

Technical Proposal  
for Engineering Services  
Bicycle and Pedestrian  
Scoping Study

Charlotte Town Link Trail

Submitted to the  
**The Town of  
Charlotte, VT**

June 23, 2016

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# **HOLDEN**

**ENGINEERING & SURVEYING, INC.**

A-1

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June 23, 2016

1620290

Dean Bloch, Town Administrator  
Town of Charlotte  
159 Ferry Road  
Charlotte, VT 05445

**RE: Proposal for Engineering Services:  
Bicycle and Pedestrian Scoping Study**

Dear Dean:

Holden Engineering & Surveying, Inc. (*HOLDEN*) appreciates this opportunity to submit our *Qualifications* to provide engineering services regarding the bicycle and pedestrian scoping study in Charlotte.

We have visited and photographed the site, evaluated existing conditions, identified site constraints, and reviewed the request for proposal scope of work for this project. Through these investigations, we have gained a clear understanding of the elements and design issues that surround this proposed multi-use path and how these improvements should tie into the overall plan for the trail sections that will connect to an existing section of the Charlotte Town Link Trail.

Why choose *HOLDEN* for this project?

Our relevant project experience includes the design of more than 25 miles of pedestrian and bicycle facilities. This experience ensures safe, ADA compliant facilities that meet community goals for aesthetic character, safety, schedule, and budget. We have designed numerous intersections (unsignalized and signalized) with crosswalks. This experience enables *HOLDEN* to develop appropriate treatments for pedestrian and bicycle traffic at intersections and any cross connections within this project. We have also performed corridor studies for assessing traffic patterns and recommended improvements. This *HOLDEN* experience ensures the comprehensive assessment of alternatives for handling the traffic, bicycle, and pedestrian patterns at the intersections and potential cross connections.

On previous similar bicycle & pedestrian projects in Vermont, *HOLDEN* has leveraged its expertise in applying the guidelines outlined in the VT AOT Municipal Assistance Bureau's **Local Projects Guidebook for Locally Managed Projects**. In addition to designing a pedestrian safety project in Brattleboro, *HOLDEN* worked with the Town of Arlington and the Bennington County Regional Commission to develop a scoping study for creating a safe pedestrian corridor along VT Route 7A. *HOLDEN* also developed pedestrian & bicycle scoping and feasibility studies for the Towns of Springfield and Dover. *HOLDEN* was recently awarded an additional pedestrian & bicycle scoping study along VT Route 100 in Dover.

Sensitivity to environmental concerns and knowledge of environmental permitting requirements will be another critical aspect of this project. The proposed multi-use path runs through and adjacent to several wetlands areas. *HOLDEN* developed an Environmental Impact Study along highway corridors and also has designed and permitted hundreds of other municipal projects that were located adjacent to environmentally sensitive areas. This experience ensures that *HOLDEN* will deliver wetlands-friendly alternatives that streamline the permitting process.

This project's trail alignment potentially abuts more than 25 properties. We have completed hundreds of projects requiring ROW surveys and abutter notifications, which demonstrates *HOLDEN's* ability to work with abutters through early and continued involvement throughout a project. We also are committed to continuous communication with the municipal stakeholders for each project to ensure community consensus, permitting, schedules, and budgets stay on track.

Another important engineering aspect of this project will be the attention to details required under projects funded through the NH DOT Municipally-Managed Programs and other state and federally funded grants projects. These qualifications provide dozens of project examples with descriptions and photos of *HOLDEN* municipally-managed projects that were funded through a combination of municipal, state, and/or federal funds.

Our in-house staff members possess the necessary skills and experience for designing in-street bicycle & pedestrian facilities and multi-use paths that meet the Town's budget and safety goals. Our supporting staff of engineers, surveyors, and CADD technicians that will be made available for this project represent more than 300 years of combined experience, with multiple personnel redundancies for each required project task. I, Peter Holden, will serve as the Project Manager, and Bill Rossignol, P.E. will serve as the Engineering Director / Senior Design Engineer. During the past 22 years, Bill and I have teamed together for the key roles on more than 150 municipal projects, and we will look forward to the opportunity to complete similar projects in Charlotte.

These qualifications include a demonstration of our expertise in sidewalk/bicycle safety scoping studies, sidewalk design, bicycle/multi-use path design, pedestrian safety improvements, intersection/crosswalk design, permitting, and drainage design. We have also included our engineering qualifications that reinforce our experience with providing engineering for NHDOT LPA and municipally-managed projects as well as our familiarity with the fundamentals, processes, and requirements of working on state or federally funded transportation projects.

I look forward to talking with you soon.

Sincerely,



Peter D. Holden  
Vice President

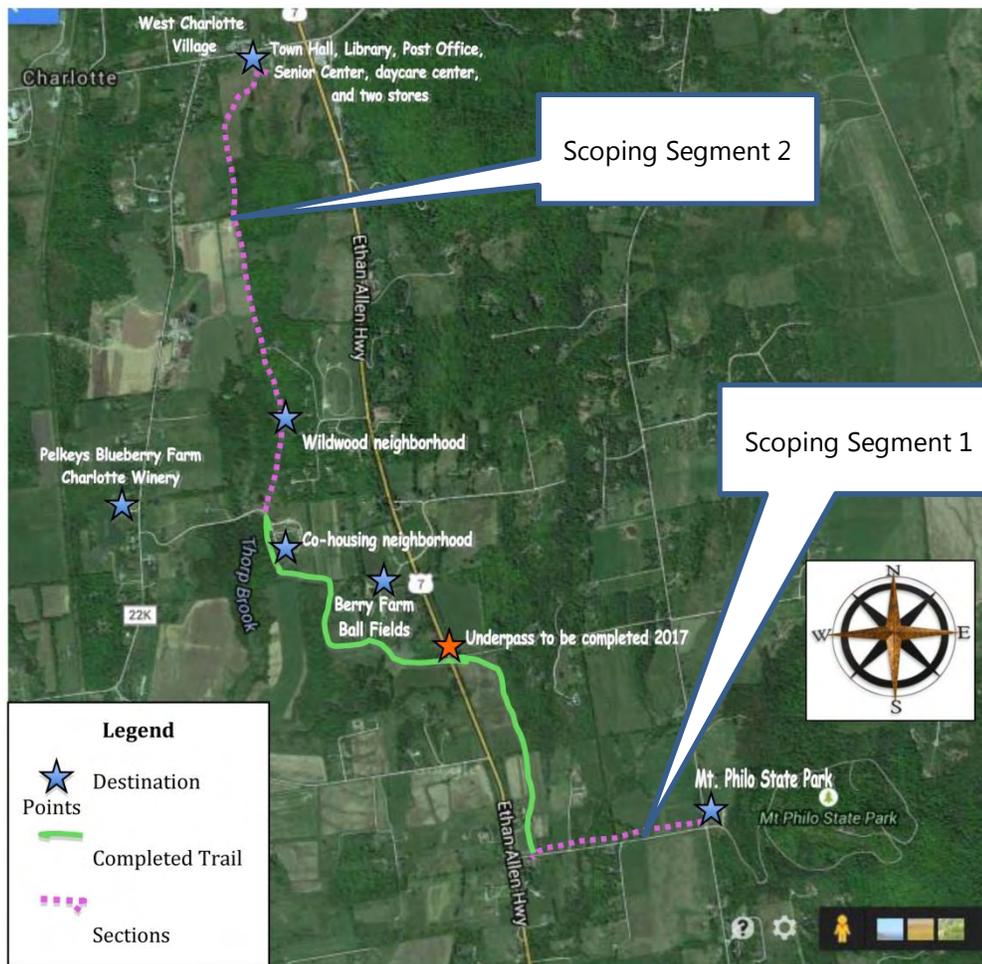
Holden Engineering & Surveying, Inc.  
(603) 472-2078

## 2. APPROACH TO THE PROJECT

### Understanding of the Project

The Town of Charlotte has received funding through the 2015 VTrans Bicycle & Pedestrian Program to provide scoping for and identify issues with construction of a pedestrian/bicycle facility in Charlotte. The Town is seeking assistance from qualified firms to provide planning services to identify issues associated with possible construction of a multi-use path. Standards, tasks and products are outlined in the scope of work segment of this technical proposal. There are two completed segments of the Charlotte Town Link Trail (a multi-use path)– the Melissa & Trevor Mack Segment on the east side of Route 7, and the Co-housing segment on the west side of Route 7. When the underpass of Route 7 is completed in 2017, these two segments will be joined into a two-mile completed multi-use path.

The Town seeks to scope two segments that would extend the completed portion of the path on both ends to two important destination points: Mount Philo State Park (to the southeast), and the west Charlotte village (to the north). The scoping work would look at 1) connecting Mount Philo State Park to the southerly end of the Melissa & Trevor Mack Trail via a bicycle/pedestrian facility along State Park Rd. (approximately .5 miles), and 2) connecting the northerly end of the Co-housing Segment to the west Charlotte village via a new multi-use path (approximately 1.5 miles).

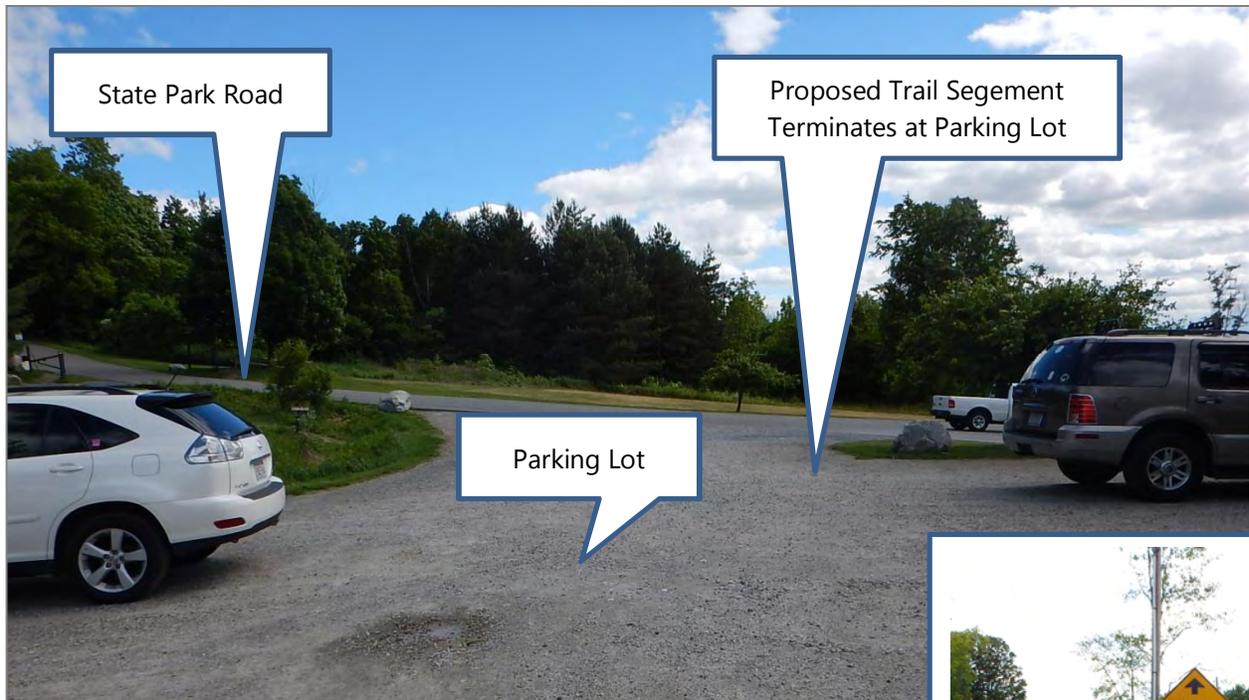


## Existing Conditions

Holden Engineering & Surveying, Inc. (**HOLDEN**) investigated and photographed the project area to document the existing conditions and site constraints for this project:

## Parking at Mt. Philo State Park

The first scoping study segment terminates on the east end at the parking lot for Mt. Philo State Park. This location will involve a mix of vehicles, pedestrians, and bicycles. Sight distances, signage and other traffic calming measures will be reviewed for this location.



## Existing Multi-Use Path

The goal of this scoping study is to develop alternatives that will tie into the southern and northern ends of an existing segment of the Charlotte Town Link Trail. Combined with the existing segment and an underpass to be constructed, the proposed new trail segments would open a continuous multi-use path travel corridor from Mt. Philo State Park to the Town Hall and other public buildings near Ferry Road.



## Drainage

Drainage throughout the study area is conveyed primarily through overland flow from open fields or through wooded areas..

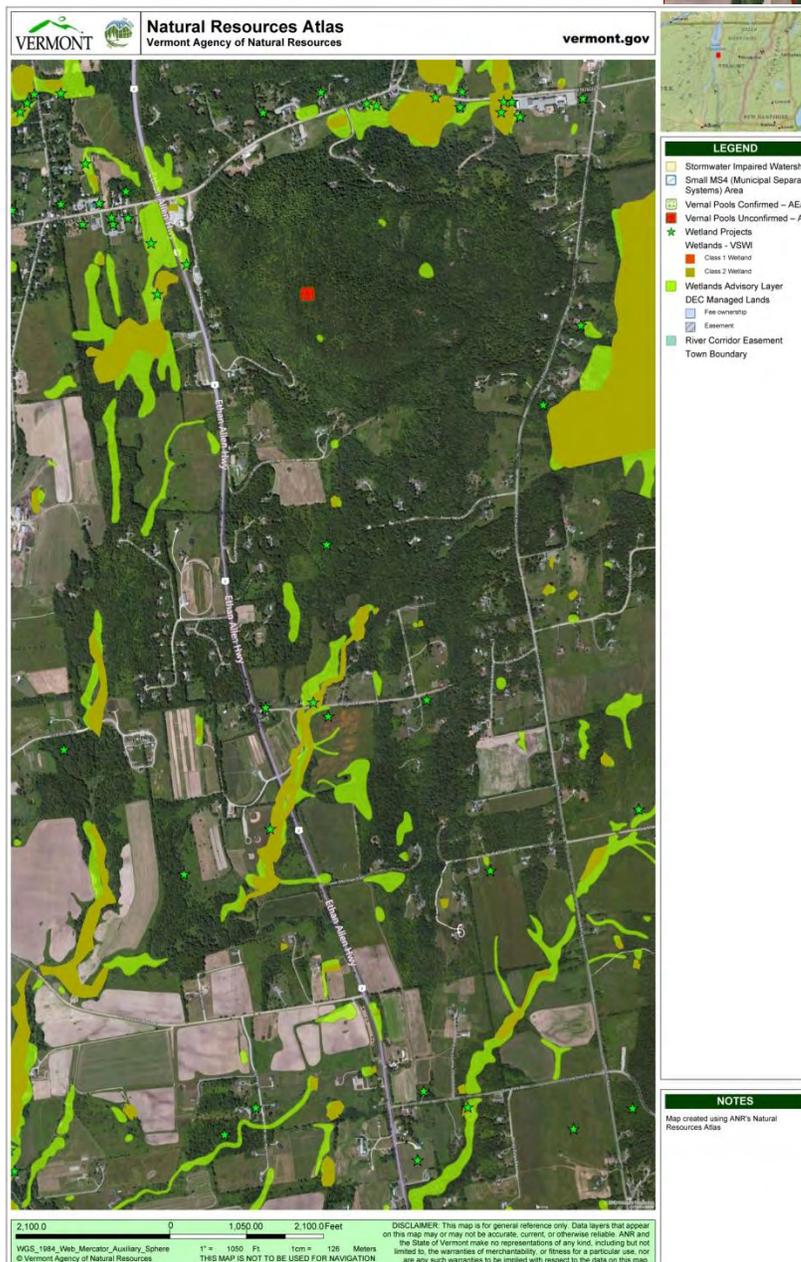
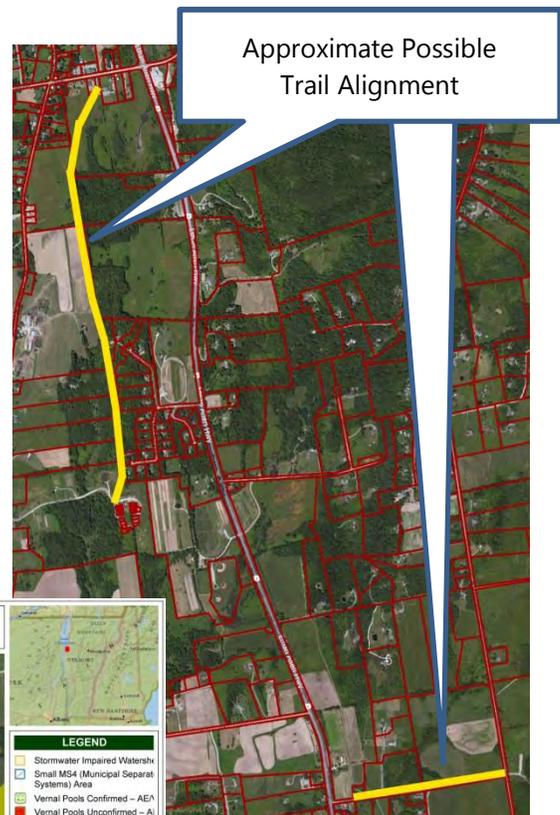


## Proximity of Abutters

Throughout the length of the project area, abutters can potentially cause additional constraints and issues for the available width for pedestrian and bicycle considerations.

## Wetlands Considerations

The proposed trail alignment is adjacent to and/or parallels potential wetland areas at multiple locations. Identification of potential wetlands locations will be an important aspect of determining viable alignment alternatives and when developing final design.



## Project Approach and Opportunities for Improvements

### Achieving Success

*HOLDEN*'s primary goal on this project is to recommend improvements that meet the Town's needs for pedestrian and bike travel, while maintaining the aesthetic character of the area. This approach is accomplished by our high sensitivity to property frontages, with a mindset to minimize impacts and preserve as many existing features (such as landscaping & mature trees) as possible. Additionally, we will pay an inordinately high level of attention to stormwater runoff to ensure that drainage from the project is properly routed to avoid adverse effects.

This project will be a success if all travelers passing through the area come to recognize, understand, and conduct themselves in a safe manner, cognizant of the fact that there are multiple modes of travel interacting with one another. Our scoping study will consider alternatives that convey a message to drivers that this is an urban center of activity and will bring their attention to the presence of other road users on sidewalks, in crosswalks, and along bike lanes.

### Crosswalks

Positioning, width, and surface treatment will be evaluated at each potential crosswalk location. Appropriate signing and crosswalk awareness devices can be added to help improve safety for all pedestrians using the proposed sidewalk system. All crosswalk locations will need to be coordinated with and approved by the VTrans Traffic Operations section. Traffic calming measures such as signage, pavement markings, bump outs, textured pavement, and signalization will also be evaluated.

### ADA Compliant Sidewalk Specifications

Throughout the study area, *HOLDEN* will ensure that scoping study alternatives meet the Americans with Disabilities Act (ADA) Accessibility Guidelines and other applicable State and Federal requirements. Alternatives will include ADA compliant ramps at intersections and crosswalks.

### Travel Speeds and Driver Awareness

The proposed path will parallel State Park Road and potentially cross streets at Common Way Street and at the northern termination point near Ferry Road. Additional signing, pavement markings, and traffic calming techniques may be warranted in these areas as we seek to enhance driver awareness of traffic entering/exiting properties, as well as pedestrian and bicycle traffic. Our scoping study will evaluate traffic movements, patterns, and sight lines in these areas. We will make recommendations for geometric improvements as we implement pedestrian and bike lane (or path) features.

### Roadway Signage

Existing signage should be reviewed to develop recommendations for signage related to pedestrian, bicycle, and vehicular traffic. Additional pavement markings, signage, and other alternatives should be considered to better alert drivers and enhance driver awareness of pedestrians, bicycles, and entering/exiting traffic from properties.

### Design Details

Given the characteristics of this project, suggested improvement alternatives must pay an inordinate amount of attention to details as there are many features that must be considered. These considerations must address sideline features such as trees, buildings, fences, walls, landscaping, driveways, walkways; and in-street features such as utility poles, curbs, sidewalks, crosswalks, fire hydrants, signs, storm drains, underground utilities with manholes, street trees and lighting. The recommended improvements will

address the impacts on these features, working within the boundaries of the existing Right-of-Way. **HOLDEN** has successfully completed numerous designs in village/urban settings. William C. Rossignol, PE, with more than 35 years of roadway design experience, will be the lead senior engineer on this project.

**Specific attention and consideration will be given to:**

- Rights of Way (This is a State Right-of-Way)
- Previously planned and designed improvements
- Assurance of continuity with all forms of travel where this project interfaces with others at its limits
- Minimizing project impacts on adjoining residential and commercial properties
- Communication with project abutters
- Effects on businesses
- Parking for businesses
- Interaction between vehicles, bicyclists, and pedestrians – safe maneuvering at low speeds
- Feature visibility and identification using paint, textured surfaces, signing and/or lighting
- Storm drainage and storm water treatment
- Relocation of existing utilities
- Budget constraints
- Avoiding and minimizing environmental impacts
- Landscaping
- Erosion and Sediment Control
- Aesthetics and Visual Quality

**Communication with Abutters**

Recognizing that there is a potential for both support and resistance from adjoining property owners, **HOLDEN** places an incredibly high amount of attention on communication with project abutters early on, and through the life of the project. It is only through such communication that abutters can come to understand the details of the layout, the impacts on their property frontages, and how those impacts will be mitigated. This communication process is vital in keeping the project moving forward, and helps immensely in diffusing issues before the preliminary plans are presented at public meetings.

**Interfacing with Adjoining Properties, Sideline Impacts**

Early and continuous involvement with Town officials and project abutters will be key in helping us develop alternatives that will achieve the community's vision for safety and aesthetic appeal. The Kickoff and Local Concerns meetings will provide the first opportunity for **HOLDEN** to listen and compile lists of key issues and concerns regarding the planned improvements. This information will help set the stage for developing alternatives that meet the vision. **HOLDEN** has extensive experience in communicating proposed improvements and footprint impacts to abutters, and working as a liaison to gain community support and consensus.

Throughout the project **HOLDEN** will evaluate the impacts of the proposed improvements to each individual property. Any landscaping, driveways, mailboxes, etc. that are to be disturbed will be discussed with each property owner to determine how to best mitigate impacts and ensure that each item is considered in the final recommendations. Meetings with property abutters should be conducted at an early stage in this project. This will be critical to developing an understanding of the existing problems and conveying potential project impacts. Support for the work from project abutters is essential to the success of the project.

## Storm Drainage

The existing drainage primarily consists of directing runoff from the roadway onto the shoulder areas. Depending on the type of bicycle path treatment (increased shoulder width or paved path), the drainage runoff may be increased and/or redirected. *HOLDEN* will evaluate the existing storm drainage characteristics and provide recommendations for alternatives for handling storm runoff. The most significant task will be identifying critical areas and performing the recommendations for needed modifications. The positioning of any existing drainage structures will be evaluated as we prepare a new typical section for the travel lanes, shoulders, grass buffers, and the multi-use path itself.

All multiuse path alternatives will interface with existing driveways, with ADA compliant tip downs on either side of a driveway or break in the sidewalk. The grading of the path will be evaluated to develop recommendations that accommodate storm water runoff so that it is directed away from private driveways and parking areas.

## Underground and Overhead Utilities

*HOLDEN* will assess project impacts with any existing overhead utilities such as poles, power, and lighting as well as underground utilities such as sewer, water, gas, telephone, and storm drainage. With the introduction of a new sidewalk and bike lane comes the potential need to relocate above ground utilities and raise/adjust existing underground utility covers (drainage/sewer) and water shutoff covers. These modifications are commonplace for this type of construction.

Our scoping study will also outline how storm drainage modifications will have to be coordinated with the location of other underground utilities to avoid conflicts with various piping systems. Drainage modifications will require close coordination with existing utility owners/departments so that the recommended modifications can be approved (for utility clearances) in a timely manner. If the utility companies will perform the needed work themselves, such work will have to be included into the master schedule so that desirably it is completed in advance of the general contractor's project work.

## 3. SCOPE OF WORK

In general, the scope of this project will consist of a planning process that identifies the needs of pedestrians and bicyclists within a defined area taking into consideration the existing conditions. The outcome of the process will be:

- An identification and prioritization of improvements
- A public involvement process to ensure local input and support of projects
- An assessment of historic, archaeological and environmental constraints
- Clear, written documentation of project issues and overall feasibility
- A complete preliminary cost estimate for further engineering, project administration and construction

The draft and final reports will include the elements of the recommended outline included as Attachment A.

More specifically, the project will include the following tasks:

### A.) Project Kickoff Meeting

Meet with Town and State officials (VTrans Bicycle and Pedestrian program staff or Transportation Alternatives Coordinator) and a local project steering committee to develop a clear understanding of the project goals, objectives, timelines and deliverables.

## **B.) Compile Base Map/Document Existing Conditions**

Compile a base map using available mapping including VT Digital Orthophotos, digital parcel maps for the Town, and natural and archaeological resource GIS data available from the Chittenden County Regional Planning Commission (CCRPC) or the Vermont Center for Geographic Information (VCGI). Also use, as applicable, existing engineering project information developed by a University of Vermont civil engineering class. The compiled information must be in an ESRI compatible format. Typical sections and other engineering type drawings will be created with up-to-date CAD software. Existing conditions to be noted include presence of existing pedestrian/bike facilities, roadway widths and grades, subsurface drainage, adjacent topography and vegetation, and any other items HOLDEN feels are appropriate. Additional items to be mapped shall include: all natural resource constraints, slopes/grades, utilities, historic and archaeological constraints, etc. Additionally, HOLDEN will collect traffic information such as Average Daily Traffic and speed data, pedestrian and bicycle counts and available crash data. HOLDEN may elect to undertake a topographic survey to more accurately map roadway widths, location of existing buildings, natural and man-made drainage facilities and any other features that may be critical to the design of the project.

## **C.) Local Concerns Meeting**

HOLDEN will organize and moderate a local concerns meeting with Town representatives and State officials and the public to develop a clear understanding of the project goals, objectives and concerns. This meeting may be an opportunity to discuss any future maintenance issues or concerns with the proposed project. As an outcome of the local concerns meeting and the project kickoff meeting, HOLDEN will develop a Project Purpose and Need Statement for proposed improvements. HOLDEN will generate this statement based on local input and an understanding of existing conditions. Items that may be discussed (especially for shared use paths) are what different user groups are anticipated/desired (e.g. walkers, bicyclists, cross country skiers in winter, etc.) and what route and surface type is desired, and what improvements may be needed.

## **D.) Identify Land Use Context**

HOLDEN will identify the existing and proposed land uses in the project area as well as the overall context of the area where the project is proposed (e.g. rural, suburban, village area, etc.) Based on existing land use patterns and potential connections to planned or existing pedestrian and bicycle facilities, HOLDEN will document predicted and existing pedestrian/bicycle travel patterns to gain an understanding of the best location for new pedestrian/bike facilities.

## **E.) Develop Conceptual Alternatives**

In cooperation with the Town staff and the steering committee, HOLDEN will be responsible for identifying potential alternatives for the proposed bicycle and pedestrian facilities utilizing the information compiled for the base plan, and site visit(s). Conceptual alternatives should also include roadway crossing needs, where applicable. If a shared use path paralleling a road is proposed, the alternative of providing on-road accommodation for bicyclists should be discussed. If a proposed alignment includes off road (shared use path) and on road bike facilities, discuss how these transitions will be made. HOLDEN will also review the proposed alternatives with regard to their respective abilities to meet the Americans with Disabilities Act Accessibility Guidelines and other applicable State and Federal requirements, and

document any prospective non-compliance and potential reasons that non-compliance may be deemed acceptable. If the proposed improvement covers a large distance and will likely be implemented in phases, HOLDEN shall make suggestions about how to break up the project into logical segments. HOLDEN will develop typical sections for the different alternatives that show basic dimensions and, if applicable, where the facility is located within existing road rights of way and in relation to travel lanes, shoulders, drainage facilities, utility poles, existing large trees and other features.

Note that if proposed alternatives lie within State of Vermont rights-of-way, coordination with various sections of VTrans must take place. At a minimum, the District Transportation Administrator and the Permitting Services section (provide permits for work in State ROW) should be involved. Other possible sections are Traffic Investigations (crosswalks, signs, traffic signal warrants), Structures (bridges and culverts) and Highway Safety and Design (changes in lane configurations or turning lanes). Appropriate staff at the Vermont Department of Forests, Parks and Recreation will be consulted with regard to siting a pedestrian crossing to/from Mount Philo State Park.

### **F.) Identify Right-of-way Issues**

Compile roadway right-of-way and abutting property ownership information along the proposed alignment of the project. This information should identify public/private ownership and any existing easements or restrictions (e.g. Act 250 permits) on affected property. Map right-of-way information on the same base mapping as the existing conditions – Task B). If the project is located along a state highway and will cross existing commercial or residential driveways that are excessive in width, a discussion should be included of the impacts of modifying the driveway to meet current standards (access management). The existing width of state highway right-of-way should be confirmed with the VTrans ROW section. ROW data for the state system can be requested by going to the following link – <http://tinyurl.com/qgv5jua>.

### **G.) Identify Utility Conflicts**

Identify and discuss all public and private underground and overhead utilities (water, sewer, fiberoptics, electric, TV, cable, phone) in the project area. Include a preliminary assessment of whether any relocations will be required. Will the relocations occur outside of the existing Rights of Way? For underground utilities, an assessment should be made of whether they will be impacted by construction of the proposed improvements. The assessment should include identification of owners of potentially impacted utilities.

### **H.) Identify Natural and Cultural Resource Constraints and Permitting Requirements**

Review natural and cultural resource issues including wetlands, surface waters, floodplains, river corridors, lake shorelands, flora/fauna, endangered species, storm water, hazardous material sites, forest land, historic, archaeological and architectural resources, 4(f) and 6(f) public lands, and agricultural lands. Identify potential impacts on these resources and permitting requirements, including the potential for review under Act 250.

All environmental resource work shall be conducted by qualified professionals in that field (i.e. wetland reviews conducted by qualified wetland biologists, historic preservation reviews by historic preservation professionals, archaeological reviews by archaeologists, etc.), and should be well documented in the scoping report. Project area should be delineated on a map. Environmental resource areas should also be delineated/illustrated/or otherwise described on the map.

Historic and Archaeological resources will be reviewed by qualified experts in those fields to determine potential impacts to those resources. For the Historic resources, the correct level of study for above-ground resources would be a reconnaissance-level survey. For Archaeology, the correct level of effort is an "Archaeological Resources Assessment" which involves no excavations, but is to determine where and how much of a proposed project area has "archaeologically sensitive" land

Because an alternative has not yet been selected, all environmental resource ID work shall include the general project area in which all proposed alternatives will take place. If alternatives are provided in the scoping report, then recommendations for the alternatives' effect on environmental resources shall be stated in the scoping report, along with anticipated permit requirements.

When possible, documentation from appropriate state and federal agencies (e.g. Agency of Natural Resources, Department of Fish and Wildlife, Corps of Engineers) should be included to summarize the extent to which resources may or may not be impacted. HOLDEN will identify any permits that will likely be needed for the project.

The Vermont ANR Natural Resource Atlas and BioFinder are web-based mapping tools which may be used to locate natural resource features. The Atlas serves as a quick reference to help determine whether the project is located in a wetland, lakeshore, or river corridor:

ANR NR Atlas: <http://anrmaps.vermont.gov/websites/anra/>

ANR BioFinder: <http://biofinder.vt.gov/biofindermap.htm>

The Vermont Significant Wetland Inventory (VSWI) layer denotes the approximate location and configuration of significant wetlands and does not include all state significant wetlands. The hydric soils mapping indicates additional areas where wetlands may be present. The actual boundaries and presence of wetlands must always be determined in the field by a professional wetland scientist.

The DEC Watershed Management Division has regional lake, river, and wetland scientists who are available to help with project scoping and permitting requirements. For instance, the river scientist can help evaluate river corridors and whether certain types of bike and pedestrian facilities meet the State river corridor performance standard, i.e., fit within these dynamic areas without the application and maintenance of river channelization practices.

Improvements for bicyclists and pedestrians are likely to increase impervious surface area. Especially where a closed, subsurface drainage system is proposed (new or addition to existing), an estimate of new, redeveloped and existing contributing surface areas should be included as well as an assessment of what will be required to obtain a stormwater discharge permit. An estimate of the area of disturbance that will result from the project should be included to assess the extent of mitigation that will be required under the National Pollutant Discharge Elimination System (erosion prevention and sediment control) permit.

During development of alternatives, HOLDEN shall attempt to minimize discharges of untreated stormwater to surface waters, particularly during smaller storms (1yr return frequency and smaller). Reasonable effort shall be made to identify and attempt to minimize conflicts and align project goals as practicable with known community stormwater master plans, tactical basin plans, jurisdictional features associated with State stormwater permits, planned stormwater retrofits and other related considerations which may be affected by the project.

This resource work will inform the alternative selection so that the project avoids and minimizes, to the extent practicable, impacts to environmental resources. Thorough and well-documented resource

identifications will inform the selection of the Least Environmental Damaging Practicable Alternative (LEDPA) and development of Conceptual Plans. Scoping reports will be reviewed by VTrans Project Delivery Bureau Environmental Section (via Resource ID work request from VTrans Project Manager) prior to development of Conceptual Plans.

### **I.) Alternatives Presentation**

All of the proposed alternatives (including a mandatory “no build” alternative) will be evaluated in an alternatives matrix. The matrix will include resource impacts, right of way impacts, utility impacts, ability to meet the project purpose and need, estimated cost and any other factors that will help the community evaluate the alternatives being considered. Taking into consideration previously gathered information, conduct a public informational meeting to present all the different alternatives that have been considered. The outcome of this meeting should be an alternative selected by the community for further development.

### **J.) Develop Preliminary Cost Estimates**

HOLDEN will develop preliminary cost estimates for further planning, design, construction and maintenance cost of the project. Construction cost estimates shall include preliminary bid item quantities. Per foot or lump sum costs will not be an acceptable substitute. The estimates should be based on the assumption that the project will be constructed using a combination of Federal and local funding and will be managed by the local community. The cost estimates should include amounts for construction, engineering, municipal project management and construction inspection. If the project is to be completed in phases, cost estimates for each phase shall be provided.

