

January 6, 2017 | Qualifications

Vermont Agency of Transportation

At-the-Ready Consultant Engineering

Design Services



January 6, 2017



Ms. Nydia Lugo
Technical Development Engineer
Vermont Agency of Transportation
One National Life Drive
Montpelier, VT 05633-5001

**Re: Vermont Agency of Transportation –
At-the-Ready Consultant Engineering Services for Municipalities
Design Services**

Dear Nydia and members of the Selection Committee:

VHB is pleased to present our proposal in response to the Agency’s Request for Qualifications for At-the-Ready Engineering **Design Services** for Municipalities. Our proven dedication to VTrans and its municipal transportation partners spans nearly 30 years. We understand the challenges facing Vermont and its communities and are firmly committed to helping achieve the vision of a safer, more efficient, and more connected transportation network. We believe in making meaningful contributions to our communities and our state by providing a balanced relationship between economic growth and environmental stewardship. We are committed to quality and at 1300-strong, we provide both the local connection and depth of resources to meet the full needs of the VTrans Municipal Assistance Bureau (MAB) program.

Our team members’ expertise and previous experience planning, permitting, and designing a wide range of roadway, bicycle, pedestrian, and multimodal projects across Vermont and New England has provided us with insights into innovations and potential issues that may arise during the course of these projects. We enjoy working cooperatively with municipalities and VTrans to identify and implement creative, effective, and constructible designs that local communities can be proud of for many years to come.

For this proposal, we have carefully chosen our team to meet the full range of municipal needs to successfully implement their projects. Our personnel are dedicated professionals who strive to provide the best services available. They are smart, genuine, and easy to work with, and sincerely care about doing projects the right way to provide the best end product possible. VHB staff are very familiar with the requirements of projects in the MAB process, and we look at projects from every angle to ensure that we see the big picture, avoid surprises and set-backs, and meet or exceed expectations every time.

Our team is dedicated to our clients and the projects that improve mobility, enhance communities, and make Vermont a better place to live.

Ms. Nydia Lugo
January 6, 2017
Page 2



We are extremely pleased to have the opportunity to present our proposal and we look forward to working together with Vermont municipalities and VTrans on projects that make our communities even better places to live.

Sincerely,

A handwritten signature in black ink that reads "Evan P. Detrick".

Evan Detrick, PE
Program Manager
Director of Transportation Engineering
edetrick@vhb.com

A handwritten signature in blue ink that reads "David Saladino".

David Saladino, PE, AICP
Principal-in-Charge
Managing Director
dsaladino@vhb.com

General Firm Information





VHB
40 IDX Drive
Building 100, Suite
200
S. Burlington, VT
05403
802.497.6100
edetrick@vhb.com

Overview

The Vermont Agency of Transportation (VTrans) Municipal Assistance Bureau (MAB) was initially established in the 1990's as the Local Transportation Facilities (LTF) section of the Program Development division. Since its inception, the mission of this unit has been to provide assistance to municipalities and other organizations (project sponsors) to implement transportation improvement projects in their communities. These projects span a wide range of topics which may include sidewalks and pathways, intersection improvements, bridge replacements, rehabilitation of covered bridges, Safe Routes to School projects, Scenic Byway corridor plans, transportation scoping studies, stormwater improvements, crosswalk enhancements, and the rehabilitation of historic structures.

Projects advanced through the MAB are funded using a variety of sources, often including federal monies such as Transportation Alternatives Program grants, along with local matching funds, and occasionally state funds. With the use of federal and state funds, the projects are administered through VTrans and must be developed following the VTrans project development process outlined in the MAB's Local Projects Guidebook for Locally Managed Projects. Under this process, the municipality manages and develops the project, and VTrans administers the funding and verifies the established process is being followed. Although VTrans helps the municipality with many aspects of the project development, it is ultimately the municipality's responsibility to advance the project. To do so, municipalities often rely on the help of consultants. Consultants can assist the municipalities in three different ways:

- Manage the project on behalf of the municipality by serving as the Municipal Project Manager (MPM);
- Serve as the designer responsible for developing plans and specifications or preparing scoping reports;
- Provide construction administration and inspection services.

To retain the services of a consultant, municipalities have traditionally solicited proposals or statements of qualifications to identify and determine which consultants are best qualified for each project. This process has been burdensome on some municipalities, especially those with small staffs that are not familiar with the solicitation process. To streamline and simplify the process, the VTrans MAB has issued this request for qualifications to identify a list of consultants that can provide services to municipalities on an “At the Ready” basis.

VHB has a long history of delivering multi-faceted transportation services to municipalities throughout Vermont. Through our extensive experience on numerous VTrans retainer contracts and individual MAB projects, we are ideally suited to provide a broad array of management, design, scoping, and construction phase services under this retainer. Our Vermont team is the right size to provide caring and responsive services, and with the support of many professionals along the East Coast, we have the resources to tackle the most challenging or unique assignments. We look forward to working with VTrans and municipalities across the state for the betterment of Vermont’s transportation infrastructure.

General Firm Information

Since 1979, VHB has partnered with private- and public-sector clients to provide high-quality transportation engineering services through an integrated team approach. VHB has continued to grow and hone a diverse workforce that delivers personalized service and brings value, responsiveness, and excellence to municipalities. We pride ourselves on our ability to guide our clients from initiation to completion of multi-disciplined, challenging, and important transportation projects of all sizes.

Collaboration is a focal point of our approach to projects; VHB professionals routinely work together across practice areas and geographies to provide holistic project solutions. We emphasize truly listening to and understanding our client’s needs while working collaboratively and in partnership. We also routinely incorporate input from stakeholders into our proposed solutions early in each project’s development. This approach has helped us develop our strong track record of delivering comprehensive, forward-thinking, and well-supported projects in a timely and cost-effective manner. Evidence of this success can be found in the industry recognition VHB projects receive – and the number of repeat clients we are happy to serve.

The VHB Difference

Because VHB combines a deep understanding of VTrans procedures with strong municipal connections, we are well-suited to assist municipalities with At-the-Ready services for their transportation improvement needs. VHB offers a broad range of services through our in-house staff, and we are fully capable to provide the full spectrum of design services to municipalities and other local sponsors under this retainer. We have provided similar services on dozens of projects similar to those expected, both directly for VTrans and municipalities across Vermont over the last 30 years.

Local Presence and Knowledge, Regional Expertise and Resources

VHB’s services under this retainer will be provided out of our Vermont office. With nearly 60 professional civil and structural engineers, planners, landscape architects, and environmental specialists, our Vermont office provides the full range of services anticipated under this contract.

We live, work, and play here and we consistently hire Vermonters. We understand what makes our state special. We are proud that our local office has been one of the fastest growing offices within the company because we've built our business by serving as an extension of VTrans staff. We take great pride in helping VTrans and municipalities improve the already great quality of life in Vermont. Our Vermont staff will be supported by the resources and relationships of over 500 professional designers, engineers, scientists and planners throughout VHB's New England offices. Our local presence, knowledge of VTrans' practices and expectations, and depth of resources allows us to provide personal service, value, and responsiveness every time.

We've put together a team in this proposal that reflects VHB's continued commitment to improve mobility, enhance Vermont communities, and balance development and infrastructure needs with environmental stewardship. While not every project requires this deep pool of talent, the resources are available for our Vermont team to call upon when needed.



Integrated Services Approach

The VHB Vermont staff has a wide range of skills and experience to cover the complete range of services needed under this retainer. Our integrated planning, design, and engineering services include:

- Statewide and regional active transportation network planning
- Sidewalk, multi-use path, and trail scoping and design
- Urban bike & pedestrian facilitates scoping and design
- Roadway, Road Diet and Complete Street evaluation, scoping, and design
- Traffic planning and design
- Landscape architecture and streetscape design
- Design and implementation of traffic calming elements
- Community outreach and engagement
- Construction observation, inspection, and resident engineering services

Through our diverse in-house staff, VHB offers support services that include: topographic and boundary survey; stormwater permitting and design; utility identification and coordination; right-of-way investigations and documentation; site design; historic assessments; funding assistance; traffic engineering; GIS mapping and database development; environmental investigations, permitting and NEPA compliance; railroad engineering; structural engineering; and pavement condition assessment and design. As projects are assigned, VHB's Project Manager will coordinate with each discipline so they are aware of the impacts and implications and can provide feedback that further informs the overall project strategy. This approach means that nothing is lost in translation between the client and project team members so that the best design ideas advance and the final product meets the goals of the community.

Team Accessibility and Responsiveness

When providing services on behalf of clients, our goal is to be as accessible as possible. Our team members pride themselves in being accessible for a client's needs day and night.

Our local presence allows us to take a hands-on approach with attendance at regular work sessions during development of the design documents. In addition to our local office and resources across New England, we maintain a diverse network of subconsultant teaming partners that offer construction management and inspection, geotechnical investigations and analysis, and interactive public outreach. These subconsultants will be called upon as needed depending on individual project requirements for teaming with DBE and WBE firms based upon the best fit for services required.

Previous Experience

VHB’s Vermont office was built around our relationships with local municipalities and VTrans, and we have proudly been working side by side with them for more than two decades. VHB has staff who work regularly at VTrans as project Project Administrators, and during this time we’ve seen VTrans’ processes and goals evolve, and we feel privileged to be a part of that development. We are excited to continue our partnerships throughout the state and look forward to completing innovative, high quality transportation infrastructure projects in the future.

Providing consulting services to municipalities, and to state and federal agencies, is a core purpose of our company and a key focus of our Vermont staff. Our overall approach to the management of this contract is informed by our successful experience on a wide range of similar on-call assignments.

Current Vermont On-Call Retainers and Contracts

VTrans

- Roadway, Traffic, & Safety On-Call Retainer
- Structures On-Call Retainer
- Railroad Engineering On-Call Retainer
- Park & Ride On-Call Retainer
- General Environmental On-Call Retainer
- Biological On-Call Retainer
- Planning & Policy On-Call Retainer
- Design-Build Engineering & Construction Support
- Asset Management
- Highway Resurfacing

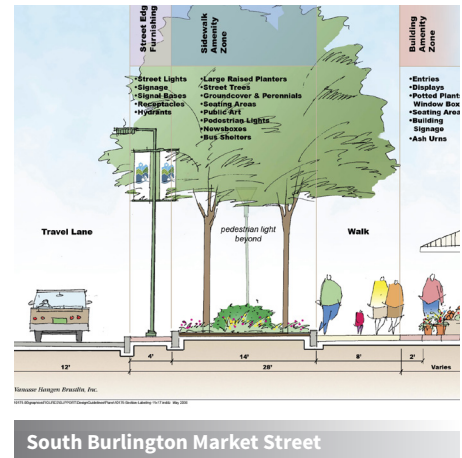
Chittenden County Regional Planning Commission (CCRPC)

- Transportation Project Development & Scoping
- Planning & Technical Services

United States Department of Agriculture (USDA)

- Forest Service Survey and Engineering Services IDIQ Contract

The table on the following page represents a sampling of VHB’s experience with VTrans, MAB, and other municipal projects.



Vermont Municipal and MAB Bicycle and Pedestrian Projects

PROJECT/CLIENT	CLIENT	YEAR	PHASE			PROJECT ELEMENTS						
			Scoping	Design	Construction Services	Sidewalk	Path	Roadway	Intersection	Road Diet	Streetscape	MAB/LTF
Blakely Road/Lakeshore Drive Intersection	Town of Colchester	2016–2017	●						●			
West Lakeshore Drive Bike/Ped	Town of Colchester	2016–2017	●			●	●					
Brattleboro Route 30 Gateway	Town of Brattleboro	2016–Present	●					●		●	●	
East Main Street Sidewalk	Town of Wilmington	2016–Present		●	●	●						
Middlebury Seymour Street Sidewalk	Town of Middlebury	2016–Present		●	●	●						●
Warren Village Main Street	Town of Warren	2016–Present		●				●			●	
Barre-Montpelier Rd Road Diet Evaluation	VTrans	2015–2016	●							●		
CCRPC Active Transportation Plan	CCRPC	2015–2016	●			●	●					
Middlebury Court Street	Town of Middlebury	2015–2016	●						●			
Colchester Mountain View Sidewalk	Town of Colchester	2015–Present		●	●	●						●
Hartland Three Corners Intersection	Town of Hartland	2015–Present		●				●	●		●	
Kingman Street Streetscape	City of St. Albans	2015–Present		●		●		●			●	●
Rutland Gateway Improvements	City of Rutland	2015–Present		●		●		●			●	
Shelburne Route 7 Sidewalk	Town of Shelburne	2015–Present		●	●	●						●
Bennington Railtrail Multi-use Path	Town of Bennington	2014–Present		●			●		●			●
Burlington Bike Path	City of Burlington	2014–Present		●	●		●					
Lake Street Streetscape	City of St. Albans	2014–2016		●		●		●			●	●
East Darling Hill Bicycle and Pedestrian Scoping	Town of Burke	2014–2015	●			●						●
Highgate Route 78 Sidewalk	Town of Highgate	2014–2015	●			●		●				●
Essex Junction Multi-use Path	Village of Essex Junction	2013–2016		●	●		●					●
Burlington Bike Path Intersection Study	City of Burlington	2013–2014	●				●		●			
St. Albans Streetscape/Main Street	City of St. Albans	2010–2016		●	●	●		●	●		●	●
St. Albans Federal Street Improvements	City of St. Albans	2010–Present		●	●	●		●	●		●	●
Jericho Multimodal Connections Study	Town of Jericho	2010–2011	●			●	●					
Barre Main Street Reconstruction	VTrans	2008–2014		●		●		●	●		●	
Middlebury Cross Street Roadway & Bridge	Town of Middlebury	2008–2013		●	●	●		●	●		●	
Lamoille Valley Rail Trail	VAST	2008–Present		●	●		●					●
Hinesburg Multi-use Path	Town of Hinesburg	2004–2015		●	●	●	●					
Cross Vermont Trail Design	Two Rivers-Ottawaquechee Regional Commission	2003	●	●			●					



35+ strong
with a core team
of bicycle and pedestrian
focused professionals

Deep understanding
of Road Diets, Complete Streets
and emerging design elements
from funding to design, and
through construction

Long-term relationships
with state and local
agencies to promote best
practices

All projects
have been designed with
sustainability in mind

Commitment to Quality

VHB's Quality Control and Quality Assurance program (QA/QC) is founded on our belief in quality focus and customer service. It is a program that is practiced every day and begins with the commitment of the company leadership. It is a continuous program wherein all members of the project team are focused on quality and on-time delivery within the project budget.

Since the firm's inception, VHB has practiced a Quality Control process that was not only based on checking a product, but also included a review by senior technical engineers to confirm conformance with the design requirements. Today this process has evolved into a formal QA/QC program that is an integral part of the client-focused service at VHB. QA/QC is about elevating VHB's clients needs to greater heights through a planned program of continual improvement of VHB's work processes and project management techniques. This means that the VHB Project Manager provides greater service, faster production, better ideas, and more cost-effective ways in which to produce the work. This translates into such client benefits as cost savings, accelerated schedules, and reduced problems during construction and startup.

Through the QA/QC program, quality is improved not by more checking, but by making sure the design accurately addresses the project purpose and need, and is permissible and fundable. This approach reduces the needs for re-working, saving time and money.

The Quality Control Plan (QCP) included in this submission provides protocols which our staff are trained in and use to execute for each individual project. Due to the nature of QA/QC for projects yet to be assigned, the plan will be updated to meet the specific needs of each project during project initiation.

Additionally, project Quality Audits are conducted by senior leadership team members on a selection of project three times a year. These audits serve as an opportunity for a project manager to review their overall project Quality Plan.

The Project Team

The Organizational Chart on the following page shows the core team and key support staff that will work on this retainer contract. VHB's Project Manager, **Evan Detrick, P.E.**, has worked continuously on MAB/LTF projects over the last 12 years. His experience includes managing over 40 projects through the program for municipalities across the state. Evan has been the Municipal Project Manager on significant roadway design projects in Hartford and South Hero, and has managed the design of a wide range projects including sidewalks, pathways, bridge replacements, rehabilitation of covered bridges, roadway and intersection improvements, roadway resurfacing, and Park & Ride expansions.

Under this retainer, Evan will be the initial point of contact for VTrans and municipalities for all assignments. Depending on the specific project, Evan will either manage the project himself, or may assign another VHB Project Manager in consultation with the municipality and VTrans MAB Project Supervisor. The VHB Project Manager will be determined based on the best interests of the municipality, and will not be finalized until the municipality and VTrans are in agreement. For every assignment, Evan will conduct project reviews on a routine basis to verify the project is moving along as expected and VHB's services are meeting the expectations of VTrans and the client.

