

Engineering Design Services Proposal

TOWN OF BRISTOL West Street Crosswalk Design



September 8, 2021



LAMOUREUX & DICKINSON
Consulting Engineers, Inc.
14 Morse Drive, Essex, VT 05452
www.LDengineering.com



September 8, 2021

Valerie Capels, Town Administrator
Town of Bristol
P.O. Box 249, 1 South St
Bristol, VT 05443

SENT VIA EMAIL

Re: Request for Proposals - West Street Crosswalk Design

Dear Ms. Capels:

Lamoureux & Dickinson is pleased to submit our Proposal to provide engineering services in response to the RFP issued by the Town of Bristol for the West Street Crosswalk Design.

Lamoureux & Dickinson is committed to improving Vermont's future. From our office in Essex, our work has taken us to the four corners of Vermont. As you will see in the attached Proposal, we have successfully designed safe pedestrian crosswalks in similar challenging locations. We look forward to this opportunity to work with you, town staff and residents to complete the design of the proposed crosswalk.

Please feel free to contact me if you have any questions or if additional information is desired.

Sincerely,


Roger Dickinson, PE, PTOE

enclosures

1.0 INTRODUCTION

Lamoureux & Dickinson Consulting Engineers, Inc. (L&D) is pleased to present our Proposal in response to the Request for Proposals issued by the Town of Bristol requesting engineering services to evaluate existing conditions and to design a pedestrian crosswalk at the intersection of West Street and Firehouse Lane.

L&D has provided transportation planning and engineering, right-of-way surveying and civil engineering services to communities, regional planning commissions and state agencies in Vermont and New York since 1985. Over the past 34 years, our firm has focused on transportation, which has ranged from conceptual alignment studies to the preparation of design plans, contract drawings and construction oversight for projects throughout Vermont. Our firm has been the lead designer of numerous intersection improvement and/or traffic signal projects together with sidewalk and transportation path projects. We are committed to providing a unified approach to transportation and land use planning that provides for safe travel by all users and supports livable communities. We offer a team of highly qualified and experienced transportation engineers, surveyors and technical staff to provide the requested surveying and engineering design services from our office in Essex, Vermont.

In preparing this Proposal, we visited the project site to better familiarize ourselves with existing conditions and the scope of engineering services that will be required for this Project. We also retrieved the design plans for Firehouse Lane from the Act 250 on-line files for the Fire Station and Stoney Hill Residences. Our staff are also familiar with the project area; having worked on numerous projects in nearby towns and throughout Addison County.

2.0 UNDERSTANDING OF THE PROJECT

Firehouse Lane was constructed and dedicated as a town highway in 2016 to serve the Town's new Fire Station. In addition to providing access to the Fire Station, Firehouse Lane will also serve the proposed Stoney Hill mixed-use development which is presently under construction. The Town seeks to construct a safe pedestrian crossing to link the proposed new sidewalk on the east side of Firehouse Lane with the existing sidewalk located on the north side of West Street.



The above photo shows the view from Firehouse Lane looking east along West Street. Sight distances in this direction are excellent. The photo on the following page shows the view from Firehouse Lane

West Street Crosswalk Design

looking west towards Airport Drive and Stoney Hill. Sight distances in this direction are limited by the horizontal and vertical curvature in West St as it crests the top of Stoney Hill. Although the speed limit reduces from 40 mph to 30 mph at Airport Dr, the majority of oncoming traffic from this direction has not yet slowed down to the lower speed limit.



The purpose of this crosswalk design will be to create a safe pedestrian crossing of West Street at Firehouse Lane. If a crosswalk at this location is determined to be inadvisable, then this design project will identify an alternative appropriate location close to Firehouse Lane.

There are two critical factors which our initial evaluation of a crosswalk at this intersection will examine:

- Available sight distances to the west towards Airport Drive.
- Prevailing speeds and visibility times of oncoming eastbound vehicles on West Street between Airport Drive and Firehouse Lane.