### **K.) Project Time Line**

HOLDEN will provide a project development timeline that takes the project through the design, permitting and construction phases assuming the use of a combination of Federal and local funding. If necessary, HOLDEN will develop a project phasing plan for construction of the project over a multi-year period.

### **L.) Report Production**

Using information gathered from the activities outlined above and from the meetings with the Town, submit draft and final feasibility reports outlining the findings of the study (see Standards and Deliverables for number required). The draft report must be submitted to VTrans for comment prior to issuing a final report. A minimum of 3 weeks must be allowed for VTrans review of the draft report. A public informational meeting will be held to review the draft report before completion of the final report. HOLDEN shall follow the report format shown in Attachment A and is expected to include all of the elements listed in the outline. It is expected that the local legislative body will endorse or decline the proposed project at this meeting.

### **Standards and Deliverables**

A.) All documents will be provided in both hard copy (paper) and digital format. Hard copies of the draft and final reports shall be printed on both sides (i.e. double-sided). Three (3) hard copies of draft and final reports will be provided to the Town. Draft and final reports will be delivered in Adobe .pdf format to the VTrans project supervisor and the Town. GIS data will be delivered in an ESRI compatible format.

B.) All data, databases, reports, programs and materials, in digital and hard copy format created under this project shall be transferred to the Town of Charlotte upon completion of the project and become the joint property of the Town of Charlotte and the State of Vermont.

## Attachment A: Recommended Outline for a Bicycle and Pedestrian Scoping Study

- I. PURPOSE AND NEED OF THE PROJECT – identify goals and objectives, provide description of existing conditions (how do they hinder the goals?)
- II. PROJECT AREA AND EXISTING CONDITIONS – identify the project area, existing conditions and proposed location of facilities. What other locations were considered? What origins and destinations are served by the proposed facility?
- III. PRIORITIZATION OF SEGMENTS – identify highest priority segment to focus feasibility analysis on construction and continue ROW, utility impacts, natural/cultural resources for that segment in report.
- IV. RIGHT OF WAY – identify Town or State Highway right of way (if project parallels a highway) and abutting property owners and assess their level of interest in the project if their property is likely to be impacted.
- V. UTILITY IMPACTS – What existing underground and/or overhead utilities are in the project area? How will they be impacted by the proposed project? Will they need to be relocated outside the existing right of way?
- VI. NATURAL AND CULTURAL RESOURCES – identify constraints and possible design solutions and necessary permits. Include resource maps indicating identified resources and the relationship to the preferred alternative. Develop a resource impact matrix for inclusion in the final report.
- A. Natural Resources
1. Wetlands
  2. Lakes/Ponds/Streams/Rivers (stormwater discharge and erosion/sediment control implications)
  3. Floodplains
  4. Endangered Species
  5. Flora/Fauna
  6. Stormwater
  7. Hazardous Wastes
  8. Forest Land
- B. Cultural Resources
1. Historic
  2. Archaeological
  3. Architectural
  4. Public Lands
  5. Agricultural Lands
- VII. PRELIMINARY PROJECT COST ESTIMATE – including preliminary engineering, right of way acquisition, construction, project management and construction inspection costs.
- VIII. MAINTENANCE - Discuss anticipated maintenance needs of the proposed project, including how snow removal is likely to be addressed.
- IX. PUBLIC INVOLVEMENT – Document the extent to which the public supports the project and identify any potential problems.
- X. COMPATIBILITY WITH PLANNING EFFORTS – Indicate how the proposed improvement is compatible with relevant local Town plans, and regional Transportation or Bike/Ped (if available) plans.
- XI. PROJECT TIME LINE – given the nature of the project what is your best estimate of the time it will take to scope, design and construct the project (or initial phase of the project).
- XII. VIABILITY – why should VTrans or other funding sources consider this project proposal? Is the project responsive to a community need and is the public good served by spending local, state and federal dollars on this alignment? Are there other considerations that should be made before this project is advanced?

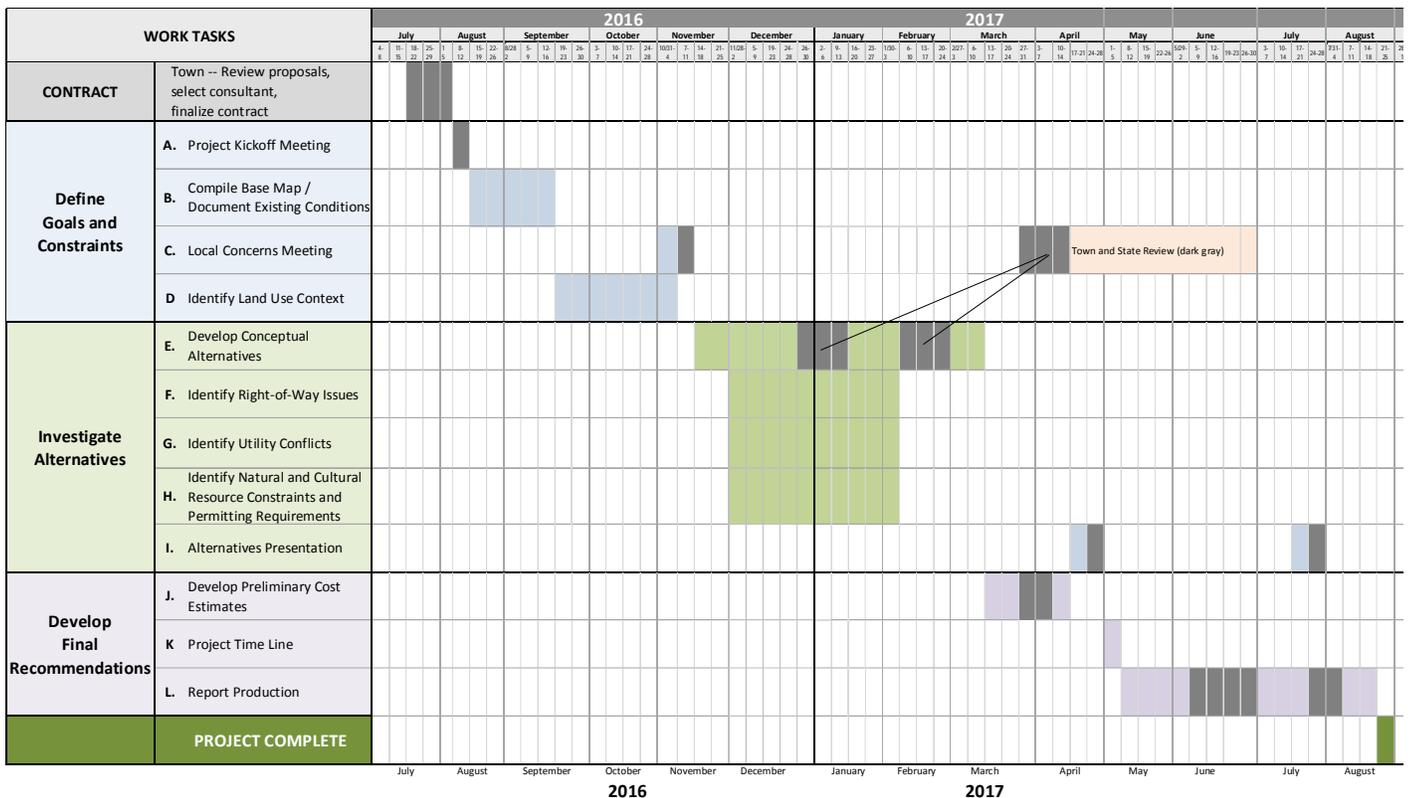
## 4. ESTIMATED LABOR HOURS

(See separate Cost Proposal for large version of this page.)

Direct Labor Hours by Class and Labor										
WORK TASKS		Project Manager	Engineering Director	Senior Design Engineer	Engineering & CADD Management	Survey Manager	Survey Crew (2 Crew Members)	Technical Services / CADD Drafting	Administrative	TOTAL HOURS PER TASK
Define Goals and Constraints	A. Project Kickoff Meeting	3.0	3.0	0	0	0	0	0	0.5	6.5
	B. Compile Base Map / Document Existing Conditions	1.0	1.5	3.0	6.0	4.0	32.0	40.0	2.0	89.5
	C. Local Concerns Meeting	4.0	4.0	1.0				8.0	3.0	20
	D. Identify Land Use Context	3.0	4.0	12.0	2.0	0	0	12.0	1.0	34
Investigate Alternatives	E. Develop Conceptual Alternatives	8.0	24.0	60.0	8.0	0	0	120.0	6.0	226
	F. Identify Right-of-Way Issues	2.0	4.0	8.0	2.0	4.0	0	16.0	2.0	38
	G. Identify Utility Conflicts	2.0	4.0	8.0	2.0	4.0	0	16.0	2.0	38
	H. Identify Natural and Cultural Resource Constraints and Permitting Requirements	2.0	5.0	8.0	0	0	0	8.0	2.0	25
	I. Alternatives Presentation	4.0	4.0	4.0	2.0	0	0	12.0	2.0	28
Develop Final Recommendations	J. Develop Preliminary Cost Estimates	4.0	4.0	24.0	2.0	0	0	24.0	1.0	59
	K. Project Time Line	2.0	2.0	2.0	0	0	0	0	0	6
	L. Report Production	4.0	12.0	60.0	4.0	0	0	24.0	8.0	112
Total Hours Per Person		39	71.5	190	28	12	32	280	29.5	682

## 5. PROPOSED SCHEDULE

(See separate Cost Proposal for large version of this schedule page.)



## 6. INDIVIDUALS ON PROJECT TEAM

For this project, the primary roles will be performed by *HOLDEN* senior staff members, representing more than 100 years of combined civil engineering experience. Their combined experience represents more than 50 state and/or federally funded projects, and more that 100 sidewalk projects.

### **HOLDEN Project Staff – Senior & Supporting Roles**

Last Name	First Name	Experience (years)	Roles
Blanchard	Tim	35+	Field Survey Crew Chief
Brassard	Michael	5+	Structural Engineer (P.E.)
Casey	Steven	15+	Survey Data Processing and CADD
DeGrace	Mark	25+	Field Survey & Traffic Data Collection
Heath	Carter	15+	Field Survey & Data Collection
* Holden	Peter D.	40+	Project Manager, LPA Certified
Jendrick	Daniel S.	25+	Survey & CADD Manager
Ladd	Randall E.	12+	CADD Technician
Peterson	Henry	35+	Survey Data Processing and CAD
Roseen	Eric	35+	Survey Research
* Rossignol	William C.	35+	Engineering Director & Senior Design Engineer (P.E.)
Soucy	Dennis	25+	CADD Technician

\* Key Staff Members / Primary Engineers for this project

### **Use of Subconsultants**

*HOLDEN* will utilize the services of two subconsultants listed below. Our in-house staff will perform all other services.

<b>Historic Preservation</b> 106 Associates PO Box 64644 Burlington, VT 05606	<b>Archaeological Assessment</b> Monadnock Archaeological Consulting 116 Fox Hill Road Stoddard, NH 03464	
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### **Qualifications / Experience of Proposed Staff**

***See Section I – Work Samples: Project Team Experience for resumes and subconsultant qualifications.***

## 7. DEMONSTRATION OF SUCCESS ON SIMILAR PROJECTS

*HOLDEN* has successfully completed scores of pedestrian projects, totaling more than 135,000 feet of sidewalks during the past 25 years. These projects included one or more elements such as pedestrian and bicycle safety, local roadway design, traffic calming, intersection design, traffic studies, ADA compliance, roadway & sidewalk drainage, multiple funding sources, public forum presentations, and construction monitoring. All of these projects required extensive communication and coordination with towns, reviewing agencies, and property abutters.

On previous similar Vermont projects, *HOLDEN* has leveraged its expertise in applying the guidelines outlined in the VT AOT Municipal Assistance Bureau's **Local Projects Guidebook for Locally Managed Projects**. In addition to designing a pedestrian safety project in Brattleboro, *HOLDEN* worked with the Town of Arlington and the Bennington County Regional Commission to develop a 2015 scoping study for creating a safe pedestrian corridor along VT Route 7A. *HOLDEN* is also currently developing a sidewalk scoping and feasibility study for the Town of Springfield, VT and along Route 100 in Dover, VT.

***See Section II – Work Samples: Relevant Projects***  
***for a gallery of additional similar projects,***  
***including brief project descriptions and visuals.***

***Municipal reference contact names and addresses are included in***  
***Section III – Work Samples: Reference Letters.***

## 8. REPRESENTATIVE WORK SAMPLE

### Sidewalk Study – Arlington, VT - 2014 Utilized Municipal, State, and Federal Funds

**HOLDEN Senior team for this project:** Peter Holden, Vice President; Bill Rossignol, P.E.

*HOLDEN* is currently wrapping up this project for the Town of Arlington, VT. *HOLDEN* is developing a scoping study for new pedestrian facilities to connect the Arlington Recreation Park to the Town's existing sidewalks along VT 7A, and the intersection of VT 7A and VT 313. This study provides recommendations and alternatives for efficiently improving pedestrian safety within the study area.

*HOLDEN* is working with the Town of Arlington and the Bennington County Regional Commission to create a scoping and feasibility study that captures the Town's vision for a safe pedestrian corridor throughout the project area. *HOLDEN* is leveraging its expertise in designing such a project as outlined in the VT AOT Municipal Assistance Bureau's **Local Projects Guidebook for Locally Managed Projects**.

#### Development of the Arlington Scoping Study Included:

- ✓ Topographic base plan
- ✓ Rights-of-Way (This is a State Right-of-Way)
- ✓ Assurance of continuity with all forms of travel where this project interfaces with others at its limits
- ✓ Minimizing project impacts on adjoining residential and commercial properties
- ✓ Communication with project abutters
- ✓ Effects on businesses
- ✓ Parking for businesses
- ✓ Interaction between vehicles, bicyclists, and pedestrians – safe maneuvering at low speeds
- ✓ Feature visibility and identification using paint, textured surfaces, signing and/or lighting
- ✓ Storm drainage and stormwater treatment
- ✓ Relocation of existing utilities
- ✓ Budget constraints for the LTF grant
- ✓ Avoiding and minimizing environmental impacts
- ✓ Landscaping
- ✓ Aesthetics and visual quality

*For photos and presentation images of this Arlington, VT sidewalk scoping project, see [Section II – Work Samples: Relevant Projects](#)*

## **I. Work Samples: Project Team Experience**

## OVERVIEW OF COMPANY AND ENGINEERING SERVICES

Holden Engineering & Surveying, Inc. (*HOLDEN*) is a full-service, multi-disciplined engineering company offering professional services to public and private sector clients for the past 35+ years.

Today's municipal projects demand the involvement of several engineering specialties to produce a successful design. *HOLDEN* offers a team-oriented approach to each project by providing a full range of engineering, planning, environmental, surveying, mapping, and construction support services. A number of civil engineering disciplines are supported throughout the company. *HOLDEN* engineers are registered in New Hampshire, Vermont, Maine, New Jersey, Massachusetts, and Florida.

Our staff is a group of seasoned professionals whose depth of experience is clearly suited to handle all major components of this project. A full list of the engineering services we provide is included on the next page. Our staff has extensive experience in drainage design, hydraulics and stream analysis, structural inspection and rehabilitation, bridge studies, bridge design, roadway and intersection design, sidewalk and bike path design, commercial site plans, preparing cost estimates, erosion control and monitoring, utility relocation, permitting (municipal, state, & federal), developing bid documents, and providing construction oversight and/or construction administration services. We work closely with municipalities, conducting public meetings and coordinating with local, state, or federal agencies as well as individual property abutters. In the event that an historic review or archaeological assessment is required beyond our capabilities, we will utilize the services of approved subconsultants.

When it comes to environmental services, our expert technical staff meets the challenges of increasing pressures on natural resources by providing soil, water, and wetland analyses. Responding to an increasing need for accurate and detailed resource information, our firm provides its clients - engineers, developers, municipal and state officials, planners, and architects - with the resource information necessary and vital to guide the growth of the New England region in a responsible manner.

*HOLDEN* also has a long history of project experience in land surveying. Techniques and equipment used by the firm include total station instruments and global positioning satellite (GPS) systems. Sized for efficiency and properly equipped, survey crews can complete simple or complex projects quickly and efficiently. Once a project is designed, *HOLDEN* staff has the experience to provide construction services to assist contractors on bridge, drainage, highway, sidewalk, bicycle path, commercial, and utility projects.

Mapping is another service for which *HOLDEN* has considerable experience. Practical and cost-effective solutions for data collection activities are applied through digital photogrammetric mapping and AM/FM/GIS data conversion techniques executed using sophisticated equipment and software systems that mapping staff have available for their use.

**The following page summarizes the services *HOLDEN* offers in all of the above categories.**

## Summary of *HOLDEN* Services

Holden Engineering & Surveying, Inc. (*HOLDEN*) is committed to completing projects before their target completion date. This project will be a priority and we will allocate our management, engineering, and technical support resources to begin work immediately upon receiving authorization to proceed.

*HOLDEN* is a full-service, multi-disciplined engineering company offering professional services to public and private sector clients for the past 30+ years. Today's municipal projects demand the involvement of several engineering specialties to produce a successful design. *HOLDEN* offers a team-oriented approach to each project by providing a full range of engineering, planning, environmental, surveying, mapping, and construction support services. *HOLDEN* engineers are registered in New Hampshire, Vermont, Maine, and Massachusetts.

### ENGINEERING

- Pedestrian/Bicycle Path Scoping Studies
- Sidewalk Design
- Commercial site design
- Storm drainage design
- Roadway design
- Structure design
- Hydraulic analysis
- Intersection design
- Traffic signal design
- Bridge design
- Residential subdivision design

### ENVIRONMENTAL

- Soil mapping
- Site assessments
- Wetland delineation
- Wetland classification
- Wetland mitigation design
- Impact assessments
- Permit application
- Resource inventories
- Septic design
- Construction monitoring
- Post-construction monitoring
- Water quality sampling

### SURVEYING

- Boundary surveys
- Positioning (GPS) surveys
- Photogrammetric control
- Utilities location
- Control densification
- Construction surveys
- Topographic surveys

### PLANNING

- Site Planning
- Community impact studies
- Traffic impact studies
- Transportation corridor studies
- Transportation planning studies

### CONSTRUCTION SERVICES

- Highway and structure inspection
- Contract administration
- Utility coordination
- Erosion Control Plans
- SWPPP Plan Preparation
- SWPPP Monitoring
- Invasive Species Plans
- Shop drawing review
- Wetland monitoring
- Site Work Monitoring
- Reporting to Owners

### MAPPING

- Aerial photography
- Air photo control
- Plan and profile mapping
- Photogrammetry
- Data conversion
- Topographic mapping
- Tax parcel mapping
- Digital terrain models
- Airport approach surface obstruction mapping

## Knowledge of Municipal, State, and Federal Standards and Policies

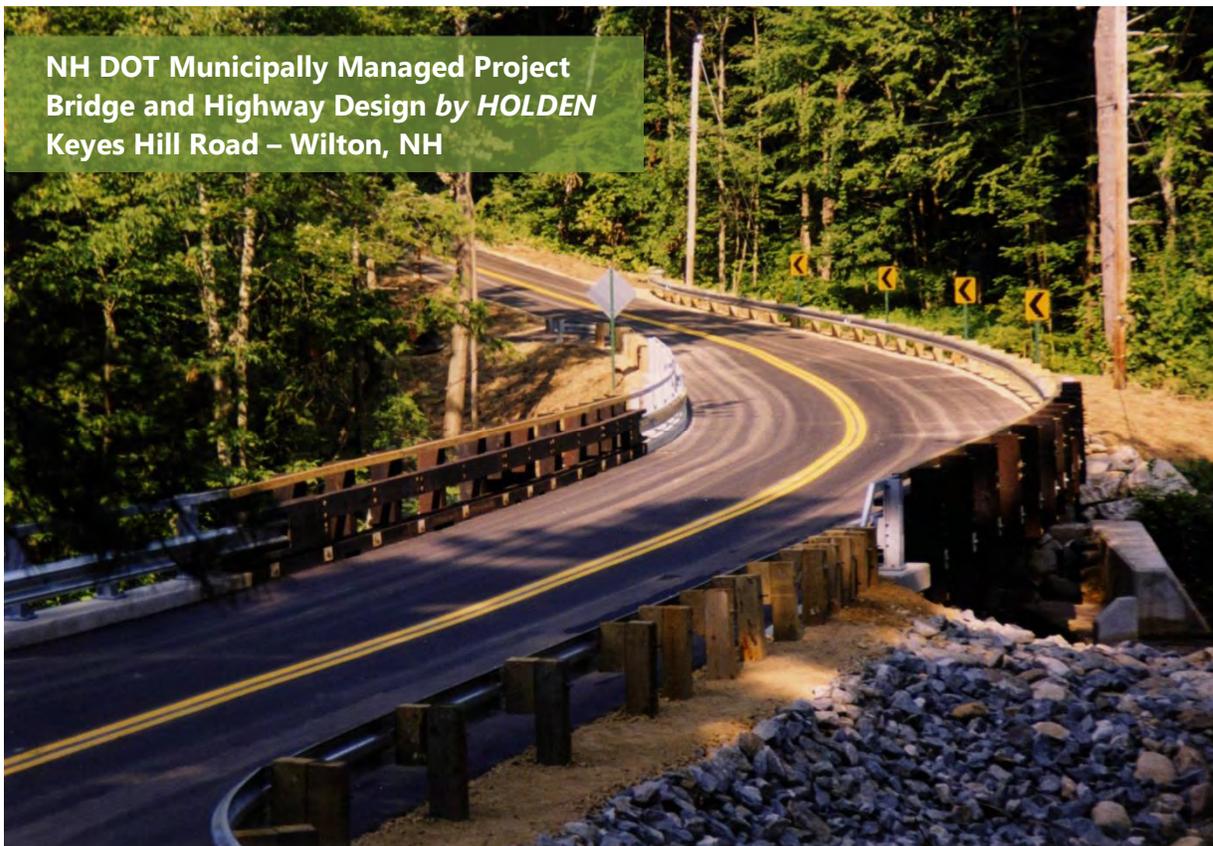
### Eligible as Engineering Design Consultant for NHDOT and VT AOT Projects

NHDOT - *HOLDEN* has SF 330 forms on file with the NHDOT. Our firm has been accepted by the Consultant Selection Committee as eligible for consideration for the Consultant Selection Process for qualifications-based service agreements in accordance with the Department's Consultant Selection and Service Agreement Procedures manual. VT AOT - *HOLDEN* has AF38 and SF330 forms on file with the Vermont AOT. Our firm is also on the VTrans list of prequalified consultants.

### LPA and Municipally-Managed Projects Utilizing State and/or Federal Funds

*HOLDEN* has staff members who have earned Local Public Agency (LPA) and Labor Compliance Certifications through the NHDOT. Peter D. Holden will serve as the lead project manager, having attained both of these certifications. *HOLDEN* has provided engineering services for LPA projects and numerous other municipally managed projects that were funded using local, state, and/or federal funds. These projects include:

- ▶ Municipally-Managed State Bridge Aid Projects
- ▶ FEMA Bridge Projects
- ▶ VT AOT Town Highway Grant Projects for roads and bridges
- ▶ Dozens of additional projects funded solely by the State or municipalities



Other Municipally-Managed project experience includes:

- ▶ Community Development Block Grant Disaster Recovery 2 (CDBG-DR2) projects for the design and construction of stream bank stabilization measures in Lyme, NH on the Connecticut River; in Barnard, VT on Locust Creek; and in Readsboro, VT on the west branch of the Deerfield River.
- ▶ *HOLDEN* is also developing pedestrian/bicycle safety and sidewalk scoping studies for multiple municipally-managed projects that utilize VT AOT pedestrian grants whose design and administration guidelines resemble NH LPA projects. This comprehensive experience with municipally-managed and publically funded projects results in an assurance that *HOLDEN* will streamline the processes for design, permitting, and construction management on municipal projects.

### Permitting & Management of Municipal, State, and Federally Funded Projects

*HOLDEN* has successfully completed hundreds of municipal transportation design projects for roadways, sidewalks, and/or bridge rehabilitations or replacements with funding from municipalities, state and federal sources. We understand and appreciate the amount of time, coordination, and communication that is required with state or town officials to obtain or submit all appropriate permits and project documentation. Our experience working for many municipalities throughout New England has provided us with knowledge of Planning Board or Zoning Board meetings and application processes, which often drive the critical path elements or due dates.

We are very familiar with the NHDES and NHDOT permitting processes including; wetland, shoreland, alteration of terrain, SWPPP, water quality certification, Natural Heritage Bureau endangered species documentation, and the NH Department of Historical Resources historic properties documentation. This extensive experience is critical for implementing project management strategies that prevent avoidable permitting delays.

Appropriate Environmental Documentation must accompany federally funded projects. These requirements can include Army Corps Permits (CAT 1 or CAT2); Americans with Disabilities Act (ADA) Compliance; Categorical Exclusions; Programmatic Environmental Impact Statements; Programmatic 4(f) Evaluation of Parks, Recreation Area, Wildlife/Waterfowl Refuges, and Public or Private Historic Sites; Programmatic 6(f) Evaluation for Land and Water Conservation; the Clean Water Act; and Section 106 which includes the Protection of Historic Properties. Construction of these projects necessitates close coordination with the Office of Federal Compliance (OFC), near full time resident inspection and detailed record keeping, enhanced material specifications, testing, and materials compaction requirements.

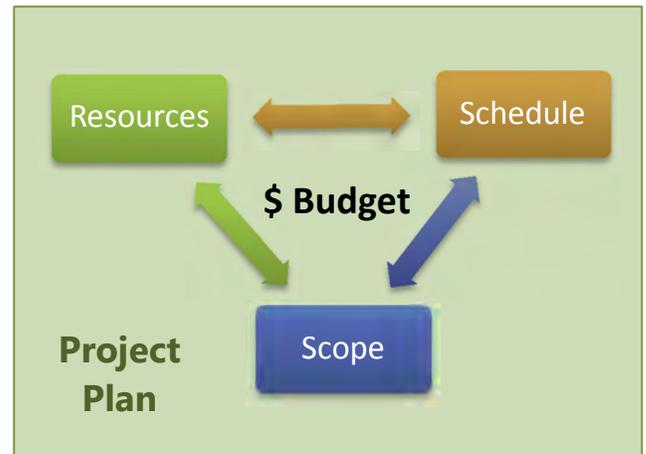
#### NH Route 111 Wetland Delineation and Assessment for NH DOT Developed by *HOLDEN*



## CONTROLS FOR SCHEDULE, AND COSTS

*HOLDEN* completes projects on time and within budget by applying Project Integration Management to coordinate the schedule, resources, and scope of services.

To achieve these objectives, a project plan is developed based on a project's scope of services. This plan includes a detailed list that itemizes each activity into individual tasks and assigns a staff member to each one. Each task is accompanied by an estimated number of hours expected to complete the task, and an anticipated due date. This process integrates the project activities, durations, sequences, and interdependencies to determine the critical path elements and develop the project schedule.



### Project Scope Management

Working from the Client's specifications, the Project Manager develops a comprehensive scope of services to be provided. During contract finalization, this scope is further defined and detailed to ensure full project understanding between all parties. The agreed scope of services is used to develop the project plan to ensure all required work is completed.

### Project Time Management

The statuses of project tasks are checked against the project schedule and milestones are discussed to ensure that target completion dates are met. The weekly progress updates for each activity alerts the Project Manager to potential problems with meeting these milestones so that appropriate actions are taken to keep the project on schedule.

### Project Resource Management

Depending on the project status and project schedule, resources can be re-allocated as needed to ensure that critical path items are completed on time. To meet the strictest reporting requirements for state and federally funded projects, all labor and expense data is compiled while projects are in progress so post project overhead audits are very straightforward.

### Project Communication

Equally important is our ability to plan, present, and answer questions in public forums, whether in a public informational meeting, or with individual project abutters. Project work and property impacts are described and explained in a fashion that will be understood by folks with variety of understanding levels. Achieving a comfort level with the public inevitably results in public support for the project. With that support in place, the phone is ringing less at Town Hall.

*HOLDEN* has achieved notable success working for many municipalities in NH, VT, and MA. We go to extraordinary lengths to anticipate, address, and diffuse problems before they become difficult issues. Our clients simply want to know that we will take care of things, relieving them of those burdens. Whether the issue is filling out an application, preparing a draft letter for Town signature, providing a technical explanation to a state or federal official, or providing justification for a particular action, *HOLDEN* is there to fill the need, saving time and money for municipalities.

## Project Manager

For each project the Project Manager is the primary point of contact for the client. Among other duties, it is the Project Manager's responsibility to communicate regularly and candidly with the client. At *HOLDEN* this communication is considered the cornerstone of a successful project. The Project Manager for this project will be Peter D. Holden, whose primary roles include:

- Balance dynamics among resources, budget, and schedule
- Ensure ample production capacity
- Form project structure & organization to enhance performance

An Assistant Project Manager is also assigned to each project. The Assistant Project Manager implements *HOLDEN's* overall Project Management framework, carries out the Project Manager's directives, and provides a backup source of communication with the client. The Assistant Project Manager provides the Project Manager with day-to-day budget and production data used for tracking overall project status and the development of client progress reports. The Assistant Project Manager for this project will be William C. Rossignol, P.E.

## Managing Municipal & State Projects

*HOLDEN* has extensive experience working on municipal and state projects. Our experience working for many municipalities throughout New England has also provided us with knowledge of Planning Board or Zoning Board meetings and application processes, which often drive critical path elements or due dates.

We understand and appreciate the amount of time, coordination, and communication with state or town officials that is required to obtain or submit all appropriate permits or project documentation. We are very familiar with the NHDES and NHDOT permitting processes including; wetland, shoreland, alteration of terrain, SWPPP, and water quality certification, as well as with Natural Heritage Bureau endangered species documentation, and NH Department of Historical Resources historic properties documentation. This extensive experience is critical for implementing project management strategies that prevent avoidable permitting delays.

## Cost & Schedule Control

*HOLDEN's* project experience, attention to the client, and project management approach results in projects that are delivered on time and within budget. The table below exemplifies recent projects that came in under budget by combining our quality control procedures and project management approach described in the preceding three pages.

Project/Location	Estimated Costs	Actual Costs
Bridge Project, Wentworth, NH	\$285,000	\$277,000
Bridge Project, Unity, NH	\$225,000	\$219,000

# CHARLOTTE, VT SCOPING STUDY PROJECT TEAM



**HOLDEN** project staff that will be available for work on this project represents more than 300 years of combined engineering, CADD, and surveying experience.

## Key Staff Members and Their Availability

The key staff members for this project will be Peter D. Holden, Project Manager, and William C. Rossignol, P.E., Engineering Director & Senior Design Engineer. They will be actively involved in this project, and will be made available to fulfill obligations throughout the term of the work effort involved.

<b>Peter D. Holden</b> Project Manager, NHDOT LPA Certification	<b>William C. Rossignol</b> Senior Design Engineer
<ul style="list-style-type: none"> <li>• Manage project engineers</li> <li>• Develop project schedule</li> <li>• Chief liaison for community and municipal feedback</li> <li>• Conduct meetings with municipal officials and relevant state and federal agencies</li> <li>• Coordinate with the Municipal and State officials</li> <li>• Coordinate with property owners and other stakeholders</li> <li>• Review recommended design and cost estimates</li> <li>• Facilitate public meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Project design oversight</li> <li>• Continuous communication and project coordination with Municipal and State stakeholders</li> <li>• Project schedule tracking</li> <li>• Intersection, highway, &amp; bridge design</li> <li>• Pedestrian/bike path safety design</li> <li>• Drainage design</li> <li>• Identify site limitations: ROW's, utilities, impacts to natural &amp; cultural resources</li> <li>• Prepare cost estimates</li> <li>• Prepare bid documents</li> <li>• Quality assurance/quality control</li> </ul>

<b>HOLDEN</b> Project Team Member	<b>Team</b> Project Role	<b>Municipal</b> Projects	<b>State and/or</b> Federally Funded Projects
Peter D. Holden, Vice President	Project Manager	150+	30+
William C. Rossignol, P.E.	Engineering Director & Senior Design Engineer	150+	40+

## HOLDEN Project Team Experience

For this municipal project, the primary **HOLDEN** team members will be Peter Holden - Project Manager and William C. Rossignol – Project Director & Senior Design Engineer. Mr. Holden and Mr. Rossignol have teamed together on hundreds of **HOLDEN** projects during the past 22 years. The table above represents their career experiences regarding municipal projects. **HOLDEN** will utilize the services of subconsultants for historic and archaeological review:

### Historic Review

Scott Newman  
106 Associates

### Archaeological Review

Monadnock Archaeological  
Consulting, LLC

## Resumes

### **PETER D. HOLDEN, LLS**

Project Manager

For more than 40 years, Peter Holden has been integral as an engineer and project manager for the development of civil engineering projects. During the past 35 years, Mr. Holden has worked with Holden Engineering & Surveying on projects that include bridge studies, bridge design, roadway design, land surveying, pedestrian/bicycle pathway design, scoping studies, drainage design, subdivision layout, wetland delineation, mapping services, streetscape design, stormwater management, permitting, and construction administration and oversight.

Mr. Holden is knowledgeable in the guidelines and reporting requirements for publically funded projects, and he has managed numerous projects involving municipal, state, and/or federal funding. For these projects, Mr. Holden was responsible for managing an engineering project team that coordinated with municipal, state, and/or federal agencies.

Through many years of project management experience, Mr. Holden has developed an organized system that provides the assurance of quality performance on a timely schedule. He is very involved with staffing and resource allocation, using his well-established relationships with many engineering and construction professionals throughout New England to stay up-to-date on the most economical solutions to today's design challenges. All project engineers report directly to Mr. Holden at key project milestones. Weekly meetings are held with project staff to track progress and review tasks assigned to each team member.

Mr. Holden has facilitated hundreds of public meetings and excels at presenting our design concepts in clear, concise presentations. Through his ability to relate to and address a community, he effectively communicates that **HOLDEN** genuinely has the best interests of the Town in mind.

