Non-Price Proposal

Town of Belmont

April 22, 2016

Belmont Community Path Feasibility Study

www.vhb.com

April 22, 2016

Jeffrey Wheeler, Senior Planner
Office of Community Development
Homer Municipal Building
19 Moore Street
Belmont, MA 02478

Re: Non-Price Proposal for Belmont Community Path Feasibility Study

Dear Mr. Wheeler:

The Belmont Community Path promises to be an invaluable resource to the Town of Belmont and surrounding communities. Serving as a recreational resource for pedestrians and cyclists, providing accessibility for residents to town facilities and amenities, and completing a connection to regional communities and destinations are just a few of the benefits the path will bring. Through your dedicated staff, residents, and in particular the Community Path Advisory Committee and Community Path Implementation Advisory Committee, the Town has worked diligently to make this path a reality, including gaining major public acceptance and identifying viable route options. Building on all of the important work that the Town has completed to date, VHB is ready and committed to help you move forward with your plans.

VHB's experience with bicycle/pedestrian trails extends from Maine to Florida, with our projects ranging from the Blackstone River Bikeway in Massachusetts and Rhode Island to the Legacy Rail Trail in Sarasota County, Florida (a 10-mile design/build project). Our shared-use path experience in Massachusetts is especially strong, where we designed numerous signature bikeway and greenway projects such as the Watertown Greenway, Minuteman Bikeway in Bedford, Bruce Freeman Rail Trail in Sudbury, the Blackstone River Bikeway, Old Colony Rail Trail in Mansfield, Swansea bikeway, Fall River Bikepath, Mattapoisett Rail Trail, Connecticut Riverwalk in Springfield/Agawam, Norwottuck Rail Trail in Northampton, UMass Connector in Amherst, Columbia Greenway in Westfield, Shining Sea Bikepath in Falmouth, and several sections of the Cape Cod Rail Trail. As a prequalified consultant with MassDOT, VHB is also very familiar with the agency's requirements and standards, and we have a successful record of completing MassDOT-funded multiuse paths over the past 30 years.

We have worked on trails that respect historic places, trails that navigate around sensitive resources, bike/equestrian trails, rural trails that have both paved and unpaved surfaces, and urban trails. We also co-authored the Highway Design Guidebook with MassDOT and drafted the design criteria and standards for implementing bike paths, rails-to-trails, and rails with trails in the Commonwealth. For the past 20 years, VHB has built a practice around bicycle/pedestrian projects. We bring institutional knowledge and lessons learned from these past experiences to Belmont Community Path Project.

Engineers | Scientists | Planners | Designers

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But, it's more than the volume of projects that sets VHB apart:

- In 1999, VHB established a corporate-wide Bicycle/Pedestrian Team, composed of planning, environmental, design, marketing, and policy professionals in our offices from New Hampshire through Florida. These specialists are available to any VHB team in any office to advise or assist in a bicycle project.
- We are experienced planners, engineers, environmental scientists, and landscape architects who actually cycle. We use our bicycles for transportation and pleasure rides. Our core designers have completed cycling courses from the League of American Bicyclists and two of our Bike Team members, including Bill DeSantis, are League-certified cycling instructors. This on-bike experience gives VHB a unique understanding of the operating characteristics of bicycles and cyclists and how these characteristics can influence the design of a bicycle facility. This understanding goes beyond the "book solution" offered in engineering guidelines.
- We bring an unmatched local understanding. Our Watertown corporate headquarters where this project will be managed is just a few miles from the project area. In addition, several VHB staff live in Belmont, including some of our proposed project staff. We also have successfully completed projects for the Town, including the well-received Belmont Open Space and Housing Inventory and the Town's annual pavement improvement projects.
- We actively support development of trails in the communities where we live and work. VHB is a corporate sponsor of numerous trail initiatives, including the East Coast Greenway Alliance. VHB maintains full-time professional, licensed civil, environmental, structural, and traffic engineers required for this project.

The VHB Team will be led by Principal-in-Charge **Trish Domigan, PE**. Trish has led several of VHB's successful multiuse path planning and design projects in Massachusetts, including those in Watertown, Bedford, Billerica, Sudbury, and the Mass Central Rail Trail Expanded ENF (Waltham to Berlin), among others. **Niki Hastings, PE**, will serve as Project Manager. Niki has extensive experience in transportation and traffic planning, multimodal transit, and pedestrian and vehicle safety projects, including experience with MassDOT and DCR. Trish and Niki will be supported by Technical Advisor **Bill DeSantis, PE**, who has led dozens of successful multiuse path projects in the nation over the last two decades, and a highly experienced team of civil engineers, traffic engineers, and environmental scientists, all with thorough knowledge of MassDOT and municipal funding.

Our experienced team of technical professionals are ready to apply our skills and dedication to complete this exciting project. If you have any questions about this submittal, please contact Trish at pdomigan@vhb.com or (617) 607-2794. Thank you for the opportunity to submit this response, and we look forward to supporting you on this important initiative.

Sincerely,

Patricia Domigan, PE
Principal-in-Charge
pdomigan@vhb.com

William Ashworth, PE, PTOE
New England Regional Manager
washworth@vhb.com

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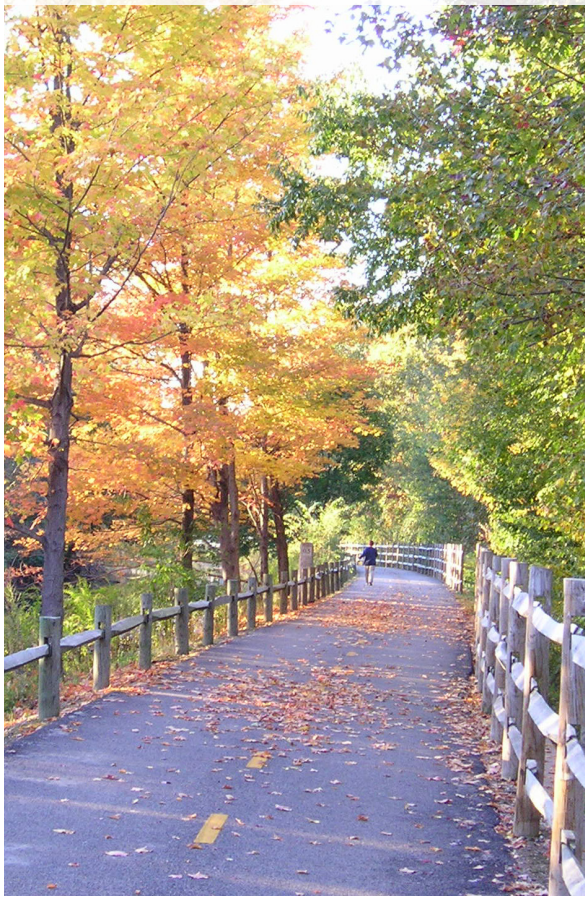

Blackstone Bikeway | Cumberland, RI

Blackstone Bikeway (Rail-with-Trail) | Lincoln, RI

1 Project Approach and Scope of Work

General Approach

Project Understanding

The Town of Belmont seeks to design, fund, and construct a community path to provide recreational opportunities for cyclists and pedestrians, walking and biking options to community locations, and a non-motorized link to other communities. Community path advisory committees have explored numerous alternatives and issued a report detailing the three most feasible alternatives. The next step is selection of a specific preferred alternative route.

Project Corridor Description

Two previously considered alternatives for the Belmont Community Path are located within the former Massachusetts Central Railroad (MCRR) right-of-way, a passenger and freight service rail line originally extending from Boston to Northampton. In Belmont, the former MCRR was adjacent to or combined with the current Fitchburg commuter rail line. The rail lines split near Beaver Street in Waltham. From Waltham west to Berlin, the Department of Conservation & Recreation (DCR) has obtained a lease from the MBTA to develop the Mass Central Rail Trail (MCRT). The project is considered a DCR priority and would contribute to the overall future vision of an extensive multi-use pathway traversing the state from west to east, specifically connecting Northampton (where the current Norwottuck Rail Trail is heavily used) to Boston. Portions of the MCRT in the central part of the corridor, between Oakham

and Sterling, Massachusetts, have already been constructed as the Wachusett Greenway. Extending the MCRT east through Belmont would provide a connection to the Alewife T station, the Minuteman Commuter Bikepath, the Alewife Greenway Path, the Cambridge Linear Path, and the Watertown Rail Trail.

VHB has been working to develop the former MCRR corridor since 2012. Working with DCR, VHB prepared an Expanded Environmental Notification Form (EENF) for conversion of the corridor from Waltham to Berlin to a shared-use path. That task involved walking the entire length of the corridor to verify the conceptual alignment of the trail, environmental resource boundaries and impacts, right-of-way encroachments, roadway crossing safety, and condition of existing bridges. In January 2014, DCR received a determination from EOEA that the project did not require further MEPA review and that EOEA would grant a waiver from the requirement to prepare a mandatory Environmental Impact Report. In addition, VHB is assisting DCR in negotiations with Eversource to include construction of a trail in the Eversource upgrade of an existing power transmission line along portions of the MCRT corridor in Weston, Wayland, and Sudbury. Finally, VHB was involved with the design to accommodate the MCRT into the redevelopment of the Polaroid site in Waltham.

Project Approach

There are significant portions of the project corridor in Belmont that provide an obvious opportunity to construct a community path. However, there are several locations where the current built environment severely restrains the room available for path construction. This is not an uncommon situation faced by many urban communities.

Through our previous work on the MCRR corridor, we have a thorough understanding of the surrounding area and the constraints and challenges of building a community path in an urban area. In addition, several members of our project team are Belmont residents. **We truly understand the challenges of this scope of work.**

VHB will bring our extensive experience and lessons learned from working with communities throughout the Commonwealth, as well as in New England and along the eastern US, to successfully design a durable and cost-effective shared-use community path that is a practicable transportation alternative for Belmont residents. The following key philosophies and principles will guide VHB in delivering a successful project:

Create a Path Sensitive to Residents

There are some residential neighborhoods and business properties that abut the railroad corridor and are immediate abutters to the path. Providing defined access points will be a key in community acceptance by controlling access and minimizing the impacts (and interactions) between the trail users and abutters. VHB has evaluated a number of conflict and interaction points.

Project Understanding: Issues and Opportunities


1 – Railroad Cut Slopes


2 – Steep Slope

3 – Clark Street Bike/Ped Bridge


4 – Belmont Station


5 – Dangerous Pedestrian Shortcut Site

8 – Existing RWT Path to Alewife Station

6 – Waverly Station

7 – Utility Corridor

8 – Existing Pedestrian Tunnel

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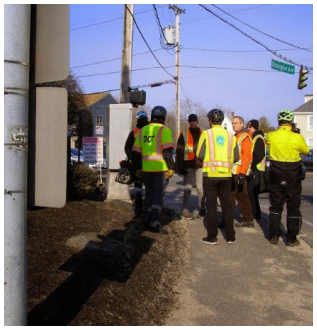
Example of a VHB-Designed Rail-with-Trail Path: Capital Trail in Richmond, VA.

Improvements Should Enhance Belmont's Sense of Place

Improved infrastructure and attractive amenities will support and increase the value of the path, however, care must be taken in the design process so that improvements highlight, frame, and enhance existing natural and community resources. The design of shared-use paths, particularly those located within a complex urban setting, requires the design and construction of a resilient and environmentally friendly path. VHB has designed numerous path projects, including several rail-with-trail projects such as the Connecticut Riverwalk in Springfield, Shining Sea Bikeway in Falmouth, Minuteman Bikeway expansion in Bedford, Blackstone River bikeway in Massachusetts and Rhode Island, and the Capital Trail in Richmond, Virginia.

Improvements Should Encourage Walking and Biking

Bicyclists and pedestrians—you see them everywhere. On downtown and neighborhood streets, at busy intersections, and along country roads and paths. People are understanding that an active lifestyle is a way to improve health, decrease obesity, reduce the risk for chronic diseases, and reduce the impacts to the natural environment. Transportation agencies are also beginning to understand this and are setting goals and performance measures to improve conditions for non-motorized travel and reduce roadway fatalities and injuries. Both federal and state agencies acknowledge that improving conditions and safety for bicycling and walking will create an integrated, intermodal transportation system that provides travelers with real choices.



VHB staff with federal, state, and local officials on field review for the Bike/Ped RSA project in Portland, ME.

With more communities encouraging and providing alternative modes of transportation, VHB established an internal Bicycle/Pedestrian (Bike/Ped) Team to focus on actions and outcomes that support these modes of transportation. The VHB Bike/Ped Team provides clients such as FHWA, FTA, state safety boards, institutional organizations, and the Transportation Research Board (TRB), with investigative studies of crashes, development of innovative countermeasures, and design of safety improvements focused on pedestrians and bicyclists as well as motor vehicles. The Bike/Ped Team will be a primary resource for this project, bringing novel techniques to the table for assessing current conditions and offering suggestions for project enhancements. Under contract with the FHWA Office of Safety, the Bike/Ped Team and VHB's Safety Team developed Road Safety Audit (RSA) Guidelines, Pedestrian Road Safety Audit Guidelines, and Prompt lists (also known as checklists), and most recently Bicycle Safety Audit Guidelines for numerous communities. We have also developed training courses that encourage designing for pedestrian and bicycle safety. These Guidelines contain detailed descriptions for design of low cost and effective improvements that address safety issues for pedestrians and bicyclists. These resources will be used to evaluate current conditions in Belmont and inform design decisions to improve conditions for all users.

Combine Infrastructure, Landscape, and Shared-use Amenities through an Integrated Approach

VHB brings an in-house integrated team of engineers, landscape architects, structural engineers, surveyors, and environmental permitting specialists with a successful track record of completing similar projects. Having the relevant services and in-house staff, allows VHB to design project elements with the entire team, and not in a vacuum, then shared with the entire team as the design advances. Our project approach involves the continual sharing

DCR's Watertown-Cambridge Greenway

of ideas between all team members in a collaborative way including VHB staff, the Town of Belmont, and the MBTA. This collaborative approach enhances and expedites design decisions and results in a well-thought-out and integrated design.

Variances

As stated on page 7 of the RFP, the non-price proposal shall have an explanation of any variances (or ambiguities) to the scope of work outlined in the RFP. We have assembled the following list of items that are included in the scope submitted as part of this proposal:

- **Bridge inspections.** As part of the evaluations considered, VHB structural engineers will complete a visual inspection of the various structures (bridges and tunnels) along the potential alignment of the bikeway.
- **Meetings.** We understand that public process and transparency is an important component to all projects, and part of the culture in the Town of Belmont. To achieve this, we are proposing a public site walk for the project, as well as a public workshop to solicit feedback from the community on the alternatives evaluated as part of the process.
- **Agency Coordination.** Based on experience on similar projects, agency involvement and coordination early on in the process is a key factor to evaluate the feasibility of a particular bikeway alignment. We propose to meet with MBTA representatives during Phase 2 to discuss the alternatives considered, and solicit feedback on the viability of the alternatives considered.

Insights

VHB approaches every project as a new and unique opportunity. We do not simply apply blanket solutions from other communities. We will build upon our knowledge and experience to move forward with the preferred alignment that is the most appropriate to meet the needs of key stakeholders and current design guidelines for shared-use paths. VHB has performed a review of the previous studies and a cursory assessment of the potential impacts to abutting properties, businesses, utilities, wetlands, and cultural resources for the three alignments. We know that abutting residents and businesses will have concerns regarding impacts of the path on their neighborhoods and businesses. As the study progresses, VHB will build upon the lessons learned from other projects to bring our collective knowledge to this project. Based on our review of the project corridor, we offer the following insights regarding the challenges of the Belmont Community Path:

Rail-with-Trail Construction

The MBTA will have significant reservations regarding increased public access to an active commuter rail corridor. Path construction cannot interrupt commuter rail service. Sections along the project corridor include areas of steep embankment and cut slopes along the railroad corridor. VHB has considerable experience designing rail-with-trail paths, having completed the study, design, and permitting of five which are currently open and in operation, including the Blackstone River Bikeway in Massachusetts and Rhode Island, Shining Sea Bikeway in Falmouth, Connecticut Riverwalk in Springfield, Norwottuck Rail Trail in Hadley, and Island Line Trail Rehabilitation in Burlington, Vermont.

Existing Railroad Corridor in Belmont

Rail-with-trail Retaining Wall Construction in Lincoln, RI

Maintaining Rail Service in Lincoln, RI

Completed Wall in Lincoln, RI

The construction of the path will most likely require use of reinforced embankments and/or retaining structures to provide clearance to the active rail and to minimize impacts to wetlands and abutting properties. Examples of the techniques and designs we have used on other rail-with-trail paths are illustrated in the photos above. These depict construction of soldier pile wall in a constrained railroad right-of-way while maintaining railroad service.

VHB inspection of structures over active rail corridor in Millbury, MA.

Inspection of structures along the railroad corridor may be needed which would require coordination with the commuter rail operations. VHB personnel have performed these types of inspections countless times and are familiar with the requirements of railroad safety procedures.

Rail-with-Trail Roadway Crossings

The project includes one rail-with-trail crossing of a roadway adjacent to the active rail line at the Brighton Street terminus of the existing Fitchburg Cut off path. This location will most likely experience an increase in bicycle and pedestrian traffic crossing the tracks to access the extend path (See photo of existing Brighton Street crossing at Cutoff Path). The crossing

Existing Brighton Street crossing at Cutoff Path

Blackstone River Bikeway, Ashton, RI

Temporary Construction Crossing Active Rail Corridor

Excavation of rail-with-trail "Hot Spot"

surfaces and signals should be checked for compatibility with increased levels of bicycle and pedestrian traffic. VHB has prepared design for numerous path/railroad crossings throughout the east coast. Our in-house rail track and signal specialists are thoroughly versed in the specifics and standards of MBTA commuter rail crossing infrastructure and operations.

Construction along the rail corridor may involve temporary crossings to permit construction access to constrained areas. Crossings will require approval by the MBTA and will most likely include restrictions regarding hours of operation, etc. Even with restrictions, our experience on other rail-with-trail projects has shown that temporary crossings can shorten construction durations and minimize overall disruption.

Contaminated Soils

Surface soils within railroad corridors most likely contain arsenic and discarded wood railroad ties which must be handled in accordance with DEP's *Best Management Practices for Controlling Exposure to Soil during the Development of Rail Trails*. The proper sequence of the excavation, testing, handling, transport, and disposal of contaminated soils is essential to prevent mixing contaminated materials with soils that can otherwise be reused. VHB has in-house certified environmental specialists that have substantial experience with developing construction procedures that comply with the appropriate environmental requirements while minimizing costs and construction durations.

Slopes & Retaining Walls along Cuts and Fills

Widening existing embankments or benching into existing cut slopes may require fills or slope reconstruction in some areas. Fills may also be needed to provide gentler grades for ADA compliance. Traditional retaining walls usually require substantial excavation and temporary support structures. VHB engineers have utilized mechanically stabilized earth (MSE) walls and reinforced soil slopes (RSS) to minimize the width of fills, construction duration, and impacts on adjacent areas.

Construction in-progress (two photos above)

Completed; Photo Taken One Year Later

Path over Sewer Line along Active Rail Corridor and River

Binney Street Cycletrack, Cambridge, MA

Complete Streets Design, Assembly Square, Somerville, MA

Potential Non-Rail Corridor Options

During our field walk, VHB staff found an existing storm/sewer line along the south side of the rail corridor from the Clark Street bike/ped bridge to the Belmont Station building. The line is located along the bottom of the railroad embankment and is offset a considerable distance from the active track.

There are some existing wetlands along this corridor but our experience on other rail-with-trail projects has shown that construction of paths for non-motorized travel built along previously disturbed corridors is seen as an enhancement by environmental review agencies.

The previous studies focused on developing an off-road bike/ped path as the majority of residents are not comfortable cycling on roadways with heavy traffic volumes. But by providing adequate facilities for all users of the roadway, including bicyclists and pedestrians of all ages and abilities, a Complete Streets approach can encourage and support non-motorized travel along a community's roadways. The emergence of Complete Streets as a sustainable approach to development of a community's transportation network provides an opportunity for Belmont to participate in the MassDOT Complete Streets funding program. This program provides funding assistance for the development of a Complete Streets prioritization plan and for construction of Complete Streets elements in a community including on-road and off-road bicycle and pedestrian improvements. VHB is currently working with MassDOT to develop a Complete Streets Guidance manual and the online funding application portal. We are thoroughly familiar with the process and funding requirements for the program. VHB has significant experience in the design and development of on-road or separated bike lanes including numerous projects in Massachusetts.

VHB also applied Complete Streets principles to the development of the MassDOT ***Project Development and Design Guidebook*** which stresses the importance of pedestrian and bicycle mobility and transit connectivity in the overall development of a community's transportation infrastructure system. We are thoroughly knowledgable of the DOT design criteria and process.

Public Participation and Community Outreach

Our staff includes some of the best facilitators of public process in the business. In fact, more than 30 VHB professionals have received training through the National Charrette Institute, which includes hands-on strategies for combining creative, intense work sessions with public workshops and open houses. This training provides our planners, engineers, and designers with the tools and techniques to prepare for and manage a successful outreach process structured to garner consensus across a wide range of stakeholders on some of the most controversial projects. We understand that community involvement is an integral part of the public planning process.

VHB has the experience to offer a custom community outreach plan that caters to the project and the Town's needs, as well as balances important planning and design goals. We have a strong record of successfully facilitating the public process, including highly contested

projects with communities throughout New England. We will work with the Town of Belmont to develop a communications strategy with easily identified and user-friendly messages for the community, using creative methods in an established time frame.

We can also provide an innovative toolbox of techniques to market the process, including outreach strategies to obtain input, educate, and disseminate information, as a means of generating interest and enthusiasm to get the community involved. VHB has a broad range of experience using communication tools and techniques to enhance the public's ability to understand key issues. Our NCI-trained staff are experienced with a variety of public outreach tools and techniques. These tools enable stakeholders to quickly develop a hands-on understanding of planning-related issues. Information and education techniques, including the use of interactive workshops, project websites, newsletters, social media such as Facebook, Twitter, and MindMixer, and questionnaires can provide many opportunities to encourage participation and disseminate information.

Scope of Work

VHB has detailed the three phases of work identified in the RFP, each with multiple tasks.

Phase 1: Review & Proposals of Concepts

Task 1: Review Prior Studies and Define Scope of Phase 2

Review Prior Studies. The first phase of this project requires VHB to review the prior studies, focusing primarily on the most recent Community Path Advisory Committee (CPAC) study. After reading through the various studies, VHB will walk the bikeway alternatives for each segment to evaluate the route. During the walk evaluation, consideration will be made for user safety, user experience and aesthetics, private and public property impacts, proximity of environmental resource areas, adjacent land use, constructability, roadway and MBTA rail crossings, complexity of design, permitting, and construction costs. Desire lines to local destinations from the path alignments will also be evaluated as part of the site walk.

Meeting with Town of Belmont. VHB will meet with the Town to present the functional advantages and disadvantages of each path alternative based on review of the previous studies and evaluation of alternatives conducted as part of the site walk. It is anticipated that this information will be presented in a summary matrix format. The outcome of the meeting will be VHB and the Town determining which segment alternative(s) will be further studied under Phase 2.

Phase II: Engineering Evaluation

Task 2: Existing Conditions and Data Collection

Compile Mapping and Utility Data. Available GIS aerial mapping will be the basis of any graphics/ concept plans. Mapping of the project area will be collected from the Town's GIS database and reviewed to develop a familiarity with the area and for use in the evaluation of alternatives. Relevant information will be collected from MBTA, MAPC, DCR, utility companies, and any other sources identified as having information. It is anticipated that the available

data collected includes USGS quad maps, construction plans for projects adjacent to this project, roadway maps, road and sewer construction plans, railroad valuation maps, aerial photographs, town layout plans, and utility plans. In constrained areas, the base mapping will be supplemented by field measurements. Photogrammetry services or field surveys and base mapping preparation are not included.

Edit of Base Mapping. An inventory of the site conditions, including water quality (aquifers, recharge areas, water supplies), freshwater wetlands, floodplains, historic resources, and structures will be performed. This information will be derived from the MassGIS database and graphically inserted into the project base mapping. The inventory of site conditions will be used in the evaluation of alternatives and construction impacts.

