identifies alternatives that would impact the existing culvert, VHB will use FHWA's HY-8 software to perform a hydraulic analysis of the existing culvert and the proposed alternatives. This analysis will be performed in accordance with the requirements of the VTrans Hydraulics Manual (2015 edition) to recommend an appropriately-sized replacement structure. The results of the hydraulic analysis will be summarized, including the proposed alternatives and any constructability notes or other recommendations.
- **Develop Draft Concept Plans:** Develop draft concept plans for up to three design alternatives to address safety, mobility and other identified issues at the intersection. The concepts will be evaluated from a safety perspective to ensure they address any existing safety deficiencies identified at the intersection under Task 2.

- **Alternatives Evaluation:** An Alternatives Evaluation Matrix will be prepared to assist in the comparison of the alternatives against a No Build condition. The matrix will follow the typical VTrans alternatives evaluation matrix and include the following measures: conceptual cost estimate, congestion impacts, safety impacts, right-of-way impacts, natural and cultural resource impacts, hydrological impacts and constructability, ability to meet the Purpose and Need, and potential permit requirements.
- **Project Team Meeting #3:** VHB will prepare for and attend a project team meeting to review the Alternatives Assessment and prepare for the Alternatives Review Public Meeting.

**Deliverables:** Design Criteria table, draft concept plans, Evaluation Matrix, project team meeting agenda and notes

#### Task 5 – Alternatives Presentation Meetings

- **VTrans Alternatives Presentation Meeting:** VHB will prepare for and present the three design alternatives and evaluation matrix to VTrans staff for review and input.
- **Town Alternatives Presentation Meeting:** VHB, in coordination with the CCRPC, the Town and VTrans, will organize, facilitate, and document an Alternatives Presentation meeting. The meeting will include a presentation on the draft conceptual plans and alternatives evaluation for review and input from the public to help identify the community's preferred alternative. VHB will compile and summarize comments from the meeting. For scoping purposes, we have assumed that the Town and/or CCRPC will assist with publicizing the meeting (e.g. Front Porch Forum posts, notification of websites, outreach to stakeholders and adjacent land owners).

**Deliverables:** VTrans and Town meeting presentations, materials, and notes

#### Task 6 – Selection of Preferred Alternative

- **Project Team Meeting #4:** VHB will prepare for and attend a project team meeting to identify a preferred alternative to present to the Jericho Selectboard for concurrence.
- **Jericho Selectboard Meeting:** VHB, in coordination with the CCRPC, the Town and VTrans, will present the alternative concept plans and Evaluation Matrix to the Town of Jericho Selectboard for review and, if agreeable, to identify a preferred alternative. VHB will compile and summarize comments from the meeting.

**Deliverables:** Selectboard meeting presentation, materials, and notes

#### Task 7 – Scoping Report

- **Preferred Concept Plan and Estimate:** VHB will prepare a final conceptual plan with high-level construction traffic plan and revised cost estimate associated with the preferred alternative for use in the Scoping Report.
- **Draft Scoping Report:** VHB will prepare a draft of the VT 117/Skunk Hollow Road Scoping Report for review by the project team. The report will include a brief summary of existing conditions, an overview of the public outreach process, the evaluation process, constructability/construction phasing, and the preferred alternative.

- **Final Scoping Report:** Prepare a final Scoping Report document that addresses comments from the team

**Deliverables:** Preferred alternative concept plan, draft Scoping Report, final Scoping Report

## Schedule

Assuming a Notice to Proceed is issued by January 5, 2018, VHB anticipates the Project advancing according to the schedule outlined below:

- Project Kick-off: December 19, 2017
- Existing Conditions Assessment: January - February 2018
- Local Concerns Meeting: February 15, 2018
- Alternatives Assessment: April - May
- Alternatives Presentation Meetings: June
- Preferred Alternatives Selection: July
- Draft and Final Scoping Report: August - September 2018

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**Budget**

The table below provides a summary of estimated labor hours by task as well as the overall estimated Project budget to coincide with the Scope of Services presented above.

	<b>VT 117/Skunk Hollow Road Intersection Scoping Study</b> <b>COST SUMMARY</b>				
	Project Manager <i>Dore Salgado</i>	Senior Engineer <i>Dan Peck</i>	Planner/ Engineer <i>Erica Quillen</i>	Total Hours	Labor Costs
TASK DESCRIPTION					
<b>Task 1: Project Kick-off Meeting &amp; Project Mgmt</b>					
Project Management	2	2	2	6	\$ 827
Project Kick-off Meeting	4	4	8	16	\$ 1,955
<b>Task 2: Existing Conditions Assessment</b>					
Existing Conditions Map			4	4	\$ 300
Turning Movement Counts			8	8	\$ 600
Existing Conditions Assessment	2	10	30	42	\$ 3,918
Culvert Assessment and Hydrologic Analysis	1	2	12	15	\$ 1,363
Archeological Resource Assessment	2		2	4	\$ 580
Project Team Meeting #2	4	4	8	16	\$ 1,955
<b>Task 3: Local Concerns Meeting</b>					
Meeting Preparations	2	4	6	12	\$ 1,375
Local Concerns Meeting	4	4	8	16	\$ 1,955
Purpose & Need Statement	1	2		3	\$ 462
<b>Task 4: Alternatives Analysis</b>					
Develop Design Criteria Table	1	2		3	\$ 462
Turn Lane Warrants	2		4	6	\$ 730
Hydrology & Hydraulic Analysis	1	4	16	21	\$ 1,910
Develop Draft Concept Plans	2	40	60	102	\$ 9,882
Alternatives Evaluation	2	6	18	26	\$ 2,523
Project Team Meeting #3	4	4	8	16	\$ 1,955
<b>Task 5: Alternatives Presentation Meetings</b>					
Meeting Preparations	2	4	6	12	\$ 1,375
Alternatives Presentation Meeting - VTrans	4	4	8	16	\$ 1,955
Alternatives Presentation Meeting - Town	4	4	8	16	\$ 1,955
<b>Task 6: Selection of a Preferred Alternative</b>					
Project Team Meeting #4	4	4	8	16	\$ 1,955
Meeting Preparations	2	4	6	12	\$ 1,375
Selectboard Meeting	4	4	8	16	\$ 1,955
<b>Task 7: Scoping Report</b>					
Preferred Concept Plan & Estimate	2	8	24	34	\$ 3,220
Draft Scoping Report	4	10	30	44	\$ 4,348
Final Scoping Report	2	8	16	26	\$ 2,620
<b>TOTAL HOURS:</b>	<b>62</b>	<b>138</b>	<b>308</b>	<b>508</b>	
DIRECT HOURLY RATES :	\$ 75.72	\$ 43.63	\$ 26.44		
OVERHEAD (157.93) :	\$ 119.58	\$ 68.90	\$ 41.76		
FEE (10%) :	\$ 19.53	\$ 11.25	\$ 6.82		
<b>TOTAL LABOR COSTS :</b>	<b>\$ 13,319</b>	<b>\$ 17,082</b>	<b>\$ 23,106</b>		<b>\$ 53,510</b>

TOTAL LABOR COST: \$ 53,510  
 DIRECT EXPENSES (VHB): \$ 400  
 DIRECT EXPENSES (UVM-CAP) \$ 2,000  
**TOTAL: \$ 55,910**