#### **Education**

Vermont Technical College  
A.S. Highway Engineering

University of Massachusetts, Lowell  
Civil Engineering

#### **Certifications & Registrations**

Licensed Land Surveyor:  
NH, VT

Local Public Agency (LPA)  
Certification

#### **Professional Affiliations**

American Congress on Surveying  
and Mapping

New Hampshire Land Surveyors  
Association

American Association of Geodetic  
Surveyors

ASPRS, Vermont Society of Land  
Surveyors

**PETER D. HOLDEN**  
Project Manager

### **MUNICIPAL DESIGN PROJECTS (Partial List)**

Mr. Holden has served as the Project Manager on municipal projects spanning communities in NH, VT, and MA. Below is a partial list of those project locations.

Alexandria, NH	Brentwood, NH	Hancock, NH	Lanesboro, MA	Ossipee, NH	Wentworth, NH
Alton, NH	Chester, NH	Harrisville, NH	Lee, NH	Peabody, MA	Westfield, MA
Andover, NH	Concord, NH	Hebron, NH	Lyme, NH	Salisbury, NH	Westford, MA
Ashland, NH	Dublin, NH	Hooksett, NH	Lyndeborough, NH	Stoddard, NH	Wilmot, NH
Auburn, NH	Ellsworth, NH	Hubbardton, VT	Monson, MA	Stratford, NH	Wilton, NH
Barnstead, NH	Gilford, NH	Jamaica, VT	Nashua, NH	Sutton, NH	Windham, NH
Bradford, NH	Halifax, MA	Keene, NH	New Boston, NH	Unity, NH	Woodstock, NH
Brattleboro, VT	Halifax, VT	Laconia, NH	Newbury, NH	Washington, NH	

### **PEDESTRIAN/BICYCLE SAFETY AND SIDEWALK PROJECTS (partial list)**

#### ***Sidewalk Scoping Study along Route 100 – Dover, VT***

The Town of Dover received funding through the State of Vermont Agency of Transportation and the Federal Highway Administration to plan for and identify issues with construction of a sidewalk/bicycle facility in the village of West Dover. The Town secured **HOLDEN** to provide planning and engineering services to identify issues associated with possible construction of a sidewalk/multi-use path. Mr. Holden is serving as the project manager to develop a feasibility and scoping study to define a safe route along Route 100 in Dover to accommodate pedestrians, bicyclists, and motor vehicles. The proposed improvements will provide functional access to the residential areas, businesses, and institutions in the Town, while maintaining the aesthetic character of the Town. The proposed improvements will enhance pedestrian and bicyclist safety as well as encourage people to participate in a healthier lifestyle and increase the scenic appeal of the Town.

#### ***Pedestrian Improvements on Western Avenue (VT Route 9) – Brattleboro, VT***

Mr. Holden served as Project Manager for this project, which involved the design of pedestrian improvements at the intersection of Western Avenue and Union Hill Road in Brattleboro, VT. Proposed improvements considered traffic calming techniques such as bump outs and striping narrower lanes, and pedestrian safety features such as the installation of crosswalk signs with flashing warning lights. The installation of textured or colored crosswalks was also evaluated for this location. The safety of this intersection is a high priority to the Town and State, so **HOLDEN** performed worked with Brattleboro and the VTrans LTF section to get this project constructed as soon as possible.

#### ***Sidewalk Scoping Study along Route VT 7A – Arlington, VT***

This project is currently in progress for the Town of Arlington, VT. Peter Holden is serving as the Project Manager for developing a scoping study for new pedestrian facilities to connect the Arlington Recreation Park to the Town's existing sidewalks along VT 7A, and the intersection of VT 7A and VT 313. This study will provide recommendations and alternatives for efficiently improving pedestrian safety within the study area.

### ***Elm Hill School Sidewalk Scoping Study – Springfield, VT***

The Town of Dover received funding through the State of Vermont Agency of Transportation and the Federal Highway Administration to plan for and identify issues with construction of a sidewalk/bicycle facility in the village of West Dover. A majority of the sidewalk network (about 73%) in the project area does not meet ADA standards – particularly with regard to the width and curb ramps. *HOLDEN* was selected to perform this scoping and feasibility study. Mr. Holden served as the project manager to complete a scoping and feasibility study for ADA compliant sidewalks and crosswalks around the Elm Street Primary School (K-2). *HOLDEN* presented multiple alternatives and cost estimates so that the Town could select a preferred alternative.

### ***Bruce Freeman Bike Path, MA***

Mr. Holden acted as Project Manager for this federally funded Transportation Enhancement (TE) project involved the design and permitting of a paved Bike Path along an abandoned railroad right-of-way through three Massachusetts towns. This segment of the path is approximately 6.8 miles long and travels through heavily wooded areas, along streams and ponds, through parking areas and busy downtown urban areas. Extensive coordination was required with three individual select boards and three conservation commissions. Numerous public meetings were held in individual towns as the design progressed. Many additional meetings were held with property abutters, both individually and in groups.

### ***Bradford Road, Keene, NH***

Mr. Holden served as the Project Manager for this project that included scoping study elements to determine the best path alignment followed by the design of 3,400 LF of new sidewalk, and an extensive existing conditions survey to delineate all of the property corners along the narrow ROW on Bradford Road. Abutters' understanding of the project was essential to gain their support. Throughout the conceptual and preliminary design phases *HOLDEN* participated in public meetings to present alternative locations and respective project impacts of each option.

### ***Safe Routes to School (SRTS) – Sidewalk Project, Warner, NH***

Mr. Holden is acting as Project Manager for this project that included the design of approximately 2,400 LF of new sidewalk in Warner, NH. Mr. Holden coordinated and facilitated public meetings throughout the project. This project is currently being implemented in sections, and includes the design of new pedestrian and bicycle facilities as well as extending existing sidewalks. Locations for four speed warning signs were chosen and signs were installed to help reduce traffic speeds and increase driver awareness in the area.

### ***Town Center Enhancements, Hancock, NH***

Mr. Holden acted as Project Manager for this project that included the preparation of a Master Improvement Plan for Main Street in the historic district of Hancock. *HOLDEN* performed a detailed evaluation of existing conditions, made recommendations for improvements, prepared conceptual design plans, and determined preliminary construction cost estimates. The final report included recommendations for pavement maintenance. Key issues included curbing, sidewalks, storm drainage, pedestrian features (benches, trees, and other amenities), vehicular patterns, parking and traffic calming along 1,750 LF of Main Street. *HOLDEN* provided aerial photography (orthophotos), base plans, and supplemental on the ground survey for presentation purposes.

**PETER D. HOLDEN**

Project Manager

***Pedestrian Safety Design Projects (continued)...***

**ROADWAY DESIGN & REHABILITATION PROJECTS (Partial List)**

***Old Prescott Hill Road, Belmont, NH***

Mr. Holden acted as Project Manager for this roadway design project that included 1,000 L.F. of pavement reclamation. As part of the pavement reclamation process *HOLDEN* coordinated with subcontractors to determine the most economical solution and source of materials to achieve the specified gradation for the roadway aggregates. *HOLDEN* also prepared recommendations for drainage improvements to be considered part of the pavement improvement process.

***The Villages of Kessler Farms, Nashua, NH***

Mr. Holden acted as Project Manager for this roadway re-paving project. Now that Phase I is complete, *HOLDEN* has been retained to continue providing pavement management services for Phase II of this project. Services provided to date have included pavement inspection and assessment, parking lot design, preparing recommendations for proposed improvements, and roadway design (grading, drainage improvements).

***Hollis Crossing, Nashua, NH***

Mr. Holden acted as Project Manager for this roadway and sidewalk re-paving project that included inspection of existing roadways, preparation of a base plan, evaluation of storm water drainage, preparation of preliminary construction cost estimates, preparation of a pavement instruction plan, determining appropriate funding-based phasing for the project, and construction oversight during paving operations.

***Cluster Subdivision Plan, New Ipswich, NH***

Mr. Holden acted as Project Manager for this project at a residential subdivision with 80 single-family house lots. 7,100 linear feet of roadway with rolled asphalt connect these lots. The storm drainage was designed as a closed system, with treatment and detention facilities located on-site. Offsite improvements included upgrading 3,000 linear feet of roadway to Class 5 with drainage improvements. The scope of work included field surveying, wetland delineation, base plan preparation, wetland permitting, construction plans and specifications, and local approvals.

## **PETER D. HOLDEN**

Project Manager

### **EROSION & SEDIMENTATION CONTROL**

In addition to serving as project manager for stream bank stabilization projects and design of erosion control measures, Mr. Holden has served as the project manager for development and monitoring of Storm Water Pollution Prevention Plans (SWPPP) and Erosion Control Plans for more than 25 road and bridge construction projects during the past 2 years. Mr. Holden has also performed SWPPP monitoring for many of these projects.

### **STREAM BANK STABILIZATION PROJECTS (Partial List)**

#### ***River Road, Lyme, NH – Connecticut River Bank Stabilization & Road Realignment***

Mr. Holden served as Project Manager for the design of 1,200 LF of river bank stabilization and roadway relocation adjacent to the Connecticut River where flood waters scoured the east bank. This project included a field survey, permitting, roadway realignment design, stream bank restoration in some areas of the Connecticut River, assistance with construction bid process, cost reduction investigations after construction bidding, and design changes after a change in land acquisition as the result of *HOLDEN's* public presentation on the various reconstruction solutions which were attended by approximately 100 people. *HOLDEN* also provided engineering services during construction of the project.

#### ***Readsboro, VT – Stream Bank Stabilization Plan***

Mr. Holden is serving as the project manager for this Readsboro project. *HOLDEN* is currently finishing design plans for this river bank stabilization project in Readsboro, VT. This project along the West Branch of the Deerfield River involves a steep 50 ft high embankment which suffered significant erosive damage during Tropical Storm Irene. Because the north bank and terrace of privately owned land eroded, three residences had to be razed. In response, the Town of Readsboro received a Community Development Block Disaster Grant - Recovery 2 (CDBG-DR2) for the design and construction of stabilization measures. *HOLDEN* is handling all surveying, design, and permitting, and also will provide engineering services during construction. One of the critical aspects of the design process involved determining the most efficient construction approach for safe operation of large trucks and excavation equipment on the steep, high embankment.

#### ***Barnard, VT – Slide Stabilization Project***

The Town of Barnard awarded *HOLDEN* the engineering and construction management services to repair a Tropical Storm Irene slide across from the Town Garage on Chateauguay Road on the Locust Creek in Barnard, Vermont. Mr. Holden is serving as the project manager to develop designs, specifications, and handle contractor selection for this bank/streambed stabilization project. *HOLDEN* will also provide construction management and resident engineer services. The design portion of the project includes two phases: a simplified design alternatives analysis using preliminary designs and a set of final designs for the chosen alternative. The chosen alternative will include a final design to stabilize a head cut and bank erosion at the lower downstream portion of the bank slide area. The construction portion of the project may only include the minimum design to stabilize the head cut and bank erosion but could also include the chosen alternative or portions of as current grant funding allows. This project is being funded by a federal HUD CDBG-DR grant that was awarded in July 2015.

## **PETER D. HOLDEN**

Project Manager

### **MUNICIPAL BRIDGE DESIGN PROJECTS (Partial List)**

#### **Cavender Road Bridge over Ferguson Brook – Hancock, NH**

##### **Utilized Municipal, State and FEMA Funds**

Mr. Holden served as the Project Manager for this project, funded by FEMA with assistance from the NHDOT's Bridge Aid Program. The original bridge was a metal pipe that failed during a storm event in 2005. Evaluation of several bridge types led to the recommendation of constructing a 23-foot long pre-cast concrete box culvert structure with a 20-foot travel width. Approach roadway modifications, drainage improvements, guardrail and other safety improvements were implemented in the design. Project requirements included a temporary road closure and minimizing the duration of construction. A timber guardrail system was installed in order to preserve the rustic look of the site.

#### **Dufour Road Bridge over South Branch Baker River – Wentworth, NH**

##### **Utilized Municipal and State Funds**

Mr. Holden served as the Project Manager for this Municipally Managed Bridge project that included the repair of abutment and wing wall surfaces; reconstruction of the existing reinforced concrete seats; construction of new reinforced concrete backwalls, and capping of existing reinforced concrete wingwalls; placement of stone fill adjacent to abutments and wing walls; erection and assembly of precast/pre-stressed concrete box beams; construction of a concrete over pour; reconstruction of approximately 160 LF of roadway; installation of guardrail and paving. Key to the design was a minimization of the bridge closure time. The selected superstructure utilizes precast-pre-stressed concrete box beams with a concrete over-pour. With quick erection time, the bridge closure was minimized.

#### **Hancock Road over Skatutakee Lake – Harrisville, NH**

##### **Utilized Municipal, State, and Federal Funds**

Mr. Holden served as the Project Manager for this Municipally Managed Bridge Replacement Project that involved the removal of an existing bridge superstructure, utilization and rehabilitation of the existing abutments, construction of a new timber superstructure with sidewalk, and roadway approach improvements for this scenic roadway adjacent to Skatutakee Lake. Design and construction were advanced in accordance with all applicable requirements for federally funded projects.

#### **Kearsarge Valley Road over Cascade Brook – Wilmot, NH**

##### **Utilized Municipal, State, and FEMA Funds**

Mr. Holden served as the Project Manager for this FEMA project. Following the washout of the old metal pipe culvert, the Town of Wilmot quickly installed a temporary Bailey bridge. As the washout of the metal pipe was unexpected, and a convenient alternate traffic route was not readily available, this was considered an emergency situation and was eligible for partial FEMA funds. This project was also on the list for the NHDOT Municipal Bridge Aid Program and received additional funding. Throughout the project *HOLDEN* communicated with multiple funding agencies and worked with the Town to ensure that all appropriate documentation was submitted to the correct agencies in order to receive funds.

## **PETER D. HOLDEN**

Project Manager

### **Pikes Falls Road over North Branch Ball Mountain Brook – Jamaica, VT**

#### **Utilized Municipal and State Funds**

Mr. Holden served as the Project Manager for this municipally managed bridge project. This Pikes Falls Road stream crossing suffered damage in hurricane Irene, which required roadway repairs and new guardrails, which subsequently were installed. However, the original undersized and damaged culverts were still in use and needed to be replaced. *HOLDEN* was selected by the Town to design a concrete structure to replace the existing tandem CMP culverts. Work included field survey and base plan preparation, construction plan development, details, permitting, and construction notes. A hydrology & hydraulics study was performed to determine required waterway opening as well as review of waterway requirements recommended by the VTrans Hydraulic Unit. *HOLDEN* also provided a plan for maintaining vehicular traffic through the site during construction.

### **Old County Farm Road over Green River – Halifax, VT**

#### **Utilized Municipal and State Funds**

Mr. Holden served as the Project Manager for this Municipally Managed bridge project, with construction completed in September 2014. The superstructure was completely replaced using new galvanized steel beams, glued/laminated timber deck panels, timber curb and timber bridge rail. The deck was paved with an embedded waterproof membrane. Improvements to the road approaches and approach guardrails were also included. As the 30-day temporary closure of the vehicular bridge prohibited access to the three residential properties on the far side, a temporary lighted footbridge was constructed before the old vehicular bridge was taken out of service. Residents were provided a place to park their vehicles on the near side, and utilized the footbridge until the reconstructed bridge was opened.

### **Stearns Brook Road over Stearns Brook – Holland, VT**

#### **Utilized Municipal, State and FEMA Funds**

Mr. Holden served as the Project Manager for this municipally managed FEMA bridge project, currently in the design phase. The Stearns Road bridge consists of a 60 ft. long x 15 ft. wide corrugated metal arch pipe embedded in a concrete base, with a stone masonry face on the west side of the bridge, and an earthen embankment lined with stone masonry blocks on the east side. The existing structure and surrounding masonry was in need of replacement. *HOLDEN* was selected by the Town to develop replacement alternatives and deliver final design plans for the most cost effective replacement structure. As part of the preliminary review, *HOLDEN* evaluated the waterway opening size to better accommodate the natural channel width of the brook. Work included field survey and base plan preparation, construction plan development, details, permitting, and construction notes.

### **Goodaleville Road over Winhall River – Jamaica, VT**

#### **Utilized Municipal, State and FEMA Funds**

Mr. Holden served as the Project Manager for this municipally managed FEMA bridge project. This Goodaleville bridge was severely damaged during Hurricane Irene, and the bridge ultimately had to be replaced. This municipally managed bridge project utilized FEMA funds for design and construction. *HOLDEN* was selected by the Town of Jamaica to provide the necessary engineering services in order to gain permitting and design consensus between FEMA, VT ANR, and VT AOT. Additionally, *HOLDEN* designed a full replacement with new concrete abutments and a structure which utilized precast concrete beams. *HOLDEN* also provided construction engineering services for this project.

## **PETER D. HOLDEN**

Project Manager

### ***Municipal Bridge Projects (continued)...***

#### **Area Road over Poor Farm Brook – Gilford, NH**

##### **Utilized Municipal, State, and Federal Funds**

Mr. Holden served as the Project Manager for this Municipally Managed Bridge Replacement Project that involved a bridge replacement for Area Road (the main entrance to Gunstock Mountain Resort). Included in the design was a significant grade raise and grade flattening to improve queued vehicle startups during inclement weather conditions as they exit the resort. Combined sidewalks and bike paths were integrated into the design as widened/specially marked shoulders along this main entrance road. Design and construction were advanced in accordance with all applicable requirements for federally funded projects.

#### **Church Road over Chase Brook – Unity, NH**

##### **Utilized Municipal Funds**

Mr. Holden served as the project manager for this Municipally funded bridge project that included the replacement of a corrugated metal culvert with a pre-cast concrete, rigid frame bridge with pre-cast footings/stemwalls, headwalls, and wingwalls. Construction also included new bridge rail, bridge approach rail, and roadway guardrail, as well as roadway approach improvements.

### **SITE PLANS AND PERMITTING**

Mr. Holden has served as project manager for more than 500 projects that involved preliminary site plan development and final design. These projects included services such as topographic surveys, recreation field layout, school site plans, cemeteries, commercial and municipal site plans, road & drainage design, location of utilities, sand/gravel/rock quarries site plans, and related local, state, and federal permitting.

### **PUBLIC PRESENTATIONS**

Mr. Holden has facilitated hundreds of public meetings and excels at presenting our design concepts in clear, concise presentations. Through his ability to relate to and address a community, Mr. Holden effectively communicates that *HOLDEN* genuinely has the best interests of the municipality in mind. Below is a partial list of towns for which Mr. Holden has managed engineering and planning projects that involved public meetings with community feedback.

Alexandria, NH	Brattleboro, VT	Hudson, NH	Piermont, NH
Allenstown, NH	Brentwood, NH	Lyme, NH	Unity, NH
Andover, NH	Conway, NH	Lyndeborough, NH	Warner, NH
Ashland, NH	Dover, NH	Merrimack, NH	Westfield, MA
Bristol, NH	Gilford, NH	Montpelier, VT	Wilmot, NH
Concord, NH	Hancock, NH	Nashua, NH	Wilton, NH
Barnstead, NH	Harrisville, NH	New Boston, NH	
Bow, NH	Hooksett, NH	Pembroke, NH	

## **WILLIAM C. ROSSIGNOL, P.E**

Engineering Director & Senior Design Engineer

Mr. Rossignol is a Senior Design Engineer at *HOLDEN* more than 35 years of experience in the design of transportation projects. For ten years prior to joining *HOLDEN* in 1992, he held the position of Chief Highway Project Manager and Senior Design Engineer for another consulting engineering firm. Prior to that assignment, he spent seven years with the New Hampshire Department of Transportation, providing various levels of preliminary and final design for highway projects.

Mr. Rossignol is currently the Director of Engineering at *HOLDEN*. As a senior member of the firm, he uses his expertise to provide insight and quality control for all transportation design projects.

Mr. Rossignol also assists Mr. Holden in coordinating project tasks and activities between *HOLDEN* staff, clients, and subcontractors. He excels at establishing accurate project budgets, manpower estimates and schedules that are used throughout the project to track and control progress. In addition, his roles also include senior design engineer for roadway, bridge, drainage, and site plan projects.

Mr. Rossignol's depth of experience on municipal, state, and federally funded roadway and bridge projects allows him to anticipate the steps necessary for project documentation and submittals, assuring that complete and accurate information is received by local and state officials in a timely manner throughout the project life.

### **Education**

University of Maine at Orono  
B.S. Civil Engineering

University of Maine at Orono  
A.S. Civil Engineering

### **Certifications & Registrations**

Registered Professional Engineer:  
NH, ME, VT, NJ, MA, AND FL

Designer of Subsurface Disposal  
Systems: NH

### **Professional Affiliations**

Institute of Transportation  
Engineers

New Hampshire Good Roads  
Association

## **WILLIAM C. ROSSIGNOL, P.E**

Engineering Director & Senior Design Engineer

### **MUNICIPAL DESIGN PROJECTS (Partial List)**

Since joining *HOLDEN*, Mr. Rossignol has served as the Senior Design Engineer on municipal projects spanning communities in NH, VT, and MA. Below is a partial list of those project locations.

Alexandria, NH	Brentwood, NH	Hancock, NH	Lanesboro, MA	Ossipee, NH	Wentworth, NH
Alton, NH	Chester, NH	Harrisville, NH	Lee, NH	Peabody, MA	Westfield, MA
Andover, NH	Concord, NH	Hebron, NH	Lyme, NH	Salisbury, NH	Westford, MA
Ashland, NH	Dublin, NH	Hooksett, NH	Lyndeborough, NH	Stoddard, NH	Wilmot, NH
Auburn, NH	Ellsworth, NH	Hubbardton, VT	Monson, MA	Stratford, NH	Wilton, NH
Barnstead, NH	Gilford, NH	Jamaica, VT	Nashua, NH	Sutton, NH	Windham, NH
Bradford, NH	Halifax, MA	Keene, NH	New Boston, NH	Unity, NH	Woodstock, NH
Brattleboro, VT	Halifax, VT	Laconia, NH	Newbury, NH	Washington, NH	

### **PEDESTRIAN/BICYCLE SAFETY AND SIDEWALK PROJECTS (Partial List)**

#### ***Sidewalks and Pedestrian / Bicycle Pathway Projects***

Mr. Rossignol has acted as Senior Project Engineer for more than fifty residential and commercial projects involving the design of pedestrian accommodations such as sidewalks, crosswalks, and pedestrian bridges.

#### ***Sidewalk Scoping Study along Route 100 – Dover, VT***

The Town of Dover received funding through the State of Vermont Agency of Transportation and the Federal Highway Administration to plan for and identify issues with construction of a sidewalk/bicycle facility in the village of West Dover. The Town secured *HOLDEN's* to provide planning and engineering services to identify issues associated with possible construction of a sidewalk/multi-use path. Mr. Rossignol served as the senior engineer for developing a feasibility and scoping study to define a safe route along Route 100 in Dover to accommodate pedestrians, bicyclists, and motor vehicles. The proposed improvements will provide functional access to the residential areas, businesses, and institutions in the Town, while maintaining the aesthetic character of the Town. The proposed improvements will enhance pedestrian and bicyclist safety as well as encourage people to participate in a healthier lifestyle and increase the scenic appeal of the Town.

#### ***Pedestrian Improvements on Western Avenue (VT Route 9) – Brattleboro, VT***

Mr. Rossignol acted as the Senior Engineer for this project which involved the design of pedestrian improvements at the intersection of Western Avenue and Union Hill Road in Brattleboro, VT. Proposed improvements considered traffic calming techniques such as bump outs and striping narrower lanes, and pedestrian safety features such as the installation of crosswalk signs with flashing warning lights. The installation of textured or colored crosswalks was also evaluated for this location. The safety of this intersection is a high priority to the Town and State, so *HOLDEN* performed worked with Brattleboro and the VTrans LTF section to get this project constructed as soon as possible.

## **WILLIAM C. ROSSIGNOL, P.E.**

Engineering Director & Senior Design Engineer

*Pedestrian/Bicycle Safety and Sidewalk Projects (continued)...*

### ***Elm Hill School Sidewalk Scoping Study – Springfield, VT***

The Town of Dover received funding through the State of Vermont Agency of Transportation and the Federal Highway Administration to plan for and identify issues with construction of a sidewalk/bicycle facility in the village of West Dover. A majority of the sidewalk network (about 73%) in the project area does not meet ADA standards – particularly with regard to the width and curb ramps. *HOLDEN* was selected to perform this scoping and feasibility study. Mr. Rossignol served as the senior engineer to complete a scoping and feasibility study for ADA compliant sidewalks and crosswalks around the Elm Street Primary School (K-2). *HOLDEN* presented multiple alternatives and cost estimates so that the Town could select a preferred alternative.

### ***Sidewalk Scoping Study – Arlington, VT***

This project is currently in progress for the Town of Arlington, VT. William Rossignol is serving as the Engineering Director for developing a scoping study for new pedestrian facilities to connect the Arlington Recreation Park to the Town's existing sidewalks along VT 7A, and the intersection of VT 7A and VT 313. This scoping study will provide recommendations and alternatives for efficiently improving pedestrian safety within the study area.

### ***Bruce Freeman Bike Path, MA***

Mr. Rossignol acted as Senior Design Engineer for this federally funded Transportation Enhancement (TE) project involved the design and permitting of a paved Bike Path along an abandoned railroad right-of-way through three Massachusetts towns. This segment of the path is approximately 6.8 miles long and travels through heavily wooded areas, along streams and ponds, through parking areas and busy downtown urban areas. The path design crossed numerous vehicular intersections, including a busy 5-legged signalized intersection in downtown Chelmsford.

### ***Bradford Road, Keene, NH***

Mr. Rossignol acted as Senior Design Engineer for this project that included scoping study elements to determine the best path alignment followed by the design of 3,400 LF of new sidewalk, and an extensive existing conditions survey to delineate all of the property corners along the narrow ROW on Bradford Road. Abutters' understanding of the project was essential to gain their support. Throughout the conceptual and preliminary design phases *HOLDEN* participated in public meetings to present alternative locations and respective project impacts of each option.

### ***Safe Routes to School (SRTS) – Sidewalk Project, Warner, NH***

Mr. Rossignol acted as Senior Design Engineer for this project that included scoping study elements and the design of approximately 2,400 LF of new sidewalk in Warner, NH. This project is being implemented in sections, and included the design of new pedestrian and bicycle facilities as well as extending existing sidewalks. Locations for four speed warning signs were chosen and signs were installed to help reduce traffic speeds and increase driver awareness in the area.

## **WILLIAM C. ROSSIGNOL, P.E.**

Engineering Director & Senior Design Engineer

*Pedestrian/Bicycle Safety and Sidewalk Projects (continued)...*

### ***Town Center Enhancements, Hancock, NH***

Mr. Rossignol acted as Project Director for this project that included the preparation of a Master Improvement Plan for Main Street in the historic district of Hancock. *HOLDEN* performed a detailed evaluation of existing conditions, made recommendations for improvements, prepared conceptual design plans, and determined preliminary construction cost estimates. The final report included recommendations for pavement maintenance. Key issues included curbing, sidewalks, storm drainage, pedestrian features (benches, trees, and other amenities), vehicular patterns, parking and traffic calming along 1,750 LF of Main Street. *HOLDEN* provided aerial photography (orthophotos), base plans, and supplemental on the ground survey for presentation purposes.

## **ROADWAY DESIGN & REHABILITATION PROJECTS (Partial List)**

### ***The Villages of Kessler Farms, Nashua, NH***

Mr. Rossignol acted as Senior Design Engineer for this roadway re-paving project. Now that Phase I is complete, *HOLDEN* has been retained to continue providing pavement management services for Phase II of this project. Services provided to date have included pavement inspection and assessment, parking lot design, preparing recommendations for proposed improvements, and roadway design (grading, drainage improvements).

### ***Old Prescott Hill Road, Belmont, NH***

Mr. Rossignol acted as Project Director for this roadway design project that included 1,000 L.F. of pavement reclamation. As part of the pavement reclamation process *HOLDEN* coordinated with subcontractors to determine the most economical solution and source of materials to achieve the specified gradation for the roadway aggregates. *HOLDEN* also prepared recommendations for drainage improvements to be considered part of the pavement improvement process.

### ***Hollis Crossing, Nashua, NH***

Mr. Rossignol acted as Project Director for this roadway and sidewalk re-paving project that included inspection of existing roadways, preparation of a base plan, evaluation of storm water drainage, preparation of preliminary construction cost estimates, preparation of a pavement instruction plan, determining appropriate funding-based phasing for the project, and construction oversight during paving operations.

### ***River Road, Lyme, NH***

Mr. Rossignol acted as Project Manager and Senior Project Engineer for the design of 1,200 LF of river bank stabilization and roadway relocation adjacent to the Connecticut River where flood waters scoured the east bank. This project included a field survey, permitting, roadway design, stream bank restoration in some areas of the Connecticut River, assistance with construction bid process, cost reduction investigations after construction bidding, and design changes after a change in land acquisition as the result of a public hearing.

## **WILLIAM C. ROSSIGNOL, P.E.**

Engineering Director & Senior Design Engineer

*Roadway Design & Rehabilitation Projects (continued)...*

### ***Head's Pond Development, Hooksett, NH***

Mr. Rossignol acted as Senior Project Engineer for this residential site development in Hooksett, NH. **HOLDEN** developed over 1,200 acres of undeveloped land into a cluster subdivision containing approximately 400 housing units and over 6.5 miles of new road network with sidewalks, landscaping, street lighting, and crosswalks.

### ***Cluster Subdivision Plan, New Ipswich, NH***

Mr. Rossignol acted as Project Director for this project at a residential subdivision with 80 single-family house lots. 7,100 linear feet of roadway with rolled asphalt connect these lots. The storm drainage was designed as a closed system, with treatment and detention facilities located on-site. Offsite improvements included upgrading 3,000 linear feet of roadway to Class 5 with drainage improvements. The scope of work included field surveying, wetland delineation, base plan preparation, wetland permitting, construction plans and specifications, and local approvals

## **SITE PLANS AND PERMITTING**

Mr. Rossignol has served as a senior design engineer for more than 500 projects that involved preliminary site plan development and final design. These projects included services such as topographic surveys, recreation field layout, school site plans, cemeteries, commercial and municipal site plans, road & drainage design, location of utilities, sand/gravel/rock quarries site plans, and related local, state, and federal permitting.

## **WILLIAM C. ROSSIGNOL, P.E.**

Engineering Director & Senior Design Engineer

### **STREAM BANK STABILIZATION PROJECTS (Partial List)**

#### ***River Road, Lyme, NH – Connecticut River Bank Stabilization & Road Realignment***

Mr. Rossignol served as Senior Project Engineer for the design of 1,200 LF of river bank stabilization and roadway relocation adjacent to the Connecticut River where flood waters scoured the east bank. This project included a field survey, permitting, roadway realignment design, stream bank restoration in some areas of the Connecticut River, assistance with construction bid process, cost reduction investigations after construction bidding, and design changes after a change in land acquisition as the result of *HOLDEN's* public presentation on the various reconstruction solutions which were attended by approximately 100 people. *HOLDEN* also provided engineering services during construction of the project.

#### ***Readsboro, VT – Stream Bank Stabilization Plan***

Mr. Rossignol is serving as the Senior Project Engineer for this Readsboro project. *HOLDEN* is currently finishing design plans for this river bank stabilization project in Readsboro, VT. This project along the West Branch of the Deerfield River involves a steep 50 ft high embankment which suffered significant erosive damage during Tropical Storm Irene. Because the north bank and terrace of privately owned land eroded, three residences had to be razed. In response, the Town of Readsboro received a Community Development Block Disaster Grant - Recovery 2 (CDBG-DR2) for the design and construction of stabilization measures. *HOLDEN* is handling all surveying, design, and permitting, and also will provide engineering services during construction. One of the critical aspects of the design process involved determining the most efficient construction approach for safe operation of large trucks and excavation equipment on the steep, high embankment.

#### ***Barnard, VT – Slide Stabilization Project***

The Town of Barnard awarded *HOLDEN* the engineering and construction management services to repair a Tropical Storm Irene slide across from the Town Garage on Chateauguay Road on the Locust Creek in Barnard, Vermont. Mr. Rossignol is serving as the Senior Project Engineer to develop designs, specifications, and handle contractor selection for this bank/streambed stabilization project. *HOLDEN* will also provide construction management and resident engineer services. The design portion of the project includes two phases: a simplified design alternatives analysis using preliminary designs and a set of final designs for the chosen alternative. The chosen alternative will include a final design to stabilize a head cut and bank erosion at the lower downstream portion of the bank slide area. The construction portion of the project may only include the minimum design to stabilize the head cut and bank erosion but could also include the chosen alternative or portions of as current grant funding allows. This project is being funded by a federal HUD CDBG-DR grant that was awarded in July 2015.

## **WILLIAM C. ROSSIGNOL, P.E.**

Engineering Director & Senior Design Engineer

### **MUNICIPAL BRIDGE DESIGN PROJECTS (Partial List)**

#### **Kearsarge Valley Road over Cascade Brook – Wilmot, NH**

##### **Utilized Municipal, State, and FEMA Funds**

Mr. Rossignol served as the Senior Design Engineer for this FEMA project. Following the washout of the old metal pipe culvert, the Town of Wilmot quickly installed a temporary Bailey bridge. As the washout of the metal pipe was unexpected, and a convenient alternate traffic route was not readily available, this was considered an emergency situation and was eligible for partial FEMA funds. This project was also on the list for the NHDOT Municipal Bridge Aid Program and received additional funding. Throughout the project *HOLDEN* communicated with multiple funding agencies and worked with the Town to ensure that all appropriate documentation was submitted to the correct agencies in order to receive funds.

#### **Dufour Road Bridge over South Branch Baker River – Wentworth, NH**

##### **Utilized Municipal and State Funds**

Mr. Rossignol served as the Senior Design Engineer for this Municipally Managed Bridge project that included the repair of abutment and wing wall surfaces; reconstruction of the existing reinforced concrete seats; construction of new reinforced concrete backwalls, and capping of existing reinforced concrete wingwalls; placement of stone fill adjacent to abutments and wing walls; erection and assembly of precast/pre-stressed concrete box beams; construction of a concrete over pour; reconstruction of approximately 160 LF of roadway; installation of guardrail and paving. Key to the design was a minimization of the bridge closure time. The selected superstructure utilizes precast-pre-stressed concrete box beams with a concrete over-pour. With quick erection time, the bridge closure was minimized.