On-Site Project Review. An important effort under Task 2 will be field reviews of the base mapping compiled for the project. VHB will conduct field reviews to identify physical characteristics and details of the corridor. Details to be noted will include:

- Limits of roadway and rail bed cut and fill sections and ledge outcroppings
- Drainage ditches and drainage patterns
- Cross culverts
- Utilities crossing or within the roadway, railroad, or proposed path alignment
- Location of local, state, and federally owned/or operated public land and recreation areas
- Notes on current land uses of proposed path alignments
- Confirmation of GIS database limits and the types of natural resource areas

Field Inspection of Existing Structures. Based on preliminary review of the project, there is one existing steel thru-truss bridge over the active rail (Clark Street Bike/Ped bridge), one tunnel under the active rail (at Belmont Station), one stone arch railroad bridge over public roadway (at Belmont Station) and several public roadway bridges over the rail corridor, including those in Waverly Square. VHB staff will conduct a preliminary visual inspection of the major structure components of these structures to verify their general condition, need for obvious repairs, and suitability for modifications to accommodate bicycle and pedestrian traffic.

For purposes of this proposal, we anticipate one structural sketch for each structure noting the anticipated major repair/modifications needed.

Establish Existing Right-of-Way. For this study, it is anticipated that MassGIS information, tax assessor's maps, railroad valuation plans, MBTA/town layout plans and utility easement plans will be used to perform a preliminary identification of right-of-way research effort. Available maps will be collected and property and easement lines will be scaled-off and estimated on the available mapping. The primary objective of the preliminary right-of-way effort is to identify the number of parcels impacted, the parcel ownership, and approximate impact area to each parcel.

Crash/Traffic Data Analysis. Crash data will be collected and analyzed for up to five intersections along the bikeway alignment for the most recent three-year period available. Crash research will include the MassDOT crash database and town records. Since the preferred alternative for the trail has not been selected, the actual location of intersection crossings is currently unknown. We anticipate that traffic counts may be taken at up to five intersections along the project. VHB will qualitatively evaluate the potential impacts to traffic operations at these locations as a result of potential bikeway crossings.

Cultural Resources/Project Notification. In order to identify requirements for permitting process for this project, VHB cultural resources staff will review site files at the Massachusetts Historical Commission (MHC) to determine the presence of inventoried and/or designated historic properties (above-ground buildings and structures and archaeological sites) in the vicinity of the project. VHB will prepare a list of these known properties and have them mapped in GIS.

Task 3: Technical Analysis

The following factors will be included in the evaluation of the path segments identified in Phase 1: safety, aesthetic appeal, user experience, private and public property impacts, environmental resource area impacts, land use, constructability, traffic, MBTA crossings and right-of-way impact, complexity of design, and permitting. Using the data collected in Task 2 and VHB's experience with path design, the segments will be evaluated to verify the viability of design, permitting, and construction.

VHB will also evaluate the compatibility with known potential future projects and community path linkages.

The summary matrix discussed with the Town in Phase 1 will be a reference used during the selection process of the recommended trail alignment.

Meetings

- One meeting with MBTA
- One project development follow-up meeting with local officials after completion of the data collection and analysis

Task 4: Summary of Evaluations

Alternatives Evaluation. The results of the evaluation of viable segment alternatives will be presented in a tabular format for easy comparison. The compatibility with other modes of transportation, including traffic, MBTA bus service, and commuter rail services will be described. A tabular summary will illustrate how the studied alternatives "ranked" in each assessment criteria. For example, the amount of acres of impacted wetlands, numbers of structures, etc., will be tallied, and qualitative criteria such as safety considerations, visual resource considerations, and consistency with comprehensive plans (such as providing potential future local trail linkages) will be scored. VHB will advise the Town of the functional advantages and disadvantages of each segment alternative. The benefits and negative aspects of each segment's alternative(s) will be discussed with evaluations, back-up data, and a description of the employed methodology and rationale

Meetings

VHB will prepare the necessary visual aids, attend one site walk and one workshop/meeting with town officials, boards and committees, and the public at the completion of the evaluation of the alternate routes.

The success of any project lies on the strength of the communication and transparency with the community. VHB proposes to conduct one site walk with interested stakeholders to review key locations along the bikeway to discuss constraints, opportunities, and to allow the community an opportunity to fully understand the project, voice their concerns and support, and allow public officials the opportunity to respond.

VHB, in collaboration with the Town officials, will present the project to the public at one public information meeting. The meeting will focus on the project limits and the project intent, and to present alternative bikeway options.

VHB will prepare the following items to engage residents, business owners, and area stakeholders in conversations about the future vision for the bikeway:

- Vision plan for enhancements to the corridor
- PowerPoint presentation of existing conditions, design alternatives, and images of comparable places
- Sketch plans of proposed bikeway design features
- Up to five photo-simulations communicating the character of the design
- Draft and Final Agenda
- Draft and Final Handout (If applicable)

Phase III: Cost Estimates

Task 5: Construction Cost Estimates

Preliminary Comparative Probable Costs of Construction. VHB will develop estimated quantities for the major construction items required for the three alternatives, including removal of existing pavement, clear and grubbing, structures, earthwork, grading, pavement structure, drainage, bridgework, landscaping, erosion controls, and signs and pavement markings. Unit prices from MassDOT weighted average bid prices and recent bids for similar projects will be referenced when possible. A contingency factor will be included to account for miscellaneous items that cannot be determined at the Conceptual Phase.

Task 6: Draft and Final Feasibility Study

The results of the data collection, engineering evaluation, and cost estimating tasks will be summarized in a Feasibility Study. A preferred route will be identified based upon results of the design study/alternative evaluation and from input from the local community and municipal officials. Potential state, federal, and local funding sources will be included in the study. The study will justify the reasons for selection and also for discounting other less desirable alternatives. Ten copies of the Draft will be submitted to the Town for review. Upon review and acceptance ten copies of the Final Feasibility Study will be submitted prior to presentation to the Board of Selectmen.

The final report will discuss construction funding options for the Town to consider in advancing the project development. Information provided in the Feasibility Report will be adequate for application for funding for MassDOT and/or Federal Transportation Improvement Plan (TIP) funds. Specifically, the information will be adequate to complete the Project Need Form and Project Initiation Form.

Meetings

VHB will present the summary of the study and the preferred alignment at a Board of Selectmen's meeting. The presentation will focus of the study process, responses to comments, and the bikeway alignment for preferred alternative.

Staff Responsibilities and Estimated Hours

As requested in the RFP, the following table illustrates staff assigned to the tasks as outlined above and estimated hours needed.

PROPOSED STAFF	TASK 1	TASK 2	TASK 3	TASK 4	TASK 5	TASK 6
Patricia Domigan, PE Principal-in-Charge	3	–	–	16	–	21
Nicolette Hastings, PE Project Manager	39	38	44	68	20	72
William DeSantis, PE Technical Advisor	19	13	34	28	28	20
Susan Kremer, PE QA/QC	1	–	12	16	18	12
Timothy McIntosh, PE Engineering Evaluation/Shared Use	11	8	44	40	8	8
Gene Crouch Environmental Resource Evaluation	3	4	8	5	–	8
Dale Abbott, GISP GIS/Mapping	13	40	24	12	–	40
Laura Castelli, EIT Traffic	3	40	40	10	–	8
Geoffrey Morrison-Logan Public Outreach	–	8	16	12	–	–
Kristofer Kretsch, PE Structural Evaluation	3	40		5	32	8
Scott Brunner ROW/Easements | Construction Cost Estimates & Phasing	1	8	44	12	56	16
Paul McKinlay, PG, LSP Contaminated Soil	1	–	–	–	–	–
Charles Passanisi MBTA Coordination	–	–	3	–	–	–
Stephen Derdiarian, RLA, LEED AP Landscape Architecture	2	–	–	–	–	8
Nicole Benjamin-Ma Cultural Resources	–	4	–	–	–	–

Project Management

VHB's ability to successfully manage projects is based largely on the quality of our personnel. Trish and Niki will be assisted by a team of engineers, scientists, designers, and planners with diverse levels of experience and skill sets required to address each of the services areas needed for the successful bikeway feasibility study. We have learned through experience performing projects of similar size and scope that a successful management structure must:

- Assign the right leadership and key staff who are committed to the project for its duration
- Define an organizational structure on scope areas with direct lines of responsibility and communication
- Base all activities on a clear, agreed-upon understanding of the objectives of the client, the required products, the technical requirements, and the required external and internal relationships and coordination
- Be flexible to meet constantly changing demands and circumstances
- Have a clear understanding of project budget and schedule

The organizational chart in Section 3 demonstrates our management structure for this Project.

Quality Control (QC) Reviews

The quality of the product that we deliver to our clients is very important to us, and something that VHB takes very seriously. To provide a comprehensive study to the Town, VHB will perform an independent review of the documents being submitted to the Town during Phases 1, 2, and 3 using an experienced engineer and planner who is not directly involved in the preparation of the documents. The review shall focus on the evaluation ratings of the alternative alignments of the path based on the criteria established during Phase 1, and the goals and objectives of the project as defined by the Town. VHB will also provide an overall review of the corridor for conformity to the current state and federal guidance for the planning and design of bikeways.

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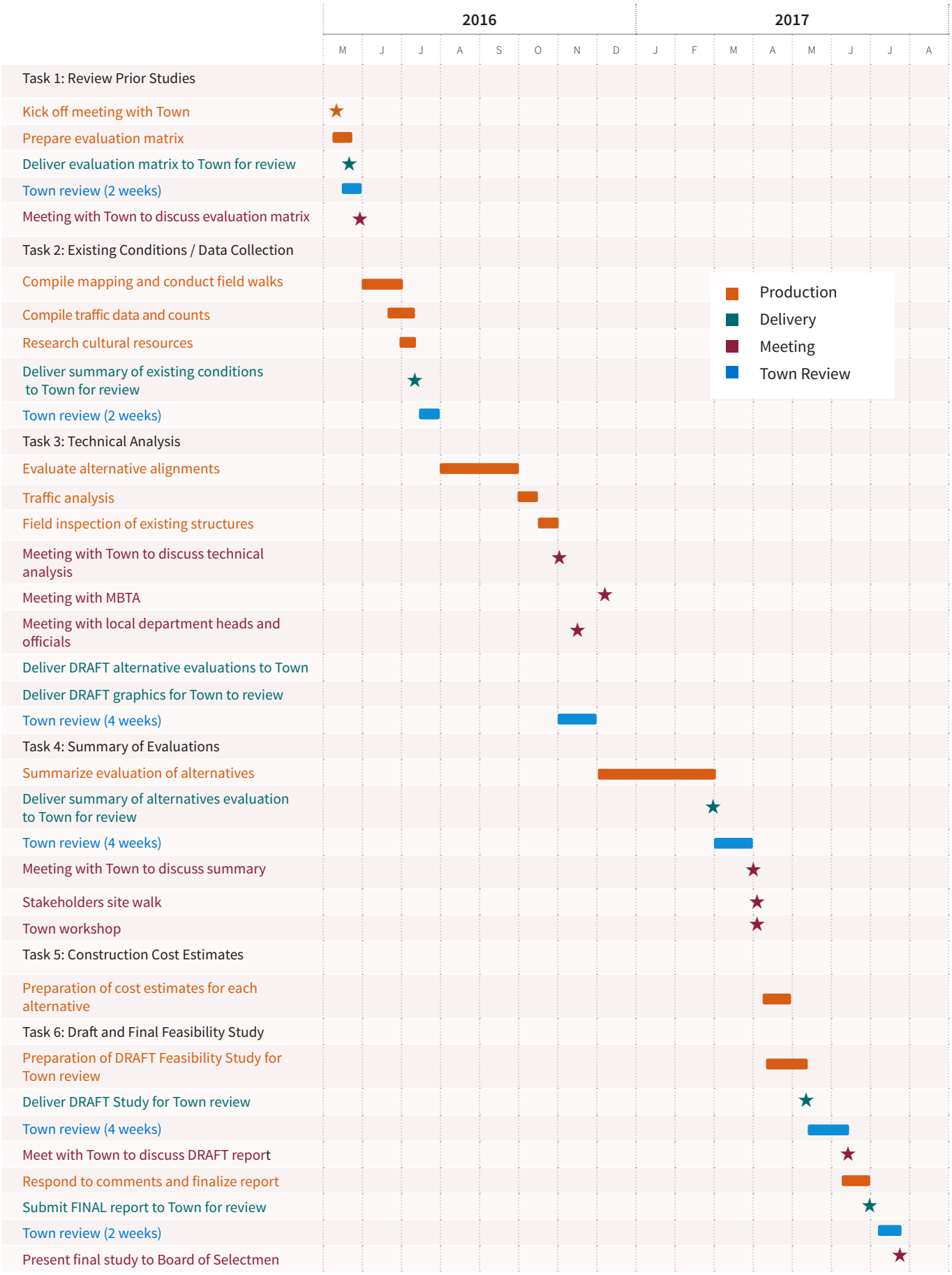
2 Project Schedule

Enhanced Path Crossing | Burlington, VT

2

Schedule

VHB's proposed project schedule is provided on the following page. For more details on staff roles, please refer to the table on page 14.


2016
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Task 1: Review Prior Studies
Kick off meeting with Town
Prepare evaluation matrix
Deliver evaluation matrix to Town for review
Town review (2 weeks)
Meeting with Town to discuss evaluation matrix
Task 2: Existing Conditions / Data Collection
Compile mapping and conduct field walks
Compile traffic data and counts
Research cultural resources
Deliver summary of existing conditions to Town for review
Town review (2 weeks)
Task 3: Technical Analysis
Evaluate alternative alignments
Traffic analysis
Field inspection of existing structures
Meeting with Town to discuss technical analysis
Meeting with MBTA
Meeting with local department heads and officials
Deliver DRAFT alternative evaluations to Town
Deliver DRAFT graphics for Town to review
Town review (4 weeks)
Task 4: Summary of Evaluations
Summarize evaluation of alternatives
Deliver summary of alternatives evaluation to Town for review
Town review (4 weeks)
Meeting with Town to discuss summary
Stakeholders site walk
Town workshop
Task 5: Construction Cost Estimates
Preparation of cost estimates for each alternative
Task 6: Draft and Final Feasibility Study
Preparation of DRAFT Feasibility Study for Town review
Deliver DRAFT Study for Town review
Town review (4 weeks)
Meet with Town to discuss DRAFT report
Respond to comments and finalize report
Submit FINAL report to Town for review
Town review (2 weeks)
Present final study to Board of Selectmen
Production
Delivery
Meeting
Town Review

3 Project Team

Shining Sea Bikeway (Rail-with-Trail) | Falmouth, MA

Stakeholders Field Review Meeting | Uxbridge, MA

3

Project Team

VHB has assembled a team with long-term experience and an in-depth understanding of path planning, design, landscape architecture, and environmental permitting, as well as bikeway standards. The VHB Team, led by Principal-in-Charge **Trish Domigan, PE**, offers specific experience working on a variety of bikeways, multiuse paths and greenways, and the unique challenges involved when these paths run through municipalities and residential areas.

Trish has led several of VHB's successful multiuse path planning and design projects in Massachusetts, including those in Watertown, Billerica, Sudbury, and the Mass Central Rail Trail Expanded ENF (Waltham to Berlin), among others. **Niki Hastings, PE**, will serve as Project Manager. Niki has extensive experience in transportation and traffic planning, multimodal transit, and pedestrian and vehicle safety projects, including experience with MassDOT and DCR. Trish and Niki will be supported by Technical Advisor **Bill DeSantis, PE**, who has led dozens of successful multiuse path projects in the nation over the last two decades, and a highly experienced team of civil engineers, traffic engineers, and environmental scientists, all with thorough knowledge of MassDOT and municipal funding.

This in-house team offer a mix of skills—from bikeway design and survey to environmental, wetlands, and cultural resources—tailored to meet your goals. The professionals that will be assigned to this project bring experience from similar efforts across New England that will be leveraged to provide the full range of necessary services to complete the services needed to move the Belmont Community Path project forward. In addition, VHB is able to draw upon the resource of more than 1,100 technical staff companywide, should the need arise.

Below is the organizational chart followed by short biographies of team members. Full resumes are included at the end of the proposal in an Appendix A—Resumes.

Team Organizational Chart

Town of Belmont

Principal-in-Charge
Trish Domigan, PE
Billing Rate: $228

Technical Advisor
Bill DeSantis, PE
Billing Rate: $211

Project Manager
Nicolette Hastings, PE
Billing Rate: $131

QA/QC
Susan Kremer, PE, ENV SP
Billing Rate: $216

KEY STAFF

Engineering Evaluation Shared Use
Tim McIntosh, PE
Billing Rate: $175

Environmental Resource Evaluation
Gene Crouch
Billing Rate: $146

GIS/Mapping
Dale Abbott, GISP
Billing Rate: $110

Traffic
*Laura Castelli, EIT
Billing Rate: $156

SUPPORT SERVICES

Public Outreach
Geoffrey Morrison-Logan
Billing Rate: $210

Structural Evaluation
Kristopher Kretsch, PE
Billing Rate: $164

Strategic Project Permitting
*Elizabeth Grob
Billing Rate: $225

ROW/Easements
Scott Brunner, EIT
Billing Rate: $103

Construction Cost Estimates & Phasing
Scott Brunner, EIT
Billing Rate: $103

Contaminated Soil
Paul McKinlay, PG, LSP
Billing Rate: $180

MBTA Coordination
Charlie Passanisi
Billing Rate: $175

Landscape Architecture
Stephen Derdiarian, RLA, LEED AP
Billing Rate: $173

Cultural Resources
Nicole Benjamin-Ma
Billing Rate: $86

***Belmont Resident**

Capacity

The VHB Team commits to providing the time and attention of each key staff member, as well as all the necessary support personnel, that is required to complete this project efficiently and to the expectations of the Town. We have reviewed of our team's current workload and it shows proposed staff are available to begin this project immediately. The schedule presented in section 2 accommodates our workload and allocates staff resources appropriately.

Staff Summary Qualifications

Patricia Domigan, PE

Principal-in-Charge | 29 years of professional experience

Trish serves as VHB's Director of Massachusetts Municipal Services. She is well-versed in helping communities apply for state and federal grants for the design and construction of infrastructure projects, planning projects, and infrastructure design development. She brings extensive experience working on a variety of bikeways, multiuse paths, and greenways, and the unique challenges involved when these paths run through municipalities and residential areas. Trish has led several successful multiuse path planning and design projects in Massachusetts, including those in Watertown, Billerica, Sudbury, Bedford, and the Mass Central Rail Trail Expanded ENF (Waltham to Berlin), among others. She also has performed extensive bikeway feasibility studies and design for DCR, including the Blackstone River Greenway from Blackstone to Uxbridge.

Nicolette Hastings, PE

Project Manager | 15 years of professional experience

Niki is a Project Manager with diverse experience for public and private clients. Her work, which has encompassed urban and suburban environments, as well as institutions and campuses, has included transportation impacts, pedestrian and vehicle safety, parking, multimodal transit, and permitting. Relevant experience includes performing transportation planning for the Soldiers Field Road Crossing Study in Allston, Harvard University Allston Master Plan, and various projects for MassDOT and DCR.

William DeSantis, PE

Technical Advisor| 39 years of professional experience

Highly experienced in bikeway and roadway design, 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 US, he has an active role in the planning, design and construction of bicycle facilities in 11 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 member of the Blackstone River Bikeway Patrol, and a bicycle commuter.

Susan Kremer, PE, ENV SP

QA/QC | 26 years of professional experience

As the Chief Highway Engineer in VHB's Watertown Transportation Engineering Group, Susan's primary responsibility is quality assurance and quality control (QA/QC) for path, roadway, and bridge projects in Massachusetts. This includes reviewing projects for technical quality, completeness, and conformance with federal, state, and local standards, including AASHTO and Massachusetts Department of Transportation (MassDOT) design guidelines. In addition, Susan is responsible for development of periodic in-house technical training seminars to educate engineering staff on design methods, updates to MassDOT design directives, and changes to national design policy.

Timothy McIntosh, PE

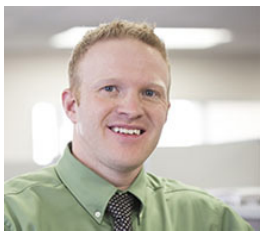
Engineering Evaluation/Shared Use | 28 years of professional experience

Tim is a Senior Project Manager with VHB's Transportation Engineering Department. He has worked with MassDOT, municipalities, and private developers across eastern Massachusetts and especially within MassDOT's Districts 4, 5 and 6 areas, bringing his extensive experience in the design of transportation projects for interchanges and primary, secondary, and urban roadways. Several of his projects have included the design of bicycle accommodation concepts, including separated bicycle lanes. Tim knows the Town of Belmont well, through is work on two construction projects for the rehabilitation of 34 roadways in town, where he oversaw survey, pavement management, and engineering services, including wheelchair ramp layout, construction detail, and specification preparation.

Gene Crouch

Environmental Resource Evaluation | 41 years of professional experience

A Senior Wetland Ecologist and an Associate at VHB, Gene is experienced in fresh and marine wetland ecology, research, permitting, environmental documentation preparation, and reporting. He has a thorough knowledge of federal environmental legislation and regulations, which he gained through previous experience with the U.S. Army Corps of Engineers, the National Marine Fisheries Services, and the U.S. Fish and Wildlife Service and federal Section 10/404 permits.



Dale Abbott, GISP

GIS/Mapping | 13 years of professional experience

Dale is GIS Specialist with extensive experience and skills in the application of GIS technology for natural resources protection, transportation planning, and municipal government. His areas of specialization include data development, data modeling, analysis, and cartographic presentation. He is also an expert in mobile data collection efforts utilizing Global Positioning Systems (GPS) technology to create custom data collection forms using a variety of software packages. He has provided GIS mapping oversight on several rail trail and greenway projects throughout New England.

Laura Castelli, EIT

Traffic | 17 years of professional experience

Laura, a Belmont resident, is a Project Manager with experience focused on corridor studies, multimodal transportation plans, and developing sustainable, multimodal transportation improvement programs and Complete Streets conceptual improvements. She has extensive experience with public agencies at the municipal, state, and federal levels and with public outreach. Relevant experience includes managing the South Boston Waterfront Sustainable Transportation Plan and supporting the Yankee Doodle Bike Path feasibility study with the preparation of a Project Need Form (PNF) and Project Initiation Form (PIF) for submission to MassDOT.

Geoffrey Morrison-Logan

Public Outreach | 21 years of professional experience

Geoffrey has diverse and extensive experience in land use planning, urban design, and community outreach. He has managed a wide variety of projects for both public and private sector clients, including corridor studies, master plans, downtown plans, mixed-use development, and complete streets efforts. Much of this work has involved leading projects through the community process while building a shared vision and consensus. His local experience includes assisting with the preparation of an inventory and an evaluation ranking criteria for existing and potential open space and affordable housing lands in Belmont to allow the Town to strategize the acquisition, preservation, and development of land for open space or affordable housing. Geoffrey also led the public outreach component and community-based vision for the master plan for the Town of Watertown.

Kristofer Kretsch, PE, NBIS, ENV SP

Structural Evaluation | 27 years of professional experience

Kris is a Senior Structural Engineer with diverse experience in bridge engineering and construction that includes inspection, rating, analysis, and design for highway and railroad structures. Additional responsibilities have included seismic analysis of bridges, structural analysis and design for tunnels, buildings, earth retention systems, sign support structures, and mast arm installations.

Elizabeth Grob

Strategic Project Permitting | 27 years of professional experience

Elizabeth, a Belmont resident, is VHB's Director of Urban Permitting Services. She is responsible for project management and preparation of environmental documentation pursuant to the Massachusetts Environmental Policy Act (MEPA), Article 80 of the City of Boston's Zoning Code, and Chapter 91 licensing and technical analysis. She specializes in the management of permitting efforts for large and complicated development projects, and manages a team of experienced permitting professionals, and is known for seeing the big picture while being able to keep an eye on the details. She has managed several projects that required close coordination with the MBTA and DCR.