At-The-Ready Project Team

VTrans Municipal Assistance Bureau



**Technical Advisor /
Quality Control**
Bill DeSantis, PE



Program Manager
Evan Detrick, PE



Principal-in-Charge
Dave Saladino, PE, AICP

DESIGN SERVICES

Project Manager
Greg Bakos, PE

Senior Project Engineer
Jason Hilton, PE

Project Engineer
Briana Cronin, PE

Design Consultant
Kelly Barry, PE

Design Consultant
Olivia Darisse, EI

Project Manager
Dan Peck, PE

Project Engineer
Jenny Austin, PE

Design Consultant
Brandon Roberts, EI

Design Consultant
Erica Quallen, EI

ENGINEERING SERVICES - KEY SUPPORT STAFF

Permitting
Brad Ketterling

Historical/Cultural Resources
Kaitlin O'Shea

*Stormwater Management/
Permitting*
Marla Keene, PE

Hydrologic & Hydraulic Studies
Ryan Lizewski, PE

Landscape Architecture
Mark Hamelin, CLARB certified,
PLA, ASLA

Lighting Design
Kathryn Lee, PE

Bridges & Structures
Scott Burbank, PE

Rail Engineering
Mark Louro, PE

Survey Manager
Glen Johnson, PLS,LLS

Survey Chief
Judd Vear

Availability chart

NAME	ROLE	AVAILABILITY FOR THIS CONTRACT
Key Personnel		
Evan Detrick, PE	Program Manager	50%
Dave Saladino, PE, AICP	Principal-in-Charge	15%
Bill DeSantis, PE	Technical Advisor/QA	15%
Greg Bakos, PE	Project Manager	30%
Dan Peck, PE	Project Manager	50%
Jason Hilton, PE	Senior Project Engineer	40%
Jenny Austin, PE	Project Engineer	65%
Briana Cronin, PE	Project Engineer	60%
Branden Roberts, EI	Design Consultant	80%
Kelly Barry, PE	Design Consultant	60%
Olivia Darisse, EI	Design Consultant	80%
Erica Quallen, EI	Design Consultant	80%
Support Staff		
Brad Ketterling	Permitting	25%
Kaitlin O'Shea	Historic/Cultural Resources	25%
Marla Keene, PE	Stormwater	25%
Ryan Lizewski, PE	Hydrologic/Hydraulics	25%
Mark Hamelin, PLA, ASLA	Landscape Architecture	20%
Kathryn Lee, PE	Lighting Design	10%
Scott Burbank	Bridges & Structures	10%
Mark Louro, PE	Rail Engineering	10%
Glen Johnson, LS	Survey Manager	10%
Judd Vear, SIT	Survey Chief	35%

Design Services





Project title goes here

Design Services

Understanding

Design activities include the development of scoping reports, preparation of engineering drawings, and preparation of contract documents so that projects can be brought to construction.

Scoping, commonly referred to as “**Phase A – Project Definition**”, is undertaken to identify a range of alternatives to address an identified need. A Local Concerns meeting is held early in the process to engage the public and other stakeholders in a discussion about issues and concerns, and what goals should be met as a result of the project. Investigations are conducted to document existing conditions such as natural and cultural resources, utilities, rights of way and property ownership. Alternatives are investigated in sufficient detail to determine what impacts each will have on the existing resources, determine opportunities and constraints, estimate costs, and determine how effective each alternative will be at meeting the project’s purpose and need. Conceptual plans are prepared and the alternatives are summarized and presented at one or more public meetings to arrive at a consensus on a preferred alternative. Once the preferred alternative is endorsed by the project sponsor and VTrans, and VTrans and FHWA have authorized an appropriate environmental impact resolution (typically a Categorical Exclusion) the project can move forward into “**Phase B – Project Design**”.

During Project Design, detailed engineering drawings and contract documents are prepared so construction bids can be solicited from qualified contractors and the project can be advanced through construction. A topographic survey is conducted and base plans prepared, and the project is advanced through the design and permitting process. The preferred alternative from scoping is refined and conceptual plans are developed based on the survey. Although not technically required under the MAB project development process, preliminary plans are often prepared to refine the conceptual plans and more closely look into natural, cultural, property, and utility impacts, especially for more complicated projects. Resource impacts are assessed and National Environmental Policy Act (NEPA) documentation is prepared to summarize the expected impacts on environmental resources.

Once the NEPA document (typically a Categorical Exclusion) is approved by VTrans and FHWA, the project advances through final design. Permit applications are prepared and submitted to the appropriate agencies for approval. Right of way impacts are precisely determined, right of way plans and documents are prepared, and the required rights are formally secured from affected owners. Utility owners are contacted to determine if any utilities will require relocation or adjustment. Once the right of way has been “cleared”, permits are obtained, and utility relocation routes are determined, the final plans and contract documents are prepared. VTrans MAB has prepared boilerplate contract documents that have been developed through years of experience on local projects. VHB uses these documents as the foundation and we add information specific to each project, including Special Provisions and Bid Form details.

These Contract Documents have been crafted to make it clear to prospective bidders what the requirements and expectations are for each project, and to protect the interests of the project sponsor and State. Using the MAB's boilerplate template simplifies the preparation of contract documents, and saves the sponsor money.

Upon the MAB's approval of the contract plans and documents, construction bids are solicited. The design consultant normally assists the sponsor with this process, by preparing an advertisement for bids, answering questions during the bid process, attending the bid opening, conducting a bid analysis, and making a recommendation for award of a construction contract. The design consultant is also expected to be available during construction to review shop drawings, answer questions and provide clarifications related to the design, and attend a final inspection of the completed project.

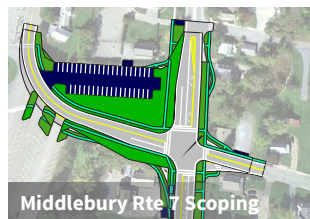
Relevant Skills

Scoping Studies and Reports

VHB is renowned for our thoughtful and comprehensive scoping projects. We work closely with communities to understand their concerns and needs for addressing safety and mobility issues for all modes of travel. VHB has undertaken a wide variety of scoping projects for numerous Vermont municipalities, including the Route 7 Intersection Alternatives Scoping Study in Middlebury, the Route 30 Gateway Scoping Study in Brattleboro, the Williston Road Corridor Scoping Study, the Malletts Bay Bike/Ped Scoping Study, and Multimodal Transportation Scoping in Jericho, and we successfully complete the work because we are well versed in design of bicycle/pedestrian, roadway, intersection and complete street infrastructure projects following the VTrans MAB process. We understand the importance of connectivity to local communities, and work to identify feasible, cost-effective alternatives that meet the needs of municipalities and enhance all modes of transportation.

Bicycle and Pedestrian Planning & Design Services

VHB has a proud history of working with state, regional, and municipal clients across Vermont to help them envision, plan, design, and construct a wide range of bicycle and pedestrian facilities. VHB's bicycle and pedestrian experts deliver innovative, creative, and cost-effective solutions that integrate safe and efficient multimodal facilities into the built environment. From Bennington's Railtrail to Burlington's Bike Path to the Lamoille Valley Rail Trail, we work closely with our clients and project stakeholders throughout Vermont to determine the best use of limited funds to design environmentally sensitive and sustainable projects. We also understand the importance of broad community outreach and involving stakeholders early on in the process to establish community consensus around the project elements.



VHB's bicycle and pedestrian projects span the east coast, and include sidewalks, urban and rural pathways, multimodal transportation networks, pedestrian streetscape enhancements, greenways, rail trails, bike lanes on roadways, and riverwalks. The experience gained from designing a robust portfolio of constructed projects provides valuable feedback to projects that are in their planning stages where creativity must be balanced with real world realities. Our experienced technical staff includes numerous cyclists and some League of American Bicyclists certified instructors. Our planners and engineers use their bicycles for basic transportation, recreation and sport, and this helps them comprehend and appreciate the factors that make multimodal facilities more welcoming, enjoyable and safe for a broad spectrum of users .

Roadways and Intersections

VHB designs roadway and intersection projects of all sizes for state transportation agencies, municipalities, and private developers up and down the east coast. Projects range in size from rural intersections to the design of multi-lane limited access highways to the reconstruction of arterials, collectors, and local roads.

Services encompass the full design process, including

- preliminary planning and conceptual design
- identification of resource constraints and mitigation measures
- public involvement
- preparation of contract plans, specifications and estimates
- right-of-way
- construction sequencing and scheduling
- traffic management during construction
- value engineering
- contract documents and bidding services

Our engineers are well versed in the many aspects of roadway design including pavements, signs and pavement markings, drainage, guardrail length of need and end treatments, horizontal and vertical alignments, superelevation, clear zone determinations, and incorporation of bike lanes and buffers. We routinely apply the principles from the AASHTO "Green Book" and *Roadside Design Guide*; FHWA's *Manual on Uniform Traffic Control Devices and Standard Highway Signs and Markings Book*; and the VTrans *Roadway Design Manual, the Standard Drawings, and the Specifications for Construction*. Because we work extensively directly with VTrans, we have an in-depth understand of their requirements and design practices. As a partner with VTrans we have helped develop some of the Agency's guidance materials. VHB was the primary



author of VTrans' new Hydraulics Design Manual which provides design guidance and requirements for the design of bridges, culverts, closed drainage systems, and open channels. Given our on-going work with VTrans on a variety of roadway and intersection projects, municipalities can be confident that VHB will manage and design their projects using the latest standards, thereby eliminating the need for "redesigns" and making the best use of their resources.

Our work on MAB projects has provided us with the understanding that plans and bid documents for municipal projects can be scaled back somewhat and need not strictly follow typical VTrans requirements requirements. No project is too big or small for us since we understand how to tailor our approach and our product appropriately. We are sensitive to the fact that funding to municipalities is limited, and strive to economize our engineering effort so that more funding can be allocated to construction.

Traffic Engineering

VHB's Traffic group is very well versed and knowledgeable in providing traffic analysis, traffic signal design, signing and pavement marking designs, ITS, speed studies, and road safety audits. David Saladino leads this group of professionals that have developed specific skill sets and high quality working relationships with their peers at VTrans. This combined experience provides VTrans and municipalities with professionals that can perform routine design elements such as pavement marking and signing to complex coordinated signal systems, traffic control plans, and technically challenging ITS support. VHB is currently developing the complex traffic modeling to assess the impacts of the redevelopment of the City Center in downtown Burlington.

Landscape Architecture and Place-Making

VHB's Landscape Architecture services include landscaping design, gateway markers, hardscaping such as benches and informational kiosks, and the planning and design of public spaces that make communities special. Our landscape architects tailor design solutions specifically to each client's unique program, budget, and vision. Our approach is to work closely with our clients to deliver solutions that reinforce a community's sense of place and identity through thoughtful design. VHB has been working with the Town of Warren to improve their village streetscape, and make it safer and more inviting. We use VHB's integrated services approach, drawing upon our in-house technical skills to plan and design each of our projects, resulting in high-quality, enduring landscapes. Our landscape architectural project experience is diverse, including the planning and design of parks, recreational facilities, town centers, residential communities, urban streetscapes, and institutional and corporate campuses throughout the eastern seaboard. Founded on the recognition that we are civic and environmental stewards for generations to come, we strive to integrate principles of sustainability into the unique land development context of each project. Further, we make it our goal to implement creative planning and design solutions to help shape more livable community environments on projects of all scales.



Railroad Engineering

A leader in transit and rail planning, design, and construction, VHB's dedicated Transit & Rail practice helps agencies and authorities complete projects by providing all phases of engineering, survey, design, planning, environmental, construction engineering, and inspection services. Our experience spans commuter, intercity, and freight rail systems; heavy and light rail systems; bus and bus rapid transit systems; stations and intermodal facilities; rail yards; bus maintenance facilities; high-speed rail transit;

and intelligent transportation systems across Vermont and New England. Because VHB's professionals include veterans of some of the largest rail and transit operators in North America, our technical teams are highly sought after.

Municipal Project Experience

Our ability to help our clients initiate and complete intricate, challenging, and important projects has given rise to an impressive portfolio of success, demonstrated by a high percentage of VHB's clients becoming repeat customers. Our experience in Vermont includes such high-profile projects as the design of the Lamoille Valley Rail Trail, which spans the northern tier of the State and provides year-round recreational opportunities on over 93 miles of trail. This project has been a collaborative partnership between the Vermont Association of Snow Travels (VAST), VTrans and the many communities through which the trail passes. VHB worked with the City of St. Albans to reimagine Main Street for their streetscape project, developing a vision for what Main Street could be, developed the design, and brought the project to construction. Main Street's appearance and functionality has been greatly enhanced, and the transformation has been the impetus to revitalize the downtown area. VHB also partnered with the City of Burlington for the rehabilitation of the Burlington Bike Path. Sometimes referred to as the "crown jewel" of Burlington's recreational facilities, each year the path services thousands of visitors and residents alike. VHB designed and then provided construction services to rebuild the path, make alignment improvements, improve signage, and add overlooks and landscaping to enhance the user experience.



The following pages represent a sampling of VHB's municipal project experience in Vermont.

Innovation & Emerging Designs

The planning and design for transportation infrastructure has evolved significantly in the past decade and VHB has been actively involved in leading this innovation. VHB has led the way with development of Complete Streets, protected bicycle lanes, bicycle signals, signing and striping treatments at intersections, and other emerging design trends in urban, suburban, and rural settings across Vermont and the east coast. VHB's Corporate Director of Bicycle Transportation, **Bill DeSantis**, is a member of the Bicycle Technical Committee of the national committee that develops the MUTCD, and is actively participating in developing the new standards and guidance for numerous bicycle and pedestrian design treatments. VHB is committed to leading emerging trends, not simply following them.

VHB has been an industry leader in the development of tools that communities can use to evaluate and select the most effective and cost-efficient treatments for their projects. Working with the FHWA Office of Safety, VHB developed the *Pedestrian & Cyclist Road Safety Audit Guidelines and Prompt Lists*, *A Resident's Guide for Creating Safe and Walkable Communities*, and the *Non-Motorized User Safety – A Manual for Local Rural Road Owners*. These publications formalize safety examinations of future roadway projects or built roadways and help communities identify specific pedestrian and cyclist safety concerns. VHB also conducted the first formal Road Diet evaluation for the Vermont Agency of Transportation on the Barre-Montpelier Road in Berlin, which resulted in the development of an objective scoring system for evaluating the effectiveness of Road Diets.

Example Vermont Municipal and MAB Projects



Lamoille Valley Rail Trail (LVRT) St. Johnsbury to Swanton, Ongoing

- Contact: Shane Prisby | shane@vtvast.org | (802) 229-0005 ext 18
- VHB provided environmental and engineering services for a 93-mile trail through 17 communities and 3 counties, encountering over 88 bridges, 500 culverts, 22 state highways, 69 town roads and 97 private crossings
- Assisted with the Act 250 permitting process, final trail and bridge design, and all remaining permit applications for three contracts that cover 44.4 miles of the total 93 miles proposed trail.
- VHB investigated and defined potential future trail head and multimodal connection opportunities within the project limits.
- VHB provided construction engineering support services for the 33 miles of trail constructed under the three separate contracts.



St. Albans Downtown Streetscape Project

- Contact: Dominic Cloud | dcloud@stalbansvt.com | 802-524-1501
- VHB designed geometric modifications to Main Street to increase pedestrian space
- Used low Impact development techniques to address water quality
- Proposed LED lighting to help reduced energy consumption
- Team advanced the Main Street design through a collaborative process with its subconsultants and local design committees that had been established in the areas of streetscape design, Taylor Park design, wayfinding, branding, and parking
- VHB designed new traffic signals which included radar detection
- VT ACEC Merit Award for Transportation Projects



Shelburne Village Route 7 Sidewalk

- Contact: Joe Colangelo | jcolangelo@shelburnevt.org | 802-985-5110
- VHB is addressing primary areas of design concern for 600 feet of sidewalk on Route 7 in Shelburne, including pedestrian mobility and safety, and historic preservation.
- Development of the sidewalk will provide a safe travel route for all pedestrian traffic including students traveling to and from local Shelburne community schools.
- Access to mass transit bus stops located along US 7 will also be improved in addition to the museum attractions south of the Town center. VHB is currently working with the Town and the public to recommend improvements that will enhance connectivity and improve overall safety.



Barre City Main Street Reconstruction

- Contact: Ken Upmal | ken.upmal@vermont.gov | 802-828-3594
- Deficiencies included failing pavement and sidewalks, outdated street lighting, and heavy peak hour traffic congestion
- VHB provided design services to VTrans for the complete reconstruction of the Main Street infrastructure
- Streetscape enhancements included new ornamental LED street lighting, granite bollards, street trees, bike racks, benches, and decorative sidewalk treatments
- VHB designed new traffic signals, overhead signing, and curb extensions at crosswalks to enhance pedestrian visibility
- Sidewalks have been widened in some areas to provide consistent pedestrian access along the street
- VHB designed an advance detour contract to manage traffic during Main Street Reconstruction



Hinesburg Multiuse Path

- Contact: Alex Weinhagen | aweinhagen@hinesburg.org | 802-482-2281
- Design included two distinct segments: one through a residential neighborhood, the other a multi-use path largely on high school grounds
- Design to meet significant stormwater runoff challenges was completed in close coordination with Vermont Agency of Natural Resources
- Completed all permitting and assisted the town and VTrans with the right-of-way process



Burlington Bike Path Rehabilitation Phase 1a

- Contact: Jon Adams-Kollitz | jadamskollitz@burlingtonvt.gov | 802-540-0363
- VHB is provided design services for the rehabilitation of the Burlington Bike Path, located along Burlington's waterfront
- The Burlington Bike Path is a multi-use facility that supports alternative transportation, recreation, and active lifestyles; attracts visitors to the City of Burlington and stimulates the local economy; and enhances the overall quality of life
- The design is addressed primary areas of concern, including path width, geometry, shoulder conditions, and sight distance.
- The rehabilitation also involved replacing worn or inadequate signs, fences, railings, road crossings, drainage features, and pavement



Middlebury Roundabout and Cross Street Improvements

- Contact: David Hallam, P.E. | dhallam10@gmail.com | 802-922-4330
- Grand Award for Transportation in the 2011 American Council of Engineering Companies of Vermont Engineering Excellence Awards
- A second bridge over Otter Creek was constructed to alleviate traffic congestion and provide additional pedestrian and bicycle facilities
- VHB was part of the design-build team that provided engineering, environmental, and construction services for the new roadway, roundabout, and bridge, along with associated streetscaping and intersection improvements
- VHB provided roadway, signal, and roundabout design, public meeting coordination, right-of-way negotiations, railroad coordination, and complete on site construction observation



St. Albans Federal Street Multimodal Connector Project

- Contact: Dominic Cloud | dcloud@stalbansvt.com | 802-524-1501
- Design of a Multimodal Connector Project intended to facilitate improved mobility for all modes of transportation including pedestrian, bicycle, rail, transit, and motor vehicles
- Other goal include: reduce truck traffic and vehicle delays on Main Street (US Route 7); improve pedestrian and bicycle accommodations throughout the corridor; and create direct access to commercial and industrial land uses within the Federal Street corridor
- VHB completed an Environmental Assessment and will complete all other permitting

Example Vermont Municipal and MAB Projects



Essex Village Multi-use Path

- Contact: Robin Pierce | robin@essexjunction.org | 802.878.6950
- The Village of Essex Junction selected VHB for a multiuse path project that included the design and construction of a 1,175 +/- foot long multiuse path along the existing rail corridor between North Street and Central Street.
- The new path allows cyclists and pedestrians to move from Essex High School to and from Central Street without using a public street. Key components of this project included coordination with the railroad, utilities, businesses, and residents, design of the path, lighting, and stormwater treatment.
- The project marks the first time New England Central Railroad has allowed such a project along an active rail line.