#### **Cavender Road Bridge over Ferguson Brook – Hancock, NH**

##### **Utilized Municipal, State and FEMA Funds**

Mr. Rossignol served as the Senior Design Engineer for this project, funded by FEMA with assistance from the NHDOT's Bridge Aid Program. The original bridge was a metal pipe that failed during a storm event in 2005. Evaluation of several bridge types led to the recommendation of constructing a 23-foot long pre-cast concrete box culvert structure with a 20-foot travel width. Approach roadway modifications, drainage improvements, guardrail and other safety improvements were implemented in the design. Project requirements included a temporary road closure and minimizing the duration of construction. A timber guardrail system was installed in order to preserve the rustic look of the site.

#### **Hancock Road over Skatutakee Lake – Harrisville, NH**

##### **Utilized Municipal, State, and Federal Funds**

Mr. Rossignol served as the Senior Design Engineer for this Municipally Managed Bridge Replacement Project that involved the removal of an existing bridge superstructure, utilization and rehabilitation of the existing abutments, construction of a new timber superstructure with sidewalk, and roadway approach improvements for this scenic roadway adjacent to Skatutakee Lake. Design and construction were advanced in accordance with all applicable requirements for federally funded projects.

## **WILLIAM C. ROSSIGNOL, P.E.**

Engineering Director & Senior Design Engineer

### **Goodaleville Road over Winhall River – Jamaica, VT**

#### **Utilized Municipal, State and FEMA Funds**

Mr. Rossignol served as the Senior Design Engineer for this municipally managed FEMA bridge project. This Goodaleville bridge was severely damaged during Hurricane Irene, and the bridge ultimately had to be replaced. This municipally managed bridge project utilized FEMA funds for design and construction. *HOLDEN* was selected by the Town of Jamaica to provide the necessary engineering services in order to gain permitting and design consensus between FEMA, VT ANR, and VT AOT. Additionally, *HOLDEN* designed a full replacement with new concrete abutments and a structure which utilized precast concrete beams. *HOLDEN* also provided construction engineering services for this project.

### **Pikes Falls Road over North Branch Ball Mountain Brook – Jamaica, VT**

#### **Utilizing Municipal and State Funds**

Mr. Rossignol served as the Senior Design Engineer for this municipally managed bridge project. This Pikes Falls Road stream crossing suffered damage in hurricane Irene, which required roadway repairs and new guardrails, which subsequently were installed. However, the original undersized and damaged culverts were still in use and needed to be replaced. *HOLDEN* was selected by the Town to design a concrete structure to replace the existing tandem CMP culverts. Work included field survey and base plan preparation, construction plan development, details, permitting, and construction notes. A hydrology & hydraulics study was performed to determine required waterway opening as well as review of waterway requirements recommended by the VTrans Hydraulic Unit. *HOLDEN* also provided a plan for maintaining vehicular traffic through the site during construction.

### **Stearns Brook Road over Stearns Brook – Holland, VT**

#### **Utilizing Municipal, State and FEMA Funds**

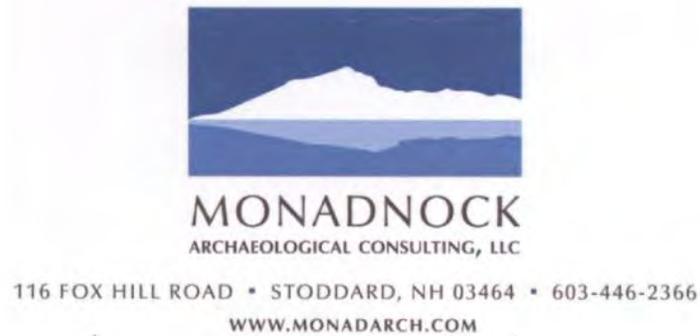
Mr. Rossignol served as the Senior Design Engineer for this municipally managed FEMA bridge project, currently in the design phase. The Stearns Road bridge consists of a 60 ft. long x 15 ft. wide corrugated metal arch pipe embedded in a concrete base, with a stone masonry face on the west side of the bridge, and an earthen embankment lined with stone masonry blocks on the east side. The existing structure and surrounding masonry was in need of replacement. *HOLDEN* was selected by the Town to develop replacement alternatives and deliver final design plans for the most cost effective replacement structure. As part of the preliminary review, *HOLDEN* evaluated the waterway opening size to better accommodate the natural channel width of the brook. Work included field survey and base plan preparation, construction plan development, details, permitting, and construction notes.

### **Old County Farm Road over Green River – Halifax, VT**

#### **Utilized Municipal and State Funds**

Mr. Rossignol served as the Senior Design Engineer for this bridge project, with construction completed in September 2014. The superstructure was completely replaced using new galvanized steel beams, glued/laminated timber deck panels, timber curb and timber bridge rail. The deck was paved with an embedded waterproof membrane. Improvements to the road approaches and approach guardrails were also included. As the 30-day temporary closure of the vehicular bridge prohibited access to the three residential properties on the far side, a temporary lighted footbridge was constructed before the old vehicular bridge was taken out of service. Residents were provided a place to park their vehicles on the near side, and utilized the footbridge until the reconstructed bridge was opened.

(Subconsultant – Archaeological Review)



## **QUALIFICATIONS**

Founded in 2004, Monadnock Archaeological Consulting, LLC meets all Federal requirements for conducting archaeological research, and is on the list of state-approved archaeological consultants in New Hampshire, Vermont, and Maine. In each state, we are qualified to direct all levels of investigation on Pre-Contact Native American and historic period sites. Our Principal Investigators have authored over two hundred technical reports for a wide variety of public and private sector clients, and have directed projects of all levels of complexity, including a recently completed multi-year Phase III Data Recovery project at a 12,000 year old site in Keene, New Hampshire. For the past six years we have been awarded Service Contracts for both Pre-Contact Native American and Historic Euroamerican archaeology by the New Hampshire Department of Transportation. We have developed a close working relationship with the NHDOT while successfully completing archaeological review for dozens of transportation-related projects, working directly for NHDOT and as a partner with engineering and environmental consulting firms and municipalities throughout New Hampshire. We have also had an ongoing service contract, in partnership with Wright-Pierce, from the New Hampshire Dam Bureau to conduct archaeological studies for dam removal projects across New Hampshire, and have completed archaeological reviews for over fifty telecom projects across northern New England. Monadnock Archaeological Consulting has developed a level of expertise and reputation for thorough, high quality work that has made it one of the leading archaeological consulting firms in northern New England.

## Curriculum Vitae

### D. Scott Newman

PO Box 64644

Burlington, VT 05406

(802) 777-1572

scottnewman@106associates.com

## Experience

April 2014 - Present

### Principal – Section 106 Associates

*106 Associates offers clients expert level knowledge of historic preservation regulations [NEPA, Section 106, Section 4(f)]. Principal Scott Newman has over 2200 agreements successfully completed over 20 years' experience reviewing projects. From simple No Effect determinations, to bi-state, multi-agency Programmatic Agreements, 106 Associates can provide targeted services and work with your staff or consultants, or manage your preservation regulatory review from conception through construction.*

We also:

- Provide comprehensive historic preservation consulting services to private, government, and corporate clients.
- Provide expertise in historic resource survey, rehabilitation investment tax credits, national register nominations, conservation assessments, grant writing, and project management.

1999 – 2014

### Historic Preservation Officer – Vermont Agency of Transportation

- Research and prepare the full suite of Section 106 documentation for major and minor transportation-related infrastructure projects (over 2200 projects completed and approved).
- Conduct and prepare complete Section 4(f) evaluations for DOT-funded projects (over 225 projects prepared for, and approved by FHWA).
- Successful track record in managing complex regulatory reviews for building and infrastructure projects, including MOA and PA development.

1993 – 1998

### Principal - Cultural Resource Management Consultants

- Provide complete historic preservation consulting services to institutional and private clients.
- Provide expertise in historic resource survey, rehabilitation investment tax credits, national register nominations, conservation assessments, grant writing, and project management.

## **Education**

1995

M.Sc., Historic Preservation  
University of Montreal

1990

B.A. – Economics  
Concordia University, Montreal

## **Qualifications and Skills**

- Professional oral and written communication skills
- Professional public speaking and media training from AASHTO
- Negotiation and mediation training from Vermont Law School
- 36 CFR 61 Qualified Architectural Historian
- Expert level knowledge of Section 106 and Section 4(f) review for building and infrastructure projects
- Experience working with New York, Vermont, and New Hampshire HP Offices
- Skilled at educating/training staff and stakeholders in preservation
- Ability to read and interpret engineering and construction plans
- Experience coordinating with the full array of preservation stakeholders
- Experienced and skilled working independently and in team environment

## **Notable Professional Activities and Community Involvement**

- Guest lecturer, University of Vermont Historic Preservation Graduate Program on historic preservation permitting
- Guest Lecturer, Vermont Technical College on environmental permitting
- Recipient, Federal Highway Administration Environmental Excellence Award for co-authoring statewide Programmatic Agreement to streamline historic preservation review while maintaining exceptional resource protection
- Recipient, Merit Awards (3) for exceptional public service and member of VTrans Teams of the Year (2)
- Past Board of Directors, Northeast chapter of Association for Preservation Technology
- Current Board of Directors, Isle La Motte Preservation Trust

## **II. Work Samples: Relevant Projects**

## PEDESTRIAN & BICYCLE FACILITIES

### HOLDEN Projects within Last 3 Years for Bicycle/Pedestrian/Multi-Use Services

NOTE: For photos and descriptions of these projects, refer to **Section II – Work Samples: Relevant Projects.**

Municipal Client	Projects (Partial List)	HOLDEN Principal Staff*
Dover, VT	Bicycle & Pedestrian Scoping Study along Route 100	Peter Holden, Bill Rossignol, P.E
Springfield, VT	Elm Hill School Sidewalk Scoping and Feasibility Study	Peter Holden, Bill Rossignol, P.E
Brattleboro, VT	Pedestrian Improvements on Western Avenue (VT Route 9)	Peter Holden, Bill Rossignol, P.E
Arlington, VT	Pedestrian Safety Scoping Study along VT Route 7A	Peter Holden, Bill Rossignol, P.E
Keene, NH	Historic Keene Arch Bridge / Multi-use Rail Trail	Peter Holden, Bill Rossignol, P.E.
Nashua, NH	Mill Pond Boardwalk at Mine Falls Park	Peter Holden, Bill Rossignol, P.E
Keene, NH	Bradford Road Sidewalk	Peter Holden, Bill Rossignol, P.E.
Antrim, NH	Highland Ave. & Pleasant St. Reconstruction	Peter Holden, Bill Rossignol, P.E

\* In addition to the listed Principal Staff members, the *HOLDEN* staff for surveying and CADD services used for these projects will be the same staff available for this project.

### Additional Relevant HOLDEN Projects for Bicycle/Pedestrian/Multi-Use Services

NOTE: For photos and descriptions of these projects, refer to **Section IV – Project Experience.**

Municipality	Projects (Partial List)	HOLDEN Principal Staff
Multiple in MA	Bruce Freeman Bicycle Path – for Mass. Highway	Peter Holden, Bill Rossignol, P.E.
Warner, NH	Safe Routes to School Sidewalk, Bicycle, and Pedestrian Path	Peter Holden, Bill Rossignol, P.E
Hooksett, NH	Rail Trail Final Design	Peter Holden, Bill Rossignol, P.E
Hancock, NH	Town Center Sidewalk and Street Enhancements	Peter Holden, Bill Rossignol, P.E
Hooksett, NH**	Heads Pond Development**	Peter Holden, Bill Rossignol, P.E

\*\*Heads Pond was a private developer project that recently received final approval from the Town of Hooksett. This project included more than 6.5 miles of roadway with sidewalks and crosswalks.

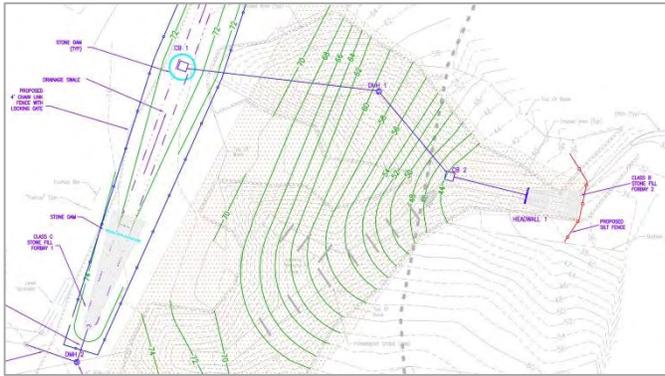
## Pedestrian / Bicycle Project List

(partial list)

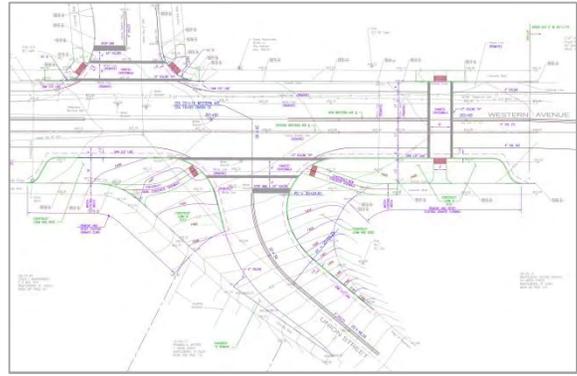
*HOLDEN* has completed scores of sidewalk projects during the past 25 years. These projects included one or more elements such as local roadway design, traffic calming, intersection design, traffic studies, pedestrian and bicycle safety, ADA compliance, roadway & sidewalk drainage, multiple funding sources, public forum presentations, and construction monitoring. All of these projects required extensive communication and coordination with towns, reviewing agencies, and property abutters

The following table includes a partial list of projects successfully completed by *HOLDEN* that included significant sidewalk or pedestrian and bicycle pathway design. *HOLDEN* also provided surveying services for these projects.

CLIENT	Length of Sidewalk / Pathway
Town of Warner, NH	2,400 feet
City of Keene, NH	3,400 feet
Robert Martel, Laconia, NH	2,700 feet
Realty Resources Chartered, Belmont, NH	800 feet
John Gagnon, Concord, NH	800 feet
GFI, Inc., Lebanon, NH	2.1 miles
Artech Real Estate Management, Concord, NH	2,400 feet
Assured Realty Trust, Goffstown, NH	1,900 feet
Gary Coyne, Northfield, NH	4,000 feet
JMD Realty, Hooksett, NH	4,000 feet
Mall Realty Trust, Penacook, NH	3 miles
Manchester Sand & Gravel	1.5 miles
MCX, LLC, Laconia, NH	2,500 feet
Moulton Construction, Lebanon, NH	1.45 miles
Pegasus Management Co., Hooksett, NH	1,200 feet
Samaha Builders, Inc., Concord, NH	800 feet
Heads Pond Development	6.5 miles
MassHighway – Bruce Freeman Path	6.8 miles
<b>Total Length of Sidewalks</b>	<b>&gt; 26 miles</b>



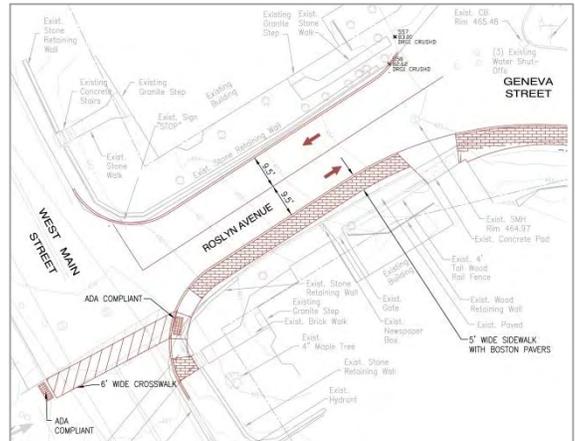
Dover, NH -  
Garrison School - Slope Stabilization, Drainage Design, Site Plan



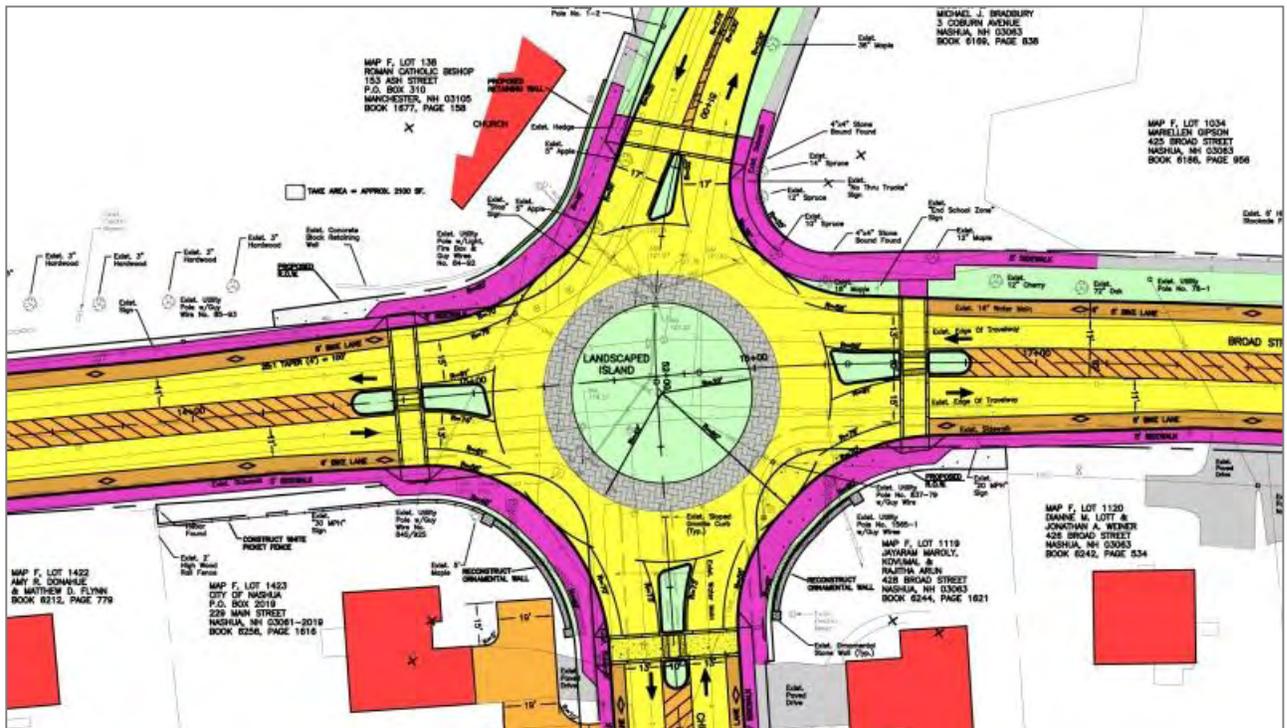
Brattleboro, VT -  
Western Ave Intersection Design for Pedestrian Safety

**Relevant HOLDEN Experience**

- ❑ Thousands of private & municipal projects
- ❑ School projects requiring close communication with school, municipal, and state officials
- ❑ Engineering for projects funded with municipal, state, and federal funds
- ❑ Vehicular traffic flow studies
- ❑ Signalized intersection & roundabout design
- ❑ Design for Safe Routes to Schools
- ❑ More than 135,000 feet of sidewalks designed for pedestrian safety
- ❑ Drainage, sewer, and parking lot design
- ❑ Comprehensive site plans with ADA compliance

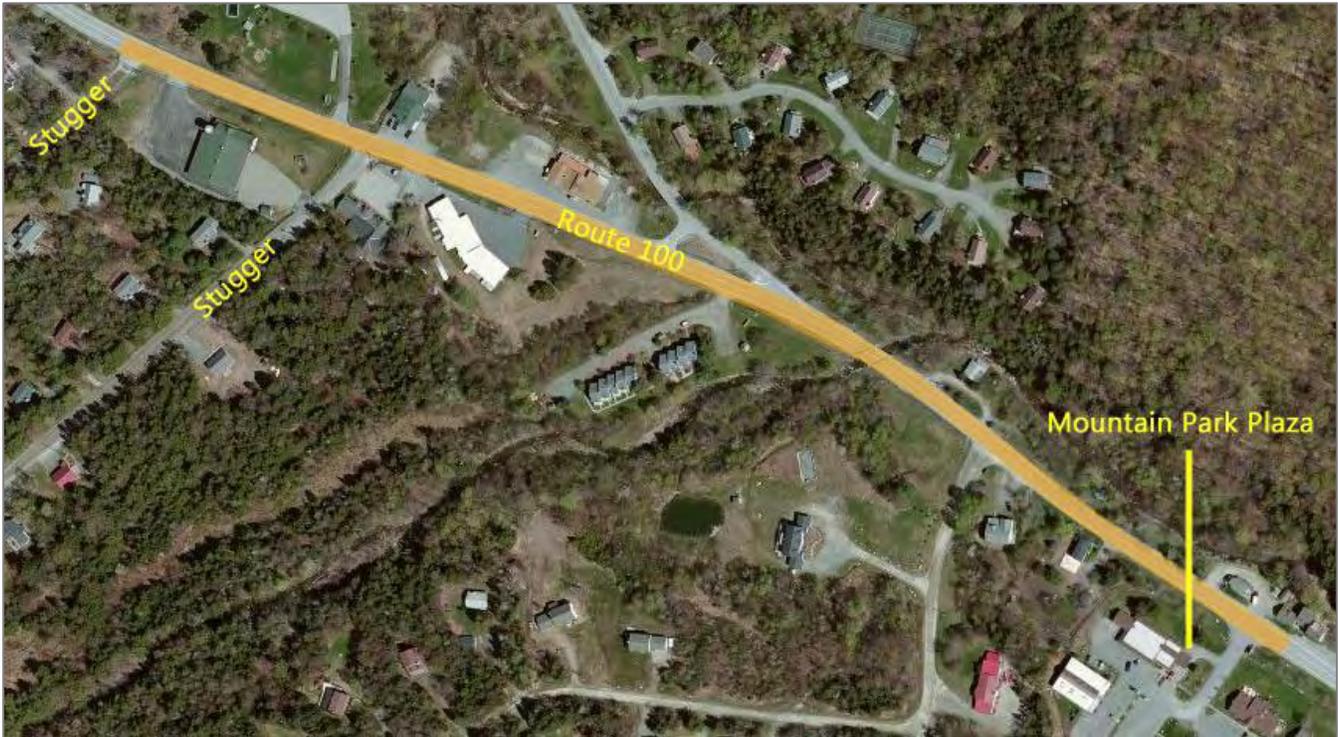


Warner, NH -  
Safe Routes to School – Sidewalk & Crosswalk Design



Nashua, NH -  
Nashua High School – Roundabout Intersection with Crosswalks

## Pedestrian & Bicycle Projects - Utilizing Municipal, State, and/or Federal Funds (partial list)



**Location:** Dover, VT

**Client:** Town of Dover

Current **HOLDEN** Team Members Involved on this Project:

Peter Holden, LLS  
William Rossignol, PE

### **Scope of Services:**

#### **Sidewalk Scoping Study**

- Base Map
- ROW Survey
- Identification of Utilities
- Drainage Review
- Identify Best Path Route
- Identify Required Permits
- Alternatives Investigation
- Conceptual Plans
- Cost Estimates

## **Bicycle & Pedestrian Scoping Study along Route 100**

### **Description of Project**

The Town of Dover received funding through the State of Vermont Agency of Transportation and the Federal Highway Administration to plan for and identify issues with construction of a sidewalk/bicycle facility in the village of West Dover. The sidewalk/bicycle facility is proposed to extend northbound for approximately 1,620 feet (0.3 mi.) from Mountain Park Plaza to Stugger Road along Route 100 within the State Right of Way (ROW). The Town secured **HOLDEN's** to provide planning and engineering services to identify issues associated with possible construction of a sidewalk/multi-use path.

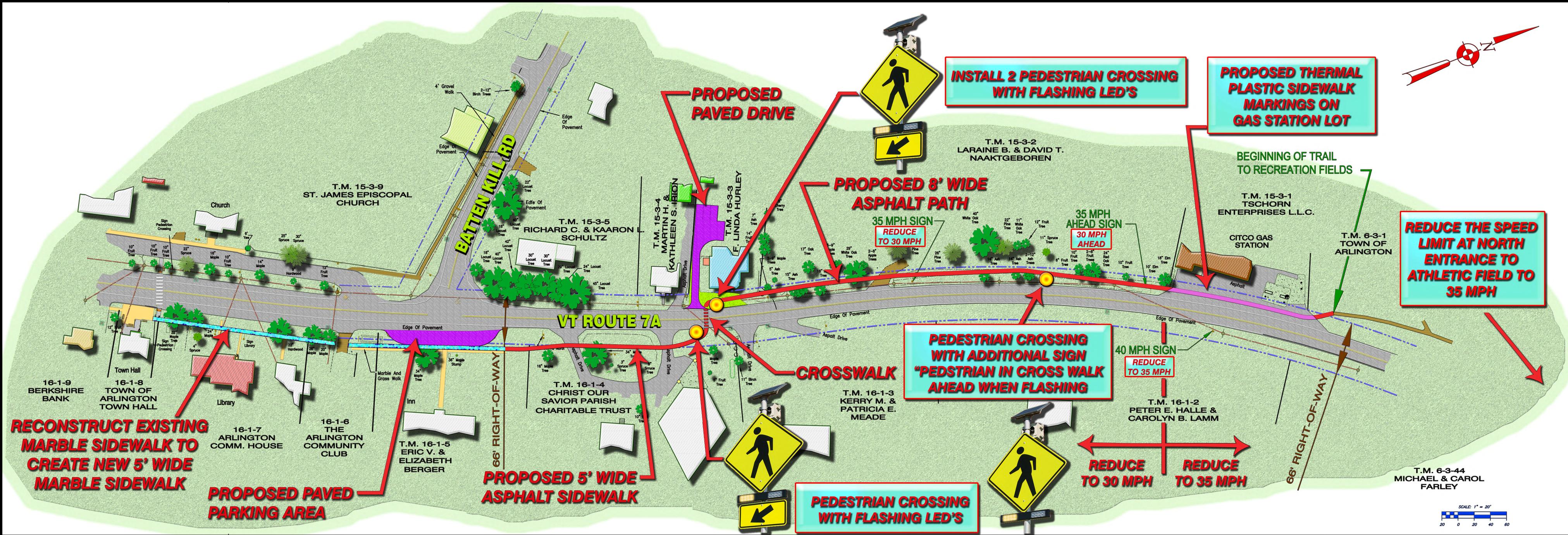
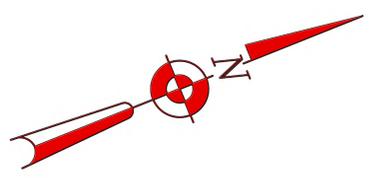
The objective of this project is to create a safe route along Route 100 in Dover to accommodate pedestrians, bicyclists, and motor vehicles. The proposed improvements will provide functional access to the residential areas, businesses, and institutions in the Town, while maintaining the aesthetic character of the Town. The proposed improvements will enhance pedestrian and bicyclist safety as well as encourage people to participate in a healthier lifestyle and increase the scenic appeal of the Town.

## Sidewalk Scoping Study – Arlington, VT Utilized Municipal, State, and Federal Funds

Key **HOLDEN** Staff: Peter Holden, Project Manager; William Rossignol

This project is currently in progress for the Town of Arlington, VT. **HOLDEN** is developing a scoping study for new pedestrian facilities to connect the Arlington Recreation Park to the Town's existing sidewalks along VT 7A, and the intersection of VT 7A and VT 313. This study will provide recommendations and alternatives for efficiently improving pedestrian safety within the study area.







## Feasibility and Scoping Study Considerations

**Location:** Springfield, VT

**Client:** Town of Springfield

Current **HOLDEN** Team Members Involved on this Project:

Peter Holden, LLS  
William Rossignol, PE

### **Scope of Services:** **Sidewalk Scoping Study**

- Base Map
- ROW Survey
- Identification of Utilities
- Drainage Review
- Identify Required Permits
- Alternatives Investigation
- Conceptual Plans
- Cost Estimates

## **Elm Hill School**

### **Sidewalk Scoping and Feasibility Study**

#### **Description of Project**

The Town of Springfield has received funding through the Vermont Transportation Alternatives Program to plan for and identify issues with construction of sidewalk improvements in Springfield.

**HOLDEN** was recently selected to perform this scoping and feasibility study in 2015.

The purpose of this project is to complete a scoping and feasibility study for sidewalks and crosswalks around the Elm Street Primary School (K-2). It is the main walking route from the downtown and surrounding residential neighborhoods to the School. A majority of the sidewalk network (about 73%) in the project area does not meet ADA standards – particularly with regard to the width and curb ramps. There are notable issues with upgrading the sidewalks in this area – including a retaining wall next to the sidewalk on Douglas Street between Elm Hill Street and the School in conjunction with a narrow roadway, which could cause issues for expansion of the sidewalks. Right-of-way or related constraints may also be issues, and will be evaluated, along with cost estimates for different alternatives.

**Location:** Brattleboro, VT

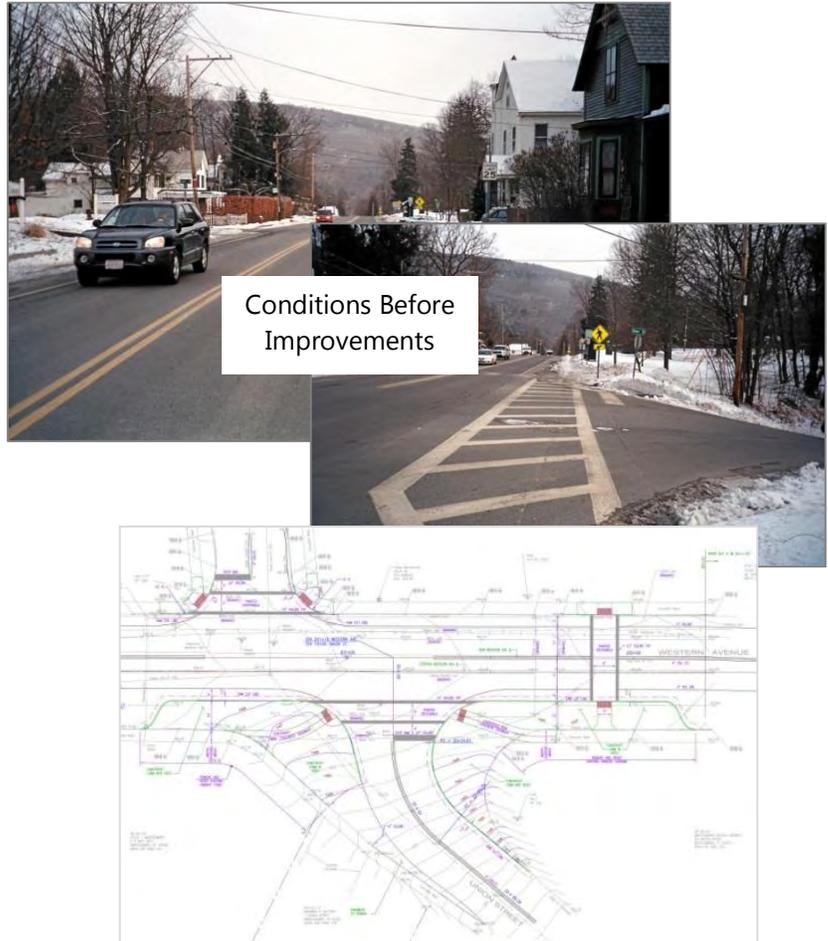
**Client:** Town of Brattleboro

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, LLS  
William Rossignol, PE

**Scope of Services**

- Topographic Survey
- ROW Survey
- Sidewalk Design
- Roadway Design
- Intersection Design
- Drainage Design



**Pedestrian Improvements on Western Avenue (VT Route 9)**

**Description of Project**

This project is currently in progress and involves the design of pedestrian improvements at the intersection of Western Avenue and Union Hill Road in Brattleboro, VT. Proposed improvements include traffic calming techniques such as bump outs and striping narrower lanes, and pedestrian safety features such as the installation of crosswalk signs with flashing warning lights. The installation of textured or colored crosswalks is also being considered for this location.

The safety of this intersection is a high priority to the Town and State, so we are working with Brattleboro and the VTrans LTF section to get this project constructed as soon as possible.

**Bruce Freeman Bike Path – West Chelmsford, MA**  
**Client – Mass. Highway – Utilized Federal Funds**

*Key HOLDEN Staff: Peter Holden, Project Manager; William Rossignol, P.E.*

This federally funded Transportation Enhancement (TE) project involved the design and permitting of a paved Bike Path along an abandoned railroad right-of-way through three Massachusetts towns. This segment begins at the intersection of Routes 225 and 27 in Westford. It continues north for approximately 6.8 miles and ends at the Cross Point Towers in Lowell. The path travels through heavily wooded areas, along streams and ponds, through parking areas and busy downtown urban areas. The path design crossed numerous vehicular intersections, including a busy 5-legged signalized intersection in downtown Chelmsford.