Scott Brunner

ROW/Easements | Construction Cost Estimates & Phasing | 11 years of professional experience

Scott is a member of VHB's Transportation Group in Watertown. He performs various tasks for roadway projects for state and municipal agencies that include preliminary and final right-of-way plans, conceptual estimates, and ADA-compliant designs.

Paul McKinlay, PG, LSP

Contaminated Soil | 19 years of professional experience

Paul has worked throughout New England. His experience includes all aspects of site investigation and remediation including project design, implementation, and documentation/certification to complete regulatory requirements. He has directed and managed numerous hazardous material and petroleum release sites with varying levels of complexity requiring assessment, containment, and remediation. Paul has extensive

Charles Passanisi

MBTA Coordination | 31 years of professional experience

Charlie is a Senior Project Manager with VHB Transit & Rail. His expertise is in project controls, budget, and finance management. Charles joined VHB from the Massachusetts Bay Transportation Authority (MBTA), where his 20+-year tenure was completed in the role of Deputy Director of Budget-Capital. For the last 10 years of his service he was heavily involved in management of the MBTA's Federal grants administration.

Stephen Derdiarian, RLA, LEED AP

Landscape Architecture | 38 years of professional experience

Steve is Director of Landscape Architecture Design and an urban designer at VHB. His experience involves diverse projects throughout New England for both public and private-sector clients that encompass health and academic institutions, corporate campuses, municipal neighborhoods and town centers, parks, streetscape amenities, and traffic control design techniques for transportation projects.

Nicole Benjamin-Ma

Cultural Resources | 6 years of professional experience

Nicole is a Preservation Planner with knowledge of architectural history and local, state, and federal historic compliance regulations. Nicole, who meets the Secretary of the Interior's Professional Qualification Standards for Architectural Historian (36 CFR 61), has worked with both public agencies and private developers to help them comply with permitting requirements and other project historical needs.

4 Relevant Experience

Providence Commuter Rail Station Intermodal Improvements

Washington Bridge Bike/Ped Conversion | Providence, RI

Founded in
1979

1,100 passionate professionals
including engineers, scientists, planners, and designers

23 offices
throughout the east coast

72nd on ENR
Top US Design Firms List

Relevant Experience

About VHB

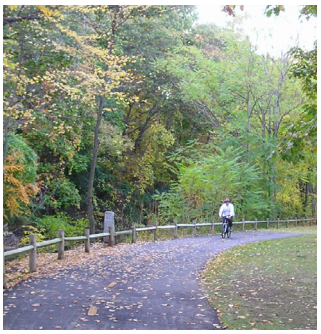
VHB is one of New England's leading providers of integrated transportation, land development, and environmental services. Our staff includes designers; planners; civil, transportation, and environmental engineers; landscape architects; environmental scientists; and regulatory and permitting strategists. Our in-house technical professionals work closely with our planners to provide detailed analyses so that proposed pathway and development scenarios are based on contextual realities. By integrating our service offerings and establishing dedicated, strategic project teams, we quickly achieve a deep understanding of each unique client, project, and community and turn that understanding into context-driven, implementable solutions for our clients. We enjoy our work, love meeting a challenge, and are passionate about our projects.

Bicycle and Pedestrian Services

VHB's bicycle/pedestrian specialists deliver creative and cost-effective solutions. We work with our clients to maximize the use of limited funds to design environmentally sensitive and sustainable projects. We understand that with the right design, a community bike path can serve as a recreational resource, a scenic park, an educational setting, a commuting corridor, and a link between varied destinations. We also understand the importance of community consensus and involve stakeholders early on to benefit the project.

Our experienced technical staff actually cycle, and include League of American Bicyclists certified instructors. We use our bicycles for utility transportation and pleasure rides, and we understand what makes a path welcoming, enjoyable, and accessible to a full spectrum of users.

VHB's experience planning and designing bicycle and pedestrian projects spans the east coast, and includes multimodal transportation networks, pedestrian streetscape enhancements, greenways, and riverwalks. Long before "context-sensitive design" became an industry buzzword, VHB was developing trail projects that preserved each community's unique identity and heritage while adhering to critical elements of accepted design standards for public safety. We take the lessons learned from these years of experience and myriad projects, and apply them to improve our future assignments.



VHB has a long and successful history providing design and permitting services for bike paths. Some examples include(left to right) the Watertown-Cambridge Greenway, Mass Central Rail Trail, and Blackstone River Greenway.

When a project combines bicycle paths, bridges, roads, and other infrastructure systems, VHB anticipates and plans for the needs and interfaces of the various transportation modes. Trails are designed to avoid conflicts between cyclists and traffic; sight lines will be clear for all travelers; and cyclists at intersections will see signs and pavement markings that direct them to proper places to cross. VHB's record of success demonstrates our focus on designs that are practical, fundable, and buildable.

Our bicycle and pedestrian path services include:

- Bikeway planning/design
- Access enhancements
- Community involvement
- Public outreach and consensus building
- Facility design
- Funding assistance
- Historic restoration and preservation
- Landscape design
- Site planning and design
- Traffic planning and design
- Environmental permitting
- Hazardous waste management
- Pedestrian accommodation
- Land survey/GIS
- Land use planning
- Parking
- Transit & rail planning and engineering
- Bridge/Structural engineering
- Transportation planning and engineering
- Pavement management
- Construction services
- Air quality/noise

Massachusetts Bike/Trail Planning/Design Projects Experience

VHB has a proud history of working with clients to help them envision, plan, design, and enhance multiuse bicycle/pedestrian paths that run through their cities and towns. The VHB team brings a broad range of experience gleaned on multiple bicycle/pedestrian path projects, including feasibility planning, trail planning and design, pathway and drainage design, environmental permitting, landscape architecture and wayfinding, surveying, and more. The following table represents a sampling of VHB's multiuse trail project experience.

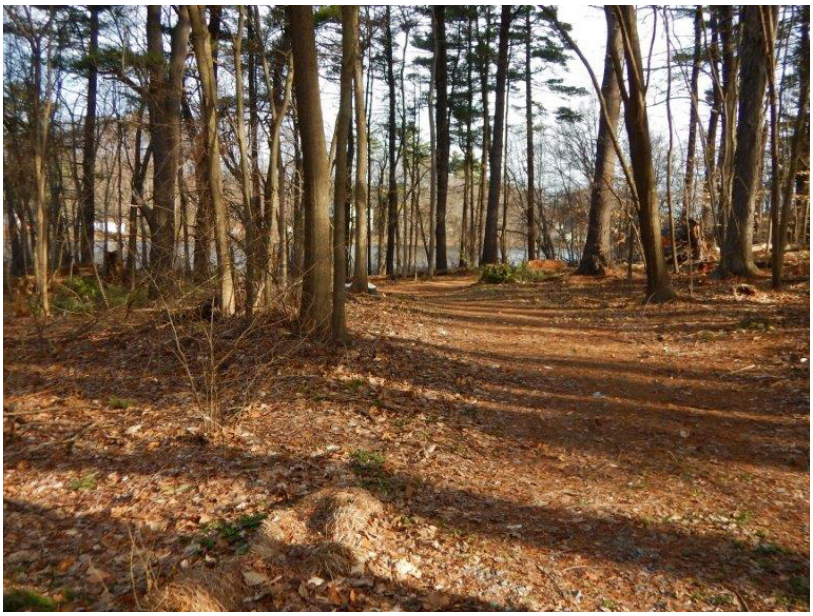
PROJECT	LOCATION	LENGTH (MILES)	CHALLENGES
Statewide Bicycle Transportation Plan	Massachusetts	N/A	Interagency coordination, public involvement
Ashuwillticook Rail Trail	Adams and North Adams, MA	2.5	Environmental permitting and alternatives analysis with multiple bridge structures
Amherst/UMass Bikeway Connector	Amherst, MA	2	Community acceptance, right-of-way, coordination to meet existing path
Norwottuck Rail Trail	Amherst, Northampton, Hadley, MA	9	Community acceptance, multiuse, bridges
Cape Cod Rail Trail (CCRT)	Barnstable, MA	6	Conceptual planning studies
Blackstone River Greenway	Blackstone to Uxbridge, MA	3	Rail-to-trail conversion
Yankee Doodle Bike Path	Billerica/Bedford, MA	7.5	Major highway crossing, abutter concerns, stormwater management
Cape Cod East-West Bikeway Rail with Trail	Bourne to Dennis, MA	23	Co-existence of a trail with an active railroad
Route 6A Bicycle Accommodation Study	Bourne to Orleans, MA	35	Strategies to accommodate bicycles on scenic byway
Harvard University, Memorial Hall Transportation Study	Cambridge, MA	NA	Pedestrian, bicycle, vehicular conflicts
Bicycle Feasibility Study	Cape Cod, MA	N/A	Regional and local connections, extension of existing rail trail, cost estimating, funding
Chicopee River Bikeway	Chicopee, MA	5	Safety, coordination with other paths
Route 134	Dennis, MA	1	Major highway crossing
Cape Cod Rail Trail (CCRT)	Dennis/Yarmouth, MA	5.2	Bass River crossing
Gages Way Bikeway	Dennis, MA	1	Grade separation, land use, residential impacts
Quequechan River Regional Bicycle Path	Fall River, MA	2.5	Structure design, historic issues
Shining Sea Bikeway	Falmouth, MA	10	Environmental constraints
Old Colony Multipurpose Trail	Mansfield/Norton, MA	6	Equestrian usage
Mattapoisett Bikepath	Mattapoisett, MA	4.7	Sensitive Control Area

PROJECT	LOCATION	LENGTH (MILES)	CHALLENGES
Bartlett Road Bicycle Path	Nantucket, MA	.5	Right-of-way constraints
Cliff Road Bicycle Path	Nantucket, MA	1	Rolling terrain
Madaket Bicycle Path	Nantucket, MA	5.2	Community acceptance, right-of-way, and multiuse
Polpis Road Bicycle Path	Nantucket, MA	8.1	Wetlands, archaeological resources, community acceptance
Surfside Road Bicycle Path Extension	Nantucket, MA	0.5	Multiuse, residential impact
Minuteman Bikeway Extension	Bedford, MA	2	Multiuse, residential impact
Nantucket Bicycle and Pedestrian Master Plan	Nantucket, MA	N/A	In-town bikeway system
Orange-Athol Shared Roadway Bikeway	Orange-Athol, MA	2.3	Multi-community
Connecticut Riverwalk and Bikeway	Springfield, Agawam, Chicopee, MA		Scenic integrity, wetlands
Bruce Freeman Rail Trail	Sudbury, MA	4.6	Wetlands, archaeological resources, community acceptance
Swansea Bicycle Path	Swansea, MA	8	MassDOT design compatibility
Watertown Greenway	Watertown, MA	1	Coordination with other transportation improvements and access to the path by abutters
Columbia River Greenway	Westfield, MA	3.2	Safety through downtown, multiple bridge structures
North Dennis Road Bicycle Path	Yarmouth, MA	2.1	Environmental constraints
Yarmouth Regional Bicycle Path	Yarmouth, MA	6	Right-of-way constraints

Project Examples

The VHB Team has the right combination of skills and experience in the planning and design of multiuse paths required by the Town. The following pages include selected projects directly relevant to Belmont's goals and demonstrate our proven record of project success. These projects demonstrate that the VHB Team has the required engineering design skill and technical competence to move your project forward and turn your vision into reality.

In addition, VHB was chosen to revise MassDOT's Highway Design Manual as a *Project Development and Design Guidebook*. The 2006 guidebook, which regulates the design of roads, highways, and other transportation routes in the Commonwealth, was revised to include a broader range of multimodal transport, as well as incorporate context-sensitive design and public input. When it comes to the creation of bicycle paths in Massachusetts, VHB wrote the book.



Yankee Doodle Bike Path

Billerica, Massachusetts

Client
Town of Billerica

Status
Ongoing

Relevance

- Alternatives Analysis conducted to select preferred path
- Development of PIF
- Design compliance with MassDOT standards and guidelines

The Town of Billerica retained VHB to assist in the planning and design of the Yankee Doodle Bike Path—a 2.5-mile recreational multiuse path that will connect educational, recreational, and conservation areas in the southern portion of the Town. To accomplish the Town's vision for this path, VHB conducted an Alternatives Analysis at three locations along the corridor to evaluate various path alignments and develop a draft report for the Billerica Bikeway Committee to use as a tool to select a preferred path alignment and advance to 25% design and submission to MassDOT.

In addition to the Alternatives Analysis study, VHB provided environmental permitting, wetland delineation, preliminary design, right-of-way, traffic management, and public outreach planning and facilitation. In addition, we prepared the Project Initiation Form (PIF) for submission to MassDOT to seek construction funding for the project. 25% design is currently in progress.

Mass Central Rail Trail Expanded ENF

Waltham to Berlin, Massachusetts

Client
Department of Conservation & Recreation (DCR)

Status
Completed 2014

Relevance
- Conceptual planning to determine feasibility
- Experience working with DCR
- EENF preparation, including an EIR waiver

The Mass Central Rail Trail (MCRT) is a planned 104-mile multiuse corridor that would connect 24 communities across Massachusetts, running an east-west route from Boston to Northampton.

To support DCR efforts to plan the rail trail, VHB led a team that prepared an Expanded Environmental Notification Form (EENF) for a 23-mile stretch of the trail corridor, extending through seven communities from the City of Waltham to the Town of Berlin. This section of the MCRT is a critical component of the Commonwealth's trail system, with potential future connections to the Minuteman Bikeway, the Assabet River Greenway, the Bay Circuit Trail, and the Bruce Freeman Rail Trail.

Specific tasks VHB led included conceptual horizontal and vertical alignment of the proposed rail trail, research and field reconnaissance, environmental resource area boundary determination, environmental impact quantification, cultural resource and historic evaluation, right-of-way research, endangered species review, and preparation of an EENF, including an Environmental Impact Report waiver/Phase I waiver.

VHB evaluated the construction of a multiuse trail in terms of construction costs, environmental impacts, right-of-way, and construction phasing, and prepared an Expanded Environmental Impact Report that DCR submitted to MEPA.

Designing and Planning Segment 1 of the Blackstone River Greenway

Blackstone, Millville, and Uxbridge, Massachusetts

Client
Department of Conservation & Recreation (DCR)

Status
Construction Ongoing

Relevance
- Rail-with-trail
- Trail sections through downtown areas
- Includes several bridges
- Experience working with DCR

Segment 1 of the Blackstone River Greenway is a complex section of abandoned railway that DCR wants to transform into a vibrant bikeway for recreation and transportation. The planned 4.15-mile multi-use trail runs from the Rhode Island state border to Route 146A in Uxbridge, MA. The Greenway will be a paved recreational trail along a former rail line, the Southern New England Trunk Trail (SNETT) and travels through a mix of downtown areas and natural settings, including eleven bridges and several trailhead/parking areas. Several bridges have been placed on the National Historic Register. The Greenway is being designed to take advantage of existing features, such as natural views, historic locations, railroad infrastructure, and notable town buildings and destinations. Several alternatives to connect to the planned Rhode Island section of the bikeway were also developed.

To achieve its goals, the DCR chose a team led by VHB to create a design that maximizes available funding and focuses on constructability. This team provided survey, trail design and engineering, structural design, landscape architecture, historic interpretation, and environmental permitting services. Coordination with the P&WRR for trail construction along an active rail line was completed.

Design, permitting, and right-of-way efforts were completed in two years. Three construction contracts were issued for historic bridge rehabilitation, trail construction, landscaping, and interpretive signing.

Designing and Planning of the Blackstone River Greenway—Segment 7

Worcester, Massachusetts

Client
City of Worcester

Status
Ongoing

Relevance
- Conceptual planning and design to determine feasibility of chosen route
- Design compliance with MassDOT standards and guidelines

Located in an urban area, primarily along city streets, Segment 7 of the Blackstone River Bikeway (BRBW) was initially identified in a feasibility study prepared in 1996 with the objective of establishing a facility that separates bicyclists from motor vehicles.

VHB is part of a team chosen by the City of Worcester to develop a conceptual plan for roadway, bridge, and intersection improvements to support the implementation of Segment 7 of the BRBW, based on a basic route previously established as part of an EENF and subsequent revisions as part of an Environmental Impact Report.

The design finalized the route of the bikeway and included cross-section details to integrate a separate bicycle facility within an existing urban roadway network. This design blended the vision of a bikeway with the function of a transportation safety improvement project.

Based on the approved concept plan, the project was be advanced into Preliminary and Final Design for construction by MassDOT. It is currently at the 75%-design stage.

Designing and Planning the Blackstone River Bikeway

Blackstone River Valley, Rhode Island

Client
Rhode Island Department of Environmental Management (RIDEM)

Rhode Island Department of Transportation (RIDOT)

Status
Ongoing

Relevance
- Planning and design through various terrains and settings
- Extensive right-of-way coordination
- Rail-with-trail

The Blackstone River Bikeway, currently under construction in Rhode Island, is a 17-mile scenic multiuse trail through historic urban areas. Ultimately, it will extend 48 miles between Providence and Worcester, linking many of the Blackstone Valley's significant historic features.

VHB developed innovative plans for creating the bikeway over the course of the project, which began in 1993. The bikeway traverses varied terrains including through sensitive wetlands on a boardwalk, through urban and industrial areas, along an active railroad, and across a dam. Other challenges included the mitigation of contaminated soils on EPA Superfund sites. An active railroad required design of rail grade crossings. VHB's experience in context-sensitive design enabled the construction of bikeway segments on the original historic 1830 Blackstone Canal towpath and through historic mill districts. VHB professionals served as technical guides, successfully bringing the design through substantive technical reviews and right-of-way coordination to achieve consensus from RIDOT, RIDEM, the National Park Service, and several state and federal agencies. VHB also participated in the permitting, design, and construction of the bikeway.

The project is an integral feature of the Blackstone River Valley National Heritage Corridor under the auspices of the National Park Service. In 2002, the project was awarded the American Trails National Planning and Design Award.

Twelve miles of bikeway including five crossings of the Blackstone River and 5+ miles of rail-with-trail have been built. Final design and permitting for the connection to Massachusetts are underway.

Charles River/Alewife Connector Multi-use Path

Watertown, Massachusetts

Client
Department of Conservation & Recreation (DCR)

Status
Completed 2012

Relevance
- Rail-with-trail
- Design compliance with MassDOT standards and guidelines
- Experience working with DCR
- Assistance with funding
- EENF preparation

The Charles River/Alewife Connector multi-use path extends approximately 0.7 miles along the former Boston & Maine railroad corridor. This path is the first phase of a rail-to-trail project to link the Upper Charles River trail to Fresh Pond, and ultimately to the Minuteman Bikeway in Cambridge. This section is a 10-foot wide paved path that begins at School Street and ends at the Arlington Street intersection with Nichols Avenue in Watertown.

DCR selected VHB to provide design and environmental services for this project. VHB prepared the base plans, preliminary, and final design plans in accordance with state and federal standards. VHB also supported DCR by presenting the project to interested volunteer groups, including the Watertown Bike Committee and the Metropolitan Area Planning Council Enhancement Steering Committee. VHB also completed the Environmental Notification Form for submittal to the Executive Office of Environmental Affairs, MEPA Office. Additionally, VHB prepared grant applications for DCR to submit for federal enhancement funds.

Watertown-Cambridge Greenway—Phase II

Watertown and Cambridge, Massachusetts

Client
Department of Conservation & Recreation (DCR)

Status
Ongoing

Relevance
- Rail-with-trail
- Design compliance with MassDOT standards and guidelines
- Experience working with DCR
- Assistance with funding
- EENF preparation

DCR selected VHB to design 5,600 linear feet of greenway, so that it can be constructed on land owned by both DCR and City of Cambridge along the former Boston & Maine right-of-way. The Watertown-Cambridge Greenway Phase II is a vital link in the regional bikeway network. The construction of this segment signifies the completion of an important regional connection linking the Charles River path system, the Minuteman Bikeway, the Alewife Greenway, and the Mystic River Reservation into an interconnected off-road pathway network.

The right-of-way has been physically abandoned for some time, but the steel rails and wood railroad ties remain in place throughout most of the right-of-way within the project limits. Historic use of rail beds involved the use of oil and coal to power trains and the use of pesticides (such as lead arsenate) to manage vegetation. These chemicals have been associated with normal railroad operations and are likely to be found along the corridor. The project will incorporate MassDEP's best management practices to address the potential exposure to contaminated soil by capping the soil in place with pavement and shoulder landscaping.

The proposed greenway crosses roadways at two locations—Nichols Avenue/Arlington Street and Cottage Street. The Cottage Street crossing is shorter and experiences a significantly lower volume of traffic than Arlington Street, but presents its own challenges. Each of these locations will be field reviewed to identify the appropriate improvements necessary to provide safe crossings and access in accordance with the Manual of Uniform Traffic Control Devices (MUTCD). VHB will evaluate roadway and trail geometry, intersection sight distances, grades, and roadway traffic volumes and speeds to assess each location for both trail users and motorists. Working with the DCR, VHB will develop recommendations for the DCR to consider and incorporate the preferred recommendation into the design.

Bruce Freeman Rail Trail

Sudbury, Massachusetts

Client
Town of Sudbury

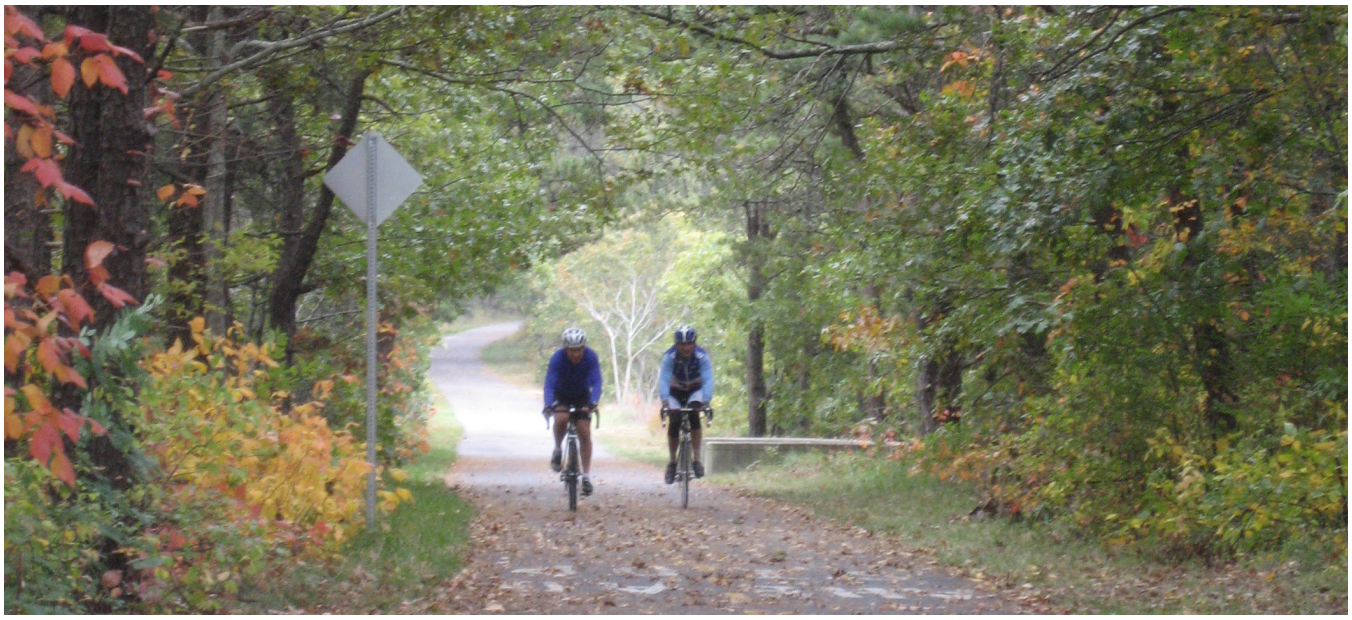
Status
Ongoing

Relevance
- Rail-with-trail
- Design compliance with MassDOT standards and guidelines
- Extensive community outreach effort and engagement

The Bruce Freeman Rail Trail (BFRT) is a proposed 25-mile rail trail between Lowell and Framingham along the former New Haven Railroad Framingham & Lowell line. In Sudbury, the rail corridor extends through the center of the Town, approximately 4.6 miles from South Sudbury near Route 20, north to the Sudbury/Concord Town line.