From our initial site visit in preparing this Proposal, it appears that there is sufficient safe stopping sight distance (SSD) to the west from the east side of Firehouse Lane for oncoming vehicle speeds up to 40 mph (the SSD on a level grade at 40 mph equals 305 ft). Providing sufficient SSD enables oncoming traffic to slow or stop in the event that a pedestrian is using the crosswalk. On the other hand, it can be alarming for a pedestrian to suddenly see an approaching vehicle as they have just begun to cross. So we also typically examine whether there is sufficient visibility time of oncoming vehicles for a pedestrian to cross the roadway. It appears, from our initial site visit again, that the visibility time of oncoming eastbound vehicles between Airport Drive and Firehouse Lane ranges between 7-8 seconds. Using 7 seconds and a pedestrian walking speed of 3.5 ft/second¹, a pedestrian would be able to fully cross both travel lanes (± 24 ft) of West Street before the oncoming vehicle reaches the crosswalk. As part of our scope of work for this Project, the foregoing will be confirmed by performing more detailed field measurements of sight distances, visibility times and vehicle speeds.

3.0 SIMILAR PROJECT EXPERIENCE

Over the years, L&D has worked on many projects which have included scoping and design of pedestrian crosswalks and safety enhancements. The following highlights several examples of our project experience.

¹ Per *Manual on Uniform Traffic Control Devices (MUTCD)* standards.

Colchester Bike Path - Blakely Road Crossing

As design engineers for the Town of Colchester's Bike Path, we were tasked with designing a safe pedestrian crossing of Blakely Road; a heavily traveled commuter route. The location of the crossing would also link the Colchester Middle and High Schools, located on opposite sides of Blakely Road.

Being a VTrans Local Transportation Facility funded project, the design of the crossing was required to conform to state and federal standards. We were able to document that the proposed pedestrian crossing satisfied the *MUTCD* School Crossing Warrant for a full pedestrian signal by performing field studies showing that there were insufficient gaps in the traffic on Blakely Road to permit pedestrians to safely cross.

Reference: Bryan Osborne, Director of Public Works
phone: 802-264-5620
email: bosborne@colchestervt.gov



Jericho - Riverside School Crossings

In this VTrans LTF funded project for the Town of Jericho, we examined an existing crosswalk which was located at the intersection of VT Route 15 and River Road (which can be seen in the distance in the photo to the right). This project included providing both project scoping and design. The issue was that the existing crosswalk did not have adequate sight distances, and VTrans had requested that it be removed due to safety concerns.

We determined that relocating the crosswalk to the apex of the curve in Route 15 provided adequate stopping sight distances and visibility time of oncoming traffic. The final design of the new crosswalk included gate-posted rectangular rapid flashing beacons (RRFB) with pedestrian crossing signs and new decorative street lighting. Additionally, new curbing was installed on the right-hand side of Route 15 in the above photo to reduce the length of the new crosswalk, to promote slower speeds on Route 15 and to better define the corner with River Road.

Reference: Todd Odit, former Town Administrator (now Hinesburg Town Manager)
phone: 802-482-4206
email: todit@hinesburg.org



North Avenue Signalized Pedestrian Crossings

In this VTrans Safe Routes to School funded project, pedestrian crossings at three existing signalized intersections along North Avenue were upgraded in 2014 to enhance their safety as designated school route pedestrian crossings.

North Avenue is a high-volume major collector street. With City schools providing limited bus transportation for students, walking is the primary mode of student travel to/from nearby schools. In addition, the existing older-generation pedestrian signals were not easily understood by younger students, and the Plattsburg Avenue intersection only had one pedestrian crosswalk across just one of its three approaches.



The existing pedestrian signals were upgraded with new ADA accessible push buttons and count-down pedestrian signal heads. Where needed, existing sidewalk ramps were replaced with ones having detectable warning surfaces. In addition, new crosswalks were added on the Plattsburg Avenue intersection (shown in the above photo) and the corner radii modified to reduce the length of the crosswalk across Plattsburg Avenue.