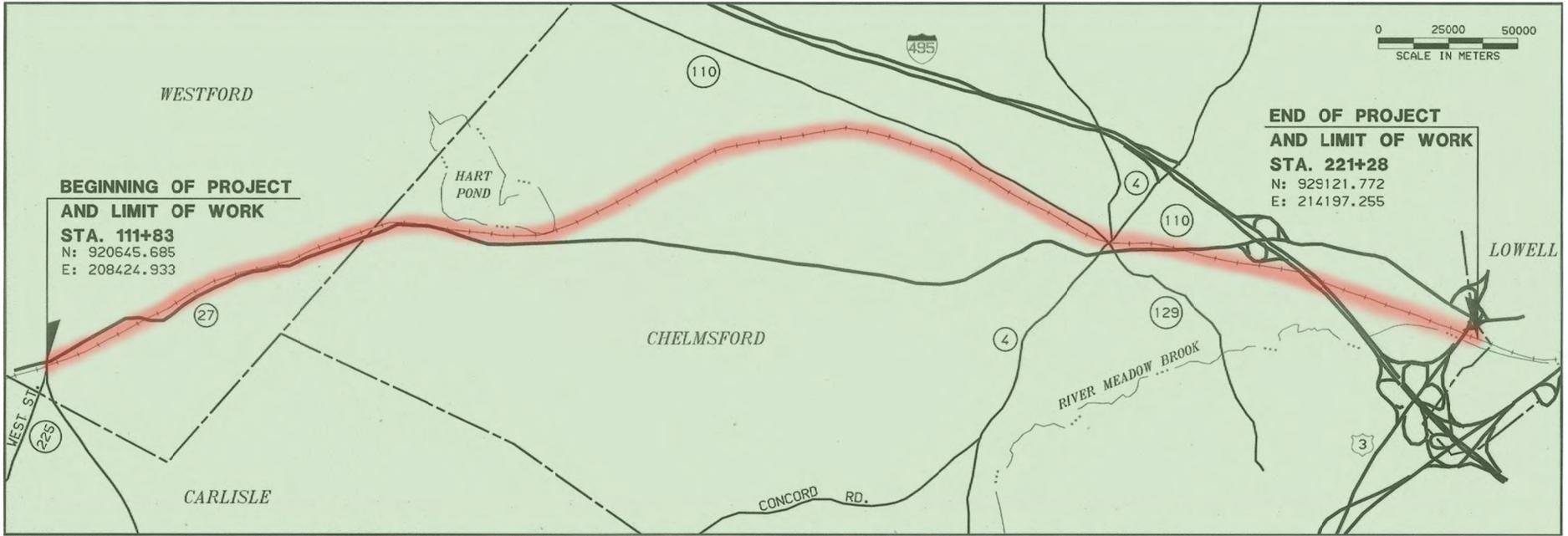
The design of this path required a heightened awareness of minimizing impacts to wetlands adjacent to the existing rail corridor. The path alignment fluctuated within the 66-foot Right of Way to avoid those wetlands. Equally important was sensitivity to tree cutting in order to maintain screening that was so critically important to adjoining land owners. HOLDEN conducted a preliminary scoping study to determine the ideal path alignment and mitigate environmental impacts prior to beginning the design phase of this project.

Improvements also include drainage improvements, pavement markings, roadway and path signing, wood railing, a stone masonry wall, fencing, resetting drainage and sewer manhole covers, traffic signal modifications, selective tree clearing, tree and shrub plantings and other incidental work.



FEDERAL AID PROJECT NO. CM-001S(659)X

LENGTH OF PROJECT = 10,942 meters  $\approx$  (6.8 miles)



II-10

## Bruce N. Freeman Memorial Bicycle Path in Westford - Chelmsford - Lowell, MA

### General

This project was designed and constructed under the direction of the Commonwealth of Massachusetts (Massachusetts Highway Department). The project was federally funded under the Transportation Enhancement Program. At 6.8 miles long, the path followed an abandoned railroad right of way through the towns of Westford, Chelmsford and Lowell, MA. It was part of a much longer trail system that provides connectivity between many Massachusetts towns.

### Key Project Components

- Passes through heavily wooded areas, along streams and ponds, through parking lots and busy downtown urban areas
- Crosses through numerous vehicular intersections including a busy 5-legged signalized intersection in downtown Chelmsford
- Designed with a heightened awareness of minimizing wetland impacts adjoining the rail corridor
- Path alignment fluctuated within the 66-foot ROW to avoid wetlands
- High sensitivity to tree cutting to help maintain screening – critically important to adjoining landowners
- Design for the rehabilitation and reconstruction of four bridge crossings
- Design of storm drainage improvements
- Traffic signal modifications in urban areas
- Roadway and path signing & pavement markings
- Use of wood railing to maintain aesthetics
- Retaining wall design
- Tree shrub plantings, and fencing
- Construction plans, specifications and estimates, bid documents

### Environmental

- Wetland Permitting
- Historical and Archaeological Research
- Endangered Species
- Storm Water Discharge/Clean Water Act

### Public Participation Process

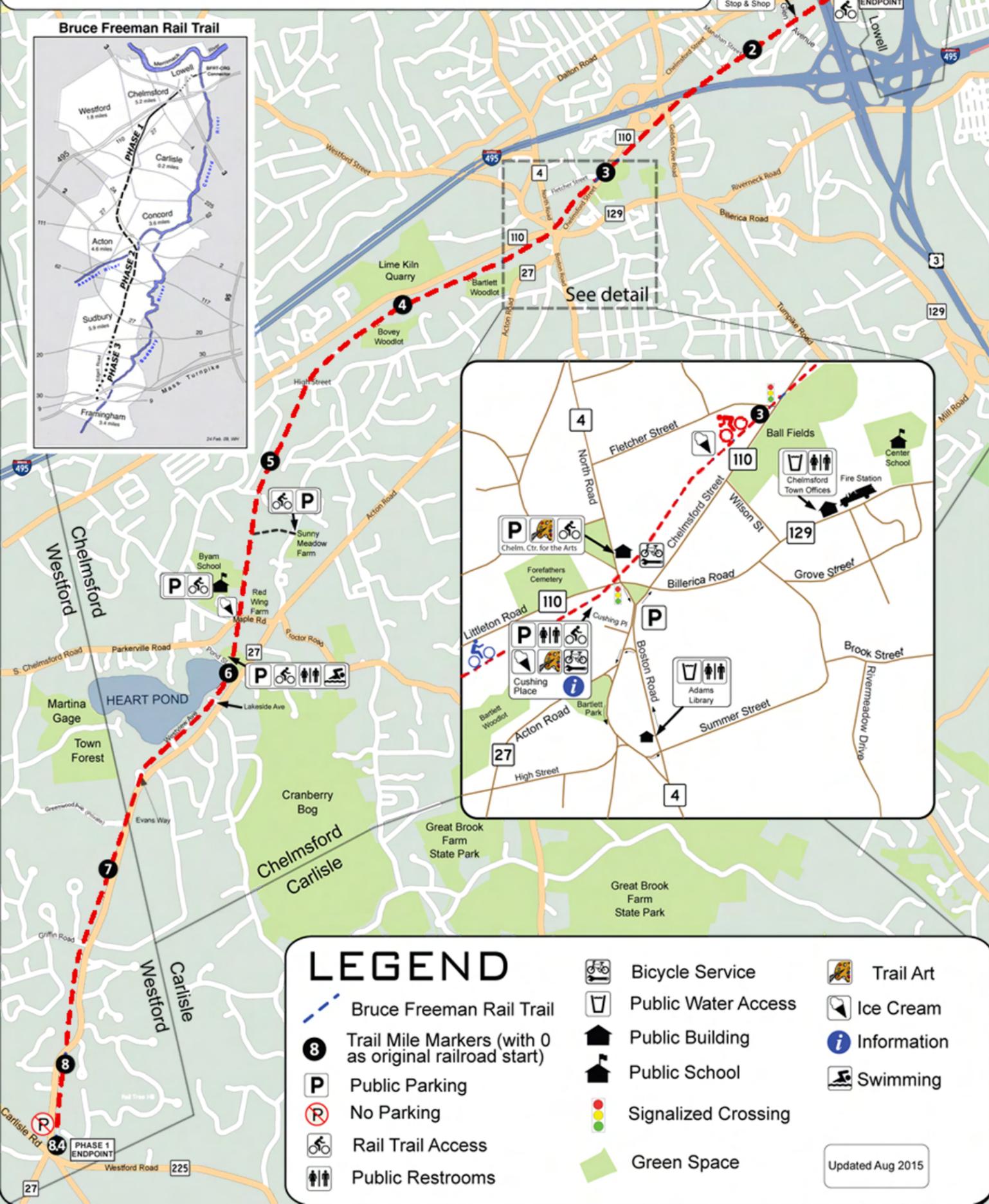
Passing through three individual Towns, extensive coordination was required with three individual select boards and three conservation commissions.

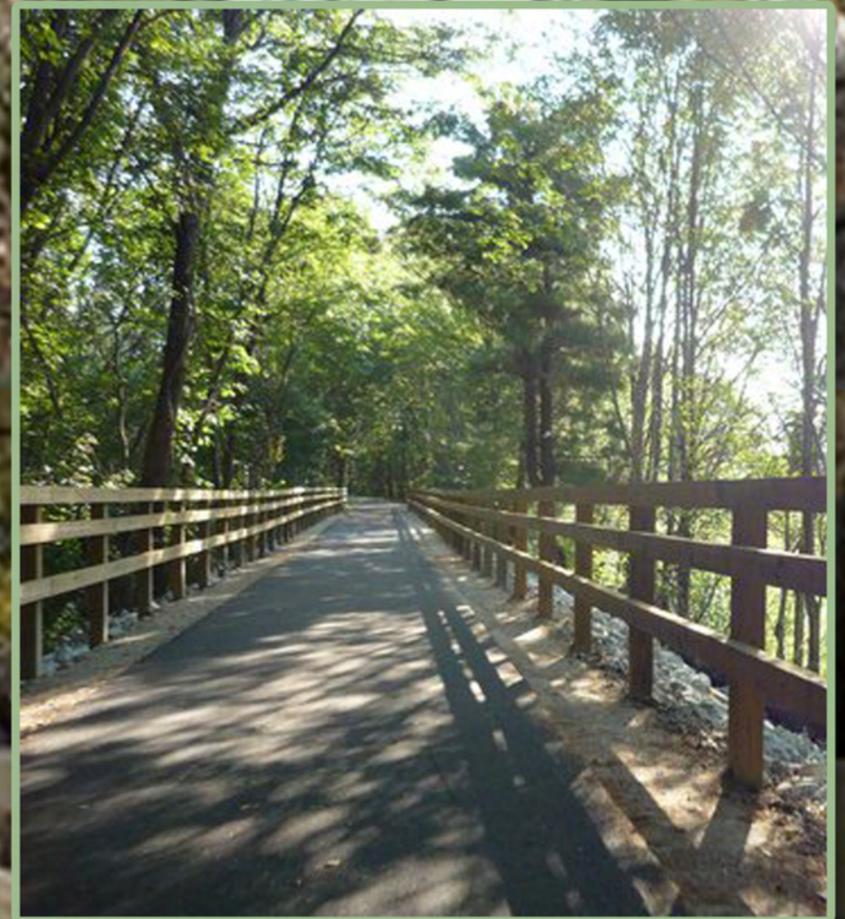
- Numerous public meetings (town forum)
- Numerous meetings with property abutters, both individually and in groups
- Addressing significant concerns about disruption of privacy, added noise, and vandalism
- Construction of fencing and shrubbery to help ease concerns

# BRUCE FREEMAN RAIL TRAIL

## TRAIL MAP [brucefreemanrailtrail.org](http://brucefreemanrailtrail.org)

### Phase I - 6.8 Miles of Bike/Pedestrian Design





Bruce N. Freeman Memorial Bicycle Path in Westford - Chelmsford - Lowell, MA

### **Bruce Freeman Bike Path (continued)...**

Passing through three individual towns, extensive coordination was required with three individual select boards and three conservation commissions. Numerous public meetings were held in individual towns as the design progressed. Many additional meetings were held with property abutters, both individually and in groups. There were significant concerns about disruption of privacy, added noise, and vandalism. Along many properties, fencing and shrubbery were designed to help ease these concerns.

### **Scope of HOLDEN Services**

- Bicycle Path Design
- Historical/Archaeological Research
- Endangered Species Research
- Drainage Design
- Retaining Wall Design
- Construction Plans & Specifications



## Mill Pond Boardwalk at Mine Falls Park – Nashua, NH

Key *HOLDEN* Staff: Peter Holden, Project Manager; William Rossignol, P.E.

A section of the red trail in Nashua’s Mine Falls Park along the Southeasterly side of Mill Pond, required attention in order to enhance the experience offered to users of the park, plus better protecting the environmentally sensitive land between Riverside Street and the Pond. A 220 foot long boardwalk, with an overlook, that is consistent in design and appearance to other structures already built within the park, was considered and incorporated into the trail and boardwalk design for this location.

*HOLDEN* delineated and flagged the wetland area while collaborating with the city to establish the preliminary layout to create a working base plan. An important aspect of defining the path for the boardwalk was to identify dead or dying trees to remove while preserving the healthy ones. At that point in the design process, the proposed boardwalk position could be refined to best suit efficient structural framing modules and the exact location of the required support piles were established.

This project is currently initiating the construction work and *HOLDEN* is providing engineering services for the construction phase.



**Mill Pond Boardwalk Project  
Mine Falls Park – Nashua, NH**

Boardwalk at Mine Falls Park  
Nashua, NH - Opened May 4, 2016



**Location:** Keene, NH

**Client:** City of Keen, NH

Current **HOLDEN** Team Members  
Involved on this Project:

Peter Holden, LLS  
William Rossignol, PE

### **Funding Sources**

Municipal  
State

### **Scope of Services**

Bridge Inspection  
Multi-use Path Design  
Topographic Survey  
Scour Analysis  
Wetland Delineation  
Wetland Permitting  
Erosion Control Measures  
Construction Plans & Specifications



## **Keene Stone Arch Bridge & Pedestrian Path Preservation and Rehabilitation**

### **Description of Project**

The Stone Arch Bridge in Keene, NH was constructed in 1847 by the Cheshire Railroad to carry its rail bed across the Branch River. The rail bed was also elevated above US Route 101 located just north of the bridge, and above Swanzey Factory Road located south of the bridge. Between the bridges the rail bed was elevated above existing grade by means of earthen embankments.

**The train rails have been removed and the bridge is now used for pedestrian traffic crossing the river.** Recognizing the importance of this historical structure the City had been working for several years to establish a program for restoring and preserving this stone arch bridge. The Stone Arch Bridge Preservation Steering Committee is the lead organization in coordinating efforts to obtain funds and institute programs for the restoration and preservation.

The City selected **HOLDEN** to design trail improvements above the bridge to 1) eliminate the migration of surface water to, and through, the stones of the arch 2) develop a plan for the removal of trees growing in proximity to the stone walls 3) determine the need for scour protection along the arch footing and 4) propose the most appropriate measures for countering scour.

**Location:** Keene, NH

**Client:** City of Keene

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, LLS  
William Rossignol, PE

#### **Scope of Services**

Topographic Survey  
ROW Survey  
Historical/Archaeological Research  
Endangered Species Research  
Sidewalk Design  
Drainage Design



Conditions Before Improvements

### **Bradford Road Sidewalk**

#### **Description of Project**

This project included the design of 3,400 LF of new sidewalk on Bradford Road in Keene, NH. Preliminary scoping study elements were researched and documented prior to the design of the sidewalk to determine the best path alignment, research natural and cultural resources, identify areas of concern or conflict, locate existing utilities, identify property lines, and develop a schedule and cost estimates. Traffic volumes measured on Bradford road were higher than expected and sidewalks were warranted to provide a safer environment for pedestrians. The new sidewalk design provides a connection to Arch Street to the south and a multi-use trail to the north.

An extensive existing conditions survey was required to delineate all of the property corners along the narrow ROW on Bradford Road. Abutters' understanding of the project was essential to gain their support. Throughout the conceptual and preliminary design phases *HOLDEN* participated in public meetings to present alternative locations and respective project impacts of each option.

Alternatives for the construction of the project were discussed to determine which side of the road would be more suitable for a sidewalk. *HOLDEN* met with the City to weigh the pros and cons in relation to obtaining property easements, relocating utility poles, removing existing trees, addressing landscaping on private property, and accommodating storm water drainage patterns.

**Location:** Warner, NH

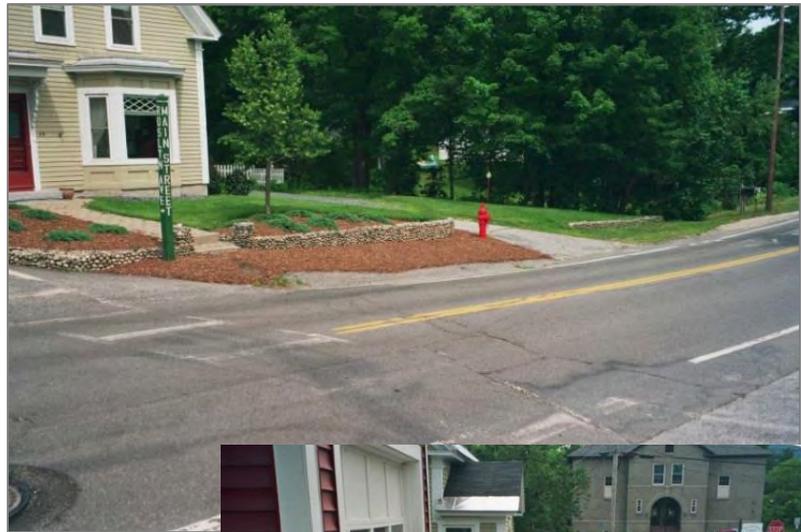
**Client:** Town of Warner

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, LLS  
William Rossignol, PE

**Scope of Services**

- Topographic Survey
- ROW Survey
- Historical/Archaeological Research
- Endangered Species Research
- Sidewalk Design
- Bicycle/Pedestrian Pathway Design



Conditions Before Improvements

## Safe Routes to School Sidewalk, Bicycle, and Pedestrian Pathway

### Description of Project

*HOLDEN* designed 2,400 LF of new sidewalk for this SRTS project in Warner, NH. Prior to completing the sidewalk design *HOLDEN* determined the best path alignment, identified property lines and areas of concern or conflict, and developed project cost estimates. This project is currently being implemented in sections, and includes the design of new pedestrian and bicycle facilities as well as extending existing sidewalks. In one section of the project area *HOLDEN* designed a bike/pedestrian pathway along North Village Road across the Warner River Bridge to Riverside Lane to create additional access to Riverside Park.

In addition, locations for four speed warning signs were chosen on three different roads and signs were installed to help reduce traffic speeds and increase driver awareness in the area. Also included in the scope of services is the design, selection and siting of signs and pavement markings related to pedestrian and bicycle movement and safety.

**Location:** Hancock, NH

**Client:** Town of Hancock, NH

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, LLS  
William Rossignol, PE



## Town Center Sidewalk and Street Enhancements

### Description of Project

This project included the preparation of a Master Improvement Plan for Main Street in the historic district of Hancock. *HOLDEN* performed a detailed evaluation of existing conditions, made recommendations for improvements, prepared conceptual design plans, and determined preliminary construction cost estimates. The final report included recommendations for pavement maintenance.

Key issues included curbing, sidewalks, storm drainage, pedestrian features (benches, trees, and other amenities), vehicular patterns, parking and traffic calming along 1,750 LF of Main Street. *HOLDEN* provided aerial photography (orthophotos), base plans, and supplemental on the ground survey for presentation purposes. Key items in the Town's selection of *HOLDEN* included:

- Ability to shown design concepts, perspectives, renderings using a computer.
- Ability to display a photograph in a specific area, and then introduce enhancements as overlays (like taking away overhead power lines, adding curbs and sidewalks and amenities, landscaping, etc.)
- Ability to find, and help the Town secure Grant Money to fund this activity.

### Scope of Services

Pavement Inspection  
Topographic Survey  
Base Plan Preparation  
Improvement Options  
Sidewalk/Walkway Design  
Parking Design  
Grading and Curbing Design  
Drainage Improvements

**Location:** Antrim, NH

**Client:** Town of Antrim

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, Project Manager  
William Rossignol, PE

**Scope of Services**

- Pavement Inspection
- Topographic Survey
- Base Plan Preparation
- Improvement Options
- Grading and Curbing Design
- Drainage Improvements
- Water Line Replacement
- Construction Services
  - Develop Bidding Documents and Advertisement Wording
  - Construction Survey Layout
  - Engineering During Construction



Deteriorated Road and Erosion Conditions

## Highland Avenue and Pleasant Street

### Description of Project

This project is currently in progress. The Town of Antrim, New Hampshire selected *HOLDEN* to provide engineering services for improvements along Highland Avenue and Pleasant Street. The Highland Avenue portion includes the replacement of the existing 6" domestic water line with a new 12" water line, full depth road reconstruction, curbing, a closed storm drainage system, and the **reconstruction and continuation of an existing sidewalk along the east side.**

The Pleasant Street portion includes full depth road reconstruction, removal of the existing deep drainage ditch and construction of a closed storm drainage system which ties into a 36" reinforced concrete culvert passing beneath Main Street. *HOLDEN* is handling the topographic survey, base plan development, roadway and drainage design, **sidewalk design, and permitting.** *HOLDEN* is also providing engineering services during the bidding and construction phases of the project.

## Additional Sidewalk/Pedestrian Design Work

**Location:** Hooksett, NH

**Client:** Private Developer

Peter Holden, Project Manager



### Head's Pond Development

#### Scope of Services

- Surveying
- Permit Applications
- Site Plan Layout & Design
- Roadway Design
- Sidewalk Design
- Drainage Design
- Construction Plans & Specifications

#### Description of Project

**HOLDEN** prepared the complete set of engineering plans, including drainage, for the development of 1100 acres of undeveloped land into a cluster subdivision containing approximately 400 housing units and **over 6.5 miles of new road network with sidewalks**, landscaping, street lighting, and crosswalks.

This project was considered by the town to be extremely large. **HOLDEN** prepared visual aids and handouts for the presentation before the planning board which lasted for approximately one year. Once final approval was obtained by the planning board the planning board commended Holden Engineering on the quality of the work and the thoroughness and clarity of the presentations.

## Pedestrian Bridges

**Location:** New Boston, NH

**Client:** Town of New Boston

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, LLS  
William Rossignol, PE



### **Pedestrian Bridge Over the South Branch Piscataquog River**

#### **Scope of Services**

Hydraulic Analysis  
Geotechnical Analysis  
Permit Applications  
Historical/Archaeological Research  
Endangered Species Research  
Bridge Design  
Erosion Control Measures  
Construction Plans & Specifications

#### **Description of Project**

This federally funded Transportation Enhancement (TE) project involved the design of a footbridge, 115 feet long over the South Branch Piscataquog River in New Boston, NH. The client was New Boston's *Foot Traffic and Road Safety Committee*. This bridge is part of a larger footpath that provides safe access from the Town Center to the South Village where the post office and nearby businesses are located, providing an important connection between these two key locations.

A hydraulics study was completed as part of this bridge design to ensure that the structure would not affect the flow of floodwaters. The bridge was positioned so as not to disturb the existing riverbanks and was set outside of the limits of the floodway.

## ROADWAY DESIGN

### Local Roadway & Drainage Design, Inspection, and Cost Estimates – Project List

The following is a partial list of past *HOLDEN* projects that included roadway inspections, design, storm drainage improvements, and cost estimates. *HOLDEN* also provided surveying services for these projects.

PROJECT CITY	ST	CLIENT
CONCORD	NH	MOREAU, RJ COMMUNITIES LLC
CONWAY	NH	COOPER, DEANS & CARGILL
ALLENSTOWN	NH	ALLENSTOWN, NH - TOWN OF
HOOKSETT	NH	LAND ACQUISITIONS, LLC
HOOKSETT	NH	J M D REALTY
CONWAY	NH	J R & S ASSOCIATES
LEBANON	NH	MOULTON CONSTRUCTION CO.
CONCORD	NH	WADE, DOUGLAS
CONCORD	NH	AVERSA, DAN
HOOKSETT	NH	JENSEN'S, INC.
EPPING	NH	GRAMMAS, JOHN
CONWAY	NH	NPV DEVELOPMENT
LACONIA	NH	AKWA VISTA LLC
CONCORD	NH	SAMAHA BUILDERS
BENNINGTON	NH	BENNINGTON, NH - TOWN OF
ANTRIM	NH	ANTRIM, NH - TOWN OF
BELMONT	NH	JOHNGIS, LLC
PEMBROKE	NH	AVERSA, DAN
JAFFREY	NH	SAN-KEN HOMES, INC.
GOFFSTOWN	NH	PAQUETTE, PHIL
HOOKSETT	NH	MANCHESTER SAND & GRAVEL
ALEXANDRIA	NH	ALEXANDRIA, NH - TOWN OF
NEW IPSWICH	NH	USA PROPERTIES
LACONIA	NH	BRADY SULLIVAN PROPERTIES
LACONIA	NH	MARTEL, ROB
LEBANON	NH	GFI LEBANON, LLC
WOLFEBORO	NH	J M D REALTY
LOUDON	NH	LOUDON WOODS ESTATES, LLC
LACONIA	NH	COYNE, GARY
GILFORD	NH	GRANT, STEVE
ANDOVER	NH	PROCTOR ACADEMY - ANDOVER
ALTON	NH	WOODLAND ESTATES ASSOCIATION
CONCORD	NH	VETERINARY PROPERTIES, LLC
CONCORD	NH	JENSEN'S, INC.
CONWAY	NH	CONWAY, NH - TOWN OF
STODDARD	NH	TRUST FOR PUBLIC LAND
LACONIA	NH	GOVERNOR'S CROSSING
LYME	NH	LYME, NH - TOWN OF
LOUDON	NH	FORTIER, HERMEL
GILFORD	NH	GUNSTOCK MOUNTAIN RESORT
LEBANON	NH	PRO CON, INC.
ASHLAND	NH	ASHLAND, NH - TOWN OF
HARRISVILLE	NH	HARRISVILLE, NH - TOWN OF
LEBANON	NH	LYME PROPERTIES 2, LLC
WENTWORTH	NH	WENTWORTH, NH - TOWN OF
NEW LONDON	NH	NEW LONDON, NH - TOWN OF
HALIFAX	VT	HALIFAX, VT - TOWN OF
LINCOLN	VT	LINCOLN, VT - TOWN OF
UNITY	NH	UNITY, NH - TOWN OF

PROJECT CITY	ST	CLIENT
GOFFSTOWN	NH	SKV, LLC
MALBOROUGH	NH	WOODMASTER, INC
NEW IPSWICH	NH	L.T.C. INC
DERRY	NH	WAL-MART STORES INC.
LONDONDERRY	NH	SIMARD, AL
MANCHESTER	NH	NH DEPT OF TRANSPORTATION
BRENTWOOD/EXETER	NH	NH DEPT OF TRANSPORTATION
MONTPELIER	VT	VT AGENCY OF TRANSPORTATION
DERRY	NH	HUTTER CONSTRUCTION
HOOKSETT	NH	NEW BOSTON AGGREGATE CORP.
LOWELL	MA	MASS HIGHWAY DEPARTMENT
PEMBROKE	NH	L.T.C. INC
RINDGE	NH	HANNAFORD BROTHERS, INC
HUDSON	NH	WAL-MART STORES, INC.
WILTON	NH	WILTON, NH - TOWN OF
GOFFSTOWN	NH	NAULT, RICHARD
CONCORD	NH	NAULT, RICHARD
LEBANON	NH	JOHNSON, PETER
EXETER	NH	ROCKINGHAM ECONOMIC DEV. CORP.
DOVER	NH	TORR, FRANK
GOFFSTOWN	NH	ASHWOOD COMPANIES
LYNDEBOROUGH	NH	LYNDEBOROUGH, NH - TOWN OF
HOOKSETT	NH	MAURAIS, PAUL & MONIQUE
LOUDON	NH	THISTLE, WAYNE
CONCORD	NH	ACKERSON, TOM
DERRY	NH	DERRY, TOWN OF NH
LEBANON	NH	REDSTONE CONSTRUCTION CO.
HOOKSETT	NH	BROX INDUSTRIES
CONWAY	NH	QUINT, ROBERT
LOUDON	NH	BOHI, JOSEPH T.
HOOKSETT	NH	NICHOLS, SID
NASHUA	NH	BROX INDUSTRIES
AMHERST	NH	WAL-MART STORES INC.
LEBANON	NH	WAL-MART STORES, INC.
TILTON	NH	WAL-MART STORES, INC.
CONCORD	NH	CEMETERY STREET DEVELOPMENT IN
EXETER	NH	MARTIN, MAURICE
GOFFSTOWN	NH	ASSURED REALTY TRUST
BOW	NH	MULLANEY, JIM
CONCORD	NH	CANAD INC
CONCORD	NH	NH DEPT OF TRANSPORTATION
LEBANON	NH	SOLIDUS, LLC
GOFFSOWN	NH	GAMACHE ENTERPRISES, INC.
CONCORD	NH	MALL REALTY, INC.
CHESTER	NH	CHESTER BROOK CORPORATION
ANDOVER	NH	ANDOVER, NH TOWN OF
HOOKSETT	NH	GREENE, ARLEIGH
WESTFIELD	MA	MASS HIGHWAY DEPARTMENT

## Road Inspection, Reconstruction, Drainage Improvements, and Road Design – Project Examples

**Location:** Multiple Roads

**Client:** Vermont Agency of Transportation

Peter Holden, Project Manager



### Scope of Services

#### Final Plans

Typical Cross Sections  
Striping Plans  
Guardrail Improvements

#### Safety Improvements for Roadside Hazards

#### Bridge Details

#### Cost Estimates

Summary Sheets  
Quantities  
Unit Costs

## Vermont Statewide Resurfacing, Rehabilitation, and Reconstruction

### Description of Project

The Vermont Statewide Resurfacing, Rehabilitation, and Reconstruction (3R) projects required the preparation of Plans, Specifications and Estimates for sixteen roadway projects.

These projects ranged in size from 0.25 miles to ten miles long.

Design tasks included:

- Resurfacing existing roadways with shim/leveling courses
- Pavement design;
- Signing and pavement marking layout;
- Roadway and shoulder widening;
- Guardrail improvements;
- Raised island reconstruction;
- Drainage;
- Rehabilitation
- Detailed quantities and cost estimates.

## Highway Improvement Projects

### US ROUTE 1 Reconstruction Portsmouth, NH



### NH ROUTE 101A Reconstruction Amherst, NH



#### Description of Projects

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These projects required the reconstruction of a total of 1.0 mile of state highways and included five coordinated traffic signals.

These projects were on a fast-track because of a need to mitigate traffic impacts expected from large commercial developments. The design efforts required close coordination with state and local officials.

Work efforts included surveying, traffic data collection and analysis, permitting, and the preparation of preliminary and final design plans and specifications.

#### Scope of Services for These Projects

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##### Topographical Survey

##### Roadway / Traffic Signal Design

- Traffic Analysis

- Traffic Signal Design and Coordination

- Horizontal and Vertical Design

- Signing and Pavement Markings

##### Plans, Specifications, and Cost Estimates

##### Construction Support

- Site Inspections

**Location:** Bow, NH

**Client:** Private Developer

Peter Holden, Project Manager



### **Scope of Services**

**Topographic Surveying**

**Wetland Delineation**

**Roadway Design**

**Storm Drainage Analysis & Design**

**Septic System Design**

### **Permitting**

Terrain Alteration  
Planning Board Presentations  
Zoning Board Special Exception  
Town Conservation Commission  
State Wetlands Board  
NHDOT Drive Permit

## **Dear Run Road Infrastructure Design**

### **Description of Project**

This project involved the survey, design, and permitting for an eleven lot subdivision in Bow, New Hampshire. The project involved performing a topographic survey, boundary determination, designing a subdivision, and wetland delineation. The subdivision included the design of 2,200 LF of roadway, individual septic system designs, utilities and storm drainage design.



**Location:** Raymond, NH

**Client:** Town of Raymond

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, Project Manager  
William Rossignol, PE

**Scope of Services**

- Pavement Inspection
- Topographic Survey
- Base Plan Preparation
- Traffic Volume Review
- Improvement Options
- Grading and Curbing Design
- Drainage Improvements
- Construction Services
  - Develop Bidding Documents and Advertisement Wording

**North Main Street Reconstruction**

**Description of Project**

This project is currently in progress. The Town of Raymond, New Hampshire selected *HOLDEN* to provide engineering services for surveying, the preparation of base plans, defining the existing Right of Way, design plans, permitting, specifications, and preparation of bid documents of all three phases of work for the reconstruction of approximately 3,000 LF of North Main Street. The construction for this project will be bid in three phases, with bid years of 2017, 2019, and 2021 for Phases I, II, and III accordingly. *HOLDEN* is developing final plans and construction documents for all three phases simultaneously in order to provide consistency throughout the entire project length.

As part of the design process, *HOLDEN* is evaluating the number and width of adjoining business and residential driveways whose activities influence the flow of through traffic on Main Street. *HOLDEN* is also developing suggestions for improvements which might help smooth out traffic flows, particularly during peak hours.

**Location:** Nashua, NH

**Client:** Kessler Farms  
Condominium Association

**Current *HOLDEN* Team Members  
Involved on this Project:**

Peter Holden, LLS  
William Rossignol, PE

**Scope of Services**

Pavement Inspection  
Topographic Survey  
Base Plan Preparation  
Improvement Options  
Parking Lot Improvements  
Grading and Curbing Design  
Drainage Improvements



Deteriorated Road Conditions

## The Villages of Kessler Farms

**Description of Project**

*HOLDEN* began working for *The Villages of Kessler Farms* condominium association in 2011. Phase I work was completed in that year. *HOLDEN* has now been retained to continue providing pavement management services for Phase II. The work has included engineering services relating to pavement inspection and assessment, reconstruction recommendations and construction oversight for the village roadways, sidewalks and parking areas. Pavement reclamation, re-grading, catch basin repairs, curbing and resurfacing were the predominant work items.

**Location:** Belmont, NH

**Client:** MXC, LLC

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, LLS  
William Rossignol, PE

**Scope of Services**

- Improvement Options
- Topographic Survey
- Grading Design
- Drainage Improvements
- Cost Estimates



Deteriorated Road Conditions

## Old Prescott Hill Road

### Description of Project

This roadway reconstruction project included 1,000 L.F. of pavement reclamation and resurfacing of Old Prescott Hill Road in Belmont, NH. The work also included design modifications for two intersections, all of which were completed as off-site improvements for an 80-unit housing project in Belmont.

As part of the pavement reclamation process *HOLDEN* coordinated with subcontractors to determine the most economical solution and source of materials to achieve the specified gradation for the roadway aggregates. *HOLDEN* also prepared recommendations for drainage improvements to implement in conjunction with the pavement improvement process.

**Location:** Nashua, NH

**Client:** Hollis Crossing  
Condominium Association

**Current *HOLDEN* Team Members  
Involved on this Project:**

Peter Holden, LLS  
William Rossignol, PE

**Scope of Services**

Pavement Inspection  
Topographic Survey  
Base Plan Preparation  
Improvement Options  
Parking Lot Improvements  
Walkway Reconstruction  
Alternatives  
Grading and Curbing Design  
Drainage Improvements  
Site Assessment Report



Deteriorated Road Conditions

## Hollis Crossing

**Description of Project**

This roadway and sidewalk re-paving project included inspection of existing roadways, preparation of a base plan, evaluation of storm drainage, preparation of preliminary construction cost estimates, preparation of a pavement instruction plan, and determining appropriate funding-based phasing for the project.