VHB is providing engineering and environmental support to the Town for the 25% Design submittal to MassDOT. The project included the preliminary design of 4.6 miles of trail with several at-grade roadway crossing and two bridges. The horizontal and vertical alignments were located to minimize impacts to environmental and cultural resources.

VHB also assisted the Town with community outreach efforts in the form of numerous meetings with the general public, concerned citizens, and Town officials to help bring this project to a successful completion. The 25% design was approved by MassDOT and has been included and funded in the DOT Transportation Improvement Plan.



Cape Cod National Seashore Bicycle Plan

Cape Cod, Massachusetts

Client
National Park Service (NPS)

Status
Completed: 2010
Plan Implementation: Ongoing

Relevance

- Evaluated, cost estimated, and prioritized potential improvements and connectivity
- Significant public outreach and engagement

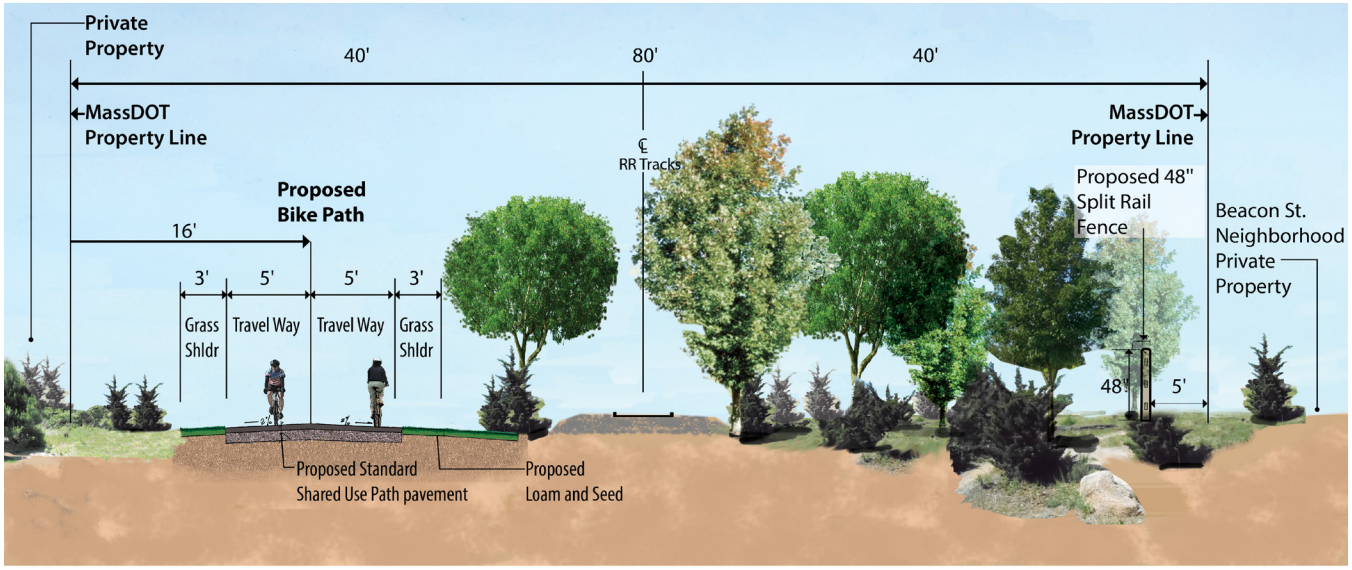
2012 Planning Project Award. *Massachusetts Chapter of the American Planning Association*

Bicycling is already the most popular recreational activity in the Cape Cod National Seashore (CACO). A trail network connected to public transit would further encourage visitors to park their cars and explore CACO on bicycles. With demand for bicycle facilities growing, the National Park Service (NPS) retained VHB to prepare an integrated bicycle plan for Cape Cod National Seashore.

VHB's study evaluated, cost estimated, and prioritized potential improvements and connectivity to CACO attractions, adjacent town and bicycle facilities, and included links to 15 Cape Cod towns. We collected GIS and other data that served as the basis for the overall study. Additionally, VHB conducted site visits and reviewed recent trail construction bids to develop routing options and a range of costs for bicycle facility extension. The study also included working directly with a Steering Committee in addition to public outreach and public meetings. The resulting feasibility study provides a tool for the NPS, towns, the Cape Cod Commission, and other stakeholders to fund, design, and implement priority projects.

Following completion of the plan, various stakeholders have undertaken implementation projects. In addition, the NPS has completed an alternative analysis for one of the major projects identified in the plan (bicycle connection from Wellfleet to Provincetown) and has engaged VHB to provide environmental complaince support.

VHB is currently assisting NPS with preparation of the required federal and state environmental assessment documentation.



Final Design of the Westerly Extension of the Cape Cod Rail Trail—Phases 1, 2, and 3

Barnstable, Dennis, and Yarmouth, Massachusetts

Client
Towns of Barnstable, Dennis, and Yarmouth

Status
Ongoing

Relevance
- Rail-with-Trail
- Design of multiuse path, including four bridges
- Design compliance with MassDOT standards and guidelines

MassDOT is planning an eight-mile extension to the Cape Cod Rail Trail (CCRT) from the trail head located at the intersection of Route 134 in the Town of Dennis through Dennis, Yarmouth, and into Barnstable, to extend the existing bike trail into Barnstable where future phases are planned to further extend that trail through Barnstable and into Sandwich. The existing CCRT extends approximately 22 miles from Dennis, through the Towns of Harwich, Brewster, Orleans, Eastham, and Wellfleet, ending in South Wellfleet.

VHB was selected by the Towns of Dennis, Yarmouth, and Barnstable to provide design services for the extension of this multiuse path, as well as the design of four bridges for the project—one at Route 134 in Dennis, the second at Station Avenue in Yarmouth, the third at the Bass River crossing, and the fourth at Willow Street in Yarmouth. VHB is also performing right-of-way services, environmental permitting, drainage design, and construction phase services.

Construction for Phase 1 started in the fall of 2015 and is scheduled to be completed in the fall of 2017. Phase 2 is in the 100% design stage and construction is scheduled to commence in the fall of 2016. The 25% design has been completed for Phase 3. Construction for Phase 3 is scheduled to start in the spring of 2017. Following the construction of each of the three phases, the DCR will be entering into an agreement with MassDOT and the respective Towns to take over the post-construction operations and maintenance of the multiuse rail trail.

Minuteman Bikeway Extension/Depot Park Design Services

Bedford, Massachusetts

Client
Town of Bedford

Status
Ongoing

Relevance
- Trail design
- Funding support
- Design compliance with MassDOT standards and guidelines
- Alternative analysis for an on-road section

VHB helped the Town of Bedford extend the Minuteman Bikeway—the largest and most heavily used bikeway in the Commonwealth—from its terminus at Depot Park to Concord Road. The project extended the multiuse path by two miles to serve as a recreational and transportation resource. VHB services included trail design, permitting, and funding support. The extension project built off an earlier partnership between VHB and the Town of Bedford to design Depot Park, which provided a landscaped park and sitting area. VHB provided landscape architectural, survey, and civil engineering services.

The project included an alternative analysis for an on-road section of the route, located on Railroad Avenue; preparation of a Project Need Form and Project Initiation Form to submit to MassDOT for construction funding support; the evaluation of flashing beacons for roadway crossings; and the preparation of design plans for submission to MassDOT.

Columbia Greenway Design

Westfield, Massachusetts

Client
City of Westfield

Status
Ongoing

Relevance
- Rail-with-trail
- Conceptual planning and design of multiuse path
- Includes nine bridges
- Design compliance with MassDOT standards and guidelines

The City of Westfield is developing a rails-to-trails greenway project along former Pioneer Valley Railroad property between the Southwick town line and Pochassic Street, just north of the Westfield River. The project is located on abandoned track and includes nine bridges. The track travels north-south connecting the Southwick Rail Trail, currently under construction, with the heart of downtown. To the south of downtown, the greenway passes by the site of the former Columbia Bicycle manufacturing site, thereby providing the name: the Columbia Greenway. To help make this greenway plan a reality, the city chose VHB to provide design and bridge improvement services.

The Columbia Greenway project makes use of underutilized and abandoned railroad property and enhances the community of Westfield by meeting transportation needs while also creating opportunity for recreational activities. The project consists of constructing a 3.2-mile multiuse trail and related improvements. The project includes a 12-foot paved trail, rehabilitation of three bridges and replacement of six bridges, pathway lighting, access ramps/walkways, emergency vehicle access points, landscaping, retaining walls, safety rails, drainage, benches, parking, trail safety lighting, and the use of sustainable porous pavement.

The project is being completed in three phases to meet funding constraints. In Phase 1, VHB prepared a concept plan, performed field reconnaissance and preliminary engineering, which included preliminary bridge assessments. Two construction contracts have been completed. In Phase 2, VHB is bringing the current 25% design plans to the 75%, 100%, and Plan, Specification and Estimate (PS&E) stages. VHB is also providing type studies, sketch plans and final design documents for the bridge crossings as per MassDOT requirements.

References

We encourage you to reach out to our references for confirmation of our quality of work.

PROJECTS	REFERENCE AND ADDRESS	CONTACT INFORMATION
Bruce Freeman Rail Trail *Sudbury, Massachusetts*	**Jody Kablack** *Director of Planning and Community Development* Town of Sudbury 278 Old Sudbury Road Sudbury, MA 01776	(978) 443-8891 kablackj@sudbury.ma.us
Designing and Planning Segment 1 of the Blackstone River Greenway *Blackstone, Milville & Uxbridge, Massachusetts* **Mass Central Rail Trail Expanded ENF** *Waltham to Berlin, Massachusetts* **Cambridge-Watertown Greenway** *Cambridge and Watertown, Massachusetts*	**Dan Driscoll** *Director of Recreational Facilities Planning* MA Department of Conservation & Recreation (DCR) 251 Causeway Street, Suite 900 Boston, MA 02114	(617) 626-1438 dan.driscoll@state.ma.us
Westerly Extension of the Cape Cod Rail Trail Bearses Way Multiuse Path *Barnstable, Massachusetts*	**Roger Parsons** *Town Engineer* Town of Barnstable 382 Falmouth Road Hyannis, MA 02601	(508) 790-6400 roger.parsons@town.barnstable.ma.us
Soldiers Field Road Crossing Study and Harvard University Allston Campus Master Plan *Allston, MA*	**Joseph Beggan** *Senior Manager for Transportation* Harvard University 1350 Massachusetts Avenue Cambridge, MA 02138	(617) 495-2956 joseph_beggan@harvard.edu

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5 Required Information and Forms

Trailhead, Old Colony Trail | Mansfield, MA

Path at Train Station | Burlington, VT

5

Required Information and Forms

- Potential Conflicts of Interest
- Disclosures
- Contract of Services Variance
- Certificate of Non-Collusion
- Statement of Tax Compliance
- Financial Statements

Potential Conflicts of Interest

To the best of our knowledge, the VHB Team has no real or perceived conflicts of interest. Should we become aware of any conflicts during the performance of this work, we will notify the Town immediately.

Disclosures

VHB is one of the largest engineering companies in Massachusetts, with corporate headquarters in Watertown. The firm has been in business for over 35 years, serving communities across the Commonwealth as well as state agencies and private developers. We are proud that our record of success has allowed us to grow to more than 1,100 people strong. Our project successes have vastly outnumbered projects where re-bidding has been required. As required within the RFP, we acknowledge a recent project that required re-bidding after the original bids were received. The project involves construction of a bike path in Nantucket. Re-bidding was required because the two contractors that submitted bids offered significantly higher prices than VHB had estimated for certain elements of work. We understand that part of the pricing issue may have resulted from unit price adjustments on material deliveries from the mainland to the island. This project is currently being re-bid. While the aforementioned pavement item has been clarified in the specification, no design changes or quantity changes were required from the originally advertised project.

Contract of Services Variance

VHB has reviewed the Contract (RFP Appendix F) vis a vis VHB's insurance policies solely for the purpose of ensuring that all contract provisions are insurable. VHB notes that the indemnification language on page 25 of the RFP may present insurability issues. VHB's insurance does not allow VHB to defend professional liability claims, but it can defend general liability claims. VHB will accept the contract "as-is" if awarded the contract, but VHB assumes it is in the best interest of all parties to have a fully insurable contract, and we are hopeful that you will consider making minor edits if we are awarded a contract.

APPENDIX D

REQUEST FOR PROPOSALS

BELMONT COMMUNITY PATH FEASIBILITY STUDY

CERTIFICATION OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

04/20/16
Date

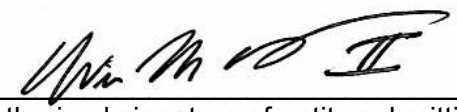
Vanasse Hangen Brustlin, Inc.
Name of Entity submitting bid, whether individual, partnership, corporation, joint venture or other business or legal entity.

Corporation
Type of Entity

101 Walnut Street
Address

Watertown, MA 02472

617-924-1770
Telephone

By 
Authorized signature of entity submitting proposal

William Ashworth, PE, PTOE, New England Regional Manager
Signer's duly authorized position, office or title

APPENDIX E

REQUEST FOR PROPOSALS

BELMONT COMMUNITY PATH FEASIBILITY STUDY

STATEMENT OF TAX COMPLIANCE

Pursuant to M.G.L. Chapter 62c, Section 49A, I certify under the penalties of perjury that this firm, to the best knowledge and belief, has filed all State Tax returns and paid all State Taxes required under law.

04-2931679
Federal Identification Tax Number

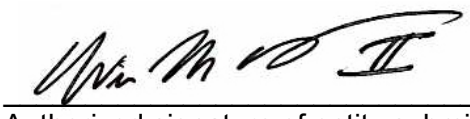
Vanasse Hangen Brustlin, Inc.
Name of Entity submitting bid, whether individual, partnership, corporation, joint venture or other business or legal entity.

Corporation
Type of Entity

101 Walnut Street
Address

Watertown, MA 02472

617-924-1770
Telephone

By 
Authorized signature of entity submitting proposal

William Ashworth, PE, PTOE, New England Regional Manager
Signer's duly authorized position, office or title

CONFIDENTIAL

VANASSE HANGEN BRUSTLIN, INC. AND SUBSIDIARIES

CONSOLIDATED FINANCIAL STATEMENTS
TOGETHER WITH INDEPENDENT AUDITORS' REPORT

DECEMBER 31, 2015 AND 2014

DiCicco, Gulman & Company LLP
CERTIFIED PUBLIC ACCOUNTANTS AND BUSINESS ADVISORS
*Professional Excellence On A Personal Level*SM

VANASSE HANGEN BRUSTLIN, INC. AND SUBSIDIARIES

CONSOLIDATED FINANCIAL STATEMENTS

DECEMBER 31, 2015 AND 2014

Table of Contents

DiCicco, Gulman & Company LLP
CERTIFIED PUBLIC ACCOUNTANTS AND BUSINESS ADVISORS
Professional Excellence On A Personal Level℠

Independent Auditors' Report

To the Board of Directors and Stockholders
Vanasse Hangen Brustlin, Inc. and Subsidiaries

Report on the Consolidated Financial Statements
We have audited the accompanying consolidated financial statements of Vanasse Hangen Brustlin, Inc. and Subsidiaries (the "Company"), which comprise the consolidated balance sheets as of December 31, 2015 and 2014, and the related consolidated statements of income, comprehensive income, changes in stockholders' equity and cash flows for the years then ended, and the related notes to the consolidated financial statements.

Management's Responsibility for the Consolidated Financial Statements
Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

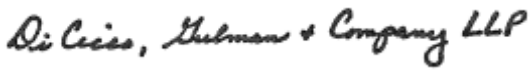
Auditors' Responsibility
Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2015 and 2014, and the results of their operations and their cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matter
As discussed in Note 1 to the consolidated financial statements, the Company adopted, on the retrospective basis, a new accounting pronouncement on January 1, 2015 which requires the Company to classify deferred taxes as noncurrent in the consolidated balance sheets. Our opinion is not modified with respect to this matter.



March 16, 2016

VANASSE HANGEN BRUSTLIN, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

December 31,	2015	2014
ASSETS		
Current assets:		
Cash	**$ 1,148,630**	$ 1,267,555
Accounts receivable, net	**47,079,495**	40,185,413
Costs and estimated earnings in excess of billings on uncompleted contracts	**8,609,323**	7,035,203
Prepaid expenses and other	**5,999,353**	4,559,483
Total current assets	**62,836,801**	53,047,654
Equipment and improvements, net	**7,685,765**	6,702,568
Other assets:		
Cash surrender value of key-person life insurance	**8,791,511**	8,588,752
Deposits and other	**638,424**	727,188
Goodwill, net	**15,011,184**	12,003,500
Income taxes receivable	**1,536,604**	1,536,604
Total other assets	**25,977,723**	22,856,044
Total assets	**$ 96,500,289**	$ 82,606,266
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Current portion of notes payable	**$ 1,776,891**	$ 1,684,979
Current portion of notes payable, former stockholders	**656,448**	359,384
Current portion of deferred compensation payable	**698,422**	353,093
Accounts payable	**6,260,760**	4,205,087
Billings in excess of costs and estimated earnings on uncompleted contracts	**12,278,915**	9,850,570
Accrued expenses and other current liabilities	**8,026,614**	6,467,662
Total current liabilities	**29,698,050**	22,920,775
Notes payable, net of current portion	**4,329,994**	1,247,038
Notes payable, former stockholders, net of current portion	**4,035,205**	1,928,246
Deferred compensation payable, net of current portion	**15,787,621**	13,498,023
Deferred income taxes, net	**8,979,303**	7,895,392
Total liabilities	**62,830,173**	47,489,474
Commitments and contingencies		
Stockholders' equity	**33,670,116**	35,116,792
Total liabilities and stockholders' equity	**$ 96,500,289**	$ 82,606,266

The accompanying notes are an integral part of the consolidated financial statements.

VANASSE HANGEN BRUSTLIN, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF INCOME

For the years ended December 31,	2015		2014	
Gross revenues	**$ 184,761,730**		$166,342,163	
Direct expenses	**33,169,905**		29,385,928	
Net revenues	**151,591,825**	**100.0 %**	136,956,235	100.0 %
Direct labor	**53,228,536**	**35.1**	48,432,750	35.3
Gross profit	**98,363,289**	**64.9**	88,523,485	64.7
Indirect expenses	**93,718,549**	**61.8**	85,176,212	62.2
Income from operations	**4,644,740**	**3.1**	3,347,273	2.5
Other (expense) income:				
Key-person life insurance	**(305,800)**	**(0.2)**	460,206	0.3
Interest income	**56,327**	**0.0**	143,780	0.1
Other (expense) income	**(552,998)**	**(0.4)**	311,527	0.2
Interest expense	**(485,941)**	**(0.3)**	(310,312)	(0.2)
Total other (expense) income	**(1,288,412)**	**(0.9)**	605,201	0.4
Income before income tax (provision) benefit	**3,356,328**	**2.2**	3,952,474	2.9
Income tax (provision) benefit	**(1,466,469)**	**(1.0)**	1,218,533	0.9
Net income	**$ 1,889,859**	**1.2 %**	$ 5,171,007	3.8 %

The accompanying notes are an integral part of the consolidated financial statements.

VANASSE HANGEN BRUSTLIN, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

For the years ended December 31,	**2015**	2014
Net income	**$ 1,889,859**	$ 5,171,007
Other comprehensive (loss) income:		
Unrealized (losses) gains on interest rate swap contracts, net	**(20,213)**	22,929
Total comprehensive income	**$ 1,869,646**	$ 5,193,936

The accompanying notes are an integral part of the consolidated financial statements.

VANASSE HANGEN BRUSTLIN, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY

FOR THE YEARS ENDED DECEMBER 31, 2015 AND 2014

	Common stock* Shares	Common stock* Amount	Retained earnings	Stock subscription notes receivable from stockholders	Accumulated other comprehensive loss	Total stockholders' equity
Balance, January 1, 2014	815,988	$ 11,340,084	$ 21,682,197	$ (1,900,380)	$ (29,867)	$ 31,092,034
Issuances of common stock	27,036	1,228,937	-	(315,554)	-	913,383
Redemptions of common stock	(52,174)	(557,190)	(1,936,729)	75,353	-	(2,418,566)
Proceeds from stock receivables	-	-	-	336,005	-	336,005
Net income	-	-	5,171,007	-	-	5,171,007
Unrealized gains on interest rate swap contracts, net	-	-	-	-	22,929	22,929
Balance, December 31, 2014	790,850	12,011,831	24,916,475	(1,804,576)	(6,938)	35,116,792
Issuances of common stock	**32,996**	**1,726,822**		**(572,182)**	**-**	**1,154,640**
Redemptions of common stock	**(90,310)**	**(1,099,023)**	**(3,890,607)**	**132,455**	**-**	**(4,857,175)**
Proceeds from stock receivables	**-**			**386,213**	**-**	**386,213**
Net income	**-**	**-**	**1,889,859**	**-**	**-**	**1,889,859**
Unrealized losses on interest rate swap contracts, net	**-**	**-**	**-**	**-**	**(20,213)**	**(20,213)**
Balance, December 31, 2015	**733,536**	**$ 12,639,630**	**$ 22,915,727**	**$ (1,858,090)**	**$ (27,151)**	**$ 33,670,116**

* 2,000,000 shares authorized, no par value

The accompanying notes are an integral part of the consolidated financial statements.

VANASSE HANGEN BRUSTLIN, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

For the years ended December 31,	2015	2014
Operating activities		
Net income	**$ 1,889,859**	$ 5,171,007
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	**4,190,256**	3,554,433
Bad debt expense (recovery)	**203,304**	(139,990)
Deferred compensation expense	**3,374,546**	2,107,722
(Gain) loss on sale of equipment	**(8,824)**	67,804
Deferred income taxes	**1,083,911**	(1,375,047)
Contingent earnout	**400,000**	-
Changes in operating assets and liabilities:		
Accounts receivable	**(4,770,212)**	2,307,988
Costs and estimated earnings in excess of billings on uncompleted contracts	**(1,369,512)**	(1,455,186)
Prepaid expenses and other	**(1,434,334)**	(336,887)
Deposits	**90,999**	(133,849)
Income taxes receivable	**-**	(1,536,604)
Accounts payable	**1,861,546**	49,885
Billings in excess of costs and estimated earnings on uncompleted contracts	**2,120,951**	981,936
Accrued expenses and other	**368,993**	91,759
Total adjustments	**6,111,624**	4,183,964
Net cash provided by operating activities	**8,001,483**	9,354,971
Investing activities		
Acquisitions of net assets	**(3,804,993)**	-
Contingent consideration payments on acquisitions	**(225,000)**	(375,000)
Purchases of equipment and improvements	**(2,991,631)**	(2,757,882)
Proceeds from sale of equipment	**12,001**	1,004
Cash surrender value of key-person life insurance	**(202,759)**	(863,786)
Net cash used in investing activities	**(7,212,382)**	(3,995,664)
Financing activities		
Payments on line of credit, net	**-**	(592,503)
Proceeds from notes payable	**3,000,000**	-
Payments on notes payable	**(2,042,122)**	(2,332,809)
Payments on notes payable, former stockholders	**(538,331)**	(319,344)
Payments on deferred compensation	**(840,340)**	(581,257)
Proceeds from issuance of common stock	**1,077,509**	913,383
Proceeds from stock subscription receivable	**386,213**	336,005
Payments for common stock redemptions	**(1,950,955)**	(1,574,134)
Net cash used in financing activities	**(908,026)**	(4,150,659)
Net (decrease) increase in cash	**(118,925)**	1,208,648
Cash, beginning of year	**1,267,555**	58,907
Cash, end of year	**$ 1,148,630**	$ 1,267,555

The accompanying notes are an integral part of the consolidated financial statements.