*Reference: Laura Wheelock, Senior Public Works Engineer
phone: 802-338-2125
email: lwheelock@burlingtonvt.gov*

North Avenue Unsignalized Pedestrian Crossings

In a continuing effort to improve pedestrian access and safety along North Avenue, the City of Burlington engaged L&D in 2016 to design new crosswalks at five intersections along the length of North Avenue. These five intersections were interspaced between the signalized intersections of the earlier crossing improvement project, and were identified by the City as being locations which were being used by pedestrians (instead of walking to the closest signalized intersection and crossing there).

We designed new crosswalks which included gate-posted RRFB's and signs at each location. The photo on the right shows a curb extension which was installed on one of the crosswalks in a section of North Avenue on which on-street parking is permitted on one-side of the street. The curb extension reduces the length of the sidewalk and provides better visibility of oncoming traffic around nearby parked vehicles. The crosswalk improvements also upgraded the existing street lighting at each location for improved safety during night-time hours. This project was also funded by the VTrans LTF program.



*Reference: Laura Wheelock, Senior Public Works Engineer
phone: 802-338-2125
email: lwheelock@burlingtonvt.gov*

4.0 QUALIFICATIONS OF OUR KEY STAFF

L&D has the following professionals ready to begin work on this project immediately upon award of the contract by the Town:



Roger Dickinson, PE, PTOE - Roger is a licensed Professional Engineer and Professional Traffic Operations Engineer with over 35 years of designing and permitting transportation and infrastructure projects throughout the State of Vermont. His experience in dealing with VTrans at all levels and on many similar projects will be invaluable as Project Principal. Roger will be L&D's principal in responsible charge of completing this Project, and will be L&D's point of contact for day-to-day progress and communication.

Doug Henson, LS, EI – Doug is a project engineer and a licensed Land Surveyor with over 30 years of route surveying, land record research, sidewalk design and transportation path design work. Doug is very familiar with projects of this type through his previous design experience preparing plans and contract documents, along with being involved during construction, for numerous roadway and sidewalk projects. Doug has also developed an in-depth understanding of VTrans construction procedures and requirements by serving as the Local Project Manager for projects in Colchester and South Hero as well as leading the design team efforts for over twenty sidewalk and transportation paths throughout Vermont and New York.

Resumes for our key project team members are enclosed in **Attachment A**.

L&D brings a strong background and wealth of experience in design engineering to this Project. Having served as designers on numerous local transportation projects, Roger and Doug are familiar with state and federal design standards and environmental processes applicable to transportation projects such as this. Applying our experience and multi-disciplinary approach, we strive to develop workable solutions that minimize impacts on existing natural and cultural resources. We also bring extensive experience in leading successful public participation processes, such as public forums and informal working sessions. In our effort to provide excellent service to our clients, we are committed to meeting deadlines in the project schedule once they are set and agreed upon by the team. Our team is available to begin working with the Town of Bristol as soon as the contract is awarded. We have the resources to perform the work and will be able to complete this Project as outlined in the Request for Proposals.

As a result of working on numerous VTrans Local Transportation Facility projects, we are very familiar with the state and federal requirements and regulations that pertain to the planning, design and engineering, right-of-way and permitting of roadways and intersection improvements for villages, towns and schools. This experience has allowed our staff to build excellent working relationships with the VTrans Highway, Traffic, Environmental and Right-of-Way sections.



Through our extensive work throughout Vermont, we are very familiar with the American Association of State Highway and Transportation Organization (AASHTO) Policies on Geometric Design of Highways and Streets and on Pedestrian and Bicycle Facilities, the American with Disabilities Act (ADA), and Vermont Agency of Transportation (VTrans) manuals, specifications, standards and methods. We have worked through project development and design processes and natural resource permitting on numerous transportation projects throughout Vermont. Our experience working in all types of VTrans funded projects, from stormwater remediation projects to sidewalks, transportation paths, roadways and scoping studies; and working in a variety of roles (design engineer, resident engineer, and municipal project manager) has provided us with a thorough understanding of project development, design, permitting and construction.

Through continuing education and participation in professional organizations, our staff also maintains proficiency in emerging technologies, accepted engineering design standards and practices, and in staying abreast of the ever-changing federal and state permitting regulations and processes.