**Location:** Lincoln, VT

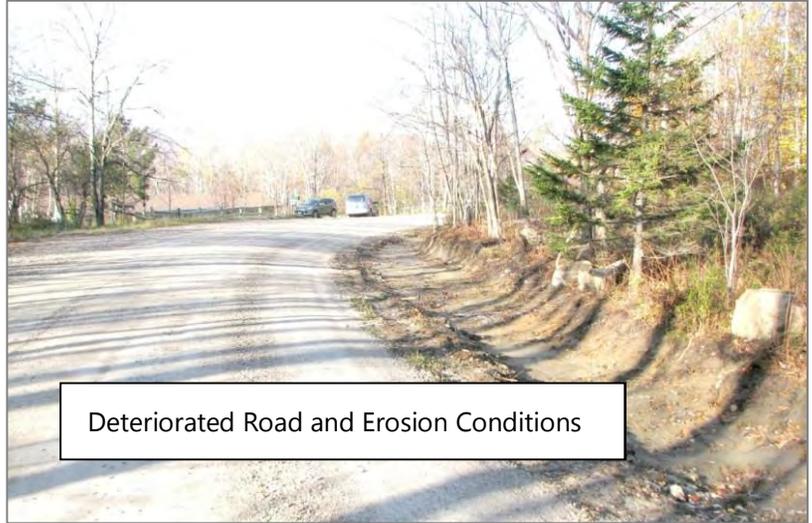
**Client:** Town of Lincoln, VT

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, LLS  
William Rossignol, PE

**Scope of Services**

- Road/Drainage Inspection and Documentation
- Surveying
- Base Plans
- Hydraulic Analysis
- Drainage Design
- Construction Plans for Drainage roadway improvements
- Erosion Control Measures
- Bidding Documents
- Construction Cost Estimates



## Gap Road

### Description of Project

#### *General*

High intensity storms were eroding ditches and undermining road pavements on a regular basis. The Town retained *HOLDEN* to evaluate the damage and prepare designs to contain, direct, and pass high level storms.

#### *Specifics*

The project included hydraulics studies and the preparation of recommendations for storm water management improvements in three study areas; one section along Lincoln Gap Road, and two sections of Quaker Street in the Town of Lincoln. Existing pavement and drainage conditions were assessed and documented. Storm water flows were modeled for several storms of varying return frequency based on the topography and land use of the contributing watersheds. The ability of the existing culverts and drainage swales to accommodate the computed flows was evaluated, and recommendations for improvements were made.

Recommendations included best practices to contain, direct, or divert storm water flow, as to preserve adjoining landowners and minimize impact on adjoining landowners. Improvements would come in the form of additional/upsizing of culverts, and reshaped/stabilized ditching.

Key to the project success was an understanding of the drainage problems being experienced within each project area, and an appreciation of the Town's concerns regarding the danger of moving problems downstream if proper planning was not exercised at the outset.

**Location:** New London, NH

**Client:** Town of New London, NH

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, LLS  
William Rossignol, PE

**Scope of Services**

Hydraulic Analysis  
Permit Applications  
Surveying  
Roadway Design  
Drainage Design  
Historical/Archaeological Research  
Endangered Species Research  
Erosion Control Measures  
Construction Plans & Specifications



## Lamson Lane Roadway Improvements with Multiple Culvert Crossings

### Description of Project

Lamson Lane is a gravel roadway that provides access to waterfront properties along Pleasant Lake in New London. The roadway was originally built by carving into the side of a hill. Runoff from the adjoining hilly terrain runs toward the lake, but must pass through a number of culverts beneath the gravel road. In the spring of 2007, a high flow storm event resulted in significant roadway damage because the ditches and culverts were inadequate. While abutters were anxious to have the improvements completed, they were especially concerned about keeping the rustic appearance of the roadway and maintaining its present width.

*HOLDEN* was retained by the Town to evaluate and **design improvements along 1,750 feet of this roadway**. *HOLDEN's* work included performing hydraulic studies, evaluating the number/size/adequacy of the existing culverts and ditching system, and making recommendations for improvements. The resulting plans and specifications included widened/stabilized ditches on the upstream side, upsizing of existing culverts, and the addition of more cross culverts to improve storm water handling capacity. Key to this project's success was abutter communication and obtaining their support of the work.

**Location:** Marlborough, NH

**Client:** Woodmaster, Inc.

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, LLS  
William Rossignol, PE

**Scope of Services**

Hydraulic Analysis  
Permit Applications  
Surveying  
Roadway Design  
Drainage Design  
Historical/Archaeological Research  
Endangered Species Research  
Construction Plans & Specifications  
Bidding Phase Services  
Construction Phase Services



**Gates Road**



**Corrugated Steel Pipe Culvert**

## Gates Road Drainage Design

### Description of Project

*HOLDEN* was retained by a private client for complete site design for this 48-unit condominium development. The project included the design of Gates Road as the main access to the development, including its intersection with NH Route 101.

The project included the design of a **10-foot diameter corrugated steel plate pipe culvert** to maintain conveyance of Robbins Brook below Gates Road. The road was located at a bend in the brook, necessitating segmental sections of pipe to create a culvert on a curved alignment. Reinforced concrete headwalls and earth retaining wingwalls were designed and constructed at both inlet and outlet ends of the culvert. Additional services provided for this project included design and permit approval process for a new community water system for the condominium development.

*HOLDEN's* responsibilities included application for and required efforts to secure State permits including, wetlands, sewer discharge, driveway and also local planning board and site specific permits. Construction services included construction survey layout, construction monitoring & inspection, and review of contractor submittals.

## Road Design – Additional Project Examples

### ***NH Route 3A Reconstruction, Hudson, NH***

This project involved the preparation of preliminary and final plans for the reconstruction of 0.8 miles of Lowell Road and intersections with Sagamore Bridge Road and Sprague Drive. The fast track approach required a close working relationship with federal, state and local officials. Work efforts included survey data collection, traffic data collection and analysis, preparation of Preliminary Plans depicting traffic operation and impacts, and the development of final contract drawings and specifications.

### ***NH Route 3 Intersection, Hooksett, NH***

Analysis and design was developed for the intersection of NH Route 3, D. W. Highway, with Industrial Park Drive in Hooksett, NH. The intersection was designed to accommodate the construction of a future Parkway bypass carrying traffic from I-93 through Hooksett. The scope of work included field surveying, wetland delineation, base plan preparation, wetland permitting, utility relocation, roadway design, signalized intersection design, construction plans & specifications as well as local and State approvals.

### ***Head's Pond Development, Hooksett, NH***

*HOLDEN* prepared the complete set of engineering plans, including drainage, for the development of 1100 acres of undeveloped land into a cluster subdivision containing approximately 400 housing units and over 6.5 miles of new road network with sidewalks, landscaping, street lighting, and crosswalks. This project was considered by the town to be extremely large. *HOLDEN* prepared visual aids and handouts for the presentation before the planning board which lasted for approximately one year. Once final approval was obtained by the planning board the planning board commended Holden Engineering on the quality of the work and the thoroughness and clarity of the presentations.

### ***Cluster Subdivision Plan, New Ipswich, NH***

This project is a residential subdivision of 80 single-family house lots. 7,100 linear feet of roadway with rolled asphalt connect these lots. The storm drainage was designed as a closed system, with treatment and detention facilities located on-site. Offsite improvements included upgrading 3,000 linear feet of roadway to Class 5 with drainage improvements. The scope of work included field surveying, wetland delineation, base plan preparation, wetland permitting, construction plans & specifications, and local approvals.

### ***Glencrest Estates, Campbell Hill, Hooksett, NH***

This project is a residential subdivision of 92 single-family house lots. It is being constructed in three phases. 7,700 linear feet of roadway with granite curbing, sidewalks, and underground utilities connect these lots. The storm drainage was designed as a closed system, with treatment and detention facilities located on-site. Utility designs included sewer, water, gas, electric, and telephone. The scope of work included field surveying, wetland delineation, base plan preparation, wetland permitting, construction plans and specifications, and local approvals.

### ***Horizon Drive, Goffstown, NH***

This project is a residential subdivision of 24 single-family house lots. 4,000 linear feet of rural roadways with ditches and cross culverts and overhead utilities connect these lots. The storm drainage was designed as an open system due to the rural character of this subdivision. Storm water treatment and detention facilities are located on-site. Each site includes a well and leach field. The scope of work included field surveying, wetland delineation, base plan preparation, wetland permitting, construction plans and specifications, and local approvals.

*Additional Road Design Projects (continued)*

***Briar Court, Off Hackett Hill Road in Hooksett, NH***

This project is a residential subdivision of 14 single-family house lots. 1200 linear feet of roadway with granite curbing, sidewalks, and underground utilities connect these lots. The storm drainage was designed as a closed system, with treatment and detention facilities located on-site. Utility designs included water and underground power. Each lot has on-site septic. The scope of work included field surveying, wetland delineation, base plan preparation, wetland permitting, construction plans & specifications, and local approvals.

***Sandwood Crossing at Thirty Pines, Concord, NH***

This project is a residential subdivision of 102 single-family house lots. 7,600 linear feet of roadway with granite curbing, sidewalks, and underground utilities connect these lots. The storm drainage was designed as a closed system, with treatment and detention facilities located on-site. 2,000 linear feet of existing storm drainage system in Borough Road and Fisherville Road was replaced and lowered to accommodate the proposed development. Utility designs included sewer, water, gas, electric, and telephone. The scope of work included field surveying, wetland delineation, base plan preparation, wetland permitting, construction plans and specifications, and local approvals.

***Nichols Property, Bayberry Street, Hooksett, NH***

This project is a residential subdivision of 14 single-family house lots. 1700 linear feet of roadway with granite curbing, sidewalks, and underground utilities connect these lots. The storm drainage was designed as a closed system, with treatment and detention facilities located on-site. Utility designs included water, sewer and underground power. The scope of work included field surveying, wetland delineation, base plan preparation, wetland permitting, construction plans & specifications, and local approvals.

***The Villages at Granite Hill, Hooksett, NH***

The Villages at Granite Hill is a multi-phased, residential condominium development located on 600 acres in Hooksett, NH. The *first* phase of development consisted of 468 residential units with the design of 2 miles of internal roadways, 10,000 linear feet of sewer and water mains, a water tower, and on-site drainage and detention facilities. The project involved design for the widening of 3,500 linear feet of US Route 3, from three lanes to five with two signalized intersections for site access. Conceptual planning was completed for *subsequent phases* of the development, which contained 425 acres of living units, roadways and utilities, and a nine-hole golf course.

***Planned Unit Residential Development, Lebanon, NH***

The development consisted of 233 housing units, mixed single family homes, townhouse units, and duplexes on over 90 acres. Although the internal roadway system remained private, approximately 6,000 linear feet of major drives were designed and built in compliance with City of Lebanon standards. These major drives intersected two public streets and the work included analysis of these and adjacent City streets and improvement design.

## Signalized Intersection Design

The following is a partial list of projects completed by *HOLDEN* that included signalized intersections, and on the subsequent pages are detailed descriptions of selected projects. *HOLDEN* also provided **surveying services for these projects.**

SIGNALIZED INTERSECTIONS		
Location	Project	City/Town
Heads Pond Development, South Entrance Route 3 and Heads Pond Boulevard	Manchester Sand and Gravel	Hooksett
Route 3 and Industrial Drive	Manchester Sand and Gravel	Hooksett
Route 3, ( 2 signalize intersections)	Granite Hill Development	Hooksett
Route 3, Legends Drive, Lindsay Drive	Hooksett Safety Center	Hooksett
Route 3, Granite State Market Place	Granite State Market Place	Hooksett
Route 106	Steeplegate Mall	Concord
D' Amante Drive	Steeplegate Mall	Concord
Route 1	Cabral Retail Center	Hampton
Route 1	Wal-Mart	Portsmouth
Route 302 and Mt Valley Blvd.	Wal-Mart	Conway
Route 16 and Barns Road	Home Depot	Conway
Route 16 and Route 302	Retail Center	Conway
Route 101-A and Northen Blvd.	Wal-Mart	Amherst
Loudon Road	Wal-Mart	Concord
Loudon Road	Sony Cinema	Concord
Entrance Drive and Brown Avenue	Manchester Airport	Manchester
Route 3 and Serwood Drive	Wal-Mart	Tilton
Route 28	Wal-Mart	Derry
Route 3 A	Sam's Club	Hudson
Route 3-A and Rena Road	Wal-Mart	Hudson
Dracut Road and Steele Road (not built yet)	Retail Center, Route 3-A	Hudson
Route 3-A and the Circumferential Highway	Retail Center	Hudson
Route 107 and Route 101	Wal-Mart Distribution Center	Raymond
Route 106 (not yet built)	Sam's Club	Concord
Route 12-A	Best Buy	Lebanon
Route 202	Hannaford Supermarket	Rindge

**Signalized Intersections (continued)**



**North Conway, NH**  
**Intersection of NH Rte. 16 & Barnes Rd.**  
*Key HOLDEN Staff: Peter Holden, Project Manager & William Rossignol, P.E, Senior Engineer*

Project included the design of additional lanes in Barnes Road and new traffic signals.



**Hudson, NH**  
**Intersection of Rte. 3A and commercial drives**  
*Key HOLDEN Staff: Peter Holden, Project Manager*

This design for access to a Walmart Store and a Sam's Club Warehouse Center included a signalized intersection and expansion of NH Route 3A from two lanes to seven.



**Concord, NH**  
**Intersection of Loudon Rd. (NH Rte. 9) & commercial drives**  
*Key HOLDEN Staff: Peter Holden, Project Manager*

This signalized intersection was designed to accommodate a new Walmart store to the east and a gas station and commercial development to the west.



**Amherst, NH**  
**Intersection of NH 101A and commercial drive**  
*Key HOLDEN Staff: Peter Holden, Project Manager*

Design of new signalized intersection with turn lanes.

## Signalized Intersections (continued)

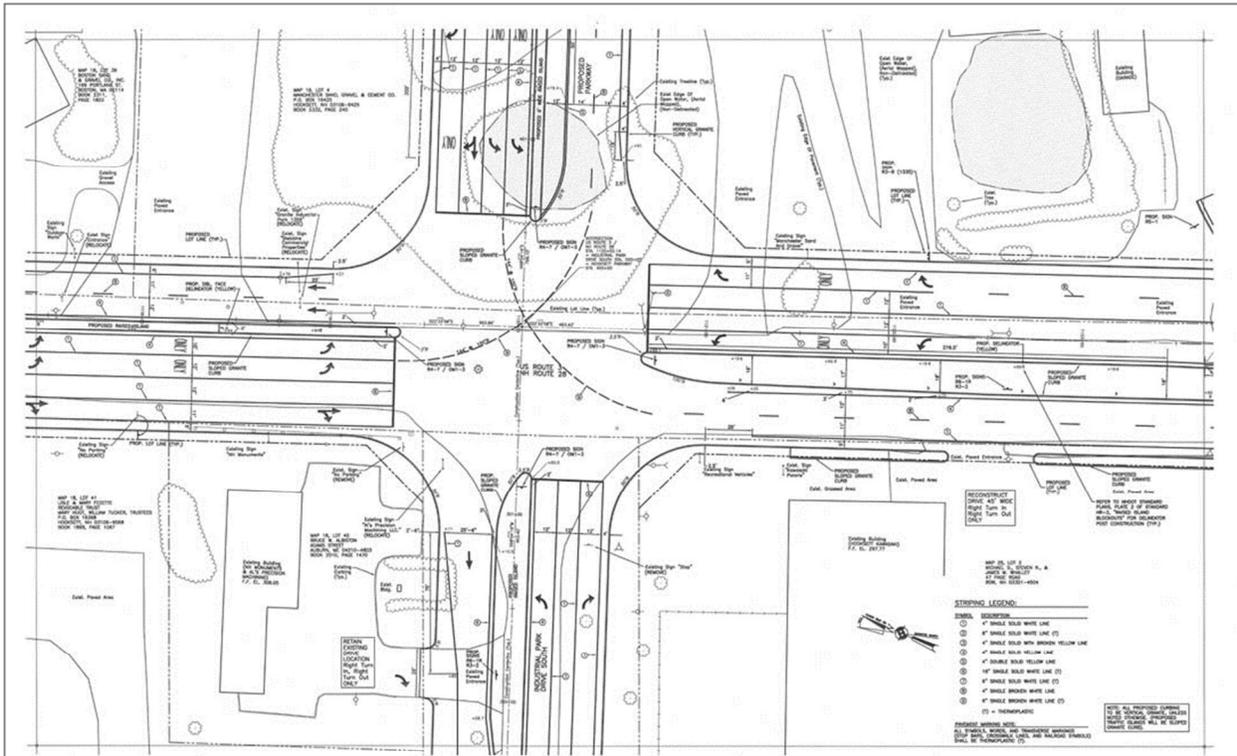


### Hooksett, NH

#### Intersection of NH Rte. 3 & Industrial Park Dr.

Key *HOLDEN* Staff: Peter Holden, Project Manager & William Rossignol, P.E., Senior Engineer

This intersection has been redesigned to accommodate future retail development and a new roadway. The drawing below shows the design to expand Rte. 3 from four lanes to six lanes with additional traffic signals when these road improvements are constructed.



### Hooksett, NH

#### Intersection of NH Rte. 3A & Quality Dr.

Key *HOLDEN* Staff: Peter Holden, Project Manager

HTE designed the original signalized intersection at this location to accommodate commercial development. Route 3A in this area was originally a two lane road.

## Signalized Intersections (continued)



**Derry, NH**  
**Intersection of NH Rte. 28 & commercial drives**  
Key *HOLDEN* Staff: Peter Holden, Project Manager

This signalized intersection was designed to provide access to new commercial development and expanded the width of Rte. 28 from two lanes to five lanes.



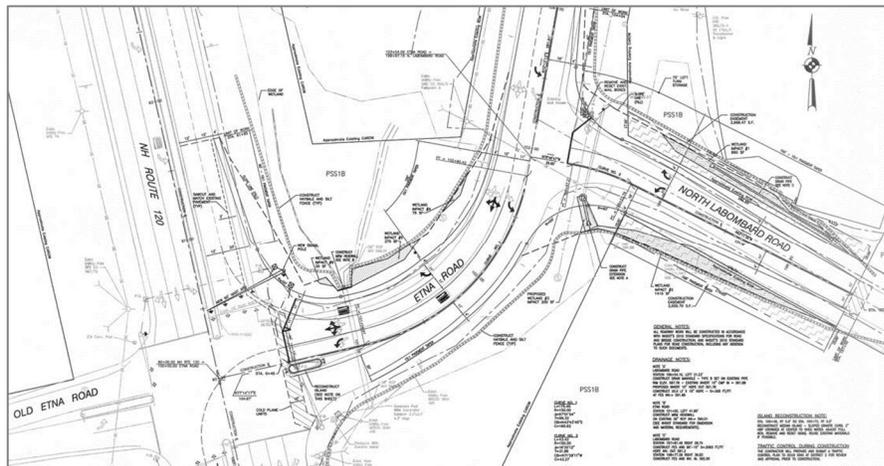
**Lebanon, NH**  
**Intersection of NH Rte. 12A & commercial drives**  
Key *HOLDEN* Staff: Peter Holden, Project Manager

This signalized intersection provides access to commercial developments on both sides of NH Rte. 12A.



**Lebanon, NH**  
**Intersection of NH Rte. 120 & Etna Rd.**  
Key *HOLDEN* Staff: Peter Holden, Project Manager  
& William Rossignol, P.E., Senior Engineer

*HOLDEN* has designed modifications to this signalized intersection and the nearby intersection of Etna Road and North Labombard Road in conjunction with a proposed hotel as shown in the drawing below.



## Signalized Intersections (continued)



### Rindge, NH

#### Intersection of NH Rte. 202 & commercial drives

Key *HOLDEN* Staff: Peter Holden, Project Manager

HTE designed this signalized intersection to provide access to a Walmart store and a Hannaford supermarket.



### Portsmouth, NH

#### Intersection of US Rte. 1 & commercial drives

Key *HOLDEN* Staff: Peter Holden, Project Manager

This signalized intersection with turning lanes was designed to provide access to a Walmart store and a residential development.



### Concord, NH

#### Intersection of Manchester St. & Old Turnpike Rd.

Key *HOLDEN* Staff: Peter Holden, Project Manager & William Rossignol, P.E, Senior Engineer

This signalized intersection design included the addition of turning lanes in all directions.



### Concord, NH

#### Intersection of South Main Street & Water St.

Key *HOLDEN* Staff: Peter Holden, Project Manager & William Rossignol, P.E, Senior Engineer

This design included the addition of multiple turn lanes and new traffic signals.

## Signalized Intersections (continued)



### Hooksett, NH

#### NH Route 3 & 28 (Hooksett Road)

Key *HOLDEN* Staff: Peter Holden, Project Manager & William Rossignol, P.E, Senior Engineer

In conjunction with planned development along this section of NH Route 3 & 28 in Hooksett, NH. *HOLDEN* has completed the design of a signalized intersection, combined with redesign of a stop controlled intersection and relocation of driveways serving several businesses. *HOLDEN* designed a new intersecting road with two through lanes and dedicated right and left turn lanes. The design includes realignment of raised islands, as well as utility relocations, new lighting and signage, and street landscaping. This project required approvals from the Town of Hooksett, NH Department of Transportation, and NH Department of Environmental Services.



### Concord, NH

#### Fort Eddy Road

Key *HOLDEN* Staff: Peter Holden, Project Manager & William Rossignol, P.E, Senior Engineer

*HOLDEN* expanded this signalized intersection of Fort Eddy Road, entrance/exit ramps for I-393, and a city street in conjunction with a site design for a new business. Dedicated turn lanes for the city street were added to Fort Eddy Road and the city street was widened to accommodate full traffic lanes and paved shoulders. Utilities, including gas, water, sewer, and drainage, were added in and adjacent to the redesigned intersection. City of Concord and NHDOT approvals were required

## Roundabout Intersection Design

**Location:** Nashua, NH

**Client:** City of Nashua

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, Project Manager

William Rossignol, PE

### Scope of Services

#### Roadway Design

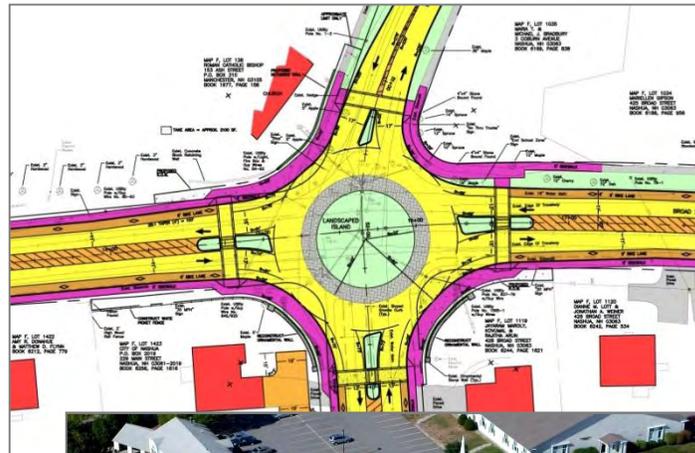
- Traffic Flow Analysis
- Roundabout Design
- Signing / Pavement Markings
- Utility and Drainage Design

#### Environmental Services

- Resource Identification
- Erosion Control Measures

#### Construction Support

- Bid Document Preparation
- Construction Administration
- Shop Drawing Review
- Construction Inspection
- As-built drawings
- Fatigue Assessment



### Roundabout – Nashua High School

#### Description of Project

The City of Nashua retained *HOLDEN* to provide the required engineering services to design and construct the intersection of Broad Street with Coburn Avenue and Chuck Druding Drive.

Broad Street (NH route 130) is located in the western part of Nashua and is linked to the F.E. Everett Turnpike at Exit 6. Broad Street is also a main connector road from NH Route 101A in Nashua to the Town of Hollis.

The intersection is located in close proximity to the Nashua High School North school site. Considering the heavy volume of traffic on Broad Street, the roundabout concept was proposed as a traffic calming method. The roundabout has an 18 foot travel width with a 10 foot cobble stone-style shoulder adjacent to the 64 foot diameter raised, landscaped island.

The main project requirement was to provide a design that would promote a safe, steady traffic flow with minimal delays and backups.

**Location:** North Conway, NH

**Client:** Private Developer

**Current *HOLDEN* Team Members Involved on this Project:**

Peter Holden, Project Manager  
William Rossignol, PE

**Scope of Services**

Traffic Study  
Roundabout Design  
Traffic Signal Analysis  
Traffic Signal Modification Design  
Road Design  
Drainage Design  
Utility Relocation Plans  
Signage & Lighting Plans  
Topographic Survey



(Facing south towards roundabout)

## Roundabout – North-South Road

**Description of Project**

To accommodate a new Home Depot Home Improvement Store off Barnes Road in this densely developed shopping region, *HOLDEN* prepared the designs for improving local access roads to help get traffic to this new facility. *HOLDEN* also prepared design plans for a roundabout on North-South Road. The project also included traffic counting and analysis, evaluation of the capacity of existing signalized intersections along the very busy Route 16, signal coordination evaluation, and the design of signal modifications to accommodate expected increases in traffic volumes. Route 16 is a five-lane roadway, and Barnes Road was expanded from two lanes to three lanes. This project included significant drainage design, utility relocation, signage, and lighting. The project required approval from Town of Conway and NHDOT.

**Location:** Concord, NH

**Client:** Private Developer

Peter Holden, Project Manager

### Scope of Services

#### Roadway Design

- Traffic Flow Analysis
- Roadway Alignment & Profiles
- Roundabout Design
- Signing / Pavement Markings
- Utility and Drainage Design

#### Environmental Services

- Topographic Survey
- Lot Layout
- Site Grading

#### Environmental Services

- Resource Identification
- Erosion Control Measures

#### Construction Support

- Bid Document Preparation
- Construction Administration
- Shop Drawing Review
- Construction Inspection
- As-built drawings
- Fatigue Assessment



## Multiple Roundabouts – Sandwood Crossing

### Description of Project

*HOLDEN* designed this subdivision in the Penacook section of Concord, NH. The design included all roads and utilities, as well as obtaining required City and State approvals. Due to the size of the subdivision (more than 100 lots) and that fact that the subdivision roads connect through to adjacent developments, multiple roundabouts were incorporated into the roadway layout to control and calm vehicular traffic through the development.

The drainage design for this subdivision includes multiple detention ponds to attenuate the large increase in stormwater runoff, assuring that post-development flows from the site will not exceed pre-development flows.

## MAJOR ROADWAYS

### Road Corridor Studies

#### **Concord – Laconia 10672 NHS – RS – T- X- 212(4)**

Key *HOLDEN* Staff: Peter Holden, Project Manager

Holden completed the Draft and Final Environmental Assessment/Section 4(f) for this 21-mile corridor for NHDOT and the FHWA. Some of the project features included:

- Design of the main corridor as a 4-lane arterial
- Redesign of one grade-separated interchange and 45 intersections
- A total project cost of \$80 million
- Coordination with officials from 6 communities
- Commendation for Innovative Public Hearing Presentation from the FHWA

This Concord-Laconia project included the evaluation of specific problem areas such as high accident locations, capacity deficiencies, sight distance shortfalls, inadequate travel and turn lanes at intersections, property impacts, environmental impacts, access management, and potential impacts of future (planned) developments on the road infrastructure. The Final EA for Concord–Laconia included presentation graphics (Hearing Plan type drawings) covering a multitude of items, some of which included:

- Short-term improvements at intersections with either high accident histories, or insufficient lane geometries - the concepts prepared for short term improvements were designed to complement longer-term improvements scheduled to come along later as part of a larger corridor capacity improvement.
- Long-term improvements at intersections or corridor wide improvements to enhance vehicular capacity



**New Hampshire Locations:**

Bedford, Manchester, Londonderry,  
Merrimack, Litchfield

**Client:** NH DOT

Peter Holden, Project Manager

**Scope of Services**

**Aerial Mapping**

**Right-of-Way Plans**

**Roadway / Traffic Design**

- Traffic Model
- Traffic Analysis
- Horizontal / Vertical Design
- Cross Sections
- Cost Estimates
- Preparation of TDM/MIS Report

**Environmental Services**

- Constraint Analysis
- Preparation of Draft and Final EIS

**Public Participation**

- Task Force Coordination
- Public Information Meetings
- Production of Newsletter
- Public Hearings



**Manchester Airport Access  
Feasibility Study**

**Description of Project**

This study involved preliminary engineering for determining the feasibility of constructing a five-mile long east/west highway corridor connecting Interstate 93 and the F.E. Everett Turnpike. It included the reconstruction of ten miles of the urban roadway network to provide improved access to the Manchester Airport and 700 acres of land zoned for industrial use. Preliminary line and grade plans, along with cost estimates were prepared for ten alternative alignments.

The study also involved modeling traffic throughout the southern Manchester urban area to analyze current and future traffic impacts relating to the proposed highway construction. The estimated construction cost of this project is \$140 million.

The study required close coordination with a Task Force composed of representatives from the Federal Highway Administration (FHWA), the New Hampshire Department of Transportation (NH DOT), the Governor's Council, and local communities affected by the project.

**Location:** Windham-Salem, NH

**Client:** NH DOT

Peter Holden, Project Manager

**Scope of Services**

**Aerial Mapping**

**Survey**

**ROW Plans**

**Initial Corridor Screening**

**Right-of-way Plans**

**Roadway / Traffic Design**

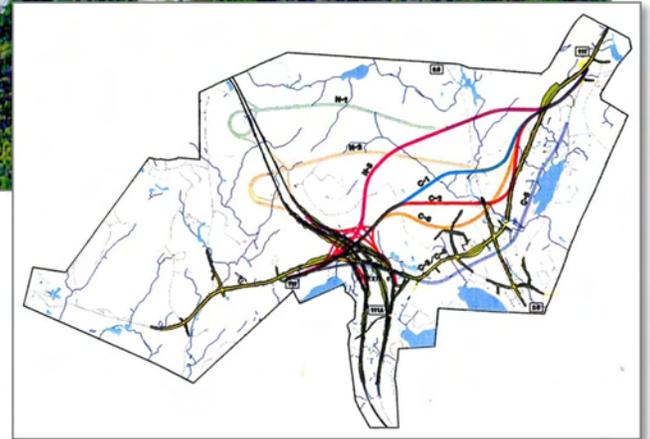
- Traffic Model
- Traffic Analysis
- Horizontal / Vertical Design
- Cross Sections
- Cost Estimates
- Preparation of TDM/MIS Report

**Environmental Services**

- Field Inventories of Resources
- Detailed Environmental Analysis
- Constraint Analysis
- Preparation of Draft and Final EIS

**Public Participation**

- Task Force Coordination
- Public Information Meetings
- Production of Newsletter
- Public Hearings



## NH Route 111 Environmental Impact Study

**Description of Project**

The purpose of this design study was to consider alternatives and make a recommendation for the widening of 4.9 miles of NH Rte. 111 in Windham, connecting Interstate 93 to NH Route 111 in Salem. The EIS Study recommended widening the highway from two lanes to four lanes with provisions for center turning lanes. The road is expected to carry 40,000 vehicles per day when completed and has an estimated construction cost of \$90 to \$100 million.

In conformance with NEPA and 23 CFR Sec. 771, this project involved an analysis of environmental impacts associated with a number of design alternatives for improvements to approximately 5 miles of NH Route 111 in Windham and Salem, NH.

Analyses of 26 types of environmental, social, and economic resources were performed with input from the public, as well as local, state, and federal officials to modify and select the alternative with the least impacts.

### **Parkway Corridor Study in Hooksett, NH**

Key **HOLDEN** Staff: Peter Holden, Project Manager & William Rossignol, P.E, Senior Engineer

This study was completed for Manchester Sand, Gravel & Cement Company, Inc. The current US Route 3 roadway through Hooksett is very heavily developed with retail, commercial, and industrial uses. The density of access driveways from businesses along the corridor severely hampers capacity and the ability of pass-through vehicles to reach their destinations. The purpose of the study was to prepare preliminary plans for a completely new corridor through Hooksett that would relieve the traffic congestion that now exists, and provide an alternate route for users simply traveling through to adjoining towns.

**Location:** Concord, NH

**Client:** NH DOT

Peter Holden, Project Manager

#### **Scope of Services**

##### **Survey**

##### **Right-of-Way Plans**

##### **Roadway / Traffic Signal Design**

- Drainage Design
- Utility Design
- Traffic Signal Design
- Final Construction Plans
- Construction Phasing

##### **Environmental Services**

- Floodplain Mitigation

##### **Cost Estimates**

- Quantity Summary Sheets
- Cost Estimates

### **Design of Major Roadways**



### **Interstate 93 – Exit 13 Reconstruction**

#### **Description of Project**

This project involved complex bridge and roadway design. The new urban interchange required reconstruction of Interstate 93 and the adjacent ramps. Roadway reconstruction of 1.9 miles of urban arterials and local street connectors provided improved access to the new interchange. Drainage system improvements included new trunk lines connecting old portions of the system with new structures, as well as a large storm water detention basin prior to outfalling into the Merrimack River.

## *Design of Major Roadways (continued)...*

### **NH Route 101 Reconstruction, Brentwood and Exeter NH**

Key **HOLDEN** Staff: Peter Holden, Project Manager & William Rossignol, P.E, Senior Engineer

The Scope of Work for this project required the relocation of NH Route 101, beginning east of the Epping-Brentwood town line, and continuing easterly, approximately 4.5 miles to a point east of Epping Road in Exeter. **HOLDEN's** the design consisted of a four-lane, divided interstate-type roadway, with a variable width median between 26 and 50 feet. New diamond interchanges at North Road and Epping Road were included in the design. The project also included the design of approximately four miles of state and local roadways, most of which lied on relocated alignments. Storm Drainage design was extensive and included analysis, stormwater management, design, and erosion control.

### **US Route 1 Reconstruction, Portsmouth, NH**

Key **HOLDEN** Staff: Peter Holden, Project Manager

This project required the reconstruction of one mile of State Highway and included the addition of travel/turning lanes, storm drainage improvements and signalization. **HOLDEN** services included surveying, traffic data collection and analysis, permitting, and the preparation of preliminary and final design plans and specifications.