Note 1 - Nature of Operations and Summary of Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements include the accounts of Vanasse Hangen Brustlin, Inc. and its subsidiaries and affiliates consisting of VHB Engineering, Surveying and Landscape Architecture, P.C., VHB Engineering NC, P.C., and Vanasse Hangen Brustlin LLC (collectively the "Company"). All significant intercompany accounts and transactions have been eliminated in consolidation.

Description of Business

The Company is engaged principally in providing multi-disciplinary planning, design, engineering and consulting services. The Company maintains offices throughout the United States of America and provides these services to governmental agencies, private companies and non-profit organizations that are located in the United States of America.

Subsequent Events

The Company has evaluated events through March 16, 2016, the date the consolidated financial statements were approved and authorized for issuance by management, and determined that there have been no subsequent events that would require recognition in the consolidated financial statements or disclosure in the notes to the consolidated financial statements.

Use of Estimates

The preparation of the consolidated financial statements in conformity with accounting principles generally accepted in the United States of America (“GAAP”) requires management to make estimates and assumptions that affect certain reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Accounts Receivable, Net

The Company carries its accounts receivable at amounts invoiced less an allowance for doubtful accounts. The Company establishes an allowance for doubtful accounts based on a detailed review of the aged accounts receivable ledger. The factors influencing management’s judgment of the adequacy of the allowance for doubtful accounts include probable credit losses, knowledge of the client’s business and current economic conditions. Receivable balances are considered past due when payment is not consistent with contractual terms. Receivable balances are written off after it is evident that the collection efforts have little or no chance of immediate success. The Company generally does not charge interest on accounts receivable. The Company provides credit in the normal course of business and generally does not require collateral from its clients.

Equipment and Improvements, Net

Equipment and improvements, net are stated at historical cost, net of accumulated depreciation and amortization. Major additions and improvements are capitalized, while repairs and maintenance are charged to expense as incurred. Assets are depreciated on a straight line basis over the estimated useful lives of the assets. Leasehold improvements are amortized over the shorter of the life of the lease or the useful life of the asset.

Note 1 - Nature of Operations and Summary of Significant Accounting Policies (Continued)

Impairment of Long-Lived Assets
The Company evaluates its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of assets may not be recoverable. Recoverability of these assets is measured by comparison of their carrying amount to the future undiscounted cash flows the assets are expected to generate over their remaining economic lives. If such assets are considered to be impaired, the impairment to be recognized in earnings equals the amount by which the carrying value of the assets exceeds their fair market value determined by either a quoted market price, if any, or a value determined by utilizing a discounted cash flow technique. If such assets are not impaired, but their useful lives have decreased, the remaining net book value is amortized over the revised useful life. The Company has not recognized any impairment charges on long-lived assets as of December 31, 2015.

Goodwill
The Company has adopted on the prospective basis an accounting alternative which permits the Company to amortize goodwill on a straight-line basis and to apply a simplified impairment model to goodwill. Management has determined the estimated useful life of its goodwill to be ten years. All of the goodwill is expected to be deductible for income tax purposes.

Goodwill represents the excess of consideration transferred over the fair value of the net tangible and identified intangible assets acquired in connection with a business acquisition. Under the simplified method, the Company evaluates goodwill for impairment when a triggering event occurs that indicates the fair value of the Company may be below its carrying value. When a triggering event occurs, the Company has the option to first assess qualitative factors to determine whether the quantitative impairment test is necessary. If that qualitative assessment indicates that it is more likely than not that goodwill is impaired, the Company must perform the quantitative test to compare the Company's fair value with its carrying amount, including goodwill. If the qualitative assessment indicates that it is not likely that goodwill is impaired, further testing is unnecessary. The goodwill impairment loss, if any, represents the excess of the carrying amount of the Company over its fair value. Management assessed the qualitative factors impacting its goodwill and determined that the quantitative impairment test was not necessary as of December 31, 2015.

Concentrations of Credit Risk and Derivative Financial Instruments
Financial instruments that potentially subject the Company to credit risk primarily consist of cash, accounts receivable, stock subscription notes receivable from stockholders and interest rate swap contracts.

The Company maintains its cash with a high-quality financial institution and such funds, at times, exceed federally insured limits. The Company has not historically experienced any losses in such accounts and does not believe it is exposed to significant credit risk on its cash. The Company is exposed to credit loss in the event of nonperformance by the bank, the counterparty to the interest rate swaps. However, the Company does not anticipate nonperformance by the counterparty.

Note 1 - Nature of Operations and Summary of Significant Accounting Policies (Continued)

Concentrations of Credit Risk and Derivative Financial Instruments (Continued)
The Company uses derivative financial instruments in the form of interest rate swap contracts to manage interest rate risks. GAAP requires that derivative financial instruments be recorded on the consolidated balance sheet as either an asset or liability measured at its fair value as of the reporting date. The interest rate swap contracts qualify as cash flow hedges. The liability is recorded in accrued expenses in the consolidated balance sheet and the corresponding gain (loss) is recorded in accumulated other comprehensive loss at year end.

Fair Value Measurements
GAAP requires the disclosure of the fair value measurements of financial instruments and defines fair value as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities required to be recorded or disclosed at their fair values, the Company considers the principal or most advantageous market in which the Company would transact and considers assumptions that market participants would use when pricing the assets or liabilities, such as inherent risk, transfer restrictions, and risk of nonperformance. The Company's financial instruments include cash, accounts receivable, line of credit, accounts payable, accrued expenses and other current liabilities, interest rate swap contracts, notes payable, notes payable - former stockholders, deferred compensation payable, and stock subscription notes receivable from stockholders. The carrying values of cash, accounts receivable, line of credit, accounts payable, accrued expenses and other current liabilities approximate the respective fair values due to the short maturity of these instruments. The Company has determined that the difference between the fair value and the respective carrying values of the Company's notes payable, notes payable - former stockholders, deferred compensation payable, and stock subscription notes receivable from stockholders is not material to these consolidated financial statements. The interest rate swap contracts are recorded at fair value (see Note 12).

GAAP establishes a fair value hierarchy that requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. An asset’s or liability’s categorization within the fair value hierarchy is based upon the lowest level of input that is significant to the fair value measurement. GAAP establishes three levels of inputs that may be used to measure fair value:

Level 1: quoted prices in active markets for identical assets or liabilities;

Level 2: inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices in active markets for similar assets or liabilities, quoted prices for identical or similar assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the financial instrument; or

Level 3: unobservable inputs that are supported by little or no market activity and that are significant to the fair values of the assets or liabilities.

Note 1 - Nature of Operations and Summary of Significant Accounting Policies (Continued)

Revenue and Cost Recognition

The Company recognizes revenue from long-term, fixed-price and modified fixed-price contracts on the percentage of completion method, measured by the percentage of contract costs incurred to date compared to the estimated total contract costs for each contract. This method is used because management considers total contract cost to be the best available measure of progress on the contracts. The Company recognizes revenue from cost-plus contracts based on the actual total cost it has expended plus the portion of the fixed fee it has earned to date or the applicable fixed rate it has negotiated with the client. Revenues from time and material contracts are recognized when the related costs are incurred.

Contract costs include all direct material and labor costs and those indirect costs related to contract performance. General and administrative costs are charged to expense as incurred. Provisions for estimated losses on uncompleted contracts are made in the period in which such losses are determined. As contracts can extend over one or more years, changes in job performance, job conditions and estimated profitability, including those arising from contract penalty provisions and final contract settlements, may result in revisions in costs and income and are recognized in the period in which the facts which require the revision become known. Profit incentives are included in revenues when their realization is reasonably assured. An amount equal to contract costs attributable to claims is included in revenues when realization is probable and the amount can be reliably estimated. Due to the inherent uncertainties in estimating costs, it is at least reasonably possible that the Company’s estimated costs and revenues will change in the near term.

Certain government agency contracts are subject to, among other regulations, regulations issued under the Federal Acquisition Regulation ("FAR"). These regulations can limit the recovery of certain specified indirect costs on contracts and subjects the Company to ongoing audits by government agencies. Audits by government agencies consist of reviews of the Company's overhead rates, operating systems and cost proposals to ensure that the Company accounted for such costs in accordance with the FAR. If a government agency determines the Company has not accounted for such costs consistent with the FAR, the government agency may disallow these costs. There can be no assurance that audits by government agencies will not result in material cost disallowances in the future.

In the course of providing its services, the Company routinely subcontracts for services and incurs other direct costs on behalf of its clients. These costs are passed through to clients and, in accordance with industry practice and GAAP, are included in the Company's gross revenues and direct expenses. Because subcontractor services and other direct costs can change significantly from project to project and period to period, changes in gross revenues may not be indicative of business trends.

The asset “costs and estimated earnings in excess of billings on uncompleted contracts” represents revenues recognized in excess of amounts billed. The liability “billings in excess of costs and estimated earnings on uncompleted contracts” represents amounts billed in excess of revenues recognized.

Note 1 - Nature of Operations and Summary of Significant Accounting Policies (Continued)

Advertising

The Company expenses advertising and promotional costs as incurred. Advertising and promotional costs incurred were approximately $905,000 and $887,000 for the years ended December 31, 2015 and 2014, respectively, and are included in indirect expenses.

Income Taxes

In November 2015, the FASB issued new accounting guidance which simplifies the presentation of deferred income taxes. The new guidance requires that deferred tax assets and liabilities be classified as noncurrent in a company's balance sheet. This guidance is effective for annual periods beginning after December 15, 2017, and can be applied either retrospectively or prospectively. Early adoption is permitted. The Company early adopted this guidance on a retrospective basis effective January 1, 2015. The Company determined the adoption of this guidance had no impact on the 2014 previously reported net income or stockholders' equity. The impact of the adoption on the Company's previously issued consolidated financial statements was as follows:

	As Originally Issued	As Retrospectively Adjusted
Deferred tax liability, current	$ (12,459,138)	$ -
Deferred tax asset, noncurrent	$ 4,563,746	$ -
Deferred tax liability, net, noncurrent	$ -	$ (7,895,392)
Total assets	$ 87,170,012	$ 82,606,266
Total liabilities	$ 52,053,220	$ 47,489,474

For income tax purposes, the Company reports on the cash basis. These financial statements have been prepared using the accrual method of accounting. Deferred income tax assets and liabilities are recorded for those temporary differences between the consolidated financial statements and tax basis of assets and liabilities that will result in taxable or deductible amounts in the future based on currently enacted tax laws and corporate tax rates for qualified personal service corporations applicable to the periods in which the differences are expected to affect taxable income. Valuation allowances are established, if necessary, to reduce a net deferred income tax asset to the amount that will more likely than not be realized.

GAAP prescribes the threshold a tax position is required to meet before being recognized in the consolidated financial statements. An additional liability for uncertain tax positions ("UTPs") is recognized and recorded as a component of current income tax expense for differences between financial and income tax reporting positions which do not meet this threshold. Any interest and penalties related to UTPs are recorded as a component of income tax expense. The Company has reviewed its income tax positions that remain subject to examination by tax authorities, and has not identified any material UTPs and thus has not recorded any additional liability at December 31, 2015 or 2014.

Note 1 - Nature of Operations and Summary of Significant Accounting Policies (Continued)

Income Taxes (Continued)
The Company files income tax returns in federal and state jurisdictions. The Company's income tax returns are subject to examination by taxing authorities. Because the application of tax laws and regulations to many types of transactions is susceptible to varying interpretations, amounts reported could be changed at a later date upon final determination by taxing authorities. Currently, the Company is under examination by the IRS for tax years 2009 through 2012 (see Note 14).

Reclassifications
Certain amounts in the 2014 consolidated financial statements have been reclassified to conform to the presentation of the 2015 consolidated financial statements. These reclassifications did not have any impact on previously reported net income or stockholders' equity.

Note 2 - Accounts Receivable, Net

Accounts receivable, net consisted of the following at December 31:

	2015	2014
Completed contracts	**$ 1,854,444**	$ 1,796,274
Contracts in progress	**43,245,560**	36,846,297
Retainage	**2,574,733**	2,392,451
	47,674,737	41,035,022
Less allowance for doubtful accounts	**(595,242)**	(849,609)
	$ 47,079,495	$ 40,185,413

Retainage represents amounts invoiced to clients where payments have been withheld pending the completion of certain milestones, other contractual conditions, or upon the completion of the project. These retainage agreements vary from project to project and could be outstanding for several months or years.

Note 3 - Equipment and Improvements, Net

Equipment and improvements, net, consisted of the following at December 31:

	2015	2014
Equipment, furniture and fixtures	**$ 18,412,717**	$ 15,931,719
Leasehold improvements	**7,890,133**	7,117,209
	26,302,850	23,048,928
Less accumulated depreciation and amortization	**(18,617,085)**	(16,346,360)
	$ 7,685,765	$ 6,702,568

Note 3 - Equipment and Improvements, Net (Continued)

Depreciation expense was approximately $2,356,000 and $2,054,000 for the years ended December 31, 2015 and 2014, respectively.

During 2015 and 2014, the Company disposed of equipment with a net book value of $3,177 and $68,808, respectively.

Note 4 - Key-person Life Insurance

Investments in company-owned key-person life insurance policies, made with the intention of funding future common stock redemptions, do not represent a committed funding source. The investments are subject to claims from creditors and the Company can designate them to another purpose at any time. The policies are recorded at their net cash surrender values, as reported by the issuing insurance companies. Under the terms of the insurance, the Company receives the cash surrender value if the policies are terminated, or, upon death of the insured, receives all death benefits which will then be used to purchase the stock of the insured. At December 31, 2015, the Company has 47 policies on key Company executives with aggregate death benefits in excess of $32,000,000.

The valuation of these policies can fluctuate depending on changes in market interest rates and equity values. The annual net changes in market valuation, normal insurance expenses and any death benefit gains are reflected in the accompanying consolidated statements of income.

The Company also has various term life insurance policies on certain key employees. During 2014, an employee passed away and the Company received approximately $1,000,000 from the life insurance settlement which is included in other income in the accompanying consolidated statements of income.

Note 5 - Joint Venture

In 2014, the Company entered into a joint venture arrangement with an unrelated national architecture, civil engineering consulting, and construction management firm. The 2014 activity was not material. The purpose of the joint venture is to provide architecture, engineering, program management, construction management and operations and maintenance services for a specific contract. The ownership percentage of the joint venture is representative of the work to be performed. Under the joint venture arrangement, if the other partner is unable to complete its share of the contract, the Company will be required to complete those activities. The Company does not expect that these guarantees will have a material adverse effect on its consolidated balance sheets or statements of income or cash flows.

Management of the joint venture is controlled by a joint venture executive committee, comprised of representatives from the joint venture partners. The joint venture executive committee provides management oversight and controls decisions which could have a significant impact on the joint venture.

Note 5 - Joint Venture (Continued)

The Company's joint venture has no employees and minimal operating expenses and the Company's employees perform work for the joint venture, which is then billed to a third-party customer by the joint venture. The joint venture functions as a pass through entity to bill the third-party customer.

The Company's proportionate share of revenue and direct expenses related to the joint venture for the year ended December 31, 2015 were approximately $5,256,000 and $3,002,000, respectively and are included in the consolidated statements of income. The proportionate share of direct labor is included in direct labor in the consolidated statements of income.

The Company's proportionate share of assets and liabilities related to the joint venture consisted of the following at December 31, 2015 and are included in the consolidated balance sheets:

	December 31, 2015
Accounts receivable	$ 1,251,006
Accounts payable	$ 167,590
Billings in excess of costs and estimated earnings on uncompleted contracts	$ 47,392

Note 6 - Business Acquisitions

GMB

On February 9, 2015, the Company acquired certain assets and liabilities of GMB Engineers & Planners, Inc. ("GMB") as defined in the acquisition agreement. The results of GMB's operations have been included in the consolidated financial statements since that date. GMB was a traffic engineering, transportation planning and traffic operations firm located in Florida and Georgia. The recognized goodwill is primarily related to GMB's strategic location and the synergies with the Company that are expected to be gained from the acquisition.

The Company has entered into employment and compensation agreements with certain key members of GMB's management.

The acquisition-date fair value of the consideration transferred totaled $5,251,983, which consisted of the following:

Cash	$ 2,934,993
Holdback (paid in 2015)	100,000
Note payable due to former owners of GMB (see Note 9)	2,216,990
Total	$ 5,251,983

Note 6 - Business Acquisitions (Continued)

GMB (Continued)
The fair value of the assets acquired and liabilities assumed at the acquisition date are as follows:

Accounts receivable	$ 2,004,856
Costs and estimated earnings in excess of billings on uncompleted contracts	171,987
Prepaid expenses and other assets	3,938
Fixed assets, net	350,694
Total identifiable assets acquired	2,531,475
Current liabilities	896,482
Net identifiable assets acquired	1,634,993
Goodwill	3,616,990
Net assets acquired	$ 5,251,983

GT Hill
On December 7, 2015, the Company acquired certain assets and liabilities of GT Hill Planners, Corp. ("GT Hill") as defined in the acquisition agreement. The results of GT Hill's operations have been included in the consolidated financial statements since that date. GT Hill was an Atlanta-based firm providing environmental and transportation planning services. The recognized goodwill is primarily related to GT Hill's strategic location and the synergies with the Company that are expected to be gained from the acquisition.

The Company has entered into employment and compensation agreements with certain key members of GT Hill's management.

The acquisition-date fair value of the consideration transferred is estimated to be $1,567,099, which consisted of the following:

Cash	$ 770,000
Estimated excess working capital	67,099
Holdback	30,000
Fair value of contingent consideration	700,000
Total	$ 1,567,099

Note 6 - Business Acquisitions (Continued)

GT Hill (Continued)

The Company is required to pay the former owners of GT Hill contingent consideration if certain income thresholds are met, as defined in the acquisition agreement, for years one through four after the acquisition. The potential undiscounted amount of all future contingent consideration payments amounts to $700,000. During 2015, the Company determined it was probable that the former owners of GT Hill would meet the contingent consideration income thresholds for years one through four. As a result, the Company accrued $700,000 and it is included in accrued expenses in the consolidated balance sheet at December 31, 2015. The holdback amount of $30,000 remains unpaid and is included in accrued expenses in the consolidated balance sheet at December 31, 2015. If the net identifiable assets of GT Hill, as defined in the asset agreement, are greater than $275,000, the Company shall pay the former owners of GT Hill the excess as additional consideration. At December 31, 2015, the amount is estimated to be $67,099.

The fair value of the assets acquired and liabilities assumed at the acquisition date are estimated to be as follows:

Accounts receivable	$ 322,318
Costs and estimated earnings in excess of billings on uncompleted contracts	32,621
Prepaid expenses and other assets	4,006
Total identifiable assets acquired	358,945
Current liabilities	16,846
Net identifiable assets acquired	342,099
Goodwill	1,225,000
Net assets acquired	$ 1,567,099

MAB

On April 15, 2013, the Company acquired certain assets and liabilities of Martin/Alexiou/Bryson, P.C. ("MAB") as defined in the acquisition agreement. The results of MAB's operations have been included in the consolidated financial statements since that date. MAB was a transportation planning and design and traffic engineering firm located in Raleigh, North Carolina. The recognized goodwill is primarily related to MAB's strategic location and the synergies with the Company that are expected to be gained from the acquisition.

The Company has entered into employment and compensation agreements with certain key members of MAB's management.

Note 6 - Business Acquisitions (Continued)

MAB (Continued)
The acquisition-date fair value of the consideration transferred totaled $2,613,722, which consisted of the following:

Cash	$ 1,550,708
Holdback (paid in 2014)	100,000
Note payable due to former owners of MAB (see Note 9)	563,014
Fair value of contingent consideration	400,000
Total	$ 2,613,722

The Company is required to pay the former owners of MAB contingent consideration if certain income thresholds are met, as defined in the acquisition agreement, for years one through four after the acquisition. Management determined that the income threshold was met in years one and two. As a result, payments of $225,000 and $175,000 were made in 2015 and 2014, respectively, to the former owners of MAB which were previously included in accrued expenses in the consolidated balance sheets. The remaining potential undiscounted amount of all future contingent consideration payments amounts to $400,000. During 2015, the Company determined it was probable that the former owners of MAB would meet the contingent consideration income thresholds in years three and four. As a result, the Company accrued the remaining $400,000 and it is included in accrued expenses in the consolidated balance sheet at December 31, 2015.

EWT
On August 31, 2011, the Company acquired certain assets and liabilities of Eng-Wong Taub & Associates, P.A. ("EWT") as defined in the acquisition agreement. The results of EWT's operations have been included in the consolidated financial statements since that date. EWT was a traffic engineering, planning and research firm located in New York City and New Jersey. EWT conducts traffic, parking, transit, bicycle, and pedestrian analyses for a wide range of planning, design, and development studies for public and private sector clients. The recognized goodwill is primarily related to EWT's assembled workforce and the synergies with the Company that are expected to be gained from the acquisition.

The Company has entered into employment and compensation agreements with certain key members of EWT's management.

The acquisition-date fair value of the consideration transferred totaled $3,628,907, which consisted of the following:

Cash	$ 2,289,910
Holdback (paid in 2013)	100,000
Note payable due to former owners of EWT (see Note 9)	738,997
Fair value of contingent consideration	500,000
Total	$ 3,628,907

Note 6 - Business Acquisitions (Continued)

EWT (Continued)
The Company is required to pay the former owners of EWT contingent consideration of $1,000,000 if certain income thresholds are met, as defined in the acquisition agreement, for years one through four after the acquisition. Management determined that the income thresholds were met for all four years. As a result, the entire $1,000,000 was paid over years one through four. The final two payments for $400,000 and $300,000 were made during 2015 and 2014, respectively, to the former owners of EWT. The 2014 payment was previously included in accrued expenses in the consolidated balance sheets.

2010 Acquisitions
The Company acquired MSCW, Inc., a planning and design firm located in Orlando, Florida, on April 19, 2010. The Landmark Design Group, Inc., a planning and design firm based out of Virginia Beach, was acquired on July 5, 2010. Saccardi & Schiff, Inc., a planning and development consulting firm with an office in White Plains, New York, was acquired on October 18, 2010. The Company's consolidated financial statements include the accounts and transactions of each acquisition from their respective acquisition date.

The Company is required to pay the former owners of Saccardi and Schiff, Inc. contingent consideration if operation labor income is met, as defined in the asset purchase agreement, for years one through six after the acquisition. The potential aggregated undiscounted contingent consideration payments to former Saccardi & Schiff, Inc. shareholders amounts to $1,350,000 at December 31, 2015.

During 2015 and 2014, the Company recognized $493,755 and $88,000 of acquisition-related costs which are included in the consolidated statements of income.

Note 7 - Goodwill

Goodwill consisted of the following at December 31:

	Amortization Period	**2015**	2014
Goodwill – MSCW acquisition	10 years	**$ 2,468,481**	$ 2,468,481
Goodwill – EWT acquisition	10 years	**2,308,997**	2,308,997
Goodwill – MAB acquisition	10 years	**1,922,014**	1,922,014
Goodwill – GMB acquisition	10 years	**3,616,990**	-
Goodwill – GT Hill acquisition	10 years	**1,225,000**	-
Goodwill – other acquisitions	10 years	**8,304,884**	8,304,884
		19,846,366	15,004,376
Less accumulated amortization		**4,835,182**	3,000,876
		$ 15,011,184	$ 12,003,500

Amortization expense for goodwill was approximately $1,800,000 and $1,500,000 for the years ended December 31, 2015 and 2014, respectively.

Note 7 - Goodwill (Continued)

The weighted-average amortization period in total is 4.35 years.

Note 8 - Loan Agreement

The Company has a loan agreement with a bank that provides for a revolving line of credit (the "Line") and notes payable to the bank (see Note 9). The loan agreement is subject to various amendments and all borrowings made under the loan agreement are subject to certain financial and administrative covenants and collateralized by substantially all business assets of the Company, as defined therein.

The Line is used by the Company for short-term working capital requirements. At December 31, 2015, advances under the Line are limited to the lesser of $9,000,000 or a borrowing base formula based on eligible accounts receivable. Interest is charged at a fluctuating rate based on the bank's LIBOR advantage rate plus an applicable margin (1.83% at December 31, 2015), all as defined in the Line agreement. The Line expires on July 31, 2016.