VT Route 78 Rehabilitation, Swanton, VT

- Contact: Ken Upmal | ken.upmal@vermont.gov | 802-828-3594
- Rehabilitation services for a 5.9 mile section of Vermont Route 78
- Close proximity of wetlands and the railroad to the roadway limits the design of ditches and stormwater treatment measures
- A combination of step box widening and reclamation are being used throughout the project
- The design is being done with consideration for natural resources and significant archaeological resources
- The project includes wildlife passages under the road in sensitive areas
- Incorporating the use of pavement reclamation to reduce impacts and simplify traffic control efforts



Barre-Montpelier Rd. Road Diet Monitoring

- Contact: Jon Kaplan | jon.kaplan@vermont.gov | 802-828-2710
- VHB provided assistance to the Vermont Agency of Transportation (VTrans) to evaluate a Road Diet project along 1,900 feet of the Barre-Montpelier Road (US 302) in Berlin.
- Pre-construction roadway geometry included two travel lanes in each direction and a center two-way left turn lane.
- The interim road diet configuration was striped in early June 2016 to have one lane in each direction, one center two-way left turn lane, and bicycle lanes. VHB conducted extensive pre- and post-construction data collection, including traffic counts, travel time measurements, vehicle crash monitoring, and public opinion gathered through online surveys.



Brattleboro-Putney Route 5 Scoping Study

- Contact: Ken Upmal | ken.upmal@vermont.gov | 802-828-3594
- As development and traffic along Putney Road increased over the years, safe access in and out of the many business drives became a matter of local concern
- VHB led the design team through a series of public workshops in which the local residents, property owners, business owners and local officials participated in creating a vision for the reconfiguration of Putney Road
- VHB developed 3D traffic simulations for comparing alternatives at public meetings
- The selected alternative includes medians, roundabouts, multi-use path, bike lanes, and access management



Bennington Rail to Trail Multimodal Path

- Contact: Dan Monks | dmonks@benningtonvt.org | 802.442.1037
- VHB is providing professional engineering services to complete the initial scoping study, preliminary and final design for a 1.6 mile multi-use path connecting existing town center pathways with a new location path along an old railroad corridor.
- This bicycle and pedestrian path, funded through the VTrans MAB, is intended to provide an integral link between numerous residential neighborhoods and the Catamount, Bennington and Molly Stark schools.
- Through a successful program of community integration, will make this path a celebration of the heritage of the town's economic contribution to region, allowing for buy-in by the local residents.



Warren Village Main Street Improvement Project

- Contact: Kevin Camera, MPM | kcamara@gmeinc.biz | (802) 862-5590
- VHB is proud to provide design/engineering services for the Warren Village Main Street Improvement Project, a first of its kind shared street project in a small Vermont village.
- Teaming with the Town, and through extensive public engagement, VHB's goal is to create a village core that functions as a shared space plaza, where motor vehicles, pedestrians, and cyclists all safely interact in a seamless design.
- Shared space is a design approach, that minimizes the segregation of users.
- Working with the Town to explore a variety of options and ultimately define the look that best meets the Town's goals and sensibility.



VT 116 at Charlotte Road and Silver Street Intersections

- Contact: Alex Weinhagen | aweinhagen@hinesburg.org | 802-482-2281
- VHB completed the two important intersection projects to address safety and operations at both locations
- VHB designed roadway and traffic signal improvements as well as sidewalk and crosswalk improvements for the Charlotte Road Intersection
- Silver Street was realigned to form a proper "T" into VT 116, and Northbound dual turn lanes on Silver Street and a new southbound right turn lane on VT 116 were also included in the design



VT Route 107 Reconstruction after Tropical Storm Irene

- Contact: Wayne Symonds | wayne.symonds@vermont.gov | 802-828-0503
- VHB provided around-the-clock support throughout the immediate and critical stages of recovery effort
- Emergency transportation engineering services were provided for the reconstruction of VT 107, which sustained heavy flood damage during Tropical Storm Irene
- Services include survey, hydraulic, traffic and safety, geotechnical, highway, geomorphology, and structural engineering services for the rebuilding of VT 107, which included 42 sites within a seven mile corridor
- VHB arranged for the delivery of quarried stone fill by rail car and river crossing, which allowed VT 107 to open in 2011

Key Personnel



Evan Detrick, PE

Program Manager | 32 years of professional experience

Evan is a Civil Engineer with over 30 years of experience supporting federal, state, municipal, and private sector projects. Evan's responsibilities include project scoping and budgeting, personnel and work assignment scheduling, project management, public engagement, and quality control. He has completed the planning and design of over 40 MAB/LTF projects and numerous projects directly for VTrans. His experience has included a variety of sidewalks, pathways, and trails; intersection and traffic signal upgrades; roadway resurfacing and reconstruction; property and topographic surveys; bridge rehabilitation and replacement; streetscape and lighting enhancements; stormwater improvement projects; and many projects involving public outreach.



Dave Saladino, PE, AICP

Principal-in-Charge | 18 years of professional experience

Dave is the Managing Director of VHB's South Burlington, Vermont office and has nearly twenty years of project management, transportation engineering, traffic engineering, and transportation planning related experience in both the public and private sectors. His recent project experience includes design of intersections, roundabouts, roads, sidewalks, and traffic signals, as well as transportation corridor planning, traffic impact studies, parking studies, and transportation microsimulation modeling. He has been involved in the evaluation and design of numerous road diet and Complete Street projects across northern New England over the last ten years.



Bill DeSantis, PE

Technical Advisor/ Quality Control | 40 years of professional experience

Bill DeSantis is a member of the Bicycle Technical Committee of the National Committee on Uniform Traffic Control Devices (NCUTCD). As a technical member of the NCUTCD, he works with Bicycle Technical Committee members to develop recommendations for the design and usage of all types of traffic control devices for bicyclists. As a member of this committee he helps direct bicycle policy, and works with other experts across the country to develop appropriate signing and pavement marking practices for bicyclists and pedestrians throughout the United States. Bill will be available to discuss bike/pedestrian concepts early in the design process, and then provide Quality Control reviews of the concepts and details developed by VHB to ensure compliance with national standards.



Greg Bakos, PE

Bike/Ped Technical Advisor | 31 years of professional experience

Greg is a Senior Project Manager and Infrastructure Task Manager at VHB. His primary experience is with transportation projects involving improvements to the roadway and utility infrastructure. His project contributions include planning, coordination, agency liaison, permitting, geometric design, public outreach, preparation of contract plans, cost estimates, specifications, and construction engineering services. Greg was the Project Manager for Barre City's "Big Dig" Main Street project, and several scoping studies through the MAB.



Dan Peck, PE

Senior Project Engineer | 16 years of professional experience

A civil engineer in VHB's Highway Department, Dan's focus is on transportation projects ranging from scoping studies and design projects (conceptual through contract design) of roadway, intersection, sidewalk and multi-use path projects that follow the VTrans MAB process, to include public informational meetings, preparation of right-of-way plans, development of construction estimates, and utility coordination. Some of his completed projects include the reconstruction of Main Street in downtown Barre City, VT Route 116/ Charlotte Road in Hinesburg, Silver Street in Hinesburg, Cross Street Bridge and Main Street Reconstruction in Middlebury, and the scoping phase of corridor improvements along Putney Road (Route 5) through Brattleboro. Dan is currently working on the design of the Bennington Rail Trail through the MAB, and numerous VTrans and municipal projects across Vermont.



Jason Hilton, PE

Senior Project Engineer | 17 years of professional experience

Jason is a Senior Project Engineer at VHB. His civil engineering experience includes highway design, drainage design, estimating, construction inspection and surveying. His responsibilities include task management, roadway and drainage design, quantity estimates, QA/QC and plan and report development. He is skilled in the use of Bentley Microstation, InRoads, Storm and Sanitary, StormCAD, HydroCAD, AutoCAD, and Civil3D.



Jenny Austin, PE

Project Engineer | 17 years of professional experience

Jenny is a Highway Engineer in VHB's Vermont office. Her experience includes transportation engineering in both private and public sectors, with an emphasis of projects going through the VTrans LTF/MAB process. She has been involved in the planning, design, and construction of a wide variety of roadway and pedestrian projects, as well as scoping studies, with traffic engineering experience gained through development of numerous traffic impact studies. She also has experience assisting municipalities with Local Project Management.



Olivia Darisse, EI

Design Consultant | 3 years of professional experience

Olivia is a Transportation Consultant with experience in construction inspection, roadway scoping and design, and developing plans using MicroStation and InRoads, and construction cost estimates in Estimator. Olivia's services have including design, plan development, and quantity and cost estimates. She is currently working with the VTrans MAB on sidewalk projects in Middlebury and Shelburne. She is also developing plans for an intersection in Hartland and a multi-use path in Bennington. Olivia also assisted with storm water management tasks for the Burlington Bike Path, and has spent time in the field assessing conditions of existing bicycle and pedestrian facilities for the CCRPC. Olivia recently worked alongside VTrans right of way staff to develop a very complex set of right of way plans for the VT 116/CVU Road/Shelburne Falls Road intersection widening project.



Kelly Barry, PE

Design Consultant | 5 years of professional experience

Kelly is a Design Consultant in VHB's South Burlington, Vermont office. She has assisted on many aspects of projects including task management, plan development, bridge, roadway, and railroad inspections, cost estimating, and transportation design services. She is also experienced in computer aided drafting programs such as MicroStation and AutoCAD.



Branden Roberts, EI

Design Consultant | 3 years of professional experience










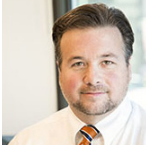
Branden is a Transportation Designer with experience in roadway design, as well as field inspection experience with construction materials like concrete, soil and asphalt. During his time at VHB he has performed many tasks including horizontal and vertical alignment design, roadway modeling and cross section development, guardrail design, open flow and closed drainage design including watershed delineation, and quantities. He has experience in performing the above tasks utilizing computer aided programs such as MicroStation, Inroads, AutoCAD Civil3D and StormCAD.



Erica Quallen, EI

Design Consultant | 1 year of professional experience

Erica is a recent graduate of the University of Vermont with a B.S. in Civil Engineering. While attending university, she had two summer engineering internships which got her interested in traffic and transportation engineering. Erica has performed traffic and roadway data collection and analysis for the CCRPC and also worked as a transportation engineering intern for highway design. Erica is currently working on a number of transportation projects in Chittenden County, and expanding her experience in traffic engineering and transportation planning with VHB.

KEY SUPPORT STAFF	PROFESSIONAL BACKGROUND	
 <p>Brad Keterling Permitting/NEPA <i>21 years Experience</i></p>	<p>Brad has worked as an environmental scientist for over 20 years, specifically in the fields of wetland mitigation site feasibility and design, watershed and stream assessment, and Section 404 permitting. He is currently working with VTrans for permitting support on several projects, the City of Burlington on both the Bike Path Rehabilitation Project and proposed improvements at Waterfront Park.</p>	
 <p>Kaitlin O'Shea Historic/Cultural Resources <i>10 Years Experience</i></p>	<p>Kaitlin is a Preservation Planner a strong background in and understanding of preservation principles and practices. She provides expertise in regulatory processes and compliance, particularly Section 106 review and Section 4(f) evaluations, as well as historic documentation, historic resource identification, and project management in the government framework.</p>	
 <p>Marla Keene, PE Stormwater Management/ Permitting <i>11 Years Experience</i></p>	<p>Marla is a Water Resources Engineer with extensive experience in a wide array of land development and transportation improvement projects. She has performed advanced hydrologic and hydraulic modeling for a diverse portfolio of infill, commercial, residential, institutional, municipal and transportation sector clients.</p>	
 <p>Ryan Lizewski, PE Hydrologic & Hydraulic Studies <i>9 Years Experience</i></p>	<p>Ryan is an environmental engineer focusing on water resource engineering, surface hydrology, and stormwater management. He has served as a project and field engineer for a diverse set of responsibilities and tasks including hydrologic & hydraulic modeling, coordinating and conducting field programs, construction oversight, data management, and data analysis.</p>	
 <p>Mark Hamelin, Landscape Architecture <i>35 Years Experience</i></p>	<p>Mark recently joined VHB as Senior Landscape Architect/Planner. He brings more than 35 years of professional landscape architecture, land planning, and urban design experience on a wide range of public and private sector projects across Vermont and throughout the country. Mark's work has been recognized by his peers with 19 professional design/planning awards.</p>	
 <p>Glen Johnson, LLS Survey Manager <i>35 Years Experience</i></p>	<p>Glen is the New England regional survey manager with VHB. He has significant experience throughout New England in field procedures and management of large-scale projects. His responsibilities include directing staff in roadway, GPS/ photogrammetric, bridge, construction, topographic, and boundary surveys, as well as the production of all survey for plans.</p>	
 <p>Judd Vear, SIT Survey Chief <i>6 Years Experience</i></p>	<p>Judd is a Project Surveyor at VHB, with a wide range of survey experience including precision structural layout, boundary analysis, and building large scale control networks. Extensive experience with AutoCAD (Civil 3D), MicroStation (InRoads), HydroCAD, Trimble Business Center (TBC), Carlson SurvCE, Corpscon, and numerous field book editing programs;</p>	
 <p>Kathy Lee Lighting Design <i>29 Years Experience</i></p>	<p>Kathy is a Senior Project Manager with VHB's Transportation Systems Group. She specializes in the design and preparation of lighting, signalization, signing, sign panel layout and pavement marking plans.</p>	
 <p>Scott Burbank, PE Bridges & Structures <i>19 Years Experience</i></p>	<p>Scott is Director of Structures in Vermont,with extensive experience in planning, design and construction of highway and railroad bridges and roadway reconstruction projects. Qualifications also include services for QA/QC, construction cost estimating, accelerated bridge construction (ABC), and structural inspections of both railroad and highway bridges.</p>	
 <p>Mark Louro, PE Rail Engineering <i>29 Years Experience</i></p>	<p>Mark is a Senior Project Manager in VHB's Transit & Rail Division with extensive experience in Transportation Engineering and Construction. Projects include Downtown Burlington Transit Station, the Ruggles Station Platform Project, the Green Line light rail extension project, and South Coast Rail commuter rail project.</p>	

Resumes



Evan P. Detrick, PE

Program Manager



Evan is a Civil Engineer supporting federal, state, municipal, and private sector projects. Evan's responsibilities include scoping and budgeting, personnel and work assignment scheduling, project management, and quality control. He has completed the planning and design of projects, including a variety of sidewalks, pathways, and trails; highway projects such as 4-lane, limited access highways on new alignments; arterial roadways on new alignments; roadway widening and rehabilitation; bridge construction and replacement; environmental assessments in accordance with NEPA; traffic signal improvements; property and topographic surveys; floodplain certifications; and numerous Safe Routes to School and Transportation Enhancement projects.

1 year with VHB and 33 years of professional experience

Education

BA, Liberal Arts, East
Stroudsburg University,
1984

BS, Civil Engineering,
Pennsylvania State
University, 1984

Registrations/ Certifications

Professional Engineer (Civil)
VT, 2016

Professional Engineer (Civil)
NH, 2015

Affiliations/ Memberships

Vermont Society of
Engineers, 2016

Institute of Transportation
Engineers, Vermont, 2004

Mill Street and VT Route 110 Intersection Reconfiguration, Barre Town, VT

Project Manager for final design of a VTrans safety project to realign the intersection of Mill Street at VT 110 in East Barre. Project includes realignment of Mill St. for improved sight distance, full-depth reconstruction of 300 linear feet of Mill Street, construction of 450 feet of new sidewalk, and replacement of the existing drainage system.

Quarry Street Improvements, Barre City, VT

Project Manager for final design of a VTrans project for safety and capacity enhancements to Quarry Street, from the Barre City/Barre Town line to the intersection of VT Route 14. Improvements include geometric modifications to Quarry Street, including the extension of a third travel lane from the Town line to the VT Route 14 intersection

Mountain View Drive Sidewalk Project, Colchester, VT

Project Manager for design of 1,900 feet of new sidewalk and four new crosswalks along Mountain View Drive, connecting a series of local businesses. Responsible for preparing final plans, Categorical Exclusion Document, right of way acquisition, and project permitting.