L&D also has extensive experience at presenting information to the general public, municipal boards and commissions, and governmental agencies, both at formal and informal hearings and working sessions. In addition, L&D staff have developed effective skills in working with property owners during the process of leading numerous transportation related projects. These essential services include meetings throughout the planning and design phases, coordinating property appraisals and negotiations with landowners. Our experience has been that successful projects depend on establishing a relationship with affected landowners at the beginning of the project and maintaining it throughout the work.

Our survey staff is experienced in boundary and topographic surveys as well as with route surveys along roadways, and use the latest in survey technology, including robotic total stations and survey grade GPS. Having completed numerous VTrans bicycle and pedestrian projects throughout the state, our crews are familiar with the type and amount of information that is needed and are able to obtain that information in a timely and efficient manner. We also work closely with local communities and the state on determining existing and needed rights-of-way for designing and constructing projects.

Successful scoping and design projects are created in large part by working as partners with municipalities, regional planning agencies and VTrans. We strive to integrate the design and engineering processes necessary to provide the desired project results, to ensure good communication and timely decision making in order to ensure good communications, timely decisions, maintaining the desired project schedule, and a responsive end product. Our work utilizes commonly used word processing, spreadsheet and presentation software together with CAD based survey and computer-aided design software. Our firm employs a successful Quality Assurance Program, which emphasizes accuracy and

quality. Additionally, we focus on teamwork both internally and in partnership with our clients and other consultants in order to meet the demands of each project.

In summary, L&D offers an outstanding opportunity to complete a successful alignment analysis to be used to advance this Project to construction.

5.0 **PROJECT SCOPE OF WORK**

The main elements of our Scope of Work and approach are outlined below, based on the tasks listed in the RFP. The tasks outline our suggested method of completing the analysis of the proposed roadway realignment.

Task A: Collect Existing Conditions Data & Conceptual Crosswalk Layout

- Hold a kick-off meeting with the Town and other invited persons and agencies to:
 - review the limits of the Study Area;
 - review the proposed work plan for this Project;
 - obtain property data (highway right-of-way, property surveys & deeds) and utility mapping (CAD files of Firehouse Lane, if available, would be very helpful);
 - confirm the public involvement program;
 - refine the proposed project schedule;
 - define lines of communication, and;
 - discuss potential issues.
- Prepare and distribute notes from the start-up meeting for review and acceptance.
- Develop a base map of the Study Area using available Firehouse Lane and Stoney Hill Business Park design plans, VCGI digital orthophoto(s) and LIDAR contours.
- Perform a limited topographic survey of the study area. The topographic survey will confirm the locations of existing property monumentation, roadways, sidewalks and utilities. The topographic survey will also establish horizontal and vertical control points for construction purposes.
- Gather existing traffic volume data, crash records, and right-of-way data as may be available.
- Perform a speed study of eastbound traffic on West Street between Airport Drive and Firehouse Lane.
- Measure existing available sight distances along West Street in both directions from Firehouse Lane.
- Field verify information on the base map and add relevant information (e.g. underground utility locations and sizes).
- Identify sensitive environmental and cultural resources using the *VT ANR Natural Resources Atlas*.
- Prepare an Existing Conditions Summary utilizing both written and graphic formats.
- Prepare a Conceptual Crosswalk Plan showing potential crosswalk alternatives and options.
- Submit the Existing Conditions Summary and the Conceptual Crosswalk Plan to the Town for review.

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- Present the Existing Conditions Summary and the Conceptual Crosswalk Plan, and review potential crosswalk design / location options with the Selectboard at a regularly scheduled Selectboard meeting.

Deliverables: Digital notes from the start-up and review meetings; paper and digital versions of the Existing Conditions Summary and Conceptual Crosswalk Plan, including a base map showing existing conditions, environmental/cultural resources, utilities, opportunities and constraints.

Task B: Crosswalk Engineering Design

- Based on Selectboard and public input received, we will then proceed with developing a crosswalk layout / design plan showing the proposed crosswalk and new sidewalk connections, together with its selected traffic control elements (i.e., RRFB, signs, pavement markings, street lighting, etc.)
- Prepare detail sheets and specifications for the above.
- Prepare an engineer's opinion of probable cost using VTrans' *Estimator* software and cost data.
- Identify likely permits needed to construct the proposed crosswalk.