Note 9 - Notes Payable

Notes payable consisted of the following at December 31:

	2015	2014
Note payable to a bank in the original amount of $2,855,000, subject to certain financial and administrative covenants, payable in monthly installments of $47,583 plus interest at LIBOR plus 2.00% through April 15, 2015. The note was paid in full during 2015.	**$ -**	$ 190,333
Note payable to a bank in the original amount of $2,000,000, subject to certain financial and administrative covenants, payable in monthly installments of $33,333 plus interest at LIBOR plus 2.00% through October 1, 2015. The note was paid in full during 2015.	**-**	333,333
Note payable to a bank in the original amount of $2,300,000, subject to certain financial and administrative covenants, payable in monthly installments of $38,333 plus interest at LIBOR plus 2.00% (2.36% at December 31, 2015) through August 2016 (see Note 12).	**306,667**	766,667
Note payable to a bank in the original amount of $1,600,000, subject to certain financial and administrative covenants, payable in monthly installments of $26,667 plus interest at LIBOR plus 2.00% (2.36% at December 31, 2015) through April 4, 2018 (see Note 12).	**746,667**	1,066,667

Note 9 - Notes Payable (Continued)

	2015	2014
Note payable to a bank in the original amount of $3,000,000, subject to certain financial and administrative covenants, payable in monthly installments of $35,714 plus interest at LIBOR plus 2.00% (2.36% at December 31, 2015) through February 10, 2020, with a balloon payment of approximately $860,000 due at that time (see Note 12).	**$ 2,642,856**	$ -
Note payable to the former owners of EWT in the original amount of $738,997 (see Note 6), bearing interest at a rate of 3.25% annually. The note is to be repaid in annual principal and interest payments of $200,000 (prorated in 2011) and due in full in October 2015. The note was paid in full during 2015.	-	193,705
Note payable to the former owners of MAB in the original amount of $563,014 (see Note 6), bearing interest at a rate of 3.25% annually. The note is to be repaid in annual principal and interest payments of $200,000. The note is due in full in April 2016 and is subordinate to the bank debt.	**193,705**	381,312
Note payable to the former owners of GMB in the original amount of $2,216,990 (see Note 6), bearing interest at a rate of 3.25% annually. The note is to be repaid in annual principal and interest payments of $600,000 commencing in February 2016. The note is due in full in February 2019 and is subordinate to the bank debt.	**2,216,990**	-
	6,106,885	2,932,017
Less current portion	**1,776,891**	1,684,979
	$ 4,329,994	$ 1,247,038

Future annual payments over the remaining period of indebtedness are as follows:

2016	$ 1,776,891
2017	1,293,677
2018	1,098,060
2019	1,009,685
2020	428,571
Thereafter	500,001
	$ 6,106,885

Note 10 - Notes Payable, Former Stockholders

Per the terms of the stockholders' agreement (see Note 13), the Company has financed the redemption of Company stock from various former stockholders through the issuance of notes payable. These notes payable provide for payments of principal plus interest ranging from 3.25% to 5.00% annually and are subordinate to the bank debt.

The future payments of the notes payable, former stockholders for the years ended December 31, are as follows:

2016	$ 656,448
2017	633,054
2018	616,279
2019	563,835
2020	520,374
Thereafter	1,701,663
	$ 4,691,653

Note 11 - Deferred Compensation Payable

The Company has a long-term deferred compensation plan for the key employees. The deferred compensation is payable over a 5-10 year period depending upon the age when the employee retires, beginning at the later of one's retirement or age fifty-five, all as defined in the deferred compensation plan.

The Company records the deferred compensation payable at its net present value as determined by management. The Company's deferred compensation expense for the years ended December 31, 2015 and 2014 was $3,374,546 and $2,107,722, respectively.

The Company has entered into separate agreements to pay out deferred compensation to three employees each over a ten year period. One employee (A) has received eight years of the payments, the second employee (B) has received five years and the third employee (C) has received eight years. Employee (A) is expected to receive the final two years of payments starting in 2017, employee (B) is expected to receive the final three years of payments starting in 2016, and employee (C) is expected to receive the final two years of payments starting in 2016.

The Company has an agreement to grant them a bonus each year to partially offset the tax ramifications of the transactions.

Note 11 - Deferred Compensation Payable (Continued)

The total deferred compensation payable is comprised of both a fixed obligation for deferred compensation benefits and a contingent liability for benefits still outstanding at year end and is allocated between current and long-term as follows:

	2015	2014
Fixed	**$ 4,166,620**	$ 2,565,554
Contingent	**12,319,423**	11,285,562
	$ 16,486,043	$ 13,851,116
Current	**$ 698,422**	$ 353,093
Long-term	**15,787,621**	13,498,023
	$ 16,486,043	$ 13,851,116

Note 12 - Interest Rate Swaps

The Company uses interest rate swap contracts in order to reduce its exposure to variable rate interest payments associated with certain of its bank debt (see Note 9). The Company pays a stream of fixed interest payments for the term of the swap, and in turn, receives variable interest payments as shown in the below table. A summary of the Company's interest rate swaps at December 31, 2015 is as follows:

Inception	Maturity	Notional Amount	Interest rate paid	Interest rate received
August 2011	August 30, 2016	$ 306,667	3.07%	LIBOR
April 2013	April 4, 2018	$ 746,667	2.82%	LIBOR
February 2015	February 10, 2020	$ 2,642,856	1.61%	LIBOR

Each interest rate swap qualifies as a cash flow hedge under GAAP and the estimated fair value of all swaps is a liability at December 31, 2015 and 2014 in the amounts of $27,151 and $6,938, respectively. Accordingly, unrealized losses of $27,151 and $6,938 are included in accumulated other comprehensive loss at December 31, 2015 and 2014, respectively. The estimated fair value is determined using Level 2 inputs based on a discounted cash flow model using applicable market swap rates and assumptions.

Note 13 - Stockholders' Equity

At December 31, 2015, the Company has notes receivable from stockholders in connection with their purchases of common stock. The notes receivable mature at various dates through 2023 and bear interest at rates between 3.00% and 5.00% per year. All of these notes receivable from stockholders are secured by the pledge of the common stock of the Company purchased by such stockholders.

Note 13 - Stockholders' Equity (Continued)

The stockholders of the Company have entered into a Stockholders' Agreement (the "Agreement") which requires the Company to repurchase the stock of any stockholder upon the occurrence of certain repurchase events, as defined in the Agreement. The purchase and issuance prices of Company stock are based on a stock price calculation, as defined in the Agreement.

Under three existing agreements, the Company has agreed to redeem, in full, the stock of three significant stockholders through 2023. Stockholder (A) is expected to be redeemed from 2019 to 2023, stockholder (B) is expected to be redeemed from 2016 to 2020 and stockholder (C) is expected to be redeemed in 2017.

The future redemptions related to these agreements for the years ended December 31, based on the current stock price are estimated as follows:

2016	$ 270,360
2017	300,400
2018	210,280
2019	1,093,456
2020	1,069,424
Thereafter	1,838,448
	$ 4,782,368

Note 14 - Income Taxes

As of December 31, the Company's net deferred income tax liability consisted of the following components:

	2015	2014
Deferred tax asset	**$ 17,107,341**	$ 14,356,384
Deferred tax liability	**(24,886,644)**	(21,251,776)
Valuation allowance	**(1,200,000)**	(1,000,000)
Net deferred tax liability	**$ (8,979,303)**	$ (7,895,392)

During 2014, the Company amended its 2009 through 2012 tax returns to claim the research and experimentation tax credit as a result of performing research and experimentation studies for 2009 through 2013 (see Note 1). Approximately $1,537,000 of income taxes receivable included in the accompanying consolidated balance sheets at December 31, 2015 relates to refunds expected to be received from these amended tax returns. During 2015 and after the issuance of the audited 2014 consolidated financial statements, the Company had a research and experimentation study performed that resulted in a $618,000 federal tax credit. Approximately $220,000 of this credit was utilized in the 2014 federal tax return. At December 31, 2015, the Company had a research and experimentation federal tax credit carryforward of approximately $398,000 that expires in 2033.

Note 14 - Income Taxes (Continued)

The deferred tax accounts result primarily from the use of the cash method of accounting for tax purposes, the research and experimentation tax credit, proceeds from life insurance, and different tax and financial reporting methods for depreciation and goodwill. The Company is taxed at a 35% federal statutory rate as a qualified personal service corporation. In addition, the effective tax rate in the states which the Company files income tax returns is approximately 7.69%. Any differences between the Company's effective rate and the statutory rate are due to various non-deductible expenses and tax exempt items which amounted to approximately $875,000 and $(1,227,000) for the years ended December 31, 2015 and 2014, respectively and for the year ended December 31, 2015, the impact of the research and experimentation federal tax credit of $618,000, miscellaneous true-ups from the 2014 filed tax return to the 2014 audited income tax provision and an increase to the deferred tax asset valuation allowance of $200,000.

The valuation allowance for the year ended December 31, 2015 relates to the net deferred tax asset that, in the opinion of management, may not be realized. The net change in the total valuation allowance for the year ended December 31, 2015 was an increase of $200,000. Although realization is not assured, management has concluded that it is more likely than not that the deferred income tax asset for which the valuation allowance was determined to be necessary, will be realized in the ordinary course of operations.

For the years ended December 31, the income tax (provision) benefit consisted of the following:

	2015	2014
Current (provision) benefit		
Federal	**$ (106,262)**	$ 452,504
State	**(276,296)**	(609,018)
	(382,558)	(156,514)
Deferred (provision) benefit		
Federal	**(999,895)**	1,092,322
State	**(84,016)**	282,725
	(1,083,911)	1,375,047
Income tax (provision) benefit	**$ (1,466,469)**	$ 1,218,533

Note 15 - Commitments and Contingencies

Operating Lease Commitments

The Company leases its office facilities under separate operating leases with expiration dates through 2023. The leases provide for additional rent based upon operating cost and real estate tax escalations. The Company subleases portions of its office space and had sublease income of approximately $233,000 in 2015 and $296,000 in 2014. At December 31, 2015, approximate minimum annual rental payments under these leases for the next five years and thereafter are as follows:

	Rental Payments	Sublease Rental Receipts
2016	$ 7,641,000	$ 245,000
2017	7,048,000	202,000
2018	6,704,000	45,000
2019	5,941,000	-
2020	5,325,000	-
Thereafter	13,251,000	-
	$ 45,910,000	$ 492,000

Contingencies

At December 31, 2015 and 2014, the Company has recorded $521,444 and $501,404, respectively, in cumulative reserves in anticipation of possible claims and contracts adjustments on several projects and these amounts are included in accrued expenses and other current liabilities on the consolidated balance sheets. These reserves were recognized as additional contract costs when recorded.

From time to time, the Company may be involved in legal actions in the ordinary course of business. Each of these matters is subject to various uncertainties, and it is possible that some of these matters may be resolved unfavorably. The Company establishes accruals for losses that management deems to be probable and subject to reasonable estimate. In the opinion of management, these matters will not have a material effect on the financial position of the Company as potential losses, if any, are expected to be covered by insurance.

Note 16 - Profit Sharing Plan

The Company sponsors a 401(k) and profit sharing plan (the "Plan") covering all eligible employees. The Plan allows employees to contribute, on a pre-tax basis, eligible compensation subject to Internal Revenue Service limits.

Profit sharing and matching contributions by the Company to the Plan are discretionary. The Company's contributions for the years ended December 31, 2015 and 2014 were $2,396,959 and $2,289,040, respectively.

Note 17 - Supplemental Disclosure of Cash Flow Information

Cash paid for interest and income taxes, net of refunds, was as follows for the years ended December, 31:

	2015	2014
Interest	**$ 449,428**	$ 269,528
Income taxes, net of refunds	**$ 891,293**	$ 1,858,446

During 2015 and 2014, non-cash activities consisted of:

	2015	2014
Notes payable issued from common stock redemptions	**$ 3,019,484**	$ 709,372
Common stock redemptions included in accounts payable	**$ 26,040**	$ 139,478
Payments on deferred compensation included in accounts payable	**$ -**	$ 62,203
Stock subscription notes receivable issued for common stock issuances	**$ 572,182**	$ 315,554
Exchange of note payable, former shareholder for common stock	**$ 77,131**	$ -
Stock subscription notes and interest receivable for common stock redemptions	**$ 132,455**	$ 75,353

A Resumes

Path along Roadway | Nantucket, MA

Columbia Greenway Access Ramp Construction | Westfield, MA

A

Resumes

- Patricia Domigan, PE | Principal-in-Charge
- Nicolette Hastings, PE | Project Manager
- William DeSantis, PE | Technical Advisor
- Susan Kremer, PE, ENV SP | QA/QC
- Timothy McIntosh, PE | Engineering Evaluation/Shared Use
- Gene Crouch | Environmental Resource Evaluation
- Dale Abbott, GISP | GIS/Mapping
- Laura Castelli, EIT | Traffic
- Geoffrey Morrison-Logan | Public Outreach
- Kristofer Kretsch, PE, NBIS, ENV SP | Structural Evaluation
- Elizabeth Grob | Strategic Project Permitting
- Scott Brunner | ROW/Easements | Construction Cost Estimates & Phasing
- Paul McKinlay, PG, LSP | Contaminated Soil
- Charles Passanisi | MBTA Coordination
- Stephen Derdiarian, RLA, LEED AP | Landscape Architecture
- Nicole Benjamin-Ma | Cultural Resources

Patricia Domigan, PE

Principal-in-Charge

Education

BS, Civil Engineering, University of Massachusetts, 1987

Registrations/ Certifications

Professional Engineer (Civil) MA, 1993

Affiliations/ Memberships

American Society of Civil Engineers

American Public Works Association

Boston Society of Civil Engineers

Trish serves as VHB's Director of Massachusetts Municipal Services. She has extensive experience helping communities in applying for state and federal grants for the design and construction of infrastructure projects, planning projects, and infrastructure design development. She brings extensive experience working on a variety of bikeways, multiuse paths, and greenways, and the unique challenges involved when these paths run through municipalities and residential areas.

29 years of professional experience

Yankee Doodle Bikeway, Billerica, MA

Trish is Project Manager for the planning and design of the Yankee Doodle Bike Path—a 2.5-mile recreational multiuse path that will connect educational, recreational, and conservation areas in the southern portion of the Town of Billerica. She oversaw preparation of the Alternatives Analysis which led to a preferred path alignment selection by the Town, and prepared MassDOT funding applications for the project, which were approved by MassDOT. She is currently leading the advancement to 25% design and submission to MassDOT.

DCR, MassCentral Rail Trail, Wayside Branch, Waltham to Berlin, MA

Trish managed the planning effort for the Wayside Branch of the Mass Central Rail Trail project. Working with Division of Conservation and Recreation (DCR), VHB lead the team to develop a plausible 19-foot-wide 'development corridor' along 23 miles on the MBTA-owned Mass Central right-of-way, in the towns of Waltham, Weston, Sudbury, Wayland, Bolton, Stow, Hudson, and Berlin. Using the location of this development corridor, VHB then evaluated the construction of a multiuse trail in terms of construction costs, environmental impacts, right-of-way, and construction phasing, and prepared an Expanded Environmental Impact Report that DCR submitted to the Massachusetts Environmental Policy Act (MEPA) Office.

DCR, Watertown Bike Path, Watertown, MA

Trish worked with the Massachusetts Department of Conservation and Recreation (DCR) to design a bike path on an abandoned railroad right-of-way, from School Street to Grove Street. The alignment, which is behind the Arsenal Mall, crosses the Nichols Street intersection with Arlington Street, a five-legged intersection with high traffic volumes.

DCR, Amelia Earhart Dam Bike Path Crossing, Somerville, MA

Trish worked on a project in which the Department of Conservation and Recreation (DCR) worked with Excelon Holdings, LLC, to prepare alternate crossings of a bike pathway over the Amelia Earhart Dam in Somerville. The project included the design of a conceptual off-road path from Draw 7 park through the MBTA maintenance facility in Charlestown. VHB was retained to complete this project, which included the review of the dam lock system to determine how to provide safe passage without interrupting operations.

Patricia Domigan, PE

Blackstone River Greenway, Segment 1, Blackstone, Millville, and Uxbridge, MA

Trish managed the design of Segment 1 of the Blackstone River Greenway, in the towns of Blackstone, Millville and Uxbridge. She worked with the Department of Conservation and Recreation to design the 3.5-mile corridor to meet the Lieutenant Governor's vision to build the Blackstone River Greenway from Rhode Island to the City of Worcester. This segment, the southernmost section of the greenway included the rehabilitation of 6 former railroad bridges, the construction of 4 miles of greenway, the re-installation of a bridge over Route 126, in Blackstone, and am underpass under Church Street. The project also included the rehabilitation of the Triad Bridge, in Millville. This three-level bridge crosses over the active Providence and Worcester railroad, as well as the Blackstone River. The greenway has been designed to be the top level of the bridge.

Minuteman Bikeway Extension Improvement Project, Bedford, MA

Trish managed design development of the extension of the Minuteman Bikeway, from its current terminus at Depot Park to the Concord town line. The project included an alternative analysis for an on-road section of the route, located on Railroad Avenue, public outreach, preparation of a Project Need Form and Project Initiation form to submit to the Massachusetts Department of Transportation (MassDOT) for construction funding support, the evaluation of flashing beacons for roadway crossings, and the preparation of design plans for submission to MassDOT. Trish also facilitated the completion of the feasibility study, conducted community outreach meetings, obtained project approval from the Selectmen, and prepared funding applications for construction through the Enhancement Program offered by MassDOT.

Amesbury Riverfront Improvements, Amesbury, MA

Trish managed and participated in the design and construction of a Public Works Economic Development project in Amesbury for drainage improvements and the full depth construction of a commercial roadway to provide an accessible pedestrian route from the Amesbury Business District to the previously constructed Riverwalk. The project evaluated alternative routes for the route, worked with National Grid, the primary property owner along the route, the City and MassDOT to develop a constructible project. VHB prepared type studies for two bridges, and developed a 25% design plan for MassDOT submission. Included in this effort was the design of an open drainage system to convey flows from Main Street and an adjacent pond to the Pow Wow River. Responsibilities included coordination with the Town and the Massachusetts Executive Office for Transportation and Construction (EOTC) for the completion of the project.

MassDOT, Complete Streets On-Call Support, Massachusetts

For the Massachusetts Department of Transportation (MassDOT), Trish was the Project Manager for the development of a model for analyzing the sensitivity of the pedestrian and bicycle segment level-of-service over a range of physical and operational attributes affected by Complete Streets design and policies. The model evaluated changes in traffic volume, lane widths, sidewalk widths, bike lanes, on-street parking, access points, and pedestrian crossing activity, among other attributes, and provided MassDOT staff with a tool to better assess the utility of the HCM model to inform the decision making process and improve the value of investments in Complete Streets designs.

Nicolette Hastings, PE

Project Manager

Niki is a Project Manager with diverse experience for public and private clients. Her work, which has encompassed urban and suburban environments, as well as institutions and campuses, has included transportation impacts, pedestrian and vehicle safety, parking, multimodal transit, and permitting.

14 years of professional experience

Education

BS, Civil and Environmental Engineering, Northeastern University, 2006

Registrations/ Certifications

Professional Engineer (Civil) MA, 2011

Affiliations/ Memberships

Institute of Transportation Engineers

Harvard University, On-Call Transportation Planning Services, Cambridge, MA

Niki serves as a Senior Transportation Engineer providing on-call transportation planning consulting services to Harvard University to support its Master Plan initiative for its campus in Allston. Current and recent efforts involve a pedestrian crossing study of the Soldiers Field Road corridor to improve multimodal access and connectivity; conceptual design to accommodate vehicles, bicycles, pedestrians, and transit within the existing and planned roadway network; traffic modelling and analysis; preparation of permitting documents for the Boston Article 80 and MEPA processes; and site access evaluations throughout Harvard's Allston campus.

Aquidneck Island Transportation Study, Portsmouth, Middletown & Newport, RI

Niki provided transportation planning and traffic engineering services for a comprehensive multimodal transportation study throughout the three communities on Aquidneck Island. The study made recommendations to the Aquidneck Island Planning Commission to preserve the existing transportation system on the Island and make the most efficient use of the existing transportation facilities. She assisted in providing traffic operations analysis, travel demand modeling, multimodal transit planning, bicycle and pedestrian accommodations analysis, socioeconomics studies, land use planning, and environmental and historic resource protection services to the Planning Commission in support of this project. Additionally, Niki participated in an open, transparent, and collaborative public outreach process.

MassDOT/NMCOG, Rourke Bridge Corridor Study and Feasibility Analysis, Lowell, Chelmsford, Tyngsborough, and Dracut, MA

Niki served as Transportation Planner of this Northern Middlesex Council of Governments (NMCOG) and Massachusetts Department of Transportation (MassDOT) project that examined the feasibility, appropriate configuration and location of a crossing of the Merrimack River in the vicinity of the current Rourke Bridge around Wood Street, Westford Street, & Drum Hill Road. Short- and long-range recommendations for addressing the severe traffic congestion, multimodal mobility, and safety issues that exist along the Wood Street / Westford Street / Drum Hill Road corridors were also developed. Niki was responsible for the evaluation of existing regional transportation conditions, projection of 2035 future traffic forecasts using the statewide and Nashua regional travel demand models, and the evaluation of bridge and intersection improvement alternatives. Niki participated in an extensive public outreach process that included public informational, Technical Working Group and Study Advisory Committee meetings, all occurring at key decision points to engage the public and stakeholders and provide a forum to solicit opinions.

Nicolette Hastings, PE

South Boston Waterfront Sustainable Transportation Plan, Boston, MA

Niki served as a Senior Transportation Engineer in the development of a comprehensive and data-driven transportation plan for the Waterfront District in Boston's South End neighborhood. Sponsored jointly by Massachusetts Department of Transportation (MassDOT), Massachusetts Port Authority (Massport), the City of Boston, and the Massachusetts Convention Center Authority, and led by A Better City, the project involved developing transit, pedestrian, bike, and roadway infrastructure improvements that support recent and planned development of the Waterfront over the next 20 years. Asset management, resiliency, and significant public outreach were key efforts of this assignment.

Arsenal Street Corridor Study, Watertown, MA

Niki serves as a Senior Transportation Engineer for a Complete Streets oriented corridor study of a major local and regional arterial running through eastern Watertown. Elements of this study include improved pedestrian and bicycle connectivity, transit service/accessibility, incorporation of measures to improve public health and a future year design forecast that incorporates the many underway and planned changes along the corridor over the next 20 years. The study includes extensive public outreach with Town government, a working group committee made up of state and local officials, stakeholders, and advocacy groups, and the general public.

Citywide Traffic Management Plan, Norwalk, CT

Niki worked on a project to develop a comprehensive traffic management plan for the City of Norwalk. She was part of a team developed citywide, context-sensitive approaches to project development and multimodal transportation facility design that focus on designing all roadway corridors from the outside in with emphasis on accommodations for bicycles and pedestrians. The final report provided a clear and transparent guide for the investment of future funding into the City's overall transportation system. As part of this work, Niki participated in an open, transparent, and collaborative public outreach process.

On-Call Transportation Planning Services, Lynn, MA

Niki served as Project Manager on two on-call transportation planning efforts for the City of Lynn. The first effort involved an evaluation of improvement options for the downtown roadway network for which she led a team that assessed how vehicle circulation, traffic flow, and wayfinding could be improved by considering the conversion of select one-way streets to two-way operation. A series of short-term improvements aimed at enhancing access, safety, and wayfinding and two longer term recirculation options to improve overall circulation and mobility were evaluated. Niki also led an effort to evaluate impacts to traffic flow and operations along the Lynnway as a result of a potential improvement option at Blossom Street to improve access to the Lynn Commuter Ferry Terminal. For both efforts, Niki coordinated with and presented findings to various stakeholders.