VTrans, Safe Routes to School, Vermont

Prior to joining VHB, Project Manager for retainer contract to assist VTrans and schools statewide to implement the Safe Routes to School Program (SRTS). n.

Killington Road Walkway, STP EH11(7), Killington, VT

Prior to joining VHB, Quality Assurance/Quality Control for design, permitting, and right-of-way acquisition services for the construction of a six-foot-wide sidewalk along Killington Road, which will extend the existing walkway by over 1,500 feet from School House Road to West Hill Road.

Barre Connector Path, Barre, VT

Prior to joining VHB, Evan was Project Manager for a 3.1-mile shared-use path and on-road pedestrian/bicycle facilities that connect Merchant's Row in Barre City to the Millstone Hill West Shared Use Path in Barre Town. He developed conceptual and preliminary alignments for path segments based upon a conceptual alignment study, geographic conditions, and the concerns of affected parties.

David Saladino, PE, AICP

Principal-in-Charge



Dave is the Managing Director of VHB's South Burlington, Vermont office and leads the Transportation Systems group in the Vermont office. He has nearly twenty years of project management, transportation engineering, traffic engineering and transportation planning related experience in both the public and private sectors. Dave's recent project experience includes transportation corridor planning, traffic impact studies, parking studies, transportation microsimulation modeling, and design of intersections, roundabouts, roads, sidewalks, and traffic signals.

2 years with VHB and 20 years of professional experience

Education

BS, Civil & Environmental Engineering, University of Delaware, 1998

Registrations/ Certifications

Professional Engineer (Civil)
VT, 2006

Professional Engineer (Civil)
NH, 2005

American Institute of
Certified Planners, 2015

Affiliations/ Memberships

Institute of Transportation
Engineers, New Hampshire,
President (2014-15), 2006

Institute of Transportation
Engineers, Vermont, Board
Member (2016-), 2015

American Planning
Association, 2015

Burlington Town Center Traffic Impact Study, Burlington, Vermont

Project Manager for the Traffic Impact Study for the Burlington Town Center project in Burlington, Vermont. The Burlington Town Center project involved the reconstruction of an existing mall and replacing it with over 800,000 square feet of retail, office, and residential space in downtown Burlington. Services provided included development of a Traffic Impact Study and local permitting representation.

Williston Road Network Transportation Study, South Burlington, Vermont

Project Manager for the Williston Road (US 2) Network Transportation Study which examined a twenty year growth horizon for the Williston Road corridor in South Burlington to identify a package of transportation and land use recommendations that would encourage a more vibrant, walkable, and safe corridor in the future. The project involved significant outreach to abutting landowners and members of the public.

US 5/VT 12 Hartland Three Corners Intersection Improvements, Hartland, VT

Project manager for the scoping, conceptual, and final design of an intersection reconfiguration project in Hartland village. The project includes the development of alternatives and conceptual plans through the production of right of way plans, contract plans and construction engineering support.

Winooski Transportation Master Plan, Winooski, Vermont

Project Manager for the development of a Transportation Master Plan for the City of Winooski, Vermont. The Master Plan was the culmination of significant, stakeholder outreach, planning and technical analysis, and coordination with City staff to develop an Action Plan for Winooski's transportation infrastructure.

US 7/Charles Avenue/Monroe Street Intersection Scoping Study, Middlebury, VT

Project Manager for the scoping of intersection operational and safety improvements to the US 7/Charles Avenue and US 7/Monroe Street intersections in Middlebury, VT.

VT116-Tilley Land Use and Transportation Plan, South Burlington, Vermont

Project Manager for the VT116-Kimball-Tilley Land Use and Transportation Plan which examined the Tilley Drive/Kimball Avenue area of South Burlington to identify a package of transportation and land use recommendations that would foster a dense, mixed-use, multimodal development pattern.

William J. DeSantis, PE

Technical Advisor/Quality Control



Education

BS, Civil Engineering,
Northeastern University,
1976

Registrations/ Certifications

Professional Engineer RI,
1983

League Cycling Instructor,
2004

National Mountain Bike
Patrol Certified Instructor

OSHA 10-Hour
Construction Safety and
Health Certificate, 2015

Affiliations/ Memberships

Institute of Transportation
Engineers, New England,
2012

National Committee on
Uniform Traffic Control
Devices, Bicycle Technical
Committee, Technical
Member, 2009

East Coast Greenway
Alliance

League of American
Bicyclists, Instructor, 2006

Association of Pedestrian
and Bicycle Professionals

National Mountain Bike
Patrol, Patrol Instructor,
2010

Bill is VHB's Corporate Director of Bicycle Transportation Planning & Design and has overall technical responsibility for safety improvement projects ranging from local bicycle and pedestrian trails to large limited-access highways. His involvement includes responsibility for conceptual and final design of geometric realignments, drainage improvements, and earthwork calculations, as well as for the preparation of right-of-way plans and plats, cost estimates, and contract drawings. He is also the corporate leader of VHB's Bicycle/Pedestrian and Transportation Enhancement practice. As technical advisor on numerous bicycle/pedestrian and enhancement projects in the eastern United States, he has an active role in the planning, design and construction of bicycle facilities in eleven states. Bill is a technical member of the NCUTCD Bicycle Technical Committee, a member of the League of American Bicyclists, a League Cycling Instructor, a National Mountain Bike Patrol Instructor, a member of the Blackstone River Bikeway Patrol, and a bicycle commuter.

30 Years with VHB and 40 years of professional experience

Burlington Bike Path Rehabilitation, Burlington, VT

Bill provided technical assistance for the rehabilitation of a bike path located along Burlington's waterfront that has extraordinary views of Lake Champlain and the Adirondack Mountains. VHB addressed primary areas of design concern, including path width, geometry, shoulder conditions, and sight distance. The rehabilitation also involved replacing worn or inadequate signs, fences, railings, road crossings, drainage features, and pavement.

DDOT, Bicycle Facilities Design and Traffic Analysis, Washington, DC

Under a task order contract, Bill is supporting District Department of Transportation (DDOT) with the design, analysis, and implementation of bicycle facilities across the District.

RIDOT/RIDEM, Blackstone River Bikeway, Pawtucket to North Smithfield, RI

Bill is Project Manager for the Blackstone River Bikeway, a 20-mile-long bike path from Pawtucket to North Smithfield. The project is a joint effort between the Rhode Island Department of Environmental Management (RIDEM) and the Rhode Island Department of Transportation (RIDOT).

RIDOT, Washington Bridge Multi-use Path, Providence, RI

VHB was selected to transform portions of the original bridge into the multi-use path and linear park that it is today. The bridge now connects two popular Rhode Island bike paths—the East Bay Bike Path and the Blackstone Bikeway. Bill served as Technical Advisor focused on the connection of the Blackstone River Bikeway to the bridge.

Bike Master Plan, Bethlehem, NY

Bill developed a bike master plan for the Town of Bethlehem as part of its Energy Management and Greenhouse Gas Inventory project. This overall project was to develop aspects of an energy management program, an initial inventory of greenhouse gas (GHG) emissions, and bicycle/pedestrian program initiatives.

Gregory L. Bakos, PE, NCICS

Project Manager



Greg is a Senior Project Manager and Infrastructure Task Manager at VHB. His primary experience is with transportation projects involving improvements to the roadway and utility infrastructure. His project contributions include planning, coordination, agency liaison, permitting, geometric design, public outreach, preparation of contract plans, cost estimates, specifications, and construction engineering services.

Education

BS, Civil Engineering,
Bucknell University, 1979

Registrations

Professional Engineer (CE-
HWY) NH, 1985

Certified NHDOT Local
Public Agency (LPA)
Training – Federal Aid

National Charrette Institute
Charrette System™
Certificate, 2007

League Cycling Instructor

Affiliations/Memberships

Institute of Transportation
Engineers

Vermont Society of
Engineers

Society of American Military
Engineers

League of American
Bicyclists

33 years with VHB and 36 years of professional experience

Main Street Reconstruction, Barre City, VT

Project Manager for the reconstruction of Main Street through the downtown area of Barre City. This \$11 million reconstruction project involved subsurface municipal and private utility reconstruction and full depth pavement reconstruction; pedestrian and streetscape enhancements such as better defined crosswalks, street trees, ornamental LED lighting, bike racks, and benches; and all new traffic signals on Main Street as well as geometric improvements and traffic signals at outlying intersections in order to accommodate a high traffic temporary detour during construction.

Putney Road (Route 5) Corridor Scoping, Brattleboro, VT

Project Manager for the scoping phase of corridor improvements along Putney Road (Route 5) through the largely commercial section of Brattleboro for the Vermont Agency of Transportation (VTrans). Existing conditions and future improvement alternatives were developed with the coordination of VTrans, City officials, and the general public.

Cross Street Bridge Over Otter Creek, Middlebury, VT

Greg was a highway engineer for project to alleviate major traffic congestion, improve safety, and provide additional pedestrian and bicycle access through the construction of a second in-town bridge over Otter Creek. VHB was part of the design-build team providing engineering, environmental, and construction services for the new roadway, roundabout, and bridge along with intersection improvements.

VTrans, Tropical Storm Irene Recovery, Bethel-Stockbridge, VT

Greg served as the lead highway design engineer for repairs and reconstruction along a 10-mile section of VT 107 in the towns of Bethel and Stockbridge. Greg managed the development of design plans in the field office for the reconstruction and worked closely with VTrans engineers, geotechnical subconsultants, contractors, and VHB representatives from various technical disciplines including structures and hydraulics.

South Burlington City Center, South Burlington, VT

Project Manager for the South Burlington Market Street/City Center project. He led the design and engineering of the roadway, bike/pedestrian, and stormwater infrastructure; managed the federal Environmental Assessment and approval process; guided and participated in the public process; and worked with the City and the VTrans Local Transportation Facilities (LTF) program. T

Daniel M. Peck, PE

Senior Project Engineer



Dan is a Senior Project Engineer in VHB's Highway Department in South Burlington, Vermont. His experience has focused on highway, roadway, and bike/ped trail design projects involving hydrology, hydraulics, highway design, and sound wall design for state and municipal clients. Dan works with Microstation, as well as the hydraulic analysis programs HydroCad and StormCad.

Education

BS, Civil Engineering,
University of New
Hampshire, 2000

Registrations/ Certifications

Professional Engineer (Civil)
NH, 2008
Professional Engineer (Civil)
VT, 2009

17 years with VHB and 17 years of professional experience

Bennington Pathway, Bennington, VT

Dan is the Project Manager for the design of a multi-modal path connecting downtown Bennington to a park and elementary school. The path will be constructed within a railroad right-of-way and will include the rehabilitation of two existing railroad bridges.

St. Albans Main Street Streetscape Project, St. Albans, VT

Dan was Project Engineer for the reconstruction of Main Street through downtown St. Albans. This project included rehabilitation of the roadway and sidewalks, new street trees, ornamental LED lighting, enhanced crosswalks and expanded pedestrian space. The project vision was to create a new sense of place in the downtown by improving pedestrian spaces and by beautifying the overall streetscape.

Federal Street Multimodal Connector Project, St. Albans, VT

Dan is the Senior Roadway Designer/Task Manager on this project for the City of St. Albans to provide permitting, design and construction services for a multimodal connector on Federal Street. This project includes 1.75 miles of roadway reconstruction, roadway widening, new roadway alignment, bridge replacement, utility relocations, new signalized intersections, railroad grade crossings, and extensive permitting and environmental analysis. Dan is providing roadway design, development of the plans, right-of-way coordination, utility coordination, quantities, and estimate.

US 5/ VT 12 Hartland Three Corners Intersection Improvements, Hartland, VT

Dan is Project Engineer for the scoping, conceptual, and final design of this intersection reconfiguration project in Hartland village. The project includes the development of alternatives and conceptual plans through the production of right-of-way plans, contract plans and construction engineering support. The project involves realignment of the Three Corners Intersection (Route 5, Route 12 Quechee Road). Dan is providing roadway design, public outreach, and utility coordination.

VTrans, VT 110 at Mill Street Reconstruction, Barre, VT

For the Vermont Agency of Transportation (VTrans), Dan is the Senior Roadway Designer/Task Manager for this state safety improvement project that realigns the Mill Street / VT 110 intersection to a more traditional "T" configuration. Project responsibilities include roadway and stormwater design, utility coordination, and public outreach.

Jason Michael Hilton, PE

Senior Project Engineer



Jason is a Senior Project Engineer at VHB. His civil engineering experience includes highway design, drainage design, estimating, construction inspection and surveying. His responsibilities include task management, roadway and drainage design, quantity estimates, QA/QC and plan and report development. He is skilled in the use of Bentley Microstation, InRoads, Storm and Sanitary, StormCAD, HydroCAD, AutoCAD, and Civil3D.

Education

BS, Civil Engineering,
Northeastern University,
1999

Registrations/ Certifications

Professional Engineer (CE-
HWY) NH, 2007

Professional Engineer (CE-
HWY) ME, 2012

Professional Engineer (CE-
HWY) VT, 2016

Certified NHDOT Local
Public Agency (LPA)
Training – Federal Aid

Affiliations/ Memberships

National Society of
Professional Engineers, NH

11 years with VHB and 17 years of professional experience

VTrans, VT Route 78 Rehabilitation, Swanton, VT

For VTrans, Jason provided preliminary design of roadway improvement along existing VT 78 in Swanton. He developed preliminary design concepts as part of a proposed 3R project to rehabilitate a 10-km stretch of roadway. His efforts included roadway layout, alignments, superlevation, InRoads software, and environmental impacts.

VTrans, Vermont Route 100 Rehabilitation, Killington, VT

For the Vermont Agency of Transportation (VTrans), Jason was Lead Highway Engineer for the roadway design and culvert layout and specifications for a roadway rehabilitation project for VT Route 100. The project included 11 miles of roadway widening and rehabilitation, 35 roadway culvert replacements, 5 box culvert extensions, and 2 large box culvert replacements and minor closed drainage system improvements.

Cape Cod Rail Trail, Final Design, Yarmouth and Dennis, MA

Jason worked on a municipal rail/trail construction project as a roadway engineer for rail/trail grade crossing of side streets, drainage design utilizing infiltration catch basins and cost estimate and quantity reviews. This project was completed using Civil3D/AutoCAD.

NHDOT, NH Route 125 Reconstruction, Kingston-Plaistow, NH

For New Hampshire Department of Transportation (NHDOT), Jason provided preliminary final design of NH Route 125, including design of horizontal and vertical alignments, roadway, driveway, and sidewalk and side road layouts.

NHDOT, Final Design of I-93, Salem to Manchester, NH

For the New Hampshire Department of Transportation (NHDOT), Jason was Highway Design Engineer for the final design of roadway/interchange expansion designs based on environmental impact study. Jason also provided construction cost estimates for this project with construction costs of \$31M. He also served as Lead Engineer for highway and storm water management for Exit 1 I-93 NB and SB Exit 1 area.

MaineDOT, Presque Isle Bypass Improvements, Presque Isle, ME

For MaineDOT, Jason is working on a new construction roadway, an 11-mile project including two freeway style interchanges, multiple bridges, multiple large box culverts, and small roadway culverts. Jason was Lead Engineer for Design Phase II / Construction Phase I including all roadway design aspects, watershed drainage analysis, water quality review, detention basin design, HydroCAD, roadway culvert design and large box (5 feet by 7 feet) design and analysis.

Jenny Austin, PE

Project Engineer



Jenny is a Transportation Engineer in VHB's Vermont office. Her experience includes transportation engineering in both private and public sectors, with an emphasis of projects going through the VTrans MAB process. She has been involved in the planning, design, and construction of a wide variety of roadway and pedestrian projects, as well as scoping studies, with traffic engineering experience gained through development of numerous traffic impact studies. She also has experience assisting municipalities with Local Project Management.

Education

BS, Civil Engineering,
University of Vermont, 1999

Registrations

Professional Engineer VT,
2005

Affiliations/Memberships

Institute of Transportation
Engineers

Vermont Society of
Engineers

5 years with VHB and 17 years of professional experience

Federal Street Multimodal Connector, St. Albans, VT

Jenny is a Project Engineer on this project for the City of St. Albans to provide permitting, design and construction services for a multimodal connector on Federal Street. This project includes 1.75 miles of roadway reconstruction, roadway widening, new roadway alignment, bridge replacement, utility relocations, new signalized intersections, railroad grade crossings, and extensive permitting and environmental analysis.

Rutland Gateways Project, Rutland, VT

Jenny is assisting with the design for proposed gateway improvements along the Strongs Avenue corridor in Downtown Rutland. Improvements include new crosswalks and bulbouts as well as parking definition, landscaping, and increasing green space along the roadway by narrowing the roadway typical section. Jenny is currently assisting with development of improvements as well as construction cost estimate preparation.

Pulp Mill Bridge Road and Seymour Road Sidewalk Project, Middlebury, VT

Jenny is assisting with the design for proposed sidewalks approximately 0.5 miles in length. She has assisted with plan reviews, quantity calculations and construction cost estimates, and will assist with the remaining plan development process, updating cost estimates, and assisting with preparation of Bid Documents and advertising the project.