Deliverables: Title, Layout and Detail plans detailing the design of the proposed crosswalk. General and material specifications suitable for construction. Completed applications for needed permits.

6.0 **PROJECT SCHEDULE**

We are able to begin work on this Project immediately once awarded by the Town. We will also strive to fast-track our work so as to complete the above tasks and provide the Town with construction-ready plans and specifications within four (4) weeks. Depending on the timing of the Selectboard meeting, however, a six (6) week project schedule may be more likely.

7.0 **PROPOSED ENGINEERING FEE**

Our proposed engineering fee for this Project is shown in **Table 1** on page 9. Table 1 outlines our current direct labor, overhead, fixed fee rates and our estimated direct expenses. Table 1 also breaks down the estimated hours for each task by labor category.

Our estimated engineering fee for this Project is **\$8,032**.



Table 1 - Proposed Hours by Task and Labor Category / Engineering Fee

DESIGN ENGINEERING TASKS	PROJECT ENGINEER R. Dickinson	SURVEYOR/ ENGINEER D. Henson	ENGINEER N. Smith		ADMIN. / CLERICAL Staff	TOTAL HOURS
Kick-Off Meeting	2					2
Prepare Base Map (incl. Utility & R.O.W. info.)	2		4			6
Topographic Survey		8				8
Identify Natural Resources & Other Constraints	1					1
Measure Sight Distances	2					2
Perform Speed & Visibility Time Studies	4		4			8
Prepare Conceptual Crosswalk Plan	8		2			10
Draft Ex. Conditions Summary	4					4
Selectboard Presentation	4					4
Prepare Final Crosswalk Plan & Detail Sheets	8		4			12
Draft Specifications	4					2
Earthwork & Quantity Calculations	2					2
Preliminary Cost Estimate	2					2
Prepare Permit Applications	2				2	4
Submit Plans, Specifications & Cost Estimate	4					4
Total Hours	49	8	14	0	2	71
Hourly Rates	\$46.00	\$42.00	\$31.00		\$22.00	
Labor Cost	\$2,254.00	\$336.00	\$434.00	\$0.00	\$44.00	
				Total Direct Labor		\$3,068.00
				Overhead (130.6%)		\$4,006.81
				Fixed Fee (10%)		\$707.48
				Expenses:	Mileage	\$200.00
					Reproduction	\$50.00
				Total Engineering Fee		\$8,032.29



ATTACHMENT A
Professional Resumes



EDUCATION

University of Vermont
B.S. Civil Engineering, 1976

YEARS AT L&D: 29

AREAS OF EXPERTISE

- Transportation Engineering
- Water Supply Engineering
- Construction Engineering
- Land Development & Subdivisions
- Permitting

GRANT EXPERIENCE

- VTrans & FHWA Transportation Funding
- Vermont Drinking Water & Wastewater Revolving Loan Funds

TRAINING/CERTIFICATIONS

- Registered Professional Engineer, VT
- Professional Traffic Operations Engineer

PROFESSIONAL AFFILIATIONS

- American Society of Civil Engineers
- Institute of Transportation Engineers

Roger Dickinson, PE, PTOE

Project Role: Project Principal

Roger is a licensed professional engineer and nationally certified Professional Traffic Operations Engineer with Lamoureux & Dickinson (L&D). He has been responsible, as Project Principal and Manager, for coordinating teams involved in civil and transportation engineering design, analysis and permitting of numerous projects at L&D.

His work includes performing transportation studies and impact assessments, and preparing design plans, construction details and specifications for roadway and intersection improvements, transportation paths, subdivisions, site plans and water supply systems. He is also a qualified expert witness, and has provided testimony in state and local permit hearings and appeals.

Roger also has extensive experience in providing construction engineering services including bid services, construction observation, contract management, review of shop drawings and material submittals, and processing change orders and pay requests.

Relevant Experience

Main Street/Railroad Square Intersection Study, City of Newport - Project principal responsible for preparing an intersection study examining potential intersection alignment and traffic control improvements.