### **Langley Cove – Weirs Boulevard (US Rte. 3) - Laconia, NH (Private Developer)**

Key **HOLDEN** Staff: Peter Holden, Project Manager & William Rossignol, P.E, Senior Engineer

**HOLDEN** completed the Traffic Impact and Access Study Report for a proposed development involving 380 condominium units and associated (amenity) facilities. This project involved Automatic Traffic Recorder (ATR) and Manual Turning Count (MTC) traffic counts on Weirs Boulevard and intersecting streets, capacity analysis, turn lane evaluation and design, existing intersection improvement concepts, sight distance evaluations and coordination with NHDOT. Key to this project was sidewalk work for the condominiums, cross walks and signing along Weirs Boulevard, and safe access to the waterfront.

### **Home Depot Store - Conway, NH (Private Developer)**

Key **HOLDEN** Staff: Peter Holden, Project Manager & William Rossignol, P.E, Senior Engineer

**HOLDEN** completed the Traffic Impact and Site Access Study for a new Home Depot Store located off Barnes Road. Located near the very busy outlet malls, this project required extensive traffic work in the form of ATR and MTC and multiple signalized and unsignalized intersections along Route 16/302 and long the North-South Road. Analyses involved signalized optimization and signal coordination studies. Equally important was the design of mitigating roadway improvements which included sidewalks, cross walks, and pedestrian activated signalization in this shopping region that sees very heavy pedestrian traffic.

### **River Park - West Lebanon, NH (Private developer)**

Key **HOLDEN** Staff: Peter Holden, Project Manager & William Rossignol, P.E, Senior Engineer

**HOLDEN** completed the Traffic Impact and Site Access Study for a proposed 880,000 SF Multi-Use development on a 38-acre parcel located north of the West Lebanon town center off NH Route 10. The project involved significant traffic work in the form of ATR and MTC counts, accident research, and analysis of two stop condition driveways and three signalized intersections in the Town center. A Traffic Impact and Site Access Study Report was prepared and submitted for Town and State review. The project also encompassed the design of offsite mitigation in the form of new turn lanes on Rte. 10 along the site frontage, new sidewalks, landscaping, and lighting.

## PUBLIC AND PRIVATE SITE PLANS

During the past 40 years, **HOLDEN** has developed site plans that include many or all of the permitting and site design elements that will be required for private and public site plans.

**HOLDEN** scope of services for site plans can include:

- Topographic Surveys
- Wetlands Considerations
- Conceptual Plans
- Drainage Design
- Parking Lot Design
- Traffic Impact Studies
- Access Road Design
- Site Design/Layout
- Construction Staking
- Permitting, and more

**Note:** The list below is only a partial listing of **HOLDEN** projects.

**HOLDEN** has also developed hundreds of site plans in other municipalities in New England.

### Site Plan Projects- Partial List

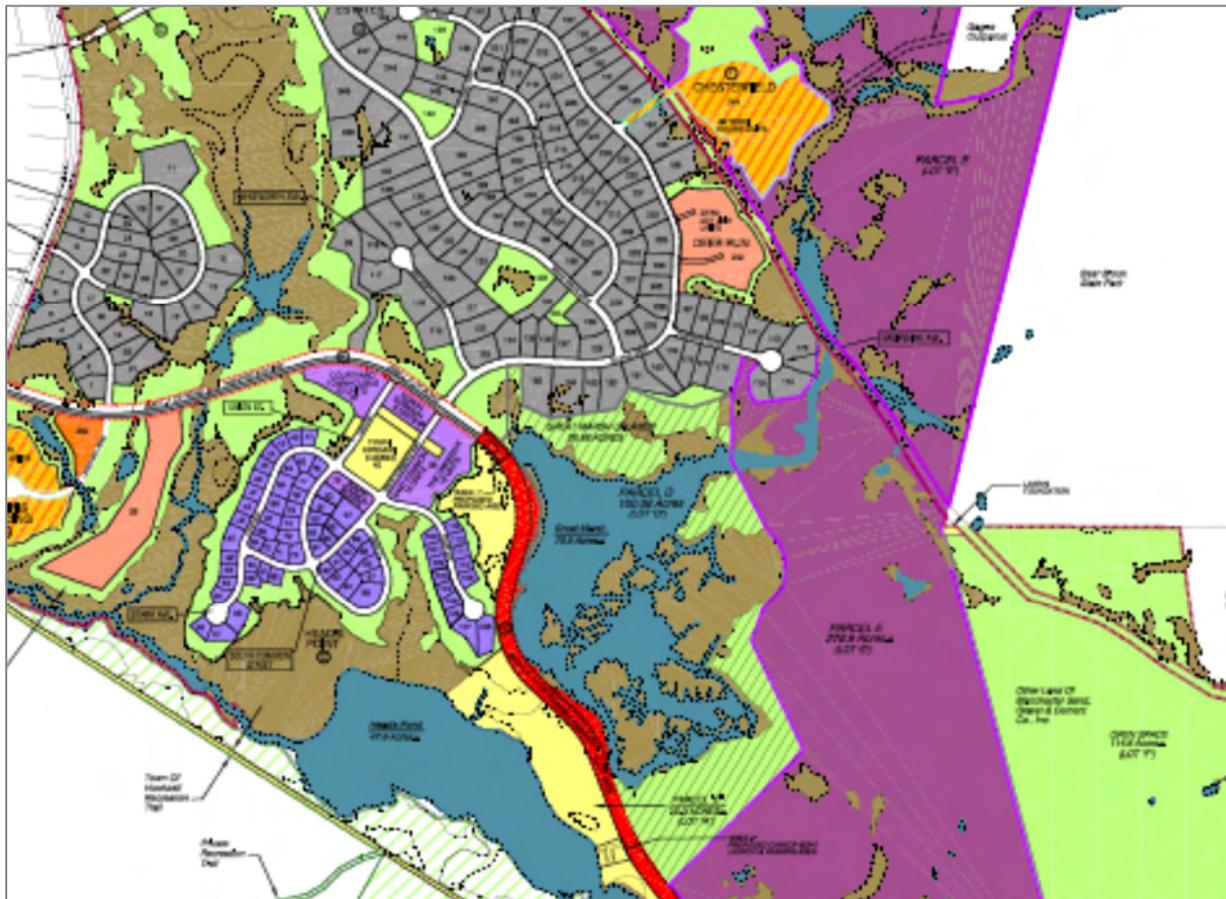
Client	Site Plan Project
Alosa, Pasquale	5,000sf Office Building
American Red Cross-Concord	American Red Cross Office
Banks Cheverolte-Cadillac, Inc	Redevelopment of Dealership
Banwell Architects	Cambridge Woods Office
BSW Architects	Longhorn Steakhouse Restaurant
Canad Inc	12 Screen Cinema Site
Clover, John B.	Restaurant and 4,000sf Retail
Concord Litho Group	Parking Lot Redesign
Concord Nissan, Inc.	Car Dealership Site
Cracker Barrel	Cracker Barrel Restaurant Study
Desert Brook Enterprises	Subdivision
Doherty, Sandy	Urban Lot West Side of Airport
Duprey, Steve	Hotel Redevelopment
Eckman Construction Co., Inc.	State Office Building
Foy Associates	Tire Warehouse
Friendly's Ice Cream Corp	Friendly's Restaurant
Genesis Health Care	Retirement Home Site Research
Granite Commercial Group, Inc	Grossmans Store
Hampshire Investors, Inc.	Commercial/Industrial Building
J M D Realty	Industrial Site
Jensen's, Inc.	200 Unit Mobile Home Utilities
Major Brands	Appliance Retail Store
Mall Realty, Inc.	200 Unit Development

Client	Site Plan Project
Mathews, Chris	Car Wash
Milano Real Estate Assoc. LLC	3 Restaurants + Retail Building
North Branch Construction	Commercial Site
Osborne's Agway	Agway Store
Outdoor World	Landscaping Supply Store
Patel, Trusheen	Hotel
Perry Butcher & Assoc.	Walmart Addition
Petroleum Engineering, Inc.	Construction Layout
Phoenix Realty Group	Pizza Hut & Shell Station Study
Pilot Construction	Garden Style Apartments
Planet Fitness	Planet Fitness Study
Prescott Place Apartments	Condominium Site
Pro-Con, Inc	Fairfield Inn
Ruby Tuesday	Ruby Tuesday
Ryan Construction	Auto Dealership Expansion
Sam's Club	Warehouse Club
Smc Holdings, LLC.	100 Unit Apartments
The Richmond Company, Inc.	Price Chopper Study
The Wasserman Group	5000sf Building Rehab Study
Tire Warehouse Center	Tire Warehouse
Veterinary Properties, LLC	Animal Emergency Center
Walmart	Retail
Yum Brands, Inc.	Taco Bell

## The Villages at Head's Pond Development, Hooksett, NH

This private development parcel **is 1267 acres in size**, and is located on the east side of US Rte. 3 in the northern part of Hooksett. This residential subdivision was designed to accommodate 428 residential units along **6 miles of new roadways**. Sidewalks, landscaping, street lighting, and crosswalks and were integrated into the roadway design. All of the proposed utilities were designed as underground facilities, and included natural gas, sewer, water, electrical, and cable TV.

*HOLDEN* also provided design flow calculations for the Heads Pond, Carriage Hill, and Mount Saint Mary developments, which were used in sizing a 1 million gallon water tank located at the top of Carriage Hill in Hooksett. *HOLDEN* designed the water system network, sized and designed the water mains and service lines, and calculated sill pressures during fire flow conditions for each of the 428 residential units at Head's Pond. Design parameters for the hydrant systems required a minimum available flow of 900 gallons per minute, a possible demand of 2,000 gallons per minute, and a pressure of 30 psi. The project included 2 submersible pumps and a WaterCAD water system analysis with more than 4,000 nodes.



## Dover, VT – Dover Town Common Improvements

The Town of Dover, Vermont recently awarded **HOLDEN** to develop detailed engineering drawings with necessary design improvements to accommodate at least 75 parking spaces for the Dover Town Common (DTC). These drawings will be based on the proposed landscape design as put forth in the existing Town of Dover Landscape Master Plan. The DTC, located in East Dover, is the focal point of the largely residential and eastern portion of town and contains the Dover Town Hall and the Dover Free Library. The intent of this project, currently in progress, is to provide a 21st century environment while preserving and enhancing the “Currier and Ives” picturesque quality to this area.

Location: Dover, VT

Client: Town of Dover

Current **HOLDEN** Team Members Involved on this Project::

*Peter Holden, Project Manager*  
*William Rossignol, PE*

### Parking Lots

The final parking lot layout design will be Americans with Disabilities Act (ADA) compliant, accommodating more than 75 parking spaces with an adequate number and appropriately located handicapped parking spaces. Per the Landscape Master Plan, the parking lots are reconfigured to create new green spaces and inviting pedestrian paths between the library and Town Hall. This project is in the final review stage.



## Hartford, VT – Quechee Main Street Improvements

The Town of Hartford, Vermont selected **HOLDEN** to refine the design concepts, develop contract plans, specifications, and construction cost estimates, and also provide design engineering services during construction for two parcels on either side of the Quechee Bridge along Quechee Main Street in Quechee Village. Both properties were significantly damaged during Tropical Storm Irene. Property at this location was purchased by the Town under the **FEMA Hazard Mitigation Grant Program (HMGP)**. As a result of this grant, specific development restrictions on reuse of the property had to be considered during the design phase. This project is currently in progress. **HOLDEN** has developed and presented several alternatives to the Town, and is now nearing completion of final plans.

Location: Quechee Village  
(Hartford, VT)

Client: Town of Hartford

Current **HOLDEN** Team Members  
Involved on this Project::

*Peter Holden, Project Manager*  
*William Rossignol, PE*



## Site Developments Requiring Roadway and Intersection Design

Many **HOLDEN** private and public site plan projects also require traffic studies and/or design of roadway modifications and intersections feeding into the developments area. The following gallery represents a partial list of these types of **HOLDEN** projects.



**Location:** Hooksett, NH

**Client:** Granite Hill Associates

### Scope of Services

Signalized Intersections  
Roadway Design  
Site Plan Design  
Storm Drainage Design  
Erosion Control Design  
Sewer & Utility Design  
Aerial Mapping  
Boundary & Construction Survey  
Wetland Mapping  
Wildlife Habitat Study  
Construction Monitoring

### Approvals

NHDES – Erosion Control Permit  
NHDES – Wetland Permits  
Planning Board  
Sewer Commission  
Municipal Water Department  
NHDOT – Driveway Permit

## The Villages at Granite Hill

### Description of Project

The Granite Hill Development has won 11 NH Home Builders Association Awards for excellence of design and construction.

The Villages at Granite Hill project involved a multi-phased residential condominium development located on 600 acres in Hooksett, NH. The first phase of development consisted of 468 residential condominium units with 2 miles of internal roadways, 10,000 linear feet of sewer and water mains, a water tower, and on-site drainage and detention facilities. The project involved the widening of 3,500 linear feet of US Route 3 from three lanes to five with two signalized intersections for site access. The project's first phase included a 20,000 square foot village shopping center that was constructed along the US Route 3 frontage. Conceptual planning was completed for subsequent phases of the development that contained 425 acres and included multiple development scenario's, one of which integrated the amenity of a nine hole golf course.

Final plans were prepared and permits obtained for Granite Hill – II, which included designs for a 370 unit residential townhouse condominium development.

Granite Hill-III included the redesign and permitting for two residential cluster subdivisions with a total of 50 lots and associated open space. Conceptual designs prepared for Granite Hill – III included plans for 300 additional homes.

## STREAM STABILIZATION PROJECTS

### Connecticut Riverbank Stabilization Plan

As a result of erosion caused by Hurricane Irene in 2011, approximately 1,200 feet of River Road along the east bank of the Connecticut River in Lyme, NH was impacted requiring complete closure of the road. **HOLDEN** provided engineering design services to develop repair alternatives, analysis of the alternatives, and design of the selected repair alternative. Extensive ground survey extending beyond the limits of the damaged area was required for alternative analysis and design, and included complete property and utility research throughout the project area. Survey of the river bank and in-stream survey was required to design 1,200 feet of river bank restoration. **HOLDEN** also provided assistance with construction bid process, cost reduction investigations after construction bidding, and design modifications after a change in land acquisition as the result of a public hearing.

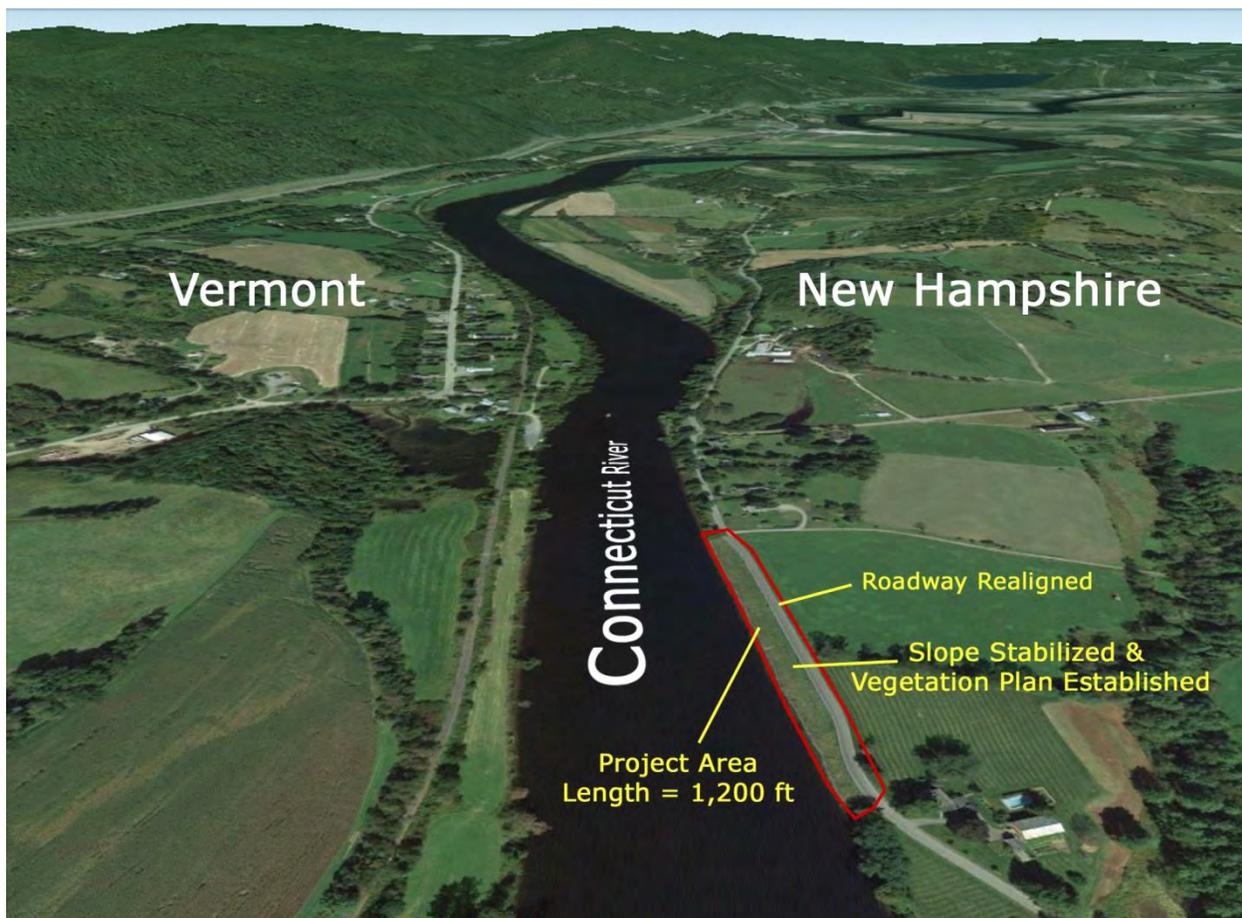
Location: Lyme, NH

Client: Town of Lyme

Current **HOLDEN** Team Members Involved on this Project::

*Peter Holden, Project Manager*  
*William Rossignol, PE*

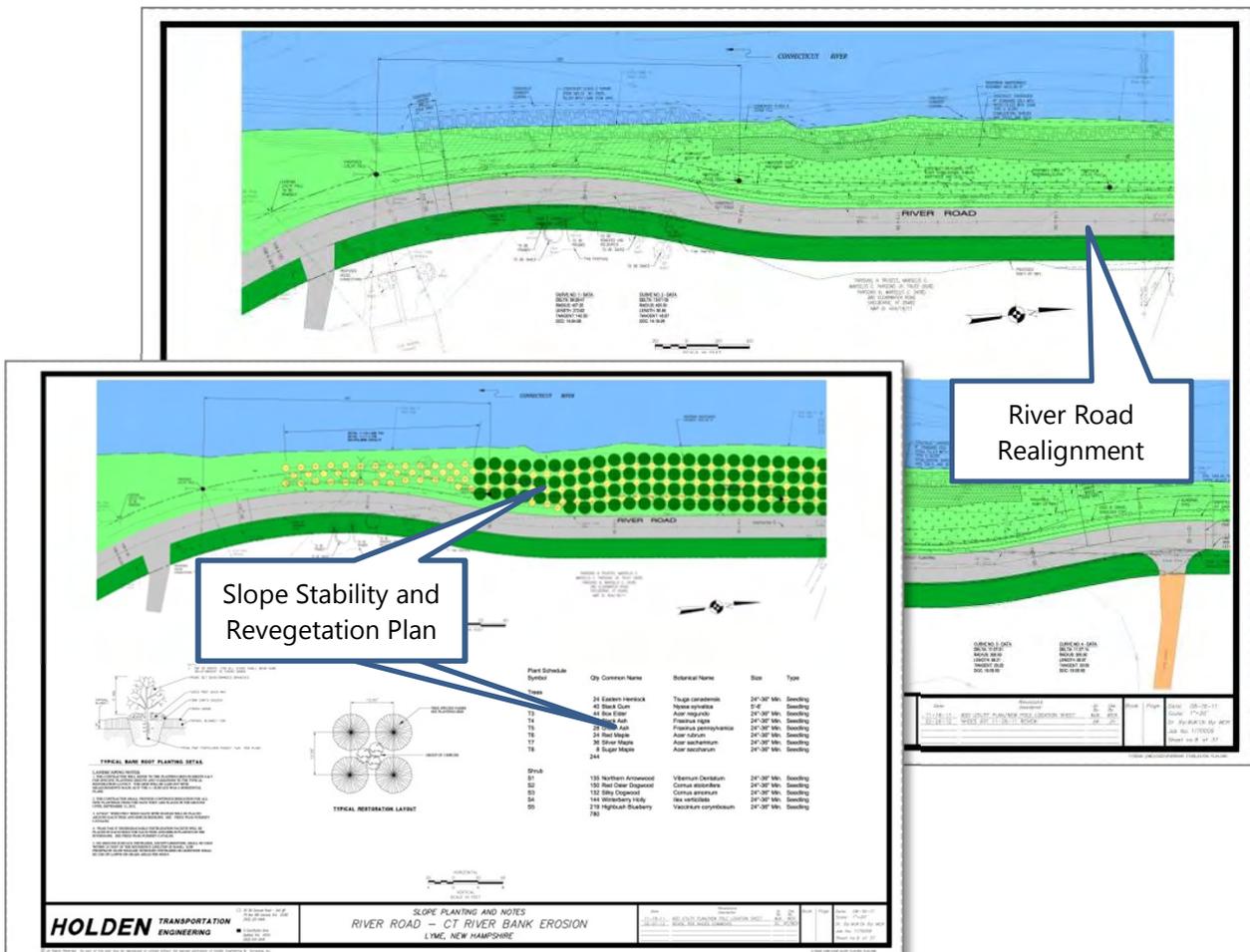
**HOLDEN** held a public presentation on the various reconstruction solutions which were attended by approximately 100 people. For this presentation **HOLDEN** prepared visual aids and handouts to educate the attendees on the project issues. **HOLDEN** presented the potential solutions, solicited comments and organized the public's opinion on the solutions allowing the Board of Selectmen to choose the best solution.



**Connecticut Riverbank Stabilization Plan (Continued)...**

**HOLDEN** worked extensively with the Town and the affected land owners to reach an acceptable solution for the road realignment. **HOLDEN** researched available sources of funding for this project, working with various State and Federal agencies, and finally assisted the Town with obtaining the needed funds from the National Resource Conservation Service (NRCS) of the US Department of Agriculture. NHDES permits obtained included Alteration of Terrain, Shoreland Protection, and Wetlands Dredge and Fill. A Notice of Intent for permitting under the National Pollution Discharge Elimination System (NPDES) was prepared and submitted to the US Environmental Protection Agency, and a US ACOE permit was obtained. This project also required clearances from the US Fish & Wildlife Service, the NH Division of Historical resources, and the NH Natural Heritage Bureau.

Alternative restoration concepts were developed that included realignment of River Road with varying amounts of encroachment onto private property. **HOLDEN** presented the alternative analysis to public hearings in Lyme, and worked with the Town boards tasked with reviewing this project. In addition to the design and development of construction plans and specifications, **HOLDEN** provided the Town with assistance with the bid process and services during construction. Services during construction included near full time construction supervision, and documentation of construction progress. Upon completion of the work, **HOLDEN** prepared as-built drawings of the restored area, and is currently monitoring the viability of plantings as required by the NHDES permit.



## Readsboro, VT Streambank Stabilization Plan

*HOLDEN* is currently finishing design plans for a similar river bank stabilization project in Readsboro, VT. This project along the West Branch of the Deerfield River involves a steep 50 ft high embankment which suffered significant erosive damage during Tropical Storm Irene. Because the north bank and terrace of privately owned land eroded, three residences had to be razed.

In response, the Town of Readsboro received a Community Development Block Disaster Recovery 2 (CDBG-DR2) Grant for the design and construction of stabilization measures. *HOLDEN* is handling all surveying, design, and permitting, and also will provide engineering services during construction. One of the critical aspects of the design process involved determining the most efficient construction approach for safe operation of large trucks and excavation equipment on the steep, high embankment.

Location: Readsboro, VT

Client: Town of Readsboro

Current *HOLDEN* Team Members Involved on this Project::

*Peter Holden, Project Manager*

*William Rossignol, PE*



## Barnard, VT Streambank Stabilization Plan

The Town of Barnard recently awarded engineering and construction management services to **HOLDEN** for the repair a Tropical Storm Irene slide across from the Town Garage on Chateauguay Road along Locust Creek. Designs, specifications, and contractor selection for this bank/streambed stabilization project are needed as well as construction management and resident engineer services. The **HOLDEN** design portion of the project includes two phases: a simplified design alternatives analysis using preliminary designs and a set of final designs for the chosen alternative.

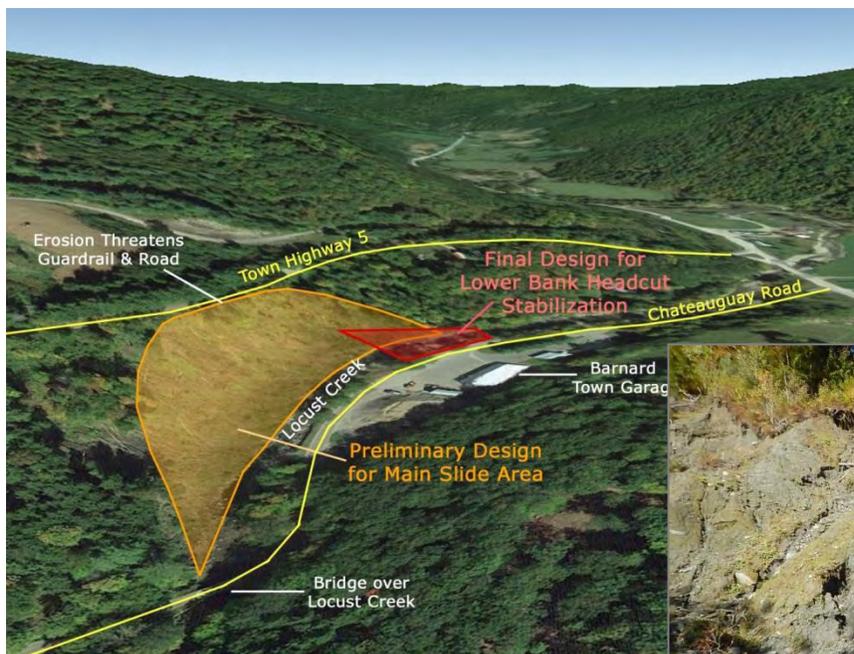
Location: Barnard, VT

Client: Town of Barnard

Current **HOLDEN** Team Members Involved on this Project::

*Peter Holden, Project Manager*  
*William Rossignol, PE*

The design alternatives component of the project is to evaluate the slide impacts on Mt. Hunger Road (Town Highway 5) which is at top of the bank across Locust Creek. Portions of the slide may significantly impact Mt. Hunger Road in the future. Design alternatives could include discontinuing Mt. Hunger Road above the slide and providing new access. Additionally, a town highway bridge just above the slide on Chateauguay Road that crosses Locust Creek will be assessed for debris jam and failure potential.



Steep Bank Slide Erosion



**HOLDEN** is providing design and permitting, as well as securing the labor, material and equipment necessary to repair the bank slide in accordance with town and state regulations. **HOLDEN** will also provide construction specifications, resident engineer services during construction, and Davis-Bacon wage certification of contractors.

This project is funded by a federal HUD CDBG-DR grant that was awarded in July 2015. The Two Rivers-Ottawaquechee Regional Commission (TRORC) will handle grant management and payments with the Town. Designs are expected in late 2015 with construction during the 2016 field season.

## EROSION CONTROL AND MONITORING (SWPPP)

*HOLDEN* has extensive experience in preparing erosion control plans, Storm Water Pollution Prevention Plans (SWPPP), and performing erosion control monitoring during construction. The table below is a partial list of projects that have been completed or are currently in progress.

City / Town	SWPPP Project Description
Nashua	Armory Improvements
Berlin	Reconstruction of Route 110
Winchester/Swanzey	NH Route 10 Bridge Replacement over Ashelot River
Portsmouth	Saga Bridge Replacement
Nashua	Pennichuck Bridge Replacement
Portsmouth	Maplewood Bridge
Tamworth	Chocorua Village Improvements
Albany	Rehab of NH Route 112
Salem	Roadway improvements on Crescent, Field and Karen Lane
Lebanon	Route 120 Sewer Replacement Project
Francestown	Bridge Replacement 2nd NH turnpike over South Branch Piscataquog River
Derry	NH Route 28 Water and Sewer Improvements
Laconia	Roadway Improvements on NH Route 105 (Parade Road)
Rochester	Sky Haven Airport
Peterborough	Union Street Reconstruction
Conway	White Mountain Tech Center Site Improvement
Chesterfield	Roadway Improvements on NH Route 63 along Spofford Lake
Merrimack/Rockingham	Roadway Resurfacing in Merrimack & Rockingham County
Waterville Valley	Reconstruction of Tripoli Road Within The White Mountain National Forest
Merrimack	Roadway Resurfacing in Merrimack County
Orford	Archertown Road Bridge Reconstruction
Wolfeboro	Middleton Road Reconstruction
Lebanon	Slayton Hill Roadway Reconstruction Project
Conway	Hurricane Mountain Road Infrastructure Improvements
Lancaster	NH Route 135 Reconstruction

## **HOLDEN BRIDGE & CULVERT SERVICES**



### **Cost Savings for Municipalities in Bridge Design & Construction**

**HOLDEN** delivers bridge design and services tailored to each client's requirements through collaboration and continuous, clear communications with community officials. Our extensive knowledge and experience for all types of bridge structures, combined with the excellent working relationships we've developed with various bridge fabricators, enables us to incorporate innovative designs at the lowest cost.

- On time / on budget
- Navigate permitting and funding challenges
- Innovative bridge options
- Affordable, long-lasting designs
- Low maintenance
- Aesthetically pleasing
- Visually blends with the character of your area

### **Comprehensive Bridge Solutions from **HOLDEN**:**

**HOLDEN** has been providing engineering services to public and private sector clients for 30+ years. Our transportation division, Holden Transportation Engineering (**HOLDEN**) has delivered bridge rehabilitation and replacement services to scores of municipalities, spanning 25 years.