Highgate Route 78 Pedestrian and Bicycle Scoping Study, Highgate, VT

Jenny is assisting with a Scoping Study to develop alternatives for improved pedestrian and bicycle infrastructure along Route 78 in the Village limits of Highgate. Project tasks include public outreach, development and evaluation of pedestrian and bicycle improvements, and development of a Scoping Study that the Town can use as a basis for bringing the project into the design phase.

Skunk Hollow Road Traffic Calming, Jericho, VT

Jenny assisted on a project to determine whether to pave a section of gravel road and develop traffic calming alternatives and design for Skunk Hollow Road. Project tasks involved facilitating public workshops to discuss options to pave a portion of the road as well as traffic calming discussions, an on-the-road postcard survey was conducted, and design services provided through development of bid documents incorporating a new splitter island, speed tables, dynamic striping, and new signage.

Briana Cronin, PE

Project Engineer



Briana is a Project Engineer at VHB. Her experience includes transportation engineering and construction in both private and public sectors. Briana has been involved in the planning, design, and construction of a wide variety of projects including railroad, pedestrian, and highway bridges. Her structural experience includes inspection, rating, design, and drafting of concrete, steel, and wood structures.

Education

MS, Civil Engineering,
University of Delaware, 2007

BS, Civil Engineering,
Rensselaer Polytechnic
Institute, 2005

Registrations/ Certifications

Professional Engineer (Civil)
VT, 2010

9 years with VHB and 11 years of professional experience

Lamoille Valley Rail Trail, Barre, VT

For the Vermont Association of Snow Travelers (VAST), VHB is providing environmental and engineering services on this Local Transportation Facilities project for a 93-mile trail through 17 communities and 3 counties over 88 bridges, and 500 culverts. Briana responsibilities have included field inspections, conceptual design, and plan development.

VTrans / NECR Culvert Evaluations, Waterbury, VT

For the Vermont Agency of Transportation (VTrans) and New England Central Railroad (NECR), Briana provided engineering support for culvert evaluations.

VTrans, Bridge #242, New Haven, VT

Under a statewide structures engineering services on-call contract with the Vermont Agency of Transportation (VTrans), Briana provided rehabilitation design for Bridge #242 in New Haven.

VTrans, Railroad Concrete Slab Bridge Rehabilitations, Vermont

Under a statewide structures engineering services on-call contract with the Vermont Agency of Transportation (VTrans), Briana was Project Engineer for the evaluation of multiple railroad concrete slab bridges. Responsibilities included field inspections, design and detailing of concrete slabs, replacement concept development, plan-set development, and construction cost estimating using VTrans estimator.

VTrans, GMRC Bridge #130, Cavendish, VT

For the Vermont Agency of Transportation (VTrans), Briana provided engineering support for construction plan production, special provision specification development and construction cost estimating, all according to VTrans Standards for an Emergency rehabilitation project.

Vermont Agency of Agriculture, Addison County, VT

Provided planning, design and construction phase services for farm projects intended to reduce phosphorus loads delivered to Lake Champlain. Briana assisted in the survey, design, construction cost estimate preparation, construction inspections and preparation of as built plans for various farm projects throughout Addison County in northern Vermont.

Branden Roberts

Design Consultant



Education

BS, Civil Engineering,
Wentworth Institute of
Technology, 2014

Branden is a Transportation Designer in VHB's New Hampshire office. He has design experience in roadway design and landfill design, as well as field inspection experience with construction materials like concrete, soil and asphalt. Within Branden's first year at VHB he has performed many tasks including horizontal and vertical alignment design, roadway modeling and cross section development, guardrail design, open flow and closed drainage design including watershed delineation, and quantities. He has experience in performing the above tasks by hand and utilizing computer aided programs such as MicroStation, Inroads, AutoCAD Civil3D and StormCAD.

2 years with VHB and 2 years of professional experience

VTrans VT Route 110 Mill St, Barre, VT

Branden was a design consultant for this project to address high accident frequency, located in East Barre, Vermont at the intersection of Mill St., VT 110, Old Route 302 and Bianchi Street. The project entailed tightening the intersection and increasing the visibility to oncoming traffic on Route 110. Challenges faced include turning movements and minimal access impacts to the firestation located only 200 feet from the intersection on Mill Street. Alignments, profiles and cross sections were developed for this project using MicroStation V8i Vtrans and Inroads V8i.

Lake Street Connection, St. Albans, VT

Design consultant for this project to provide engineering services, streetscape design and necessary infrastructure improvements on Lake Street between Main Street and Federal Street in accordance with the City's 2009 Downtown Master Plan. Branden's duties included design modifications, work zone traffic control plans, and quantities.

NYSDOT D/B Bundle - Orange County

Branden is working on roadway design tasks for seven bridges in Orange County as part of this Design-Build project for the New York State DOT. Services provided include alignments, profiles, modeling, guide rail and drainage design. He also worked on the design of temporary detours, as well as some work zone traffic control plan work.

Interstate 95 Exit 63 Redesign, Grey, ME

Branden was a design consultant for this project that included a re-design of the interchange at Exit 63 on Interstate 95 in Gray, Maine. The project includes massive cuts and fills due to preloading that was designed 6 months in advance, numerous guardrail sections on the ramps that tied into bridge rail and existing rail in spots, and the design of a new park and ride.

MaineDOT Route 1 Redesign, Blaine-Mars Hill, ME

Branden worked as a design consultant for this project consisting of a 1.6 mile segment of Route 1 starting in Blaine, Maine and ending at the intersection of Route 1a in Mars Hill, Maine. Tasks included re-designing the entire closed and open drainage system for the project, which was delineated into six major catchment areas all with their own off-site discharge point.

Olivia Darisse

Design Consultant



Education

BA, Civil Engineering,
University of Maine, 2013

Olivia is a Transportation Consultant in VHB's South Burlington, Vermont office with experience in construction inspection, roadway scoping and design, and developing plans using MicroStation, InRoads, and Midas. Olivia's services have including task management, plan development, and design. She is currently working with the VTrans Municipal Assistance Bureau on sidewalk projects in Middlebury and Shelburne. She is also developing plans for an intersection in Hartland and a multi-use path in Bennington.

1 year with VHB and 3 years of professional experience

US 5/VT 12 Hartland Three Corners Intersection Improvements, Hartland, VT

Olivia is serving as a design consultant for the scoping, conceptual, and final design of this intersection reconfiguration project in Hartland village. The project includes the development of alternatives and conceptual plans through the production of right of way plans, contract plans and construction engineering support.

Colchester Mountain View Drive Sidewalk Scoping & Design (STP SDWK(20))

Olivia is serving as a design consultant for the scoping and final design of a 1,900 foot sidewalk along Mountain View Drive in Colchester, VT. Her responsibilities include coordination with clients and State representatives and plan development and design. The project includes the development of alternatives and conceptual plans through production of right of way plans, contract plans and construction cost estimate.

Previous experience:

ATCS, P.L.C. Alexandria, VA - Construction Inspector May 2014 – June 2015

- VDOT representative on a 55-million-dollar design-build highway project in Northern Virginia
- Review plans, RFIs, pay applications, and schedules
- Inspect field operations, maintenance of traffic, and E&S controls
- Maintain records and develop new and improved methods of tracking performance
- Generate daily work reports, work orders, as-builts, and performance evaluations

State of Vermont Agency of Transportation Montpelier, VT - Civil Engineer I June 2013 – May 2014

- Scoped roadway and bridge design alternatives for structurally deficient bridges
- Developed conceptual and preliminary plans using MicroStation, InRoads, and Midas
- Familiar with AASHTO, FHWA, and VTrans Standards and Specifications

Newmont Mining Corporation Winnemucca, NV - Engineering Intern May 2012 – August 2012

- Assistant to project engineer on a leach field expansion project
- Monitored daily construction operations to ensure work conformed with plans and specifications
- Performed calculations for small engineering tasks

Kelly Barry, PE

Design Consultant



Kelly is a Transportation Consultant in VHB's South Burlington, Vermont office. Her design experience includes concrete and steel structures. Kelly has assisted on many aspects of projects including task management, plan development, bridge inspection, load ratings, cost estimating, and structural design. She is also experienced in computer aided drafting programs such as MicroStation and AutoCAD.

Education

MS, Civil Engineering,
University of New
Hampshire, 2013

BS, Civil Engineering,
University of New
Hampshire, 2011

Registrations/ Certifications

Engineer in Training NH,
2010

Professional Engineer (Civil
Engineer) VT, 2016

Affiliations/ Memberships

Society of Women
Engineers, North Country,
2016

Vermont Society of
Engineers, 2016

5 years with VHB and 5 years of professional experience

Middlebury Main Street and Merchants Row Bridge Replacements, Middlebury, VT

Assisted in the development of RFP for the one of the first Construction Manager/General Contractor projects in Vermont. Project is on an aggressive schedule will involve the replacement of the two bridges, improvement of the geometry of 1,000 feet of railroad track to meet current standards, while focusing on maintaining vehicular and rail traffic, minimizing the impact on local businesses, and historical preservation. Design Engineer including design for precast structural components and CADD support.

Chester GMRC Bridge 119 over the Williams River

Design Engineer including CADD support, bridge inspection and load rating. Assisted in the inspection team tasked with conducting a conditional assessment and detailed bridge inspection. Load ratings included three different live load vehicles at multiple operating speeds and multiple stress levels

Rockingham GMRC Bridge 111 over the Williams River

Design Engineer including CADD support, bridge inspection and load rating. Assisted in the inspection team tasked with conducting a conditional assessment and detailed bridge inspection. Load ratings included three different live load vehicles at multiple operating speeds and multiple stress levels.

Middlebury VRS Bridge 239 over the Otter Creek

Design Engineer including CADD support and load rating. Load ratings included three different live load vehicles at multiple operating speeds and multiple stress levels.

Hartford I-91 Bridges 43 N&S over US Route 5

Assisted in the development of RFP for the one of the first Construction Manager/General Contractor projects in Vermont.

Erica Quallen

Design Consultant



Education

BS, Civil Engineering, UVM,
2016

Registrations/ Certifications

EIT Certification, 2016

Erica is a recent graduate of the University of Vermont with a B.S. in Civil Engineering. While attending university, she had two summer engineering internships which got her interested in traffic and transportation engineering. Erica has performed traffic and roadway data collection and analysis for the regional planning commission and also worked as a transportation engineering intern for highway design. Erica is currently working on a number of transportation project in Chittenden County, and expanding her experience in traffic engineering and transportation planning with VHB.

1 year with VHB and 1 year of professional experience

Williston Road Transportation Study Phase II, South Burlington, VT

Erica is serving as a transportation planner and design consultant for the scoping study along 0.5 miles of Williston Road in South Burlington, VT. This project includes the development of three sets of conceptual plans for the short, mid, and long term vision of Williston Road and the accompanying street network.

Parking Management Study, Winooski, VT

Erica is serving as a transportation consultant on the development of a parking master plan for the City of Winooski, VT. Erica's responsibilities include coordination with clients and local representatives, data collection and analysis in GIS, and developing recommendations for the City's transportation demand management plan.

Previous Experience

Transportation Engineering Intern, Stantec

- South Burlington, VT — June 2015 December 2015
- In this position, Erica worked with engineers and CAD technicians on various design projects and participated in numerous different meetings with the senior engineers in the office. Projects worked on included
 - WinooskiCambridge VT15 Sign Design - Using the MUTCD, 22 miles of VT Route 15 was designed and brought up to current code.
 - MicroStation Traffic Sign Cell Library Redrawing and Organization - All MUTCD and VTrans Standard signs were edited and scaled in MicroStation such that they were readily available for the office to have access to for all upcoming project.
 - East Montpelier Traffic Counts and Left Turn Lane Analysis - Performed peak hour turning movement count in the field and used data to examine the need for a left turn lane given an increase in traffic volume.

Transportation Intern, Chittenden County Regional Planning

- Winooski, VT — May 2014 August 2014
- While working with CCRPC, Erica performed a large amount of transportation data collection. She was allocated a project working directly with supervisor to create a new data collection model and perform spatial analysis for sidewalk inventories in the town of Colchester, VT. Worked with a team of eight fellow interns and multiple transportation planners and engineers throughout the summer at CCRPC.

Engineering Support Staff Resumes



Brad Ketterling

Permitting/NEPA



Education

MS, Physical Geography,
University of Western
Ontario, 1995

BS, Geography, Concordia
University, 1992

Brad has worked as an environmental scientist for close to two decades, specifically in the fields of wetland mitigation site feasibility and design, stream assessment, watershed planning, state and federal permitting, and NEPA compliance. Brad helps clients navigate complex regulatory requirements and achieve successful results by identifying and assessing natural and cultural resource issues and constraints and developing strategies to obtain authorizations that are in the best interest of the client and the environment. n. Brad has managed projects for a variety of private and public sector clients, including the National Park Service, the Department of Defense, the Vermont Agency of Transportation, the Vermont Telecommunications Authority, the Maryland Aviation Authority, Green Mountain Railroad Company, the City of Burlington, Vermont, and James City and Arlington Counties in Virginia.

14 years with VHB and 21 years of professional experience

Burlington Bike Path Rehabilitation Project, Burlington, VT

Brad assisted with various permitting activities associated with the proposed rehabilitation of the Burlington Bike Path, including: coordinating the process of infiltration testing to support the use of a driveable grass pavement system in Waterfront Park; coordinating with Department of Public Works Stormwater Program Manager to discuss potential stormwater treatment approaches; permit applications for Construction and Operational Phase Permits from the DEC Stormwater Section; preparation of city permit applications (Zoning Permit and Small Project EPSC Plan); and coordination with Senior Planner at Department of Planning and Zoning

Federal Street Multimodal Connector, Environmental Assessment, St. Albans, VT

Brad was Task Manager for National Environmental Policy Act (NEPA) compliance for the proposed Federal Street Multimodal Connector Project. He is the lead author of the Environmental Assessment (EA) and is responsible for outreach to and direct coordination with state and federal regulatory agencies. BHe presented the findings of the EA at a public hearing and finalized the EA to obtain a Finding of No Significant Impact (FONSI) in April 2013.

Main Street and Merchants Row Bridges, Middlebury, VT

Brad is Task Manager for Environmental Services, evaluating potential natural resources and other constraints on the design for the proposed replacement of two bridges over the Vermont Railway in Downtown Middlebury as part of an Environmental & Historic Structures Evaluation and National Environmental Policy Act (NEPA) documentation.

Waterfront Park Improvements – Act 250 Permitting, Burlington, VT

Brad prepared and submitted to the District 4 Commission an application to amend the existing Land Use Permit for Waterfront Park to reflect a suite of proposed physical improvements. Principal improvements include a rehabilitated and realigned Bike Path (being designed by VHB), electrical and potable water service, and lighting.

Glen E. Johnson, PLS, LLS

Regional Survey Manager



Glen is the regional survey manager with VHB in Bedford, New Hampshire. He has significant experience throughout New England in field procedures and management of large-scale projects. His responsibilities include directing staff in utility investigation, roadway, GPS/photogrammetric, bridge, construction, topographic, and boundary surveys, as well as the production of all survey for plans including land court, property line, subdivision, and ALTA/ACSM land title survey plans.

Education

AAS, Civil Engineering
Technology, University of
New Hampshire, 1982

Registrations/ Certifications

Licensed Land Surveyor NH,
2001

Professional Land Surveyor
ME, 2012

Licensed Land Surveyor VT,
2006

Professional Land Surveyor
MA, 1995

Affiliations/ Memberships

American Congress of
Surveying and Mapping

Planning Board,
Georgetown, MA, 1996-
2001

National Society of
Professional Surveyors

New Hampshire Land
Surveyors Association

Massachusetts Association
of Land Surveyors and Civil
Engineers

Vermont Society of Land
Surveyors

Maine Society of Land
Surveyors

32 years with VHB and 35 years of professional experience

Middlebury Main Street and Merchants Row Bridges, Middlebury, VT

Glen was the Survey Manager for land surveying for the replacement of two 93-year-old bridges spanning the Vermont Railway mainline track in downtown Middlebury. He was charged with research, field work, boundary calculations, and plan preparation for the project. Utility research and site investigation was conducted to determine the location and elevations of the subsurface utilities within the study corridor. The plans were prepared in Microstation and in accordance with the survey requirements of VTrans.

Federal Street Multimodal Connector Project, St. Albans, VT

Glen was the Survey Manager for land surveying services related to the design and permitting of over two miles of the Federal Street project in St. Albans to facilitate improved mobility for all modes of transportation including pedestrian, bicycle, rail, transit, and motor vehicles. Utility research and site investigation was conducted to determine the location and elevations of the subsurface utilities within the study corridor. He was charged with research, field work, boundary calculations, and plan preparation for the project.

VTrans, I-91 Bridge Replacement, Brattleboro, VT

For the Vermont Agency of Transportation (VTrans), Glen was the Survey Manager for land surveying services related to the design and permitting of the I-91 bridge replacement over the west river in Brattleboro. He was charged with research, field work, boundary calculations, and plan preparation for the project. Utility research and site investigation was conducted to determine the location and elevations of the subsurface utilities within the study corridor. The plans were prepared in Microstation and in accordance with the survey requirements of VTrans.

Route 107 Tropical Storm Irene, Bethel and Stockbridge, VT

Glen was the Survey Manager for land surveying services related to the redesign and permitting of approximately three miles of roadway along Route 107 in Bethel and Stockbridge following the massive property destruction related to Tropical Storm Irene. He was charged with the emergency mobilization of survey staff of over 12 surveyors to support all survey needs related to the reconstruction of the impaired areas. In addition to this site, VHB provided survey support for over another dozen railroad bridges and roads throughout the State of Vermont.