East Hill Road Master Plan, Towns of Richmond & Williston - Project principal responsible for examining existing conditions and identifying needed long-range improvements to a rural collector road between Richmond and Williston having high commuter traffic volumes and being a popular bicycle route.

Fort Ethan Allen East Gate Intersection Improvements, Chittenden County Transportation Authority - Responsible for the design of a new traffic signal, intersection improvements and, historic gate restoration at Fort Ethan Allen's East Gate. Roger also provided on-site construction observation and engineering services for this project.

Rutland Downtown Transportation Study, City of Rutland - Project principal of a transportation planning study that examined options for redevelopment of the Evelyn St area and modifications to the one-way traffic circulation pattern on Wales St.

US 2 / US 302 Roundabout, City of Montpelier - Project principal overseeing and managing the scoping and engineering design of a new roundabout replacing an existing signalized intersection. The project also involved the design of new railroad crossings and reducing the number of lanes on Route 2 between Pioneer St and US 302 in order to provide new bike lanes and sidewalks.

Pearl St Link Streetscape & Sidewalk Improvements, Village of Essex Junction - Project principal overseeing and managing the engineering design of new sidewalks, roadway widening, paving, traffic signals and street lighting to a segment of the Pearl Street (VT Route 15) corridor through the Village. This project included extensive streetscape design elements in order to enhance safe pedestrian circulation along this heavily traveled corridor.

Finney Crossing, Snyder Homes - Project principal responsible for preparing a comprehensive traffic impact assessment for a large mixed-use development consisting of 600 residential units and 130,000 sf of retail/commercial space adjacent to Taft Corners in Williston.



EDUCATION

University of Vermont
B.S. Agriculture, 1984

YEARS AT L&D: 32

AREAS OF EXPERTISE

- Land Surveying
- Civil & Highway Engineering
- Construction Engineering
- Land Development & Subdivisions

GRANT EXPERIENCE

- VTrans & FHWA Transportation Funds

TRAINING/CERTIFICATIONS

- Licensed Land Surveyor, VT
- Engineering Intern, VT
- Vermont Society of Land Surveyors

Douglas Henson, LS, EI

Project Role: Project Manager & Chief Surveyor

Doug has been responsible for coordinating teams involved in field surveying and land record research, construction layout, design, analysis and permitting of various projects at Lamoureux & Dickinson.

Doug has performed property surveys and land record research throughout Vermont. His work has also included preparing design plans, construction documents, assisting with local and state permit applications, and follow-up to obtain local, state and federal permits and approvals. His recent projects have included commercial and residential site plans, residential condominium projects, and transportation paths projects throughout Vermont.

Relevant Experience

Intervale Bike Path, City of Burlington - Responsible for the design of a new 2 mile bike path paralleling VT Route 127 in Burlington's Intervale. This project included the design and construction of a new boardwalk over a significant wetland and of a new bike path overpass bridge over the New England Central Railroad.

Bike Path, City of Newport - Served as the project manager and chief designer for a new 2.1 mile bike path along the waterfront of Lake Memphremagog in Newport. This project required extensive work with regards to survey and right-of-way acquisition.

Brookfield/Roxbury Town Line, State of Vermont - Performed extensive land record research and field surveys to reestablish the original town line between the Towns of Brookfield and Roxbury. This project included the innovative use of then-new GPS survey technology to efficiently survey over long distances.

Municipal Project Manager, Town of Colchester - Provided municipal project management and construction engineering services to the Town of Colchester on two highway and pedestrian design projects: the Campus Connector linking Fort Ethan Allen and St. Michael's College, and the Exit 16 Sidewalk Project.

Williston Route 2A Bike Path, Town of Williston - Responsible for the design of a new shared use bike path paralleling VT Route 2A from the Power House Bridge south to River Cove Road. This project required extensive coordination with adjoining property owners and right-of-way acquisition.

Essex Center Sidewalk, Town of Essex - Responsible for the design of new sidewalks along VT Route 15 in Essex Center. The project included new landscaping and street lighting at the Town Green.

The Island Line Bike Ferry, South Hero - Provided municipal project management for the design and construction of new bike ferry facilities at the Cut on The Island Line bike path.