William DeSantis, PE

Technical Advisor

Education

BS, Civil Engineering, Northeastern University, 1976

Registrations/ Certifications

OSHA Construction Safety and Health Certificate (10-Hour), 2015

Professional Engineer: RI, 1983

League Cycling Instructor, 2004

National Mountain Bike Patrol Certified Instructor

Affiliations/ Memberships

Institute of Transportation Engineers, New England

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

East Coast Greenway Alliance

League of American Bicyclists, Instructor

Association of Pedestrian and Bicycle Professionals

National Mountain Bike Patrol, Patrol Instructor

Highly experienced in bikeway and roadway design, Bill 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.

40 years of professional experience

Yankee Doodle Bikeway, Billerica, MA

Bill is Technical Advisor for the planning and design of the Yankee Doodle Bike Path—a 2.5-mile recreational multiuse path that will connect educational, recreational, and conservation areas in the southern portion of the Town of Billerica. He assisted with the preparation of the Alternatives Analysis which led to a preferred path alignment selection by the Town. He is is currently advising on the advancement to 25% design and submission to MassDOT.

DCR, Designing and Planning Segment 1 of the Blackstone River Greenway, Blackstone, Millville, and Uxbridge, MA

Bill is the Technical Adviser for a project for the Department of Conservation and Recreation (DCR) to transform an abandoned railway into a vibrant bikeway for recreation and transportation. The planned 4.15-mile multi-use trail runs from the Rhode Island state border to Route 146A in Uxbridge. The Greenway will be a paved recreational trail along a former rail line and will travel through a mix of downtown areas and natural settings. The Green will encompass eleven bridges and several trailhead/parking areas. Several of the bridges along the trail are on the National Historic Register. The Greenway is being designed to take advantage of existing features, such these historic locations, along with natural views, railroad infrastructure, and notable town buildings and destinations. The VHB team will provide survey, trail design and engineering, structural design, landscape architecture, historic interpretation, and environmental permitting services.

Mattapoisett Multiuse Bicycle Path, Mattapoisett, MA

For the town of Mattapoisett, on Buzzards Bay in southeastern Massachusetts, Bill was Project Manager for the final design and construction of a 4.7-mile multiuse bicycle trail on a former railroad bed. The majority of the bicycle path is an off-road paved bicycle path (Class I) on former railroad bed, with an adjacent equestrian trail. Portions of the railroad right-of-way serve as a sewer line corridor, which required careful design. The project was phased due to permitting issues regarding building a bike path along a barrier beach, crossing a salt

marsh, and coordinating the design with a YMCA camp. This project, which was part of the Southeast Regional Planning & Economic Development District regional bike master plan, aimed at promoting safer bicycle travel as well as access to several town facilities and links to adjacent paths.

NPS, Cape Cod National Seashore, Integrated Bicycle Plan Feasibility Study, Province Lands, MA

Bill assisted in studying the feasibility of an integrated bicycle plan for the Cape Cod National Seashore for the National Park Service (NPS). His work included evaluating, estimating, and prioritizing potential facility improvements and connectivity to Cape Cod National Seashore attractions, adjacent towns, and bicycle facilities, including links to 15 towns on Cape Cod extending from regional transit hubs and bicycle trailheads and facilities at Brewster and Orleans north along Cape Cod to Provincetown.

Mattapoisett Multiuse Bicycle Path, Mattapoisett, MA

For the Town of Mattapoisett on Buzzards Bay in southeastern Massachusetts, Bill was Project Manager for the final design and construction of a 4.7-mile multiuse bicycle trail on a former railroad bed. The majority of the bicycle path is an off-road paved bicycle path (Class I) on former railroad bed, with an adjacent equestrian trail. Portions of the railroad right-of-way serve as a sewer line corridor, which required careful design. The project was phased due to permitting issues regarding building a bike path along a barrier beach, crossing a salt marsh, and coordinating the design with a YMCA camp. This project, which was part of the Southeast Regional Planning & Economic Development District regional bike master plan, aimed at promoting safer bicycle travel as well as access to several town facilities and links to adjacent paths.

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). The Blackstone River Bikeway is a major transportation connection through the population centers and the cultural, natural, and historical resources of the Blackstone River Valley National Heritage Corridor and is being designed to be compatible with these resources. As Project Manager, Bill is responsible for coordination of all project activities including bikeway design, bridge design, landscape architecture, railroad signal design, environmental permitting, historic interpretive design, GPS and engineering surveys, aerial photogrammetry, and community involvement. Construction of the first portion, a three-mile segment in Lincoln, was completed in October, 1998, and the next segment, a three-mile rail-with-trail was completed in 2002. A new crossing of the Blackstone River in the historic mill village of Ashton was completed in 2003. Construction of Segment 4B in Cumberland and Lincoln was completed in the fall of 2004. Segment 4B includes two crossings of the Blackstone River and clean-up of a portion of an EPA Superfund site. Segments 7A & 7B, an additional three-mile rail-with-trail, were completed in 2008. Segment 7C was incorporated into the City of Woonsocket River's Edge Recreation Complex, which capped an old landfill and construction a trail head facility and athletic fields. Segment 2 in Providence provided three miles of bicycle lanes on Blackstone Boulevard, a historic Olmstead parkway landscape. To date, 14 miles of the bikeway are open and in operation.

Susan Kremer, PE, ENV SP

QA/QC

Education

BS, Civil Engineering, Vanderbilt University, 1983

Registrations/ Certifications

Professional Engineer (Civil) MA, 1994; VT, 2015; NH, 1988

Envision™ Sustainability Professional, 2013

Greenroads Sustainable Transportation Professional, 2015

NorthEast Transportation Training and Certification Program (QA Technologist), 2013

Affiliations/ Memberships

American Society of Civil Engineers, Boston

As the Chief Highway Engineer in VHB's Watertown Transportation Engineering Group, Susan's primary responsibility is quality assurance and quality control (QA/QC) for path, roadway, and bridge projects in Massachusetts. This includes reviewing projects for technical quality, completeness, and conformance with federal, state, and local standards, including AASHTO and Massachusetts Department of Transportation (MassDOT) design guidelines. In addition, Susan is responsible for development of periodic in-house technical training seminars to educate engineering staff on design methods, updates to MassDOT design directives, and changes to national design policy.

26 years of professional experience

Designing and Planning Segment 1 of the Blackstone River Greenway, Blackstone, Millville, and Uxbridge, MA

Susan was responsible for QA/QC of the design of Segment 1 of the Blackstone River Greenway, a 3.5-mile portion of the Blackstone River Greenway which will eventually connect Rhode Island to the City of Worcester. This segment, the southernmost section of the greenway included the rehabilitation of six former railroad bridges, the construction of four miles of greenway, the re-installation of a bridge over Route 126, in Blackstone, and an underpass under Church Street.

Watertown-Cambridge Greenway—Phase II, Watertown and Cambridge, MA

Susan was responsible for QA/QC of the design of a 5,600 linear foot portion of this greenway for the DCR. This phase is a vital link in the Regional Bikeway network. The construction of this segment signifies the completion of an important regional connection linking the Charles River path system, the Minuteman Bikeway, the Alewife Greenway, and the Mystic River Reservation into an interconnected off-road pathway network.

Final Design of the Westerly Extension of the Cape Cod Rail Trail—Phases 1, 2, and 3, Barnstable, Dennis, and Yarmouth, MA

Susan provided QA/QC for this eight-mile extension to the Cape Cod Rail Trail (CCRT) from the trail head located at the intersection of Route 134 in the Town of Dennis through Dennis, Yarmouth and into Barnstable, which will extend the existing bike trail into Barnstable where future phases will extend that trail through Barnstable and into Sandwich.

Columbia Greenway, Westfield, MA

For the City of Westfield, Susan was responsible for QA/QC of the ongoing Columbia Greenway rails-to-trails greenway project. The project consists of constructing a 3.2-mile multi-use trail and related improvements. The project includes a 12-foot paved trail, rehabilitation of three bridges and replacement of six bridges, pathway lighting, access ramps/walkways, emergency vehicle access points, landscaping, retaining walls, safety rails, drainage, benches, parking, and trail safety lighting.

Susan Kremer, PE, ENV SP

Hummock Pond Bikepath, Nantucket, MA

In addition to being responsible for quality control for the design of this 2.5-mile bikepath, Susan assisted in the laying out of the horizontal and vertical alignment. The bikepath was designed along a heavily traveled roadway providing access to a popular beach for the Nantucket Planning Commission.

Shining Sea Bikeway, Falmouth, MA

Providing QA/QC for the Shining Sea Bikeway, Susan was responsible for reviewing the design and a variety of cross sectional details necessary to construct 6.5 miles of a multi-use facility along an abandoned rail facility. The path is located in a challenging topographical and environmentally sensitive corridor including salt marsh and cranberry bogs. This facility provides connectivity to a variety of institutional, residential, and recreational destinations in North and West Falmouth.

MassDOT, Yawkey Way Extension, Boston, MA

For MassDOT, Susan was responsible for providing QA/QC for the construction of a new roadway from the existing Brookline Avenue/Yawkey Way intersection through existing private parking areas, to the Maitland Street/Beacon Street intersection. The main purpose for this new roadway is to provide multimodal access to the new MBTA Yawkey Station.

Concord Road (Route 126), Framingham, MA

Susan provided QA/QC for a 1.6-mile town roadway project. Improvements included the application of Complete Streets concepts to provide improved access to all users.

Padanaram Causeway Rehabilitation Project, Dartmouth, MA

Susan was responsible for QA/QC of the design of the rehabilitation of the Padanaram Causeway over the Apponagansett Bay in Dartmouth. This project included roadway rehabilitation, pedestrian improvements, and drainage improvements in addition to the structural improvements to the causeway. The funding for this project was from several sources including federal earmarks, the Massachusetts DCR, the Seaport Council, and the town.

Montvale Avenue Improvements, Woburn, MA

Susan was responsible for the QA/QC of the preliminary design plans of the improvements to Montvale Avenue. The project has considerable constraints due to the abutting property features including homes, garages and parking lots. VHB has been working with the city and state in order to provide a project that provides for all users while reducing congestion in this highly traveled corridor.

Fawcett Street, Cambridge, MA

Susan was responsible for the QA/QC of the preliminary design plans of the improvements to Fawcett Street, a city roadway. Improvements include roadway rehabilitation, sidewalk construction, and drainage improvements.

Timothy McIntosh, PE

Engineering Evaluation/Shared Use

Tim is a Senior Project Manager with VHB's Transportation Engineering Department. He has worked with MassDOT, municipalities, and private developers across eastern Massachusetts and especially within MassDOT's Districts 4, 5 and 6 areas, bringing his extensive experience in the design of transportation projects for interchanges and primary, secondary, and urban roadways. Several of his projects have included the design of bicycle accommodation concepts, including separated bicycle lanes.

Education

BS, Civil Engineering, Northeastern University, 1991

Registrations/ Certifications

Professional Engineer (Civil): MA, 1997

Affiliations/ Memberships

American Society of Civil Engineers

American Public Works Association

Boston Society of Civil Engineers

28 years of professional experience

Roadway Rehabilitation, Belmont, MA

Tim prepared contract documents for two construction projects for the rehabilitation of 34 roadways in the Town of Belmont. Responsibilities included coordinating survey, pavement management, and engineering services. Design responsibilities included wheelchair ramp layout, construction detail, and specification preparation. In addition, Tim coordinated construction inspection for the projects.

Assembly Square Access Improvements, Somerville, MA

Tim served as Civil Task Manager during the preliminary and final design phases of roadway and offsite improvement projects. He managed the civil design and coordinated utility design, traffic signal design, traffic management, landscaping and other offsite improvement projects. Tim coordinated bicycle lane layout and design along the one-mile urban corridor from feasibility stage to final design. He also successfully assisted the City through the MassDOT review/approval process and in securing Federal Stimulus funding.

Brookline Village – Gateway East, Brookline, MA

Tim was Civil Task Manager for the 25% Design Phase of intersection and pedestrian improvement project. He was responsible for civil design and ongoing coordination with traffic signal design, landscaping and streetscape elements. Conceptual design features bicycle accommodation concepts, including separated bicycle lanes.

Monsignor O'Brien Highway, Cambridge, MA

Tim is Civil Task Manager for the 25% Design Phase of roadway corridor improvement project. He is responsible for civil design and coordination with traffic signal design, utility, drainage, landscaping and streetscape elements. Improvements include separated bicycle lanes, improved pedestrian amenities, partially separated drainage system and enhanced landscape/streetscape elements.

Beacon Street Reconstruction Project, Brookline, MA

Tim was Civil Task Manager during the 75% design for multimodal roadway and signal improvements at 22 locations over a 3.5-mile busy urban corridor. Responsibilities included overseeing civil design effort, coordinating design issues with the MassDOT, coordinating traffic signal design, landscaping, and streetscaping services, monitoring contract budgets, and supervising the preparation of design documents. The 75% design plans and specifications were submitted to MassDOT on time and under budget.

Timothy McIntosh, PE

Cambridge On-Call Services, Cambridge, MA

Tim is the Project Manager for an on-call engineering contract for the City of Cambridge. The range of services provided have included transportation planning, roadway engineering, pavement design, traffic design and assessment, pedestrian and bicycle enhancements, water resources, field survey, and pavement evaluation and design services. He recently assisted with a transportation planning study that addresses current and potential issues at several intersection locations throughout the City.

Binney Street at Land Boulevard, Intersection Improvements, Cambridge, MA

Tim managed the civil and traffic design modifications to the intersection of Binney Street and Land Boulevard on behalf of the Alexandria Real Estate. He prepared design plans, specifications and estimates for public bidding; coordinated with the Department of Conservation and Recreation (DCR), and coordinated with the City of Cambridge Department of Public Works. The intersection design required close coordination with the City consultants for traffic management and utility design.

Case Corner Roundabout, Weston, MA

Tim served as Project Manager for preliminary and final design phases of this local roundabout design project located at the intersection of Newton Street and Wellesley Street. Managed all aspects of the design including civil design, traffic simulation, traffic management, landscaping and coordination with Town officials. He assisted the Town with the technical public presentations for various public outreach meetings. Tim also prepared bid documents and assisted the Town during the bid review process.

Gene Crouch

Environmental Resource Evaluation

A Senior Wetland Ecologist and an Associate at VHB, Gene is experienced in fresh and marine wetland ecology, research, permitting, environmental documentation preparation, and reporting. He has a thorough knowledge of federal environmental legislation and regulations, which he gained through previous experience with the U.S. Army Corps of Engineers, the National Marine Fisheries Services, and the U.S. Fish and Wildlife Service and federal Section 10/404 permits.

Education

BS, Biology, Northeastern University, 1974

Affiliations/Memberships

International Erosion Control Association

Association of State Wetland Managers

41 years of professional experience

Shining Sea Bikeway, Falmouth, MA

Gene provided environmental planning and permitting for a 6-mile extension of the Shining Sea Bikeway for the Town of Falmouth and Massachusetts Department of Transportation. The project extended the existing bikeway from just outside downtown Falmouth to North Falmouth along the eastern coast of Buzzards Bay along a former railroad alignment. The Bikeway crossed or ran alongside several large salt marsh complexes including the Great Sippewissett Marsh. The Project also crossed protected box turtle habitat and directly impacted a protected rare plant species. Coordination with the Natural Heritage and Endangered Species Program (NHESP) included development of construction measures to protect box turtles, development of signage along the alignment notifying the public of the presence of box turtles and relocation of the small population of blazing star plants growing between the rail tracks. With the measures Gene developed to address the NHESP concerns, the Project was permitted without the need for a Conservation and Management Permit.

DCR, Blackstone River Greenway, Segment 1, Blackstone, Millville, and Uxbridge, MA

For the Massachusetts Division of Conservation and Recreation (DCR), Gene provided environmental planning and permitting in three towns, including field delineation and mitigation efforts for Segment 1 of the Blackstone River Bikeway. The project includes 3.3 miles of greenway and 11 bridges.

DCR, Mass Central Rail Trail, Berlin to Waltham, MA

Gene directed the aerial interpolation of wetlands along a 23 mile rail trail corridor for planning and initial environmental impact and permitting assessment for the Massachusetts Division of Conservation and Recreation (DCR). Work included delineation of wetland resources using aerial photographs of the corridor including wetlands, streams and rivers, with selective field review of the delineated resources. Based on the aerial delineation, impacts to wetlands, Riverfront Area and buffer zones were calculated using GIS along with potential impacts to floodplain from available FEMA mapping. This work was conducted to provide a planning level assessment of environmental impacts and list of permits needed for inclusion in an Environmental Notification Form on the Project.

Erosion Control/Construction Monitoring

Gene has demonstrated skills in the development of erosion controls and specifications as part of the monitoring of construction projects. He has developed erosion control programs for many types of projects including gas transmission, roadways, utilities, bridge crossings,

Gene Crouch

and other types of development, and he is uniquely familiar with which of those erosion controls are effective based upon his extensive tenure in the field and federal regulatory experience. He has also demonstrated knowledge of workable solutions in the development of sedimentation / erosion controls and has "field engineered" many projects for which difficult topography and constraints were present.

Middlesex Turnpike and Route 62 Roadway Improvements, Bedford and Burlington, MA

As part of an extensive land development project, Gene provided the environmental evaluation and permitting for roadway improvements required as offsite traffic mitigation for a large office park complex. He coordinated required environmental permitting efforts for the roadway improvements, utility relocation, and geotechnical borings. To satisfy regulatory agencies' requests for data about wetland impacts, floodplain impacts and storm water quality, Gene developed a strategy for floodplain mitigation that incorporated already planned elements of the roadway improvements and minimized additional construction.

Greylock Glen Site Environmental Services, Adams, MA

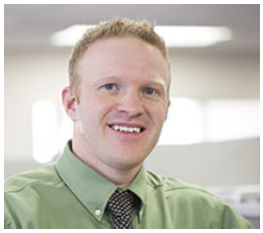
Gene served as the Task Manager for Environmental Services addressing wetland-related issues for Greylock Glen, a unique public/private joint venture sponsored by the Massachusetts Department of Environmental Management (now part of the Department of Conservation and Recreation). The project included plans for housing units, a New England Village, a 25-acre lake, an alpine skiing area with three lifts, cross country ski trails with snowmaking and grooming, an 18-hole golf course, an inn, and a conference center. Gene's participation supported master planning, identification and evaluation of state and federal regulated wetland resources, identification and evaluation of protected species habitat, environmental permitting, civil engineering, and roadway and utility infrastructure design.

MassDOT, On-Call Environmental Contract, Statewide Massachusetts

Gene provides as-needed services necessary to support environmental compliance projects for the Massachusetts Department of Transportation's (MassDOT) Construction Advertising Program. Services have included statewide environmental permitting and National Environmental Policy Act (NEPA) support. As part of this program, Gene directed the preparation of a Notice of Intent for 400 feet of stream bank restoration along the Little River in Westfield and helped MassDOT develop a bridge Programmatic General Permit with the U.S. Army Corps of Engineers (USACE).

Dale Abbott, GISP

GIS/Mapping



Education

BS, Environmental Conservation: Environmental Affairs, University of New Hampshire, 2003

Registrations/ Certifications

Certified Geographic Information System Professional (GIS), 2015

Dale is GIS Specialist with extensive experience and skills in the application of GIS technology for natural resources protection, transportation planning, and municipal government. His areas of specialization include data development, data modeling, analysis, and cartographic presentation. He is also an expert in mobile data collection efforts utilizing Global Positioning Systems (GPS) technology to create custom data collection forms using a variety of software packages. He has provided GIS mapping oversight on several rail trail and greenway projects throughout New England.

13 years of professional experience

Northern Rail Trail, Andover, Wilmot & Danbury, NH

For the Town of Andover, Dale prepared environmental constraint mapping for the municipally managed 8.3 mile long segment of the Northern Rail Trail. This project was funded primarily with Transportation Enhancement funds. VHB provided trail design, bridge design, and construction inspection services for this stone-dust surface trail that includes upgrades to decks and/or railings on six former railroad bridges. VHB produced minimized engineering plans that were based on orthophoto bases with railroad valuation maps superimposed.

Route 28 Bicycle-Pedestrian Corridor, Salem, NH

For the Town of Salem, Dale assisted with the preliminary studies and design related to the planned bicycle/pedestrian corridor, which runs along the Manchester & Lawrence rail right-of-way, parallel to NH Route 28. Project tasks included creating an existing conditions plan, developing program objectives to guide alternatives development, and developing preliminary trail routes while considering the context of the varying land uses the trail will run through.

Merrymeeting Trail Feasibility Study, Topsham, Bowdoinham, Richmond, and Gardiner, ME

VHB assisted Maine's Midcoast Council of Governments in studying the feasibility of a 26-mile multi-use path that within the State-owned Maine Eastern Railroad corridor. Dale oversaw GIS/mapping including data gathering from available GIS database sources as well as an on-the-ground field inventory of opportunities and constraints and merging GPS collected field data with the GIS mapping to form the base for the study.

Salem-Windham Bicycle/Pedestrian Corridor, Salem and Windham, NH

Dale provided GIS services for the Salem-Windham Bicycle/Pedestrian Corridor portion of the Windham Rail Trail. The project included a feasibility study which was used to help secure grant funding for construc-tion of an initial phase of the trail. The study phase of the project required close communication with the public stakeholders, as well as with the New Hampshire Department of Transportation (NHDOT).

Laura Castelli, EIT

Traffic

Education

BS, Civil Engineering, University of Massachusetts Amherst, 1999

Registrations/ Certifications

Engineer-in-Training: MA

Affiliations/ Memberships

Institute of Transportation Engineers

Laura is a Project Manager with experience focused on corridor studies, multimodal transportation plans, and developing sustainable, multimodal transportation improvement programs and Complete Streets conceptual improvements. She has extensive experience with public agencies at the municipal, state, and federal levels and with public outreach.

17 years of professional experience

Yankee Doodle Bike Path, Billerica, MA

Laura supported the Yankee Doodle Bike Path feasibility study with the preparation of a Project Need Form (PNF) and Project Initiation Form (PIF) for submission to MassDOT. The PNF/PIF process is the first step in applying for Federal Transportation Improvement Program (TIP) funding.

Massachusetts Avenue Streetscape – Mill Street to Pond Lane, Arlington, MA

Laura is currently providing traffic, transportation planning, and pedestrian/bicycle safety services to the Town of Arlington to inform streetscape improvement plans in the Town Center. This project included identifying and securing funding sources to rebuild the corridor to meet the needs of current and future users, with a priority on non-motorized transportation.

Arsenal Street Corridor Study, Watertown, MA

Laura serves as Project Manager for a Complete Streets oriented corridor study of a major local and regional arterial running through eastern Watertown. Elements of this study include improved pedestrian and bicycle connectivity, transit service/accessibility, incorporation of measures to improve public health and a future year design forecast that incorporates the many underway and planned changes along the corridor over the next 20 years. The study includes extensive public outreach with Town government, a working group committee made up of state and local officials, stakeholders, and advocacy groups, and the general public.

NorthPoint Development/O'Brien Highway, Cambridge, MA

Laura continues to serve as transportation task manager for the design development process of 5.4 million square feet of mixed-use development in East Cambridge. Efforts include the reconstruction of approximately 2,000 feet of the O'Brien Highway corridor to better accommodate the multimodal nature of the corridor and the current mix of roadway users (pedestrians, bicyclists, private vehicles, and transit vehicles). VHB is currently redesigning O'Brien Highway elements including the reduction of travel lanes, provision of expanded sidewalk width, enhanced pedestrian crosswalks and crossing treatments, and the development of a separated bicycle facility. A goal of the project is to provide enhanced non-motorized transportation options that encourage the reduction of automobile traffic and support active transportation and MassDOT's GreenDOT and Healthy Transportation initiatives.

Laura Castelli, EIT

Gateway East/Route 9 Jughandle Transportation Study, Brookline, MA

Laura is Project Manager in a two-phase project to improve access across Route 9 in Brookline Village. The first phase included the completion of a feasibility study to determine whether an existing (condemned) pedestrian overpass can be demolished and replaced with an at-grade signalized pedestrian crossing of Route 9. The study made recommendations on reducing the cross-section of Route 9 and incorporating additional bicycle accommodations and landscaping features. Phase 2 has included a substantial public outreach program that has reshaped the roadway design elements to focus on the inclusion of separated bicycle lanes and the development and submission of design plans for the recommended improvements to MassDOT. The project is funded through the Federal TIP program.