Judd Vear, LSIT

Survey Technician



Education

BS, Survey Engineering,
University of Maine, 2011

Judd is a Project Surveyor in VHB's South Burlington, VT office. He has a wide range of survey experience including inventory and measurement of existing utility infrastructure for many VTrans and private development projects, in-depth Right-of-Way and boundary analysis, field-to-finish production of ALTA boundary surveys, and topographic surveys ranging from solar and wind development to roadway and bridge construction. He has extensive experience with AutoCAD (Civil 3D), MicroStation (InRoads), and Leica, Trimble, and Carlson field collection and processing softwares.

3 years with VHB and 8 years of professional experience

Hartland Three Corners Intersection Project, Hartland, VT

Survey Technician for development of existing conditions survey for the re-design of the Three Corners Intersection in Hartland. Judd's role was to develop a full existing conditions base plan, performing field survey, utilities and property research. Through coordination and plans received from private utility services, in conjunction with field survey data, an accurate representation of existing underground utilities was included on the base plan allowing for proper design engineering and budgeting.

Wilmington East Main Street Sidewalk Project, Wilmington, VT

Survey Technician for development of an existing conditions survey plan for re-design of 1500' of sidewalk in downtown Wilmington. Survey included topography, Right-of-Way determination and existing utilities. Existing underground utilities were developed through coordination with municipal sanitary and water departments, combined with field survey and historic plans,

Warren Village Main Street Improvement Project, Warren, VT

Lead Survey Technician for development of existing conditions survey of the full Right-of-Way corridor through Warren village in support of sidewalk and streetscaping design. Existing utilities were mapped from a combination of field survey, historic plans and even parole evidence.

Federal Street Multimodal Connector Project, St. Albans, VT

Survey Technician for land surveying services related to the design and permitting of over two miles of the Federal Street project in St. Albans to facilitate improved mobility for all modes of transportation including pedestrian, bicycle, rail, transit, and motor vehicles. With a planning phase lasting more than several years, Judd has provided numerous updates to the existing conditions base map, integrating new private site plans, additional field survey, and utility field investigations throughout the project.

Bennington Path, Bennington, VT

Survey Technician for the design of a pedestrian/bike path connecting downtown Bennington VT, to a park and elementary school. The path is a combination of upgraded sidewalks, intended for pedestrian use only, a 12-foot wide paved path within a railroad right-of-way, and shoulder widening of existing town roads.

Kathryn Lee, PE

Lighting Design



Kathy is a Senior Project Manager with VHB's Transportation Systems Group. She specializes in the design and preparation of signalization, signing, sign panel layout and pavement marking plans. Her FDOT certification in Traffic Control Plan Design supports a strong background in work zone traffic safety. Traffic studies and analysis round out her focus on traffic operations and the transportation field. Kathy's qualifications and experience have been utilized on a multitude of public- and private-sector projects.

Education

BS, Civil Engineering,
University of Central Florida,
1998

BS, Geography,
Pennsylvania State
University, 1984

Registrations/ Certifications

Professional Engineer FL,
2005

Affiliations/ Memberships

American Society of Civil
Engineers

17 years with VHB and 29 years of professional experience

Skillset: Lighting Design

Kathy has served as Project Manager and as Project Engineer for numerous lighting design projects on both local and interstate roadways. Lighting projects have encompassed Lighting Justification Reports, the layout and design of new lighting systems, interfacing new lighting systems with existing lighting systems, photometric analysis to optimize light pole spacing and arrangement, luminaire mounting height, wattage and distribution type, and also voltage drop calculations to verify that conductors and load centers are sized appropriately. Some representative projects include Walton Road from US 1 to Lennard Road, City of Port St. Lucie, St. Lucie County, I-95 Widening from north of SR 50 to north of SR 46, Brevard County (FDOT District Five), I-4/Osceola Parkway Braided Ramp project, Osceola/Orange County (FDOT District Five), US 27/SR 50 Interchange Design Build Project, Lake County (FDOT District Five).

Skillset: Intelligent Transportation Systems (ITS) Design

Kathy has worked extensively with local and state municipalities in order to improve the safety of the motoring public while increasing the efficiency and capacity of roadway corridors. ITS provides mechanisms to aid in the effort that make use of advanced communication and other technologies to make surface transportation safer and more efficient. VHB has been involved in numerous ITS projects and is experienced in creating and implementing these types of plans. Representative ITS projects include weigh-in-motion stations, dynamic message signs, fiber optic interconnect plans, closed circuit television systems, AVI systems, emergency vehicle management systems utilizing Opticom and highway advisory radio plan design. Representative projects include City of Orlando, Crystal Lake Drive Improvements, Greater Orlando Aviation Authority (GOAA) BP-355 Loop Road Dynamic Message Signs Design Build, Orange County, UCF Arena ITS Project, FDOT District Five, US 17-92 at SR 436 Interchange, FDOT District Five, I-95 from North of SR 50 to North SR 46.

Skillset: Traffic Signal Systems

Kathy has completed numerous traffic signal system design, optimization and retiming projects. These projects involve development of design plans and technical specifications for traffic signal systems, data collection, development of time-of-day and day-of-week system timing plans, and implementation and fine-tuning. Some of the representative projects include SR 5 / SR 60 Signal Systems, Indian River County; Olive Road Traffic Signal System, Escambia County; and Pensacola Street Traffic Signal System, City of Tallahassee.

Kaitlin O'Shea

Historic/Cultural Resources



Education

MS, Historic Preservation,
University of Vermont, 2011

BA, Historic Preservation,
University of Mary
Washington, 2006

Affiliations/Memberships

UVM Historic Preservation
Alumni Association, Vice
President

National Trust for Historic
Preservation

Kaitlin is a Preservation Planner with a strong background in and understanding of preservation principles and practices. Kaitlin provides expertise in regulatory process and compliance, particularly Section 106 review and Section 4(f) evaluations, as well as historic documentation, historic resource identification, and project management in the government framework. From national and statewide conference presentations to public meetings, she is skilled in stakeholder interaction and communication. Kaitlin meets the Secretary of the Interior's Professional Qualification Standards for an Architectural Historian and Historian (36 CFR 61).

2 years with VHB and 9 years of professional experience

Federal Street Multimodal Connector Project, St. Albans, VT

Kaitlin is working on the preparation of the Act 250 application for the Federal Street project, as well as reviewing the development of 60% plans to determine potential implications for reevaluation the Section 106 and 4(f) determinations, and the EA.

Mountain View Drive Sidewalk Project, Colchester, VT

As one of her first projects at VHB, Kaitlin evaluated the project corridor for historic resources and researched previous Act 250 applications for earlier determinations to resource impacts. Kaitlin is writing and compiling the Resource Identification Report on behalf of VHB for the Town of Colchester.

Kaitlin's professional experience before joining VHB includes the following

Section 106 Reviews & Section 4(f) Evaluations, VTrans, Montpelier, VT

As the Historic Preservation Specialist for the Vermont Agency of Transportation (VTrans), Kaitlin reviewed all types of transportation projects: sidewalks, streetscapes, roadways, culverts, covered bridge and truss bridge rehabilitations, bridge replacements, park and rides, and more. She has completed over 650 Section 106 reviews and over 30 Section 4(f) evaluations.

Lake Champlain Bridge Replacement Project, Addison, VT

Kaitlin began with VTrans during the 2010 Lake Champlain Bridge Replacement Project as the Historic Preservation Monitor. Tasked with ensuring the state agencies and contractors complied with the Programmatic Agreement protecting historic resources, she gained invaluable "on the ground" experience at a large-scale, fast-paced construction project.

Historic Railroad Buildings Conditions Assessments & Survey, Vermont

While working at VTrans, Kaitlin conducted a survey of the state owned and transportation enhancement (TE) funded historic railroad buildings, documenting the architectural condition of the structures and evaluating the success of the TE grants. This 200 page report included historical context and building histories, architectural descriptions, photographic documentation, condition assessments, and recommendations for future work.

Mark Hamelin, PLA, CLARB Certified, ASLA

Landscape Architecture



Education

MLA, Master in Landscape Architecture, Harvard University Graduate School of Design, 1981

BS, Recreation Resource Management, University of Vermont, 1978

Registrations

PLA - VT, NH, ME, NY PA, CO

CLARB - Council of Landscape Architectural Registration Boards - Certification #33827

Affiliations/Memberships

American Society of Landscape Architects

American Planning Association

Mark recently joined VHB as Senior Landscape Architect/Planner in the South Burlington, VT office. He brings more than 35 years of professional landscape architecture, land planning, and urban design experience on a wide range of public and private sector projects across Vermont and throughout the country. Mark's work has been recognized by his peers with 19 professional design/planning awards. Notable accomplishments include Burlington's Waterfront Park, the recently completed Waterbury State Office Complex, and the Spruce Peak Master Plan at Stowe Mountain Resort.

1 year with VHB and 35 years of professional experience

Project experience with previous employer:

Burlington Waterfront Hotel and Marina - Burlington, Vermont

Feasibility study for Lake Champlain Transit's working waterfront. Intended as a focal point on the urban waterfront the plan incorporates a hotel, Breakwaters outdoor restaurant, marina and public waterfront access.

St. Albans Main Street Streetscape - St. Albans, Vermont

Streetscape design for the heart of downtown St. Albans. The design incorporated urban storm water techniques and outdoor gathering areas. Highly successful, the streetscape is regarded as a key to the revitalization of the downtown.

Lower College Street - Burlington, Vermont

Redesign of lower College Street to incorporate storm water gardens, transit stops, public parking and public bathroom facilities. This streetscape serves as the entrance to the Waterfront Park and Echo Center.

Downtown Core Urban Design - St. Albans, Vermont

Urban design feasibility study to incorporate a parking structure, hotel and State Office building into the St. Albans Downtown Core.

Sugarbush Resort - Warren, Vermont

Master plan and site planning for the base village at Lincoln Peak. Projects include: Clay Brook condominiums, Lincoln Peak base lodge, Farm House/School House skier service buildings, Rice Brook condominium master plan and pedestrian plazas. Restored riparian stream channels provide a central amenity for the resort.

Waterbury State Office Complex Redevelopment Project - Waterbury, Vermont

Feasibility study commissioned by the Vermont legislature to study alternate development sites, Overall Master Plan, site planning and permitting for the resurrection of the State Office Complex after destruction from tropical storm Irene.

Plan BTV 'Think Tank' - Burlington, Vermont

Organized by the Burlington Planning Department, a select team of Developers, Architects and Landscape Architects participated in a detailed review of the proposed Burlington Form Based Code for conformance with the realities of land development and Architecture.

Mark R. Louro, PE

Rail Engineering



Education

BS, Civil Engineering,
Southeastern Massachusetts
University (now University of
Massachusetts Dartmouth),
1987

Registrations/ Certifications

Professional Engineer (Civil)
MA, 1992

Professional Engineer CT,
1997

Professional Engineer NJ,
2014

Affiliations/ Memberships

American Society of Civil
Engineers

Mark is a Senior Project Manager in VHB's Transit & Rail Division with extensive experience in Transportation Engineering and Construction. Notable projects include Downtown Burlington Transit Station, the Ruggles Station Platform Project, the Green Line light rail extension project, South Coast Rail commuter rail project, Portland North track and drainage improvements, freight railroad track extension and line improvements at Boston's Marine Industrial Park, WMATA Greenbelt route extension, and the Central Artery/Third Harbor Tunnel project. Before joining VHB, Mark was a civil engineer with the Massachusetts Highway Department.

18 years with VHB and 29 years of professional experience

Main Street and Merchants Row Bridges, Middlebury, VT

For the Town of Middlebury, VHB is responsible for the development of design documents and construction or the replacement two 93-year-old bridges spanning the Vermont Railway mainline track in Middlebury's downtown area. Mark is performing a study to develop alternatives for the relocation of the ACTR (Addison County Transit Resources) transfer point located on Merchants Row. The alternatives analysis will evaluate up to 10 temporary and permanent locations for the transfer point. The analysis will consider constructability, cost, property impacts, and impacts to bus operations to evaluate the alternatives.

MassDOT, South Coast Rail Commuter Service Extension, Southeastern Massachusetts

For the Massachusetts Department of Transportation (MassDOT), Mark was Task manager for the design development of highway grade crossing concepts for proposed commuter services to southeastern Massachusetts along a proposed 40-mile commuter rail corridor from Boston to Fall River and New Bedford.

MBTA, Ruggles Station Platform Project, Boston, MA

Mark is managing a multidisciplinary team of engineers and architects to expand Ruggles Station to include a new 800-foot-long commuter rail platform to serve Track 2. The project includes construction of the platform with two canopied access points lighting, furniture, VMS, security, plumbing, drainage and the extension of eleven catenary structures. The project also involves coordination with Northeastern University (NEU) for their proposed science and engineering building that is located on the adjacent NEU parking lot. ts.

CCTA, Burlington Downtown Transit, Burlington, VT

For the Chittenden County Transit Authority (CCTA), Mark is Project Manager for the development of construction documents for the construction a new \$10 million transit station. He is managed a multidisciplinary team of civil engineers, architects, structural engineers, and MEP engineers to design a bus station that accommodatea 10 bus berths along a 250-foot canopied platform with a 2,500-square-foot two-level station building. The facility will includea a driver's lounge below street level to provide rest facilities and a break room for drivers between runs.

Ryan Lizewski, PE

Hydrologic & Hydraulic Studies



Ryan is an environmental engineer focusing on water resource engineering, surface hydrology, and stormwater management. He has served as a project and field engineer for a diverse set of responsibilities and tasks including hydrologic & hydraulic modeling, coordinating and conducting field programs, construction oversight, data management, and data analysis. His experience includes projects focusing on low impact development, flood mitigation, innovative stormwater designs and developing best management practices for both private and public sector clients.

Education

BS, Civil and Environmental Engineering, Worcester Polytechnic Institute, 2007

Registrations/ Certifications

Professional Engineer MA, 2012

4 years with VHB and 9 years of professional experience

VTrans, Preliminary Bridge Hydraulic Analysis, Vermont

For VTrans, Ryan served as Project Engineer for the development of preliminary bridge hydraulics models using HEC-RAS software to evaluate structure sizing for subject waterway crossings in accordance with the VTrans hydraulic manual and other regulatory requirements. Georeferenced hydraulic models were created for each bridge location using the MicroStation: InRoads CAD software package to generate the geometric cross section and line string information for import into HEC-RAS based on the site survey.

Railway Brook Stream Restoration, Newington, NH

As Project Engineer, Ryan is providing construction support for the restoration of Railway Brook, a highly impacted urban stream in the Great Bay coastal watershed. Ryan developed a HEC-RAS hydraulic model to predict maximum shear stress and velocities through the project reach to assist channel design and bed stability analysis.

Ashuelot River (West Street) Dam, Hydrologic Modeling and Wetlands Analysis, Keene, NH

Ryan is Project Engineer assisting the City of Keene with the evaluation of the potential removal of the Ashuelot River (West Street) Dam, which has fallen into disrepair. The City and community seek to more fully understand the implications on wetlands and floodplains that would result from the possible dam removal.

Great Dam Removal, Exeter, NH

Ryan is Project Engineer assisting with engineering design for the removal of the Great Dam from the Exeter River. He is assisting with geomorphic analysis, hydrological and hydraulic analysis, water supply, dam and structural engineering, and impacts to natural resources. He will also assist with preparation of bid documents and selection of a contractor to complete the dam removal.

Beaver Brook Flood Study, Pelham, NH

Ryan was Project Engineer for a flood study involving a 10-mile stretch of Beaver Brook, including eight bridge structures. The study involved conducting a hydrologic evaluation based on river gage records; developing a step-backwater hydraulic model using HEC-RAS; and evaluating alternatives for flood mitigation including conveyance improvements, floodplain storage, infrastructure modifications, and regulatory controls.

Scott Burbank, PE

Bridges and Structures



Scott is VHB's Director of Structures in Vermont, with extensive experience in planning, design and construction of both highway and railroad bridges and roadway reconstruction projects. His qualifications also include services for quality control and quality assurance, construction cost estimating, accelerated bridge construction (ABC), and structural inspections of both railroad and highway bridges.

Education

BS, Civil Engineering,
Worcester Polytechnic
Institute, 1993

Registrations/ Certifications

Professional Engineer
(Structural I) VT, 2000

7 years with VHB and 22 years of professional experience

USDA, Green Mountain National Forest IDIQ, Vermont

Scott provided structural engineering support for bridges, culverts, embankments, and other structures when the United States Department of Agriculture (USDA) Forest Service retained VHB to provide surveying and civil and structural engineering services for a multi-year Indefinite Delivery/Indefinite Quantity (IDIQ) contract to support activities in the Green Mountain and Finger Lakes National Forests in Vermont and New York. VHB's services included civil and structural engineering for bridges, culverts, embankments, roads, and other structures.

Brattleboro Town Highway Bridge #7, Brattleboro, VT

Scott was the Project Manager for the complete replacement of Town Highway Bridge No. 7 over Halladay Brook in Brattleboro VT. This project included project scoping, environmental resource documentation, regulatory permitting, hydraulics analysis, structural design and construction cost estimating throughout the development of the project.

Cross Street Bridge, Middlebury, VT

Scott was Project Engineer assisting with the design and construction cost estimating of the various Design-Build submittal packages for project aimed to alleviate major traffic congestion, improve safety, and provide additional pedestrian and bicycle access. Tasks included design/construction coordination and scheduling, utility company coordination, material testing coordination and monitoring, coordination of property owner and town meetings.