- Culvert and Bridge Design for Rehabilitation and/or Replacement
- Grant Assistance and Funding Strategies
- Bridge Inspection and Load Rating
- Bridge Maintenance Programming
- Town-Wide Bridge Prioritization Programs
- Bridge Type, Cost, and Feasibility Studies
- River Hydraulic and Scour Evaluation
- Roadway and Traffic Design
- Drainage and Utility Design
- Permitting and Environmental Services
- Construction Administration and Inspection

## Bridge Project List (Partial List)

Municipality	Location
Alexandria, NH	Brook Road --3 Locations
Alton, NH	Damon Drive
Andover, NH	Bradley Lake Road
Ashland, NH	River Street
Auburn, NH	Auburn
Barnstead, NH	Province Road
Bradford, NH	West Meadow Road
	Jones Road
	Fairgrounds road
Brattleboro, VT	Whetstone Brook VT Route 9
Brentwood, NH	Brentwood/Exeter
Chester, NH	Shepard Home Road
	Fremont Road
Chester, MA	Maple Street
Concord, NH	Water Street
	Route I-93
	NH Route 106
	Commercial Street
Dublin, NH	Multiple Locations
Ellsworth, NH	Willey Road
Gilford, NH	Gunstock Area Road
	Mill Brook Road
Halifax, MA	River Street
Halifax, VT	Old County Road
Hancock, NH	Tannery Hill Road
	Longview Road
	Hunts Pond Road
	Cavender Road
	Antrim Road
Harrisville, NH	Hancock Road
Hebron, NH	Braley Road
Holland, VT	Stearns Brook Road
Hooksett, NH	NH Route 3
	Dalton Brook Access Road
Hubbardton, VT	Frog Hollow Road
Jamaica, VT	Pikes Falls Road
	Goodaleville Road
Keene, NH	New Road
Laconia, NH	Weirs Blvd
Lanesboro, MA	Berkshire Mall Road

Municipality	Location
Lee, NH	High Road
Lyme, NH	River Road
Lyndeborough, NH	Pettingill Hill Road
	Gulf Road
	Johnsons Corner Road
Monson, MA	Hospital Road
Montpelier, VT	Bailey Avenue
	Pioneer Street
Nashua, NH	Broad Street
New Boston, NH	Piscataquog River
	Parker Road
	Lyndeborough Road
	Howe Bridge
	Hooper Hill Road
	Gregg Mill Road Dougherty Lane
Newbury, NH	Old Province Road
Ossipee, NH	Granite Road
Peabody, MA	Johnston Street
Salisbury, NH	Logging Road
Sandown, NH	Fremont Road
Stoddard, NH	Private Road
Stratford, NH	Bog Road
Sutton, NH	Hominy Pot Road
Unity, NH	South Slack Road
	Quaker City road
	Lear Hill Road
	Cold Pond Road Church Road
Washington, NH	Half Moon Pond Road
Wentworth, NH	Dufour Road
Westfield, MA	Southwick Road
Westford, MA	Railroad Corridor
Wilmot, NH	Campground Road
	Kearsarge Valley Road
Wilton, NH	Russell Hill Road
	Keyes Road
	Burton Highway NH DOT BR 129/126
	Castle Hill Road
Windham, NH	Castle Hill Road
Woodstock, NH	NH Route 112

**HOLDEN Municipally Managed Projects – Partial List**

Project Town/City & Location		Funding				Surveying		Bridge and Highway Engineering								Permitting					Bidding & Construction		
Municipality	Project Location	NH DOT Municipal Managed	Municipal	State	Federal	Topographic Survey	ROW Survey	Inspection	Hydraulic Analysis	Scour Analysis	Scour Control	Bridge Design	Bridge Rehab.	Highway Design	Misc. Design	Wetland Delineation	Wetland Permitting	Historical / Archeological	Endangered Species	Erosion and/or SWPPP	Bid Documents	Bid Management	Construction Management
Alexandria, NH	Brook Road		•			•	•	•	•	•	•	•	•	•		•	•			•			•
Andover, NH	Bradley Lake Road	✓	•	•		•	•	•				•	•	•		•	•	•		•	•	•	•
Ashland, NH	River Street	✓	•	•		•	•	•	•		•	•	•	•		•	•	•	•	•	•	•	•
Barnstead, NH	Province Road	✓	•	•		•	•	•	•	•	•	•		•		•	•	•		•	•	•	•
Chester, NH	Fremont Road	✓	•	•		•	•	•	•			•	•	•		•	•	•		•	•	•	•
Chester, NH	Shepard Home Road-Headwall	✓	•			•	•	•				•	•	•		•	•	•		•	•	•	•
Chester, MA	Maple Street			•				•				•	•		•					•	•	•	•
Gilford, NH	Gunstock Area Road	✓	•	•	•	•	•	•	•	•	•	•		•		•	•	•	•	•	•	•	•
Halifax, VT	Old County Road		•	•		•	•	•				•	•	•		•	•	•		•	•	•	•
Hancock, NH	Tannery Hill Road	✓	•	•		•	•	•	•			•		•		•	•	•		•	•	•	•
Hancock, NH	Antrim Road	✓	•	•		•	•	•	•	•		•		•		•	•	•		•	•	•	•
Hancock, NH	Longview Road		•	•		•	•	•				•	•							•			
Hancock, NH	Cavender Road	✓	•	•		•	•	•	•			•		•		•	•	•		•	•	•	•
Harrisville, NH	Hancock Road	✓	•	•	•	•	•	•	•			•	•	•		•	•	•	•	•	•	•	•
Hebron, NH	Braley Road	✓	•	•		•	•	•	•	•		•		•		•	•	•	•	•	•	•	•
Holland, VT	Stearns Brook Road		•	•	•	•	•	•	•	•	•	•		•		•	•	•		•	•		
Hubbardton, VT	Biddie Knob Road		•	•		•	•	•	•			•		•				•		•	•	•	•
Hubbardton, VT	Frog Hollow Road		•	•		•	•	•	•			•		•		•	•	•	•	•	•	•	•
I-93, NH	Bracket Design Multiple Bridges			•	•			•							•								
Jamaica, VT	Goodaleville Road		•	•	•	•	•	•	•	•	•	•		•		•	•	•		•	•	•	•
Jamaica, VT	Pikes Falls Road		•	•	•	•	•	•	•	•	•	•		•		•	•	•		•	•	•	•
Lyndeborough, NH	Gulf Road	✓	•	•		•	•	•	•	•		•		•		•	•	•		•	•	•	•
Lyndeborough, NH	Pettingill Hill Road		•		•	•	•	•	•	•	•	•	•	•		•	•			•			
Lyndeborough, NH	Johnsons Corner Road		•		•			•	•						•					•			
New Boston, NH	Lyndeborough Road	✓	•	•		•	•		•			•		•		•	•	•	•	•	•	•	•
New Boston, NH	Howe Bridge Replacement	✓	•	•		•	•	•	•	•	•	•		•		•	•	•	•	•	•	•	•
New Boston, NH	Foot Bridge over Piscataquog River	✓	•	•	•	•	•	•	•			•		•	•	•	•	•	•	•			
New Boston, NH	Dougherty Lane		•			•	•	•	•	•	•		•	•	•	•				•			
New Boston, NH	Gregg Mill Road		•			•	•	•				•				•				•			
Ossipee, NH	Granite Road	✓	•	•		•	•	•	•			•		•		•	•	•	•	•	•	•	•
Pittsfield, NH	Shaw Road	✓	•	•		•	•	•	•		•	•	•	•		•	•	•	•	•	•	•	•
Unity, NH	Church Road		•			•	•	•	•			•		•		•	•	•	•	•	•	•	•
Wentworth, NH	Dufour Road	✓	•	•		•	•	•	•	•	•	•		•		•	•	•		•	•	•	•
Westfield, MA	Southwick Road (MASS DOT)			•	•	•	•	•	•	•	•	•		•		•	•	•	•	•			
Wilmot, NH	Campground Road	✓	•	•		•	•	•	•			•		•		•	•	•		•	•	•	•
Wilmot, NH	Kearsarge Valley Road		•	•	•	•	•	•	•	•		•		•		•	•	•		•	•	•	•
Wilton, NH	Keyes Hill Road	✓	•	•		•	•	•	•					•		•	•	•		•	•	•	•
Wilton, NH	Burton Highway	✓	•	•		•	•	•	•	•	•	•		•		•	•	•	•	•	•	•	•
Wilton, NH	Russell Hill Road	✓	•	•		•	•	•	•			•		•		•	•	•	•	•	•	•	•
Wilton, NH	Burton Highway		•			•	•	•				•	•							•			•
Wilton, NH	Hanger Bracket Design, BR 129/126		•	•				•							•								•

## SURVEYING

*HOLDEN* has provided surveying services to municipal, state, commercial, and residential clients in New England for more than 40 years, spanning thousands of projects. The senior staff comprising the current *HOLDEN* surveying team represent more than 100 years of surveying experience, combined:

Years of Surveying Experience				
Project Type	Peter Holden, LLS Senior Project Manager	Daniel Jendrick Survey Manager	Eric Roseen, LLS	Steve Casey, LLS
Boundary & Deed Research	40+	25+	30+	15+
Boundary Surveys	40+	25+	30+	15+
Right of Way Location	40+	25+	30+	15+
Topographic Surveys	40+	25+	30+	15+
Construction Surveys	40+	25+	30+	15+
As-Built Surveys	40+	25+	30+	15+

This project team has expertise for providing the full range of surveying services required for a wide variety of project types including tax map revisions, aerial photogrammetry, real estate ALTA surveys, construction staking, as-built surveys, wetland mapping, roadway rehabilitation, site plans, bridge rehabilitation/replacement, pedestrian sidewalks, and bicycle paths, location of utilities, drainage & sewer installation, and many permitting situations.

### SURVEYING

- Boundary research & determination
- Positioning (GPS) surveys
- Photogrammetric control
- ROW & utilities location
- Control densification
- Construction surveys
- Topographic surveys
- Deed research & recording

### MAPPING

- Aerial photography
- Air photo control
- Plan and profile mapping
- Photogrammetry
- Data conversion
- Topographic mapping
- Tax parcel mapping
- Digital terrain models
- Airport approach surface obstruction mapping

# EXAMPLES OF PUBLIC PRESENTATIONS & PUBLIC INVOLVEMENT

## Public Presentations

*HOLDEN* has facilitated hundreds of public meetings and excels at presenting our design concepts in clear, concise presentations. Below is a partial list of towns for which *HOLDEN* has managed engineering and planning projects that involved public meetings with community feedback.

Alexandria, NH	Brattleboro, VT	Gilford, NH	Lyndeborough, NH	Piermont, NH
Allenstown, NH	Brentwood, NH	Hancock, NH	Merrimack, NH	Unity, NH
Andover, NH	Bristol, NH	Harrisville, NH	Montpelier, VT	Warner, NH
Ashland, NH	Concord, NH	Hooksett, NH	Nashua, NH	Westfield, MA
Barnstead, NH	Conway, NH	Hudson, NH	New Boston, NH	Wilmot, NH
Bow, NH	Dover, NH	Lyme, NH	Pembroke, NH	Wilton, NH

## River Park, West Lebanon, New Hampshire

*HOLDEN* prepared complete site plans for the approval of a proposed multi-use development located north of the West Lebanon Town Center off NH Route 10. The presentation to the planning board continued for approximately six months. *HOLDEN* prepared the visual aids and handouts for the presentation and presented the project using plans, handouts, and a slide show consisting of approximately 100 slides. The presentation was very well received by the planning board and by the public.

## River Road Reconstruction, Lyme, New Hampshire

In addition to preparing all of the engineering plans and permit applications for the reconstruction of River Road along the Connecticut River, which was damaged by flood water, *HOLDEN* held a public presentation on the various reconstruction solutions which were attended by approximately 100 people. For this presentation *HOLDEN* prepared visual aids and handouts to educate the attendees on the project issues. *HOLDEN* presented the potential solutions, solicited comments and organized the public's opinion on the solutions allowing the Board of Selectmen to choose the best solution.

## Wal-Mart, Amherst, NH

*HOLDEN* completed the site engineering for the construction of a new Wal-Mart store on Route 1A in Amherst, New Hampshire. This project involved the subdivision of a 30 acre parcel creating a lot for the Wal-Mart store and two 1.5 acre out parcels. A site design for a 119,000 SF store, associated parking, entrance drives, and all utilities was completed and approved. A traffic study was completed and a signalized intersection was designed at the main entrance to accommodate the 25,000 cars per day on Route 101A. The preservation of endangered plants on this site was critical, and *HOLDEN* coordinated design solutions with the Conservation Commission and NHDES. This project is a good demonstration of working with the community. *HOLDEN* worked with the Town of Amherst, the NHDES, and abutting landowners to obtain all necessary approvals.

### **III. Work Samples: Municipal References and Letters of Recommendation**

## MUNICIPAL REFERENCES

Municipal Client Reference	Parameters Covered	Example Projects (See Section II for details & photos)
<p><b>Ken Black</b>            Director of Economic Dev.            Town of Dover            P.O. Box 428            Dover, VT 05356  <b>(802) 464-5100 x4</b></p>	<ul style="list-style-type: none"> <li>• Base Map</li> <li>• ROW Survey</li> <li>• Identification of Utilities</li> <li>• Historical/Archaeological Research</li> <li>• Drainage Review</li> <li>• Identify Required Permits</li> <li>• Alternatives Investigation</li> <li>• ADA Compliance</li> <li>• Conceptual Plans</li> <li>• Site Plans</li> <li>• Lighting</li> <li>• Signage</li> <li>• Cost Estimates</li> <li>• Abutter Communications</li> <li>• Presented Public Meetings</li> </ul>	<p>Dover Town Common            Parking Lot Design</p> <p>Bicycle &amp; Pedestrian Scoping            Study along VT Route 100 in            Dover</p>
<p><b>Keith Squires</b>            Selectboard Chair            Town of Arlington            P.O. Box 268            Arlington, VT 05250  <b>(802) 375-6474</b></p>	<ul style="list-style-type: none"> <li>• Base Map</li> <li>• ROW Survey</li> <li>• Identification of Utilities</li> <li>• Identify Best Path Route</li> <li>• ADA Compliance</li> <li>• Signage &amp; Striping</li> <li>• Alternatives Investigation</li> <li>• Cost Estimates</li> <li>• Abutter Communications</li> <li>• Presented Public Meetings</li> </ul>	<p>Pedestrian Safety Scoping Study            along VT Route 7A in Arlington</p>
<p><b>Jeffrey Strong</b>            Director of Public Works            Town of Springfield            216 Fairground Road            Springfield, VT 05156  <b>(802) 886-2208</b></p>	<ul style="list-style-type: none"> <li>• Base Map</li> <li>• ROW Survey</li> <li>• Identification of Utilities</li> <li>• Historical/Archaeological Research</li> <li>• Drainage Review</li> <li>• Identify Required Permits</li> <li>• Signage</li> <li>• Alternatives Investigation</li> <li>• ADA Compliance</li> <li>• Conceptual Plans</li> <li>• Cost Estimates</li> <li>• Abutter Communications</li> <li>• Presented Public Meetings</li> </ul>	<p>Elm Hill School Sidewalk Scoping            and Feasibility Study</p>

<b>Municipal Client Reference</b>	<b>Parameters Covered</b>	<b>Example Projects (See Section II for details &amp; photos)</b>
<p><b>Hannah O’Connell</b> Highway &amp; Utilities Superintendent Town of Brattleboro 211 Fairground Road, Brattleboro, VT 05301 (802) 254- 4255</p>	<ul style="list-style-type: none"> <li>• Topographic Survey</li> <li>• ROW Survey</li> <li>• Sidewalk Design</li> <li>• Roadway Design</li> <li>• Intersection Design</li> <li>• Crosswalk Design</li> <li>• ADA Compliance</li> <li>• Drainage Design</li> <li>• Striping &amp; Signage</li> </ul>	<p>Pedestrian Improvements on Western Avenue (VT Route 9)</p>
<p><b>Terry Garland</b> Treasurer Town of Jamaica 28 Town Office Road Jamaica, VT 05343 (802) 874-4681</p>	<ul style="list-style-type: none"> <li>• Roadway Inspections</li> <li>• Base Map</li> <li>• ROW Survey</li> <li>• Hydraulics Study</li> <li>• Bridge Design</li> <li>• Culvert Design</li> <li>• Erosion Control Design</li> <li>• Identification of Utilities</li> <li>• Alternatives Investigation</li> <li>• Cost Estimates</li> <li>• Abutter Communications</li> <li>• Presented Public Meetings</li> <li>• Permitting</li> <li>• Bid Documents</li> <li>• Construction Engineering</li> </ul>	<p>Roadway inspection project; Goodaleville Road Bridge FEMA project; Pikes Falls Road VTrans Grant project</p>
<p><b>Rhett Lamb</b> Director of Planning City of Keene, NH 350 Marlboro Street Keene, NH 03431 Tel: (603) 352-6550</p>	<ul style="list-style-type: none"> <li>• Topographic Survey</li> <li>• ROW Survey</li> <li>• Historical/Archaeological Research</li> <li>• Endangered Species Research</li> <li>• Sidewalk Design</li> <li>• Multi-use Trail Design</li> <li>• Determined Best Path Alignment</li> <li>• Traffic Volume Study</li> <li>• ADA Compliance</li> <li>• Drainage Design</li> <li>• Slope Stabilization Design</li> <li>• Pedestrian Bridge/Path Design</li> <li>• Bridge Inspection/Rehabilitation</li> <li>• Abutter Communications</li> <li>• Permitting</li> <li>• Presented Public Meetings</li> <li>• Construction Engineering Services</li> </ul>	<p>Historic Keene Arch Bridge / Multi-Use Rail Trail and Bradford Road Sidewalk</p>

Municipal Client Reference	Parameters Covered	Example Projects (See Section II for details & photos)
<p><b>David E. Hartman</b>            Selectmen Chair            Town of Warner, NH            PO Box 265            Warner, NH 03278            (603) 456-2298 ext. 2</p>	<ul style="list-style-type: none"> <li>• Topographic Survey</li> <li>• ROW Survey</li> <li>• Historical/Archaeological Research</li> <li>• Endangered Species Research</li> <li>• Sidewalk Design</li> <li>• Design, selection and siting of Signs &amp; Pavement Markings</li> <li>• ADA Compliance</li> <li>• Drainage Design</li> <li>• Abutter Communications</li> <li>• Permitting</li> <li>• Presented Public Meetings</li> <li>• Construction Engineering Services</li> </ul>	<p>Safe Routes to School Sidewalk, Bicycle, and Pedestrian Path</p>
<p><b>Kurt Grassett</b>            Public Works Director            Town of Hancock, NH            50 Main Street            Hancock, NH 03449            Tel. (603) 525-4087</p>	<ul style="list-style-type: none"> <li>• Pavement Inspection</li> <li>• Topographic Survey</li> <li>• Base Plan Preparation</li> <li>• Improvement Options</li> <li>• Sidewalk/Walkway Design</li> <li>• ADA Compliance</li> <li>• Parking Design</li> <li>• Grading and Curbing Design</li> <li>• Drainage Improvements</li> <li>• Abutter Communications</li> <li>• Presented Public Meetings</li> <li>• Researched Additional Grants Funding</li> </ul>	<p>Town Center Enhancements</p>
<p><b>Gordon Webber</b>            Selectboard Chair            PO Box 517            Antrim, NH 03440            (603) 588-2265</p>	<ul style="list-style-type: none"> <li>• Pavement Inspection</li> <li>• Topographic Survey</li> <li>• Base Plan Preparation</li> <li>• Sidewalk Design</li> <li>• ADA Compliance</li> <li>• Improvement Options</li> <li>• Grading and Curbing Design</li> <li>• Drainage Improvements</li> <li>• Water Line Replacement</li> <li>• Abutter Communications</li> <li>• Presented Public Meetings</li> <li>• Permitting</li> <li>• Construction Engineering Services</li> </ul>	<p>Highland Avenue &amp; Pleasant Street Reconstruction</p>

## LETTERS OF RECOMMENDATION

As exemplified by the letters from municipalities in the pages that follow, HOLDEN has successfully completed projects by working together with numerous communities to achieve a common vision.

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**Town of Warner  
PO Box 729  
Warner, NH 03608  
Phone: (603) 756-3672**

February 6, 2014

Mr. Peter Holden  
Holden Engineering & Surveying, Inc.  
P.O. Box 480  
Concord, NH 03302

Dear Peter,

I am happy to assemble this letter of recommendation regarding our experience with your firm on the Town of Warner's *Safe Routes To School* project. The nature of our project has presented many challenges, including the adoption of the new LPA standards by the NH DOT in the middle of this project. We have been pleased with your continued communication, assistance and guidance as we have presented a variety of alternatives to individual abutters and the public at large. Your presentation of technical information, costs and design graphics has been very easy for all to understand.

We have particularly appreciated your assistance and follow up efforts as we address NH DOT requests for submission of documentation that comply with the new reporting standards required by the Local Project Administrator (LPA) guidelines.

I wish you all the best as you pursue new project work.

Sincerely,

Mr. David E. Hartman  
Board of Selectmen  
Town of Warner, NH

**City of Keene**  
**3 Washington Street**  
**Keene, NH 03431**  
**Phone: (603) 352-0133**

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**From:** James Donison  
**Sent:** Friday, February 07, 2014 12:40 PM  
**To:** Holden Engineering  
**Subject:** Reference from City of Keene

Peter Holden,

We have been very satisfied with your consulting services on the Bradford Road study project. Holden Engineering has been very thorough, timely, professional and complete in the survey, evaluation of alternatives, public presentation and preparation of documents to the City.

Please have any of your references contact me for additional information about your performance.

---

**Town of Brattleboro**  
**DEPARTMENT OF PUBLIC WORKS**

211 Fairground Road, Brattleboro, Vermont 05301

Tel: 802-254-4255 • Fax: 802-257-2316

April 20, 2015

To Whom it May Concern:

Recently we had the opportunity to work with Holden Engineering on the redesign of a very complicated intersection in Brattleboro. The purpose was to not only incorporate new pedestrian features into the area, but to also improve the general safety of the intersection. This project was funded through the Vermont Agency of Transportation's Local Transportation Facilities Program.

During the project, Holden's staff efficiently and professionally steered us through the project which included alternative development, public meetings, and final design. We were very impressed at the creativity and openness that they brought to the table despite the rigid grant stipulations and pure difficulty of the intersection. Although they always pleasantly innovative with solutions for this project, they were also extremely cognizant of the construction budget as well.

Even throughout the close out process and now as we move into the construction phase, Holden continues to be extremely helpful, available, and go above and beyond. We look forward to the opportunity to work with them again.

Sincerely,



Hannah O'Connell  
Highway/Utilities Superintendent  
Town of Brattleboro



## Town of Jamaica Selectboard

July 9<sup>th</sup>, 2015

To Whom It May Concern:

The Town of Jamaica, Vermont has recently had the pleasure of working with Holden Engineering on a very complicated FEMA bridge project. The complications were the result of conflicts between FEMA and the State Agency of Natural Resources. Peter Holden and his staff were instrumental in helping to resolve these conflicts, and to get moving a project that had been mired in bureaucracy for 3 years.

Once the political hurdles were overcome, Peter and his team put together a comprehensive engineering plan that met our time and financial constraints. Peter, himself, met with the Town personnel and the Town Selectboard, multiple times to explain the project and answer any questions as they developed. He also made presentations at the pre-bid meetings and the pre-construction meeting.

He and his team were always available for assistance with the bid process, and to clarify communication with the potential bidders. Throughout their involvement with the Town they performed more like a partner than just a contractor.

The Town of Jamaica highly recommends Holden Engineering.

Sincerely



Alexandra Clark

Chair, Jamaica Selectboard

phone: 802.874.4681 | fax: 802.874.4558 | PO Box 173, Jamaica, VT 05343 | email: [jamaicatreasurer@svcable.net](mailto:jamaicatreasurer@svcable.net)

# TOWN of WENTWORTH

SELECTMEN'S OFFICE

PO BOX 2 • WENTWORTH, NEW HAMPSHIRE 03282-0002

(603) 764-9955 • FAX (603) 764-9362

wentworth2@roadrunner.com • www.wentworth-nh.org

January 30, 2014

Holden Engineering & Surveying, Inc.  
Attn: Peter Holden, President  
P.O. Box 480  
Concord NH 03302-0480

Re: Project 14518, Wentworth NH – Dufour Road Bridge over South Branch Baker River

Dear Mr. Holden,

On behalf of the Town of Wentworth, the Board of Selectmen, wish to thank you for your dedicated work on the Dufour Road Bridge Rehabilitation project.

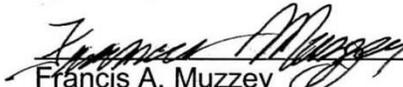
Your willingness to work together with the Board in achieving a positive outcome to the Town as well as those residents directly impacted by this project was very much appreciated.

Thank you again, and we look forward to working with you in the future.

Sincerely,

WENTWORTH SELECTMEN

  
\_\_\_\_\_  
Stephen G. Davis

  
\_\_\_\_\_  
Francis A. Muzzey

  
\_\_\_\_\_  
Randy C. Morrison, Chairman

ATTACHMENT C

TOWN/CITY OF Wentworth  
CONSULTANT PERFORMANCE EVALUATION

Project Name: DUFOR BRIDGE Date: 9.30.14

Project Number: 14518

Project Description: Dufour Rd. Bridge over S. Branch Baker River

Town/City Project Manager: Board of Selectmen

Consultant Name: Holden Engineering & Surveying Inc.

Address: PO Box 10153, Bedford NH 03110

Consultant Lead Person: Peter Holden

Type of Work: Engineering

A. General:

**Organization and Management**

NOTE: Additional remarks required for all items rated as "Below Expectations".

	Expectations			Comments
	Above	Meets	Below	
1. Technical Capability of Personnel	X			
2. Adequacy of Supervision	X			
3. Communication and Cooperation with Municipality	X			
4. Attitude Toward the Project	X			
5. Invoicing		X		
6. Administration of Subconsultants	X			
7. Anticipate and Resolve Design Issues	X			

Comments: COOP JOB!

8. Did the Consultant file any extras? (Provide brief explanation for all extras.)

Comments: \_\_\_\_\_

**Town of Wentworth, NH – Consultant Performance Evaluation**

9. (continued) Below the names of any of the consultant's employees whose performance was outstanding on this project and what their contribution was. Similarly, indicate the names of those whose performance was below expectations and in what way.

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**B. Design Services:** Ratings and comments should consider completeness, timeliness, accuracy, and quality (ability to anticipate and resolve design issues) of submissions.

	Expectations			Comments
	Above	Meets	Below	
Support for Environment Process		X		
Conceptual Alternatives		X		
Engineer Report		X		
Public Participation Support	X			
Preliminary Plans	X			
Final Plans	X			
Bid Phase	X			
Construction Services	X			

Comments: WENTWORTH APPRECIATES THE FOLLOWUP WHEN DEFECTS WERE FOUND AFTER BOND EXPIRATION.

Evaluation Submitted By:

\_\_\_\_\_  
Town/City Project Manager  
*[Signature]*  
Chairman, Board of Selectmen/Town or City Manager

Date: \_\_\_\_\_  
Date: 9/30/14

**Consulting Firm** (Attach responses or comments if appropriate)

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*I/We acknowledge that I/we have read this report and have discussed it with the municipality.  
My/Our signature(s) does not necessarily mean that I/we agree with the report.*

Project Manager: *[Signature]* Date: 10-15-2014  
Principal: \_\_\_\_\_ Date: \_\_\_\_\_

Mail to: Asst. Director of Project Development, NHDOT  
PO Box 483, Concord, NH 03302-0483



TOWN OF LYNDEBOROUGH

Office of Selectmen

9 Citizens Hall Road, P.O. Box 6 • Lyndeborough, NH 03082

Phone (603)654-5955 • Fax (603)654-5777

August 6, 2009

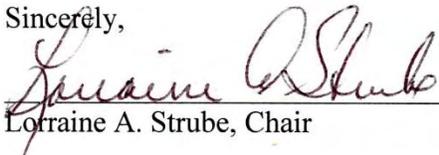
Mr. Peter Holden, Pres.  
Holden Transportation Engineering  
PO Box 480  
Concord, NH 03302-0480

Dear Mr. Holden:

Now that the Gulf Road Bridge Construction Project is complete, the Lyndeborough Board of Selectmen would like to take this time to thank Holden Transportation Engineering for the excellent work it performed during all phases of this project. From planning and design to construction management, your firm showed full professionalism. Your project manager and engineers were very thorough, courteous, responding to our questions in a timely manner and effectively mediated and communicated with all the stakeholders involved. The project went very smoothly, finished under budget and the finished product is something the Town of Lyndeborough will be proud of for decades to come.

Again, thank you and we look forward to working together in the future as the needs arise.

Sincerely,

  
Lorraine A. Strube, Chair

  
Steven M. Brown

  
Arnold A. Byam, III

Board of Selectmen

CHARLES W. THOMPSON  
P. O. BOX 302  
WILMOT, NH 03287

TELEPHONE (603) 526-8969  
FAX (603) 526-8970

July 31, 2009

Peter D. Holden, President  
Holden Engineering & Surveying, Inc.  
PO Box 480  
Concord, NH 03302

Dear Mr. Holden:

I am writing as former Chairman of the Board of Selectmen of the Town of Wilmot with regard to work performed by Holden Engineering in 2006 and 2007.

Following the destruction of a town owned bridge in May of 2006, the Town of Wilmot contracted with Holden Engineering, Inc. to perform engineering design, environmental permitting, contract bidding, construction supervision and interaction with FEMA in the construction of a new bridge. The work was done in a timely, responsive and professional manner and we are pleased with the results and the working relationship.

While I was not involved, Holden Engineering performed similar services in the replacement of another town bridge in 2004. By all known accounts this relationship was also very satisfactory.

I know of no reason that Holden Engineering would not be very seriously considered for future work of this type in Wilmot.

Sincerely,



Charles W. Thompson



*Town of Ashland*  
*New Hampshire 03217*

TOWN OFFICE  
OFFICE (603) 968-4432  
FAX (603) 968-3776

*From the Office of the Town Administrator*

January 13, 2012

Mr. Peter Holden  
Holden Engineering & Surveying, Inc.  
PO Box 480  
Concord, NH 03302

**Re: River Street Bridge Project**

Dear Peter,

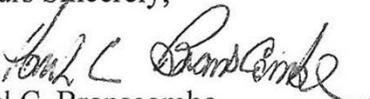
Now that the biggest undertaking in Ashland's recent history has been completed I thought it time to write a thank you and let you know how pleased the Selectmen and the residents of Ashland are with their new Bridge over the Squam River.

This Municipality certainly chose the right engineering firm as you were always on site keeping the Town fully informed at all times. Also your firms excellent relationship with the Contractor was key to the success of the project.

In closing I should like to single out Bill Rossignol from your firm who worked closely with the Town office as we found him to be a very focused and dedicated professional.

Thank you again for a job well done.

Yours Sincerely,

  
Paul C. Branscombe

**Town of Lyme  
1 High Street  
PO Box 126  
Lyme NH 03768  
www.lymenh.gov  
603-795-4639**

Charles R. Ragan  
Simon L. Carr  
Richard A. Vidal

February 27, 2012

To whom it may concern,

A significant storm event occurred during the period April 30 – May 1, 2011, resulting in the undermining a 1000' section of the east bank of the Connecticut River in Lyme, NH. Following the event, portions of River Road became unstable with visible evidence of sloughing material adjacent to the road and tear cracks in the pavement along the west edge of the road. Concerned with instability issues, the Town immediately closed the road to traffic and employed Holden Engineering & Surveying, Inc to document the event and prepare proposals for bank stabilization and road repairs.

The Selectboard has found Holden Engineering & Surveying, Inc to be a competent and professional company. For the scope of this project, the Town worked mainly with Peter Holden, Bill Rossignol and Jason Hill.

The issues surrounding this washout were complex and politically charged. Holden responded quickly and efficiently. They provided the town with the options for re-instating the road, various stabilization plans, and finally bid packets for this project. During this process, Holden worked closely with various groups to seek out funding options, made presentations at public meetings, worked with the Department of Environmental Services, dealt with landowners and easement holders involved in the relocation of this road, met with the New Hampshire Department of Safety and the Army Corp of Engineers, and collaborated effectively with the Town's Road Agent, Selectmen, the Administrative Assistant, and finally Derby Mountain Construction.

The Selectboard is pleased with the final results and would recommend Holden Engineering & Surveying, Inc.

Sincerely,

  
Charles R. Ragan, Chairman  
Town of Lyme Selectboard



TOWN OF NEW BOSTON  
7 Meetinghouse Hill Road  
P.O. Box 250  
New Boston, NH 03070-0250  
Phone • (603) 487-5504 Fax • (603) 487-2975  
www.new-boston.nh.us

Board of  
Selectmen  
Ext 101

July 30, 2009

Town  
Administrator  
Ext 103

Holden Engineering & Surveying, Inc.  
Attn. Peter Holden  
P.O. Box 480  
Concord, NH 03302

Assessing  
Office  
Ext 102

**RE: Bridge Projects**

Town  
Clerk  
Ext 106

Dear Peter:

Tax  
Collector  
Ext 105

Bill Rossignol of your office called and asked if I could provide some general feedback relative to our working relationship. Over the past six years or better the Town of New Boston has engaged the services of Holden Engineering to assist us in the replacement of two town bridges and we are now well along on the pedestrian bridge project.

Planning  
Department  
Ext 111

The association has continued because we have come to have a comfort level with your technical ability, your knowledge of the Municipal Bridge Aid and TE programs, and the willingness of the firm to work through any issues. There has been good communication throughout and I feel that has limited the extent to which we have had to deal with problems. We chose Holden for the footbridge project because you showed the greatest degree of imagination in coming up with options.

Building  
Department  
Ext 108

Recreation  
Department  
Ext 112/113

We have always had the feeling that our project was important to the firm and was receiving your every attention. That has not always been our experience with the larger and more diverse engineering firms. Overall, whether it is the preliminary design phase or the project manager phase your efforts have helped us to bring each project to a successful conclusion.

Fire  
Department  
487-5532

Whipple Free  
Library  
487-3391

Yours truly,

Police  
Department  
487-2433

Highway  
Department  
487-2279

Burton Reynolds  
Town Administrator

Transfer Station &  
Recycling Center  
487-5000

## OFFICE OF SELECTMEN

Town of Harrisville  
705 Chesham Road Harrisville, NH 03450  
(603) 827-3431

August 1, 2009

Peter D. Holden, President  
Holden Engineering & Surveying, Inc.  
PO Box 480  
Concord. NH 03302

As Chairman of the Board of Selectmen of the Town of Harrisville, NH, I speak for the whole Board in recommending Holden Engineering for any road or bridge project. Although our bridge project may be considered small, Holden put together a very professional and detailed solution to our project, with various bridge designs and a timetable for moving the project forward which would enable us to receive all the possible Federal and State funding. As the design process has moved forward Holden has been very flexible in considering design alternatives to address public input and opinions.

We are very pleased to recommend Holden Engineering as an excellent choice for any road or bridge project.

Sincerely,



Jay C Jacobs, Chair  
Harrisville Board of Selectmen

TOWN OF HANCOCK  
DEPARTMENT OF PUBLIC WORKS

Kurtis J Grasset  
Director of Public Works  
79 Bennington Road  
PO Box 6  
Hancock NH 03449

---

Telephone 603-525-4087  
Fax 1-877-525-4084  
E-Mail [hwydept@hancocknh.org](mailto:hwydept@hancocknh.org)

August 3, 2009

Peter D. Holden, President  
Holden Engineering & Surveying, Inc.  
PO Box 480  
Concord, NH 03302

Dear Mr. Holden:

It is my pleasure to write a recommendation for your firm as they pursue road and bridge work with the state of Massachusetts. As you are aware the Town of Hancock began a professional relationship with your firm back in 2000. Over the course of the last nine years Mr. William Rossignol P.E and Mr. Thomas Levins P.E. have taken four road and bridge projects from design through construction.

I continue to enjoy the working relationship that we have established and the way in which your firm has handled these four projects. I feel the Town of Hancock receives excellent engineering services at reasonable cost and that your staff is always available to discuss and answer questions.

I wish you well as you pursue other engineering work in our neighboring state of Massachusetts and if they feel the need to contact me directly, please don't hesitate to forward my contact information.

Sincerely,



Kurtis J. Grasset



## Town of Hebron

PO Box 188  
Hebron, NH 03241  
Phone: 603-744-2631  
[hebronnh@metrocast.net](mailto:hebronnh@metrocast.net)

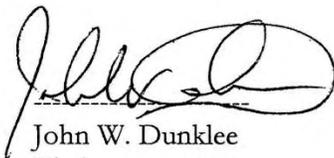
July 27, 2009

To Whom It May Concern:

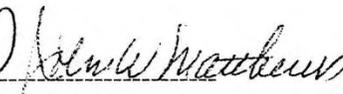
Holden Engineering has assisted the Town of Hebron with its Braley Road Bridge Project since 2005. The State of New Hampshire does not have the engineering man power to design bridges under their inspection process; therefore, we contracted with Holden Engineering to design and obtain environmental State Department of Transportation approvals. Holden Engineering fulfilled their obligation and more by working with the Town of Hebron on the land surveying, design engineering, local public hearings, State Heritage Commission approvals, wetland approvals, New Hampshire Department of Transportation approvals, helping with abutter easements, bridge contractor bids, inspection of the building of the bridge and finishing touches.

The Town of Hebron feels Holden Engineering is a superior firm and is competent and efficient to work with. The Town is comfortable in recommending their services and would employ the firm in the future.

Hebron Board of Selectmen



John W. Dunklee  
Chairman



Bruce A. Barnard  
Selectman

John Matthews  
Selectman

# *HOLDEN*

*Engineering & Surveying, Inc.*

P.O. Box 480  
Concord, NH 03302  
(603) 472-2078  
hes@holdenengineering.com

[www.HoldenEngineeringInc.com](http://www.HoldenEngineeringInc.com)



Engineering design & construction services by **HOLDEN**

Bruce N. Freeman Memorial Bicycle Path

# *HOLDEN*

*Engineering & Surveying, Inc.*

P.O. Box 480

Concord, NH 03302

(603) 472-2078

hes@holdenengineering.com

[www.HoldenEngineeringInc.com](http://www.HoldenEngineeringInc.com)