Guilford Town Highway Bridge #65, Guilford, VT

Scott was the Project Manager for the complete replacement of Town Highway Bridge No. 65 over Hinesburgh Brook in Guilford, VT. This project included project scoping, environmental resource documentation, regulatory permitting, hydraulics analysis, structural design and construction cost estimating for rapid bridge construction techniques. Accelerated bridge construction elements were used to minimize the roadway closure period during construction.

VTrans ER BRF 0162(18) and Rochester, ER STP 0162(19), VT

Scott was the Project Manager for the complete replacement of two state bridges on VT 73 over Brandon Brook and the White River. Both bridges were destroyed during Tropical Storm Irene. These projects included project scoping, environmental resource documentation, regulatory permitting, hydraulics analysis, structural design and construction cost estimating for VTrans first multiple bridge replacement projects on a single corridor within one Town.

Quality Control Plan



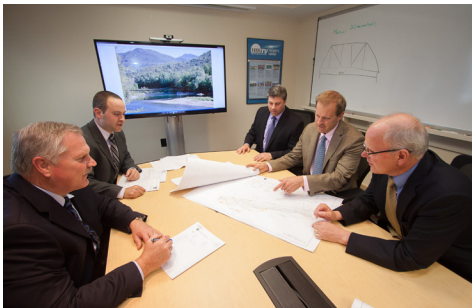


Contents

Introduction.....	1
Project Controls.....	2
Project Coordination.....	2
Quality Management.....	5
Review and Checking Procedures.....	8
Data Management.....	12
Reference Material.....	20

Introduction

The Vanasse Hangen Brustlin, Inc. (VHB) Quality Control Plan is founded on our core belief in “Quality Focus” and “Client Service”. It is consistent with the Quality focus and overall Quality program at VHB, and has been prepared for projects assigned under the 2016 VTrans Municipality Assistance Bureau At-The-Ready Engineering Services Contract.



VHB’s commitment to providing a high quality product is consistent with VTrans’ Municipality Assistance Bureau (MAB) policies and procedures. This Quality Control Plan (QCP) ensures project and other deliverable expectations are met or exceeded. In short VHB knows what VTrans MAB expects, we know how to deliver it, and we have the procedures in place to make it happen. We understand and have built into this QCP the VTrans requirement for VHB to issue a certification of quality for each project that documents the quality control efforts we used to ensure a well-designed, cost-effective, safe, biddable, and constructible project.

Due to the nature of our QCP for projects yet to be assigned, the plan will be revisited and made more specific when the assignments are engaged. This QCP is VHB’s standard practice for all our work and has only been refined in this document to reflect the services anticipated for VTrans MAB projects.

VHB’s quality program is practiced every day and begins with the commitment of the management of the company. It is a systematic program that includes the needed processes to complete quality projects. It is a continuous program wherein all members of the project team are focused on providing an accurate and complete product meeting the project schedule and budget.

For all services provided by VHB, quality is of paramount importance. We have a clear responsibility to complete our work to meet or exceed the level of quality expected by our clients. Quality is what defines our reputation and enables us to serve our clients and their customers well, and continue to do so for the years to come. Client service and technical quality are complemented by our communication with clients and the public.

Since the firm’s inception, VHB has practiced a Quality Management process that includes not just checking the various details, but a comprehensive review of the complete project by senior technical professionals to ensure its conformance with all the project requirements. Today this process has evolved into a formal Program that is reflected in this QCP. It is an integral part of the client-focused service provided by VHB. Exceeding client expectations is achieved by providing this basis of delivery plus excellent communication, innovative design ideas, higher quality deliverables, faster production, and more cost-effective completion of our services. The client benefits include lower cost projects, accelerated project schedules, and fewer problems during implementation.

This manual provides a guideline for Project Managers and every member of the Project Team to use in the delivery of services.

The following sections discuss the components of the QCP, including: Project Controls, Project Coordination, Quality Management, Review and Checking Procedures, and Data Management.

Project Controls

A key to meeting project goals is VHB's Management Information System (MIS). The MIS reporting system is used by our Project Managers for internal management of data and for reporting progress to our clients. The MIS will be used to develop a detailed work plan to identify all major tasks and establish a Project Progress and Performance Report which includes:

- ▶ To-date planned budget hours by task
- ▶ Actual to-date expended hours by task
- ▶ Total to-date hours planned
- ▶ Total to-date hours expended
- ▶ Percent completeness for each task
- ▶ Total current estimate related to budget to identify under or overrun
- ▶ The estimate to complete
- ▶ The report is produced on a monthly basis for the project backup report.

The Project Manager will evaluate the report to identify areas requiring corrective action or reevaluation.

In addition to the Project Progress and Performance Report, the team will use a project delivery schedule to monitor major deliverables and milestones which correlate to the task number on the Project Progress and Performance Report. This will allow us to:

- ▶ Identify the due date
- ▶ Identify the party responsible for the delivery of the document
- ▶ Identify who is responsible to take action.

Each submittal is identified as first, second, and so on, with the actual submittal date. Comments are received, and when necessary, resubmittal dates established.

Project Coordination

VHB's Project Manager is responsible for providing effective and responsible project management and client coordination. The Project Manager is the central coordinator for all project activities and communications. Designation of a Project Manager occurs at the proposal stage of a project, or the task assignment/scope of work phase for at-the-ready contracts. The Project Manager's primary responsibility is to



organize VHB's efforts to meet the client's needs. To execute this responsibility effectively, a Project Manager must perform the functions described in the following sections.

Communication

Effective communication is the key to good project management. Open lines of communication must be maintained at all times between the client and VHB personnel. To achieve this, the Project Manager will:

- ▶ Hold kick-off meetings, before a project starts and at each stage of a project when new tasks are initiated.
- ▶ Keep team members aware of project status by copying key members on all pertinent e-mails, meeting notes, correspondence, etc.
- ▶ Ensure that all communications with the client are coordinated with the project team. In return, project team members will copy the Project Manager on all project-related information. The Project Manager will be aware of activities across all disciplines on the project to enable prompt, efficient responses to client inquiries.
- ▶ Participate in all project decision making or recommendations.
- ▶ Coordinate regular project meetings to help keep the team members abreast of issues, schedules, and budget.

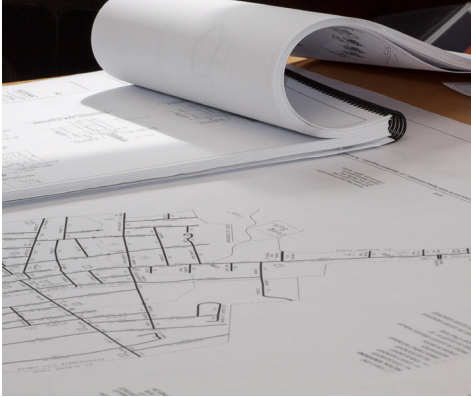
Administration / Fiscal Management

The Project Manager will be responsible, directly or as assigned, for the following administration/fiscal management aspects of the project:

- ▶ Completing all work necessary for project administration, including project initiation.
- ▶ Authorizing work by any contributing department and ensuring contract coverage is available for the work authorized.
- ▶ Using project cost reports to monitor and track project charges for all disciplines.
- ▶ Identifying, tracking, and notifying client of any out of scope work.
- ▶ Preparing and submitting monthly invoices for services rendered.
- ▶ Preparing any necessary contract amendments for all disciplines on the project.

Technical

The Project Manager will review all technical products to ensure that each discipline is coordinated and has participated in review. This involves reviewing the products from all disciplines (such as survey base plans, signing and markings plans, signalization plans, structural plans and environmental reports).



The Project Manager will verify that each product has been subjected to the respective quality control procedures of each individual department before the product is released for use. On large interdisciplinary projects, an interdisciplinary review of the documents will be held to ensure that the documents are coordinated between disciplines.

Scheduling

The Project Manager will establish all schedules after obtaining input from all contributing sources. Follow-up with all team members throughout the project will be made to ensure that the schedule is maintained on the Project Progress and Performance Report.

Coordination of Disciplines

The Project Manager will follow up with all team members to keep the project on track (work efforts, schedules, budgets, quality reviews, etc.). The Project Manager is responsible for ensuring that all team members involved in a project have coordinated their efforts. Each discipline task leader signs off on their team's work.

Client Contact

The Project Manager is the primary contact with the client, unless otherwise agreed. In some cases, it may be desirable to have a project team member communicate directly with the client. This communication will be coordinated with the Project Manager, who is responsible for ensuring that the client receives "high quality service" as measured by the client.

Management of Subconsultants

The Project Manager is responsible for coordinating the efforts of all subconsultants working on the project. He/she is responsible for ensuring the following:

- ▶ Contracts are properly written and executed
- ▶ The terms and conditions are acceptable and consistent with the contract between VHB and the client
- ▶ Subconsultant invoices are processed promptly
- ▶ Subconsultant services are provided in a timely manner
- ▶ Subconsultant services are seamlessly integrated into VHB's product

While the Project Manager is not responsible for the technical performance of a subconsultant, he/she is responsible for monitoring conformance with budgets, schedule, and product deliverables.

The Project Manager will also maintain an ongoing record of charges from subconsultants against contract upset limits. All amendments filed for the purpose of increasing scope of services or the efforts of a subconsultant will be coordinated through the Project Manager.

Quality Management

To achieve a high level of quality on a project, the requirements must be clearly defined at the beginning of the project and must be agreed to by both the client and the project execution team. A clear and concise effort at the start of a project focused on identification of project purpose and constraints will set the stage for efficient project development and lead to both client and team satisfaction.

Systematic Approach

Quality assurance and quality control efforts are integrated companywide for all engineering services projects. The success of each project depends on the consistent implementation of quality reviews. Regularly scheduled reviews will be established in the project schedule to review the work efforts, project direction and products being produced.

No matter how well planned or executed, every project task leaves room for improvement. The purpose of Quality Management is to scrutinize a work product to identify areas that would benefit from improvements or revision before delivering to our client. Quality Management procedures define:

- ▶ Which documents should be reviewed
- ▶ Who should review them
- ▶ When they should be checked and reviewed
- ▶ What kinds of revisions will be sought
- ▶ The budget allotted for checking and review
- ▶ The schedule and budget allotted for corrections and back checking

VHB's Quality Management approach is founded on four principal elements:

1. Public/Agency participation must be a planned process that solicits input into the project and is continuous throughout the project.
2. Team resources are centered on a dedicated team of experienced personnel that begin the project with the Project Manager and remain throughout the life of the project.
3. Project controls enable the Project Managers to program and monitor the delivery of the project; both on meeting project schedule and project budget.
4. The technical approach is systematic; it begins with our production engineering team and extends through our senior technical review team.

Preparing a Project Procedures Manual

As part of initiating a new project at VHB, specific project procedures and protocol are established and compiled into a single document, a Project Procedures Manual. This manual is a guidance tool for the project team to use throughout the life of the project. The Project Procedures Manual is different and specific for each project; however, a formalized manual addresses the following:

- ▶ Project organization / staffing assignments and roles
- ▶ Quality control procedures
- ▶ CADD use and Standards
- ▶ Design Standards
- ▶ Calculation protocols
- ▶ Communication and distribution requirements
- ▶ Records management
- ▶ Project budget and schedule control
- ▶ Project reporting requirements

A sample Project Procedures Manual outline looks like the following:

PROJECT PROCEDURES MANUAL OUTLINE

SECTION 1 | CLIENT EXPECTATIONS

SECTION 2 | PROJECT DEFINITIONS

- A. Project Objectives
- B. Scope of Services
- C. List of Drawings
- D. List of Specifications
- E. Contracts/Bidding Packages

SECTION 3 | ORGANIZATION AND RESPONSIBILITIES

- A. Project Organization Chart with names of Key Personnel
- B. Distribution of General Documents
- C. Distribution of Engineering Documents

SECTION 4 | SCHEDULE

- A. Project Schedule
- B. Project Milestones

SECTION 5 | COST CONTROLS

- A. Task Cost Report
- B. Project Expenditure Forecast
- C. Construction Cost Estimates

SECTION 6 | QUALITY CONTROL / QUALITY ASSURANCE

- A. Quality Control Plan
- B. Design Review Requirements
- C. Constructability Review Responsibilities
- D. QA Plan Approval Checklist
- E. Quality Assurance Certification

SECTION 7 | PROCEDURES

- A. Administrative Procedures
- B. Project Management Procedures
- C. Design Management Procedures
- D. Construction Support Management Procedures

Quality Management

One part of quality is the independent review of plans, calculations, documents and other elements of work. One of the most common mistakes made in quality control is for a reviewer to be given a set of documents and told, “Here, review these and mark any errors you find.” Such vague instructions fail to provide explicit guidance as to what kind of review is expected. Following is a description of several different kinds of reviews typically conducted on our professional services projects.

- ▶ **Conceptual Review.** In the early stages of a project, basic concepts are developed that are implemented during the remainder of the design. If the concepts are not sound, the facility will not function properly even if the details are totally correct. One or more independent reviewers will check these basic concepts to make sure that the facility will function properly, given the project’s goals, budget and schedule constraints.
- ▶ **Intradiscipline Review.** When dividing a project into various design disciplines, each discipline becomes responsible for its own quality. An intradisciplinary review ensures that an independent, experienced person from each discipline checks the applicable calculations, drawings, specifications, etc. produced by that discipline. Although the intradisciplinary review cannot be done by the person who performed the design, it can be done by another project team member.
- ▶ **Interdiscipline Review.** Even if the work of each discipline is flawless, problems may arise due to inconsistencies between disciplines. To find these potential conflicts, the Project Manager will perform an interdisciplinary review to assure consistency and coordination between discipline’s work.
- ▶ **Drawing-Specifications Cross-Check.** Just as there can be inconsistencies between drawings, there are often inconsistencies between the drawings and specifications. These can be identified by a checker who reviews the specifications page by page, identifying information that might also appear elsewhere on the drawings or specifications.
- ▶ **Constructability Review.** Even if the drawings and specifications are technically correct and consistent, the design may be difficult for a contractor to bid or construct. The purpose of a constructability review is to identify these problems during design. The review is best performed by a person with extensive construction experience.

The Project Manager must assess which of the above reviews are required for a given project or project element, and at what stages of completion the documents should be reviewed. For small, simple projects, one review at the end may be adequate. For large, complex projects, multiple reviews are essential to ensure a quality product for each submission.

Review and Checking Procedures



General Principles

Checking

Checking is the process by which all of the information is verified to be complete and correct. Ensuring that checking is accomplished is the ultimate responsibility of the Project Manager and may be done personally by the Project Manager, or delegated to qualified persons trained and experienced in the work being checked. The check must always be made by someone other than the person who originally prepared the work.

The checking procedure, method, and degree will vary with the type of design work being checked. Regardless, a good checker will always:

- ▶ Become familiar with the project objective to verify that the methods being employed are necessary, suitable, and provide all information required.
- ▶ Provide a check with enough independence to be effective. Whenever possible, use another method to check rather than the method used to develop the work being checked. This helps to prevent the checker from potential mistakes by the original designer.

The checker has the same level of responsibility as the original designer.

Review

Review is the process by which the project task is looked over by a senior engineer who has not been involved in the detailed design development. The objective is to ensure that the work product is not deficient because the designers “could not see the forest because of the trees.” The reviewer considers the client’s goal, the scope of work, the methods used to solve the problem, and the final intended product.

The reviewer’s task is essentially one of verifying that the information contained in the work is complete, free from ambiguity, and clearly presented in conformance with applicable standards. The reviewer also confirms that the checking procedure has been performed. The reviewers must frequently ask questions to achieve this objective – questions such as:

- ▶ Why is this necessary?
- ▶ Is the client aware of what must be done before the project can be implemented?
- ▶ Why is this being done this way instead of that way?
- ▶ Has each critical element been taken into consideration?

- ▶ Is another element needed for this condition?

Review is completely separate from checking, although the review will usually include some amount of checking as a means of verifying information which appears correct, but may not be, and needs to be rechecked.

It is mandatory that reviews take place prior to a formal submission. The designer, however, should request informal reviews at critical periods during the work product development to go over major design components. Informal reviews guard against large scale changes in the completed documents.

Procedure

Site Visit

Whenever possible, and unless prohibited by the client, checking existing conditions should be performed by means of a thorough site visit to the project location. A single site visit should be performed to gather information pertinent to the project needs. The engineer should be focused on the needed site information. Prior to a site visit the design engineer should:

- ▶ Obtain a copy of the survey.
- ▶ Obtain a copy of the original and most recent contract plans of the existing facility (if applicable).
- ▶ Identify project scope and client goals:
 - Rehabilitation of existing feature
 - Feature replacement
 - New feature
- ▶ Identify needs from prior step:
 - Any existing geotechnical information available?
 - Think what should be verified before putting the information on the plans.
- ▶ Discuss site constraints or client goals with other disciplines:
 - Are there potential environmental/social impacts related to the proposed project?
 - Are there layout constraints that might dictate what type of structure is appropriate?
 - Are there access concerns?
 - Are there Right-of-Way (ROW) concerns?

Once these required checks are established, a site visit to determine the answers is appropriate. At the site the following actions, at a minimum, should be performed to complete a site review:

- ▶ Photo document existing conditions of the project site and surrounding area.
- ▶ Identify culverts, guardrail, drop inlets, visible utilities, and ancillary features, and note condition.
- ▶ Identify all structures.
- ▶ Take pertinent dimensions.
- ▶ Create a site log of field observations.

- ▶ Identify visible property boundaries / ROW limits.
- ▶ Identify visible environmental concerns.
- ▶ Identify potential traffic control alternatives / drive potential detour routes..

Document Preparation

Document preparation includes the development of engineering reports, procurement documents, and process manuals.

Written documents should be reviewed to verify:

- ▶ Does the content reflect the intent of the document?
- ▶ Are thoughts expressed clearly?
- ▶ Is text written so that it cannot be interpreted differently than intended?
- ▶ Is the grammar and spelling correct?

Preliminary Design

Preliminary design includes pertinent calculations and estimates to provide reasonable assurance that the client's objectives can be met within the constraints of the project.

- ▶ **Calculations** should be reviewed to verify:
 - Is this level of improvement what the client wants?
 - Is the typical section cost effective?
 - Have the necessary calculations been performed to establish that this roadway, bridge, etc. can be constructed with the existing constraints?
 - Has the proposed typical section type created additional constraints or impacts not originally foreseen?
 - With which applicable design standards (AASHTO, AREMA, state codes, etc.) should the project be developed in accordance?
 - Does this structure present future difficulties in maintenance and/or rehabilitation?
- ▶ **Plans** should be *checked* to verify:
 - Proposed design is accurately represented.
 - The plans are complete and correct
- ▶ **Preliminary estimate** should be *reviewed* to verify:
 - Major work items are include, correct and complete
 - Adequacy of level of detail
 - Prices used are realistic
 - Contingency values used are realistic
- ▶ **Preliminary estimate** should be *checked* to verify:
 - Completeness
 - Mathematical correctness

Final Design

Final Design calculations, plans, and special provisions are checked and reviewed prior to submittal to the client or reviewing agency. The information is checked by the design team before submittal to a senior engineer for review. Checking should include:

- ▶ **Calculations** should be checked to verify items such as:
 - Assumptions made in design
 - Correct design standards were used
 - For roadways – geometry, design speed, traffic, etc.
 - For structures - geometry, loads, codes, etc.
- ▶ **Contract Plans** should be checked to verify items such as:
 - All dimensions critical to the design are represented on the plans
 - Details shown accurately represent the proposed design
 - Does the contractor have enough information to bid & build the proposed improvements as intended and designed?
 - Can the project be built as shown on the contract plans?
 - Are all items of work clearly covered by a pay item?

Checking and Review Guidelines

Checking

- ▶ **Written Documents**
 - Written documents will be checked for formatting, completeness, and material content.
 - Following checking, the author and checker should schedule a meeting to discuss all comments and formulate a plan for addressing comments.
 - If changes are required, it will be the responsibility of the author to make the changes and transmit both the original and revised versions to the checker.
- ▶ **Calculations**
 - Calculations will be checked using copies of the originals.
 - Calculations are to be checked for design approach, mathematical accuracy, and thoroughness (are all necessary calculations present?)
 - Upon finishing the checking process, the checker and the designer should discuss significant comments, if any.
 - If changes are required, it is the designer's responsibility to immediately adjust the original calculations and re-present to the checker for final verification of changes and for the final "signing off process" (initial and dates).
- ▶ **Contract Plans**
 - All checking of contract plans should be on a PDF or print of the drawing.
 - Check Lists should be used as a tool to ensure that the required information has been included and properly shown.

- Items represented in an acceptable manner are highlighted in yellow.
- Any comments or changes are marked in the yellow/red/green color scheme to facilitate drafting of the changes.
 - Yellow—Highlighting in yellow indicates detail or information is represented in an acceptable manner
 - Red—errors, omissions, ambiguities and corrective instructions should be indicated in red.
 - Green—means delete.
 - Orange—Highlighting in orange indicates that corrective action noted in red has been incorporated and/or addressed.
- ▶ Comments and changes are discussed with the design engineer
- ▶ The design engineer (not the checker) transfers all required changes to a drawing for the drafter to make the changes.
- ▶ A history of checked drawings should be maintained by the design engineer separate from a working set (most recent set) of drawings.

Example: If a drawing is updated and re-printed, the ‘marked up’ drawing is retained with the previous versions of that drawing (latest version on top) and the new drawing is incorporated into the working set of drawings.

- ▶ The Check List provided in the appendix should be used as a tool to ensure that the required information has been included and shown properly.

Review

The review process is essentially the same as described for checking, except that because there may be long periods of time between reviews, the reviewer’s marked copies and written comments/questions should be retained in the project files until the design is complete and the documents have been accepted by the client. This will permit the reviewer to verify that the agreed upon review comments from the initial or previous review have been incorporated.

Check – Review Documentation

- ▶ Copies of the checked calculations, plans and/or comments shall be retained until the checker is satisfied that all comments are addressed.
- ▶ Client’s comments shall be checked/incorporated prior to the next submission

Data Management

This section describes in detail the established procedures for management of the various types of data required for VHB projects. They are generally consistent throughout the firm and should be followed on all projects.

Project Documentation

Overview

A complete record of all information developed during the course of a project is essential.

The information documents:

- ▶ Basis of project
- ▶ What, how, and why decisions affecting the project were made
- ▶ What review submittals were made
- ▶ When the review submittals were made

The project record consists of:

- ▶ Copy of the project proposal and the RFP
- ▶ Copy of the base contracts and amendments
- ▶ Project Schedule
- ▶ Reference data
- ▶ Project development data and correspondence

All the information shall have on the first page the job number, name, date and initials of the person performing the work. On multipage documents, subsequent pages must be labeled "Page _ of _" and all the pages shall be fastened together.

Proposals

Project proposals generally consist of an RFP (often with addenda) and VHB's response to the RFP (Proposal). A copy of the proposal shall be kept in the engineering file location and should include:

- ▶ Request for Proposal (RFP) from the Client
- ▶ Reference information on the project scope
- ▶ Notes taken at briefing meetings
- ▶ Budget estimate
- ▶ Proposal
- ▶ Field inspection notes and photographs

Contracts

Contracts include a detailed scope of work, associated fees, schedule, and Terms and Conditions.

We will proceed with a project only after the contract has been signed. If a retainer has been requested but has not been received, no work should begin.

After the Client has signed the contract, the Project Manager will open the job number and then the Project Manager will transfer all the information gathered to the project files.

Reference Data

The reference material collected should be filed by the engineers or other project professionals. Hard copies should be maintained by the discipline leader – the Task Manager or Project Engineer. This typically is found in brown accordion folders. Original drawings should be filed in flat files or in the Submissions folder in the electronic project folder.

With the extensive use of electronic filing all project information are now retained in the project number file location with folders and subfolders. This reference material, whether electronic, hard copies, or both should include, if and as available:

- ▶ Existing drawings
- ▶ As-built drawings
- ▶ Existing utility plans
- ▶ Study report and environmental data, including Scoping Studies
- ▶ Working drawings and study of alternative designs
- ▶ Geotechnical report

All reference material should exhibit the job name, VHB project number, VTrans project number, and the date received.

Correspondence

- ▶ **General:** E-mails and letters written by VHB or to VHB, transmittals, meeting notes, telephone notes, newspaper articles and other forms of documentation that relate to the project should be retained. Other than signed contracts, which must be retained as hard originals, nearly all project documentation, including correspondence is now electronic. Any hard documentation should be converted (e.g. scanned) to electronic format so that it can be filed electronically with other project documentation in the project folder/subfolders. Correspondence should contain a clear message and avoid superfluous, colloquial, or confusing language.
- ▶ **Meeting Notes:** Meeting notes are written in summary format to record the key issues of a meeting such as the following:
 - Place and date of the meeting
 - Job title and number
 - List of attendees and affiliation. An effort should be made at the meeting to obtain the correct spelling of all attendee's names
 - Key issues discussed. Record both the issue discussed and the significant points made by the attendees - both pro and con.
 - Decisions made and the effect of those decisions. Decisions are often made after prolonged and interrupted discussion. Try to have the discussion end with a summary of the major points upon which the decision was made.

- Actions to be taken, including persons responsible for completing the action and the date when they are to be completed.

Meeting notes are not “minutes” and should not be labelled as such.

- ▶ **Telephone Notes:** Telephone conversations are just another form of a meeting and should be documented. The notes should follow the guidelines described above for meeting notes.

The notes of telephone conversations that include decisions affecting the design, cost, or other major aspect of a project should be sent to all people participating in the conversation to ensure there is not disagreement or confusion.

- ▶ **Memorandum:** Memoranda are informal letters and should follow the guidelines described above for correspondence.
- ▶ **Circulation of Correspondence:** Correspondence should be e-mailed to all individuals involved in a project to promote coordination and cooperation among team members.

Filing System

The company-wide electronic and paper filing system is efficient and ensures that all project participants have immediate and continual access to all needed documentation.

Engineering information, such as plans and calculations, should be readily accessible, not just to the project engineers, but to anyone requiring access to this information.

All correspondence and engineering information should have the job number and name clearly labeled, along with the date and name of the author. Incoming material should also be date stamped.

The following is a list of files and what material should be kept in each.

Project Files

Generally, VHB keeps three separate sets of electronic documentation. Since all VHB electronic data is backed up there is a permanent retrieval system for all data and files. Accordingly the current direction is for all permanent files to be electronically stored in the project file folder. Additional paper filing is allowed but is not mandatory. The only exception is the requirement to keep an original, signed copy of the executed contract as a hard copy.

- ▶ **Correspondence/Contract Files:** Project correspondence is filed by job number in the designated project folder/subfolder.
 - Documentation folders contain the electronic copies of; letters, transmittals, memorandums, meeting notes, telephone notes, pertinent newspaper articles, field reports, and other important relevant information. E-mails are filed in the Project records subfolder.
 - Contract folders and subfolders contain contracts, amendments, and subconsultant agreements. The original, signed (hard) copies of contracts are kept by the Regional Financial Manager. Material should not be removed from these files. If necessary, copies should be made.

- ▶ **Engineering and Other Project Technical Data Files:** Technical information, record materials, reports and other non-plan information that is electronic is placed in the appropriate folder/subfolder within the project directory. Hard copies of these items can be maintained, but are not required to be for anything that is electronic, at the workspace of the Task Manager or Project Engineer. Information generally found in these files includes:
 - Record copies of reports and submissions
 - Report originals
 - Specifications
 - Calculations
 - Utility plans and data
 - Traffic and accident data
 - Prints of project photographs
 - Right-of-way information and copies of field survey
- ▶ **Plan Files:** Record sets of all plan submissions are located in the electronic project files. At the conclusion of a project it is not necessary to retain superseded plans and they should be discarded. All plan sets, whether working or at submissions, are maintained electronically.
- ▶ It is the responsibility of the Project/Task Manager to ensure that all filing is promptly updated.
- ▶ **On-Line Shared Reviews (OLSR):** VTrans uses an On-Line Shared Review (OLSR) format for completion of plan review comments. The comments are provided and VHB receives the OLSR comments electronically, generally in .PDF format. VHB utilizes an electronic marking system to ensure that each comment is addressed. The VHB comments on the VTrans OLSR plan sets are retained after dissemination between the VTrans and VHB Project Managers. The quality requirements do not change – just the format by which the information is exchanged.
- ▶ **Municipality Reviews:** VHB will submit plans to client in format requested (electronic PDF or hardcopy) comments will be reviewed and addressed. An electronic copy of comments and responses will be maintained for project records as part of the project for each submission to the client.

Closed Project Files

- ▶ **Closing out a Project:** Once a project is completed and final inspection has taken place, the project files are considered for dead filing (subject to the approval of the Project Manager). Dead files are saved for seven years, unless otherwise required by the client.
- ▶ Hard copies of closed-out project material should include only materials that are not obtainable elsewhere. All electronically available information, as well as plan information available from other sources, such as record site plans, deeds, state highway plans, and copies of survey notebook pages, should be discarded.
- ▶ A sample of other material retained includes:
 - Contract and correspondence files
 - Plan originals
 - Record calculations
 - Record copy of reports (one copy)

- Photographs (digital only)
- Record copy of submission

This procedure reduces the paperwork and increases available file space for active projects. Dead-file contents should be properly listed on a Project Closeout form and then given to the department administrative assistant for processing.

- ▶ **Retrieving a Closed File:** Dead-filed documents may be retrieved by sending a Closed Project File Request.

Computations

Overview

Engineering computations are an essential element of any design. As such, they must not only be complete and correct, but presented in a format that provides all the necessary information in a clear and concise manner – one that can be easily understood and followed by the project reviewer, checker, or any engineer. A design notebook should be established at the initiation of a project to document all design criteria used and to contain all design calculations.

Presentation Format

- ▶ Original design calculations should be three-hole punched and kept in three-ring binders.
- ▶ Standard VHB Calculations Cover.
- ▶ Table of Contents.
- ▶ List of References and Design Manuals.
- ▶ Fill out all boxes on the top of each computation sheet:
 - Put design item, e.g., Signal Design, under Title.
 - Fill out Sheet X of XX for the design item.
 - After the entire calculation book is completed, put the final sheet number on the upper right corner of the sheet. The sheet numbers on the table of contents correspond to these numbers.
 - All calculation sheets to be initialed and dated by hand by both the designer and checker.
- ▶ List assumptions at the beginning of each design item/section.
- ▶ Reference to design manual section number, table number or equation number as appropriate.
- ▶ Include photocopies of charts or tables from design code or manufacturer's catalog. Clearly label source of reference on top of the photocopies in addition to relevant project information.
- ▶ Use AASHTO (or other prevailing code) notations and symbols as much as possible.
- ▶ Use sketches to help explain design calculations and summarize design results. The design summary sketches should be detailed enough for anyone to tell what the design is without having to go through the calculations. Standard details or drawings need to not be included
- ▶ Box in the answers.
- ▶ Put date of revision below Title on the upper right hand corner of the computation sheet.

Filing

Design computations (8½” by 11”) are kept in the design notebook while the project is active. Computations are divided by subject matter, for example:

- ▶ Design Criteria
- ▶ Roadway
- ▶ Signal Design
- ▶ Utilities
- ▶ Drainage
- ▶ Bike/Ped Infrastructure
- ▶ Quantities/Cost Estimate

Worksheets that can be reduced or folded can also be kept in the notebook. Others should be kept in the engineering files.

Construction Submittal Review

Overview

Construction submittals include; RFI's, shop drawings, working drawings, detailed drawings or copies of catalog pages (catalog cuts) of manufactured items submitted by the contractor to provide detailed dimensions, design/construction intent, material information, and fabrication data. Construction submittals are reviewed to ensure that the submissions meet the general requirements of the contract documents.

Review Process

The following procedure shall be followed when reviewing construction submittals for approval on MAB projects.

- ▶ The Contractor shall submit drawings directly to the client's resident project representative (RPR), who submits them to VHB for review as appropriate.
- ▶ We will reply with written comments returning one set to the RPR within ten (10) working days of receipt of the submittal or other designated time by contract requirements.
- ▶ Communicate with the RPR after review has been completed.

Processing/Filing

- ▶ Label one copy “File Copy”:
 - Make all mark-ups on this copy:
 - Yellow—verified items.
 - Red—items to bring to the clients attention.
 - Pencil—miscellaneous comments and calculations for in-house use only.

- Bubble (in red) all red comments.
- ▶ Label one copy “Original Copy”:
 - Leave this copy unmarked, so the Project Manager has an original copy of submittal.
- ▶ If additional submittals are necessary:
 - File the “File Copy” in the Project Files. The RPR will forward any design-related questions from the contractor to us, so we will need the “File Copy” for our records
 - Send the “Original Copy” and all marked-up copies to the RPR
- ▶ If the submittal is approved and no additional submittals are required:
 - File a copy the “File Copy” in the Project files. (Note: Since all the notes to the contractor were bubbled on the “File Copy”, it will be apparent on our copy which notes were for our use only, and which notes were sent to the Contractor).
 - Send the “Original Copy”, “File copy” and all marked-up copies to the RPRr.
- ▶ Logging and Filing
 - Update “Construction Submittal Log.xls” with the project information.
 - File the VHB copy in the drawer reserved for construction submissions. Files are grouped by file type and should be filed in order of project number.

CADD

The Project CADD Leader will be responsible for the quality of the CADD related files on VHB Projects. Routine checks (audits) will be performed to identify any problems or inconsistencies as quickly as possible. These checks will be performed by the CADD Leader or designee using an automated procedure. These audits will address:

- ▶ MicroStation
 - Level Symbology
 - Project CADD File Inventory Sheets
 - File Naming
 - Reference File Attachments
 - Cell definitions and documentation
 - Plot View definition
 - Working Units
 - Adherence to VTrans Standards and Requirements

In addition, full reviews of both the plans as printed and the electronic plans by the Project Manager will be done at each submittal.

The CADD Leader will perform a minimum of two Independent Technical Reviews of the CADD related files.

Note: For more details of CADD standards see the VHB CADD manuals online documents and client specific CADD standards manuals.

Reference Material

VHB Format

VHB has established firm-wide formats for correspondence and reports. Support staff will assist setting up documents in the appropriate format. If there is a specific reason for using a different format, such as incorporating a document into the Municipality or another firm's document, this should be discussed with the Project Manager.

Other Reference Material

VHB has a robust intranet and web based system of storing and retrieving current information that is needed to execute quality work. It is the responsibility of each project participant to review this material and coordinate with the Project Manager and Task Managers regarding implementation and use of this cadre of information.



www.vhb.com