Green Line Light Rail Service Northwest Extension, Cambridge, Somerville, and Medford, MA

As Task Manager for Transportation, Laura worked on the development of a Draft Environmental Impact Report (DIER) and conceptual design for a project to improve corridor mobility, increase transit ridership, and improve regional air quality by expand public transit from the Lechmere light rail station to nearby communities. She completed the evaluation of the vehicular, pedestrian, and bicycle transportation impacts of the various alignments for extending light rail in the study area.

South Boston Waterfront Sustainable Transportation Plan, Boston, MA

Laura served as Project Manager in the development of a comprehensive and data-driven transportation plan for the South Boston Waterfront District. Sponsored jointly by the Massachusetts Department of Transportation (MassDOT), Massachusetts Port Authority (Massport), the City of Boston, and the Massachusetts Convention Center Authority (MCCA), and led by A Better City, the project involved developing transit, pedestrian, bike, and roadway infrastructure improvements that support recent and planned development of the Waterfront over the next 20 years. Asset management, resiliency, and significant public outreach and stakeholder consensus building were key efforts of this assignment.

Rourke Bridge, Wood Street, Westford Street, & Drum Hill Road Corridor Study and Feasibility Analysis, Lowell, Chelmsford, Tyngsborough, and Dracut, MA

Laura served as Project Manager of this Northern Middlesex Council of Governments (NMCOG) and Massachusetts Department of Transportation (MassDOT) project that examined the feasibility, appropriate configuration and location of a crossing of the Merrimack River in the vicinity of the current Rourke Bridge. Short- and long-range recommendations for addressing the severe traffic congestion, multi-modal mobility, and safety issues that presently exist along the Wood Street/ Westford Street/ Drum Hill Road corridors were also developed. The feasibility of bicycle accommodations on area roadways and the inclusion of bicycle facilities across a new Rourke Bridge were comprehensively evaluated. Laura led an extensive public outreach process that included public informational, Technical Working Group and Study Advisory Committee meetings and work sessions, all occurring at key decision points to engage the public and stakeholders and provide a forum to solicit opinions.

Geoffrey Morrison-Logan, NCICS, NCICMF

Public Outreach

Geoffrey has diverse and extensive experience in landscape architecture, land use planning, and urban design. He has managed a wide variety of projects for both public and private sector clients, including corridor studies, master plans, downtown plans, mixed-use development, and complete streets efforts.

21 years of professional experience

Education

MS, Urban Development and Design, University of New South Wales, 1998

B Arch, Roger Williams University, 1993

Registrations/ Certifications

National Charrette Institute Charrette Management and Facilitation™ Certificate, 2011

National Charrette Institute Charrette System™ Certificate, 2007

Belmont Open Space and Housing Inventory, Belmont, MA

Geoffrey assisted in the preparation of an inventory and an evaluation ranking criteria for existing and potential open space and affordable housing lands in the community. Tasks included consolidating a wide variety of GIS information, including land use and zoning, assessor's database, natural and cultural resources, and infrastructure, to build a robust and functional inventory of existing resources and potential parcels for open space, recreation or affordable housing development. Together, the inventory and the evaluation criteria allow the Town to strategize the acquisition, preservation, and development of land for open space or affordable housing in Belmont.

Watertown Comprehensive Master Plan, Watertown, MA

Geoffrey led the public outreach component and community-based vision for master plan for the Town of Watertown that focuses on reinforcing major corridors and commercial districts; enhancing the Town's transportation, circulation, and parking; preserving and capitalizing upon the Town's historical, cultural, and natural resources; and promoting energy efficiency and sustainability within the Town.

Green Line Extension Land Use Workshops, Cambridge, Somerville, and Medford, MA

Geoffrey facilitated multiple land use workshops to gather feedback from the public to help guide future land use decisions for the Green Line Extension Project, which will extend the existing Massachusetts Bay Transportation Authority (MBTA) public transit trolley service through the northwest Boston corridor communities of Cambridge, Somerville and Medford. He made short presentations with brief overviews of different land use types, a summary of questions for the public, and a photo tour of the area around specific stations. Following the presentations, participants were given the opportunity to ask the presenters questions and offer feedback, all of which was recorded. Public comments were compiled and summarized by station to help guide future land use decisions around the stations.

Greenfield Comprehensive Sustainable Master Plan, Greenfield, MA

Geoffrey led the public outreach component for a Comprehensive Sustainability Master Plan for the Town of Greenfield. He guided the Town through an innovative, inclusive community planning process that incorporated sustainability principles throughout the final master plan. He worked with residents, city officials, institutions, and foundations to create a new vision guiding sustainable community development in the Town of Greenfield for the next 10-20 years. In preparing the Master Plan, Geoffrey collaborated with the Planning Board, Town staff, and committed volunteers, including local businesses, organizations, and agencies. VHB conducted a community outreach program, using techniques such as public workshops, online communication tools, and presence at events in the town of Greenfield. The final

document included a robust and realistic implementation plan that lays out the people and resources needed to implement the Town's vision and goals.

Aquidneck Island Transportation Study, Portsmouth, Middletown & Newport, RI

Geoffrey provided land use planning and community outreach assistance for a comprehensive multimodal transportation study throughout the three communities on Aquidneck Island. The study made recommendations to the Aquidneck Island Planning Commission to preserve the existing transportation system on the island and make the most efficient use of the existing transportation facilities. Public workshops included use of a variety of innovative outreach/participation tools including electronic voting, "wishing walls," live/work sign-in map, project buttons, and breakout groups.

Gilbo Avenue Design Charrette, Keene, NH

Geoffrey was Project Manager for designing, planning, and facilitating a two-day design charrette aimed at informing the public about four proposed projects along Gilbo Avenue and gathering public input. He worked with the Greater Keene Chamber of Commerce, City of Keene, Keene State College, and Monadnock Economic Development to plan, prepare, and conduct the charrette and produce post-charrette documentation, including illustrated plans, written documents, and supporting information.

Downtown Visioning and Tunnel Project, Lebanon, NH

Geoffrey is Project Manager for a project to revitalize the downtown area of Lebanon. The project also involves planning for a number of infrastructure improvements, as well as addressing parking deficiencies and enhancements to pedestrian and bicyclist safety.

Holyoke City Center Vision Plan, Holyoke, MA

Geoffrey was Project Manager for a comprehensive planning study of various downtown areas of Holyoke and the creation of a Vision Plan to lay the groundwork for an urban renewal plan. The six-month planning process included three public workshops, stakeholder interviews, and close coordination with a Steering Committee. The Vision Plan identified strategies for future development, streetscape, transportation, expanding the Canalwalk, and open spaces. Funding for this study was provided through the Gateway Plus Action Grant Department of Housing and Community Development.

Downtown/Market Street Vision Plan, Lynn, MA

Geoffrey was Project Manager for a Vision Plan that identified strategies to revitalize the Market Street Gateway into a thriving mixed-use urban community and builds on the area's assets and ongoing investments in projects and other planning initiatives. The plan was developed in conjunction with the City's Economic Development and Industrial Corporation (EDIC), Economic and Community Development Department, and Lynn Housing Authority and Neighborhood Development through a grant from the Massachusetts Department of Housing and Community Development (DHCD). The plan focused on identifying land use, zoning, streetscape, and transportation improvements that will stimulate economic investment and revitalization along the Market Street corridor.

Kristofer Kretsch, PE, NBIS, ENV SP

Structural Evaluation

Education

BS, Civil Engineering, University of Lowell, 1988

AAS, Architectural Engineering, Vermont Technical College, 1981

Registrations

Professional Engineer (Structural) #41318 MA, 1999

Professional Engineer (Structural I) VT, 2013

Professional Engineer FL, 2002

NBIS Certified Bridge Inspector (Safety Inspection) , 2011

NBIS Certified Bridge Inspector (Fracture Critical) , 2012

Envision™ Sustainability Professional, 2013

Affiliations/Memberships

American Society of Civil Engineers

American Railway Engineering and Maintenance-of-Way Association, 2009

Kris is a VHB Senior Structural Engineer with diverse experience in bridge engineering and construction that includes inspection, rating, analysis, and design for highway and railroad structures. Additional responsibilities have included seismic analysis of bridges, structural analysis and design for tunnels, buildings, earth retention systems, sign support structures, and mast arm installations.

27 years of professional experience

Cape Cod Rail Trail, Yarmouth-Dennis, MA

Kris was Senior Engineer for the design of three bridges associated with the construction of a mixed-use trail along a former railroad. The trail was designed for the towns of Yarmouth and Dennis and included three bridge crossings—over Route 134 in Dennis, the Bass River at the town's border, and Station Avenue in Yarmouth.

Powwow Riverwalk, Amesbury, MA

Kris was Senior Engineer for a conceptual study for an elevated walkway along the Powwow River for the Town of Amesbury. His efforts included analysis of alternative structure types and materials to construct the riverwalk with limited access to the river in the downtown area.

Columbia Greenway, Westfield, MA

Kris is the Lead Structural Engineer for the design and construction of nine bridges associated with the construction of a mixed-use trail along a former railroad. The trail is being designed for City of Westfield in accordance with Massachusetts Department of Transportation (MassDOT) Standards, and includes rehabilitation of two existing truss structures, two completely new bridges, and five new superstructures constructed on existing abutments. Kris's responsibilities include task management, QA/QC, design and administration of construction phase services

State Street Transportation Planning and Design Services, Springfield, MA

For the rehabilitation of a major urban arterial, Kris provided structural engineering for reconstructing an existing vault in a building basement under the sidewalk.

Derek S. Hines Movable Bridge Replacement Design-Build, Amesbury, MA

Kris was Senior Engineer for the design-build project to replace the Derek Hines three-span movable bridge carrying Main Street over the Merrimack River for the Massachusetts Department of Transportation (MassDOT). Barletta Heavy Division, Inc. managed this project for MassDOT and VHB was design lead. Kris's responsibilities included structural analysis, seismic analysis, final design substructure and deep foundations, and quality assurance and quality control (QA/QC) of contract documents.

Replacement of Pedestrian/Bike Bridge over Passagassawakeag River, Belfast, ME

Kris was Project Engineer for prestressed concrete superstructure design, pile bent design, and detailing for the replacement of a 1,030-foot pedestrian bridge for the City of Belfast. The project also included substructure and pile foundation design for a bascule span over the navigable channel.

Kristofer Kretsch, PE, NBIS, ENV SP

Bridge Inspection and Rating Reports, Boston, MA

For the Massachusetts Turnpike Authority (now the Massachusetts Department of Transportation), Kris was Project Engineer and Inspection Leader for inspection, evaluation and rating reports for 12 bridges. Inspections included night work to evaluate spans over the MBTA and Amtrak's Acela tracks and locating several spans "hidden" within the Prudential Center Tunnel framing.

High Street Ramp, Boston, MA

Kris was Design Engineer for analysis and design of a new exit ramp off the Central Artery. Design included a 544-foot nine-span, steel-framed ramp with both concrete and steel piers.

I-93 Noise Barrier Project, Andover, MA

For the Massachusetts Department of Transportation, Kris was Senior Engineer for quality assurance and quality control for the structural design for construction of a noise barrier mounted to an existing bridge carrying Interstate Route 93 over a local roadway.

Lime Street Bridge Replacement over Hoosic River, Adams, MA

For the Massachusetts Highway Department (now the Massachusetts Department of Transportation), Kris was design engineer for analysis, design, and administration of construction services for a 135-foot simple span, twin trapezoidal box girder, concrete deck slab bridge to replace a structurally deficient two-span continuous steel stringer bridge. The new bridge uses an innovative design by eliminating the center pier and retaining the existing abutments, which are an integral part of the river channel flood control protection constructed by the U.S. Army Corps of Engineers in the 1950s.

Railroad Bridge Inspection and Load Rating, Ayer, MA to Rotterdam, NY

For Guildford Rail Service, Kris was Design Engineer for load ratings for 78 under-grade bridges. Bridges included steel girders, trusses and stone masonry arches.

South Coast Rail, Southeastern Massachusetts

Kris is a Senior Engineer for design, plan development and quality assurance/quality control for six railroad bridges for the Mass Bay Commuter Rail Extension to New Bedford. The project includes three single span deck plate girder bridges and a three-span bridge structure with a 190-foot (+/-) truss span and two 120-foot (+/-) through-girder spans.

Parking Deck Rehabilitation, Amesbury, MA

For the Town of Amesbury, Kris is Senior Engineer for inspection and preparation of the rehabilitation plans and specification for the Water Street Parking Facility.

Garage Rehabilitation Program, Lowell, MA

Kris was Design Engineer for inspection and preparation of the rehabilitation program for the Leo Roy Parking Facility on Market Street in Lowell's downtown area. Rehabilitation for this structure with 1,012 spaces included concrete restoration.

Elizabeth Grob

Strategic Project Permitting

Education

MPA, Public Affairs, University of Massachusetts, 1991

BA, International Affairs and Political Science, University of Maine, 1987

Elizabeth, a Belmont resident, is VHB's Director of Urban Permitting Services. She is responsible for project management and preparation of environmental documentation pursuant to the Massachusetts Environmental Policy Act (MEPA), Article 80 of the City of Boston's Zoning Code, and Chapter 91 licensing and technical analysis. She specializes in the management of permitting efforts for large and complicated development projects, and manages a team of experienced permitting professionals, and is known for seeing the big picture while being able to keep an eye on the details. She has managed several projects that required close coordination with the MBTA and DCR.

27 years of professional experience

MBTA, South Coast Commuter Rail Extension Project, Southeastern Massachusetts

For the Massachusetts Bay Transportation Authority (MBTA), Elizabeth is leading multidisciplinary Environmental Team to coordinate with regulatory agencies, establish refined permitting strategies and Memorandum of Understanding (MOU) agreements with Executive Office of Environmental Affairs (EOEEA) and the Massachusetts Department of Environmental Protection (DEP) in order to establish the framework for moving forward with a timely and coordinated environmental review process for a multidisciplinary $600M commuter rail extension project that will extend commuter rail service to Fall River and New Bedford. The project, which involved developing a track operations plan that will accommodate MBTA commuter rail, Amtrak, CSX, and Bay Colony operations, has required close coordination with the MBTA, the Massachusetts Executive Office of Transportation and Construction (EOTC), state legislators, environmental agencies, the Massachusetts Department of Transportation (MassDOT), and with state municipalities.

South Station Expansion Project, Boston, MA

Elizabeth managed the preparation of a Draft Environmental Impact Report (DEIR) and provided strategic and regulatory advice for the South Station Expansion Project, including providing extensive Chapter 91 strategic advice. She coordinated with multiple state and municipal offices, including the Massachusetts Environmental Policy Act (MEPA) Office, Massachusetts Department of Environmental Protection, and the City of Boston.

DCR, Storrow Drive Improvements, Boston, MA

For the Massachusetts Department of Conservation and Recreation (DCR), Elizabeth assisted in preparing the Draft Environmental Impact Report (DEIR) and developing environmental analyses to support four different alternatives for the design of a reconstructed tunnel and/or roadway at the location of an existing tunnel. She coordinated with structural engineers, civil engineers, traffic engineers, air and noise specialists, historic resource specialists, landscape architects, geotechnical consultants, and public relations specialists to develop the environmental analyses. This work was performed prior to joining VHB.

MBTA, Salem Intermodal Station, Salem, MA

For the Massachusetts Bay Transportation Authority (MBTA) Elizabeth was Project Manager for the preparation and submission of an Expanded Environmental Notification Form (ENF)

to the Massachusetts Environmental Policy Act (MEPA) Office, which included a successful request for a waiver of a mandatory Environmental Impact Report (EIR). This waiver was critical for achieving the client's accelerated construction scheduled. The Expanded ENF also included a request for a Public Benefit Determination (since the site was within Chapter 91 jurisdiction) as well as a Massachusetts Coastal Zone Management (MCZM) Federal Consistency Statement. Elizabeth managed the preparation and submission of a Chapter 91 License application to the Massachusetts Department of Environmental Protection (DEP). The project involved construction of a new parking garage structure to replace existing surface parking, expand parking capacity, and improve site access and safety associated with multiple modes of transit. This work was performed prior to joining VHB.

Waterfront Square, Revere, MA

Elizabeth was Project Manager for the preparation of a Draft Environmental Impact Report (DIER) and Phase 1 Waiver Request, as well a Final Environmental Impact Report (FEIR) for a transit-oriented development of approximately 8.77 acres adjacent to Wonderland Station at Revere Beach along with 7.7 acres of additional MBTA-owned property. The building program consisted of 1.366 million square feet of new mixed-use construction. Elizabeth coordinated with the Massachusetts Bay Transportation Authority (MBTA), Department of Conservation and Recreation (DCR), Department of Environmental Protection (DEP), and the Executive Office of Environmental Affairs (EOEEA) during the permitting process. This work was performed prior to joining VHB.

MBTA, South Garage, Revere, MA

Elizabeth was the Project Manager for the preparation of an Environmental Assessment (EA) for a stand-alone redevelopment component that enabled the Waterfront Square Park project to move forward. This parking garage adjacent to the Massachusetts Bay Transportation Authority (MBTA) Wonderland Station was seeking federal stimulus funding, and, as such, was subject to the National Environmental Policy Act (NEPA). Elizabeth played a critical role in working with the MBTA, in cooperation with the Federal Transit Administration, to prepare an Environmental Assessment and satisfy NEPA review requirements. This work was performed prior to joining VHB.

University of Massachusetts, 25-year Master Plan and Phase 1 Projects, Boston, MA

Elizabeth was Project Manager for the University of Massachusetts Boston 25-year Master Plan and Phase 1 projects, including the preparation of an Expanded Environmental Notification Form and a Special Review Procedure (SRP). This approved SRP will guide future reviews and approvals for subsequent phases of the Master Plan. As part of that process, she led negotiations with the Department of Environmental Protection to tailor and streamline the Chapter 91 licensing process for future Master Plan projects. This work was performed prior to joining VHB.

Scott Brunner

ROW/Easements | Construction Cost Estimates & Phasing

Education

BS, Civil and Environmental Engineering, Northeastern University, 2008

Affiliations/Memberships

American Society of Civil Engineers

Scott is a member of VHB's Transportation Group in Watertown. He performs various tasks for roadway projects for state and municipal agencies that include preliminary and final right-of-way plans, conceptual estimates, and ADA-compliant designs.

11 years of professional experience

DCR, Blackstone River Greenway, Blackstone, Millville, and Uxbridge, MA

For the Massachusetts Department of Conservation (DCR), Scott worked on a project to transform an abandoned railway into a 4.15-mile multiuse trail. He has brought the design through all phases and is currently finalizing the contract plans and documents for construction. He managed the coordination between VHB and the two subconsultants and worked closely with DCR to finalize the right-of-way documents.

North Street Streetscape Urban Green Street Retrofit Design, Pittsfield, MA

Scott worked on construction documents for the "green street" streetscape improvements to help transform the center of Pittsfield into a more pedestrian friendly area. He completed the 25% and 75% design plans and has coordinated with multiple disciplines in order to make sure that all aspects of the design were working in unity.

MassDOT, Reconstruction of Route 6 & 28, Wareham, MA

For a Massachusetts Department of Transportation (MassDOT) project to reconstruct a busy road to Cape Cod from 500 feet east of Tyler Avenue to the Bourne town line in Wareham, Scott helped reshape the horizontal geometry in order to push the project forward. He also attended the public workshop, helped explain the design to the public, and answered questions and concerns.

MassDOT, Route 79—I-95 Interchange, Fall River, MA

For a design-build project for the Massachusetts Department of Transportation (MassDOT) to design and construct a replacement of the Route 79/I-195 Interchange in Fall River and the Phase II structural repairs and painting of the Braga Bridge in Fall River and Somerset, Scott completed the full design of the first phase of work. The work includes temporary ramps that will be used to divert traffic in order for the rest of the project to be constructed. He has worked closely with MassDOT and the design-build contractor to incorporate their comments and concerns.

MassDOT, Route 126 Reconstruction, Framingham, MA

For a Massachusetts Department of Transportation (MassDOT) project, Scott has completed the 30% and 90% town design submissions. He designed the corridor, which included extensive grading exercises and Americans with Disabilities Act (ADA) compliance challenges.

Montvale Avenue, Woburn MA

For a City of Woburn project to upgrade a busy commuter arterial, Scott worked on the full 25% design, including typical sections and traffic management plans. He developed the project's calculation book and spec book with items list and estimate. He also completed preliminary right-of-way plans as part of the submission.

Scott Brunner

Route 62 Offsite Mitigation, Hudson and Berlin, MA

As part of the team for a project to provide mitigation for a retail development, Scott completed multiple design tasks for phases 1, 1A, and 2 of the project. He designed construction details, cross sections, drainage design, and full project grading for Phase 2, which includes full intersection grading design.

Mystic Avenue Sidewalk, Medford, MA

As part of the team to upgrade the sidewalks along Mystic Avenue, Scott provided final design plans with typical sections, construction details, ADA-compliant wheelchair ramp and driveway design, and traffic management plans. This project included small alignment and grading tasks. He also developed a calculation book and a specification book with full items list, estimate, and special provisions.

MassDOT, Route 2 & 16 Improvements, Cambridge, MA

For a Massachusetts Department of Transportation (MassDOT) project, Scott has brought the design through the 25% and 75% submissions and is currently preparing the 100% design submission. He has had a hand in every aspect of the project including the contract plans, calculation booklet, special provisions and right-of-way plans.

Forest Street Upgrade, Arlington, MA

For the Town of Arlington, Scott worked on the design tasks for the 75% plan submittal, which included typical sections, construction details, traffic management plans, and ADA-compliant wheelchair ramp design.

South Main Street (Route 125), Haverhill, MA

For a City of Haverhill project, Scott completed 100% design tasks, which included construction details, cross sections, grading at multiple side street intersections, ADA-compliant wheelchair ramp design, and preliminary right-of-way plans.

MassDOT, John Fitch Highway at Ashby State Road, Fitchburg, MA

For the Massachusetts Department of Transportation (MassDOT), Scott completed full 100% Design and PS&E design for a modern roundabout for the intersection of a rural highway with a low-speed side street (Ashby State Road). The completed full planset design included typical sections, construction details, cross-sections, and ADA-compliant wheelchair ramp and driveway design. He developed a calculation book and a specification book with full items list, estimate, and special provisions. In addition, Scott developed the full preliminary right-of-way planset and easement plan.

Paul McKinlay, PG, LSP

Contaminated Soil

Education

MA, Geology,
Boston University, 1996

BA, Geology,
Boston University, 1993

Registrations

Licensed Site Professional
(Geology) MA, 2006

Professional Geologist
(Geology) NH, 2002

Affiliations/Memberships

Licensed Site Professional
Association (Massachusetts),
Board of Directors/Loss
Prevention, Former Chair

Paul has worked throughout New England. His experience includes all aspects of site investigation and remediation including project design, implementation and documentation/certification to complete regulatory requirements. He has directed and managed numerous hazardous material and petroleum release sites with varying levels of complexity requiring assessment, containment and remediation. Paul specializes in supporting development projects with oil and/or hazardous material concerns both characterizing risks prior to project initiation and contractor support during construction. He has extensive experience with hydrogeologic investigations; site characterization studies; site remediation technologies; and formulating and implementing site closure strategies.

18 years of professional experience

Amesbury Transportation Center, Amesbury, Massachusetts

To facilitate the construction of the Merrimack Valley Regional Transportation Agency Amesbury transportation facility, Paul oversaw comprehensive environmental services to manage Oil and/or Hazardous Materials (OHM) that were present on-site. VHB conducted precharacterization screening of the entire project area and significant OHM was identified including potential characteristic hazardous wastes. He prepared a detailed soil management approach including the segregation of soil into multiple waste streams to provide the most cost effective approach to export excess soil. VHB staff were present on site during all excavation activities to screen soils and implement the soil management plan, and Paul provided direct Licensed Site Professional (LSP) support to satisfy regulatory requirements in a timely manner during all project construction and to facilitate site regulatory closure. This comprehensive approach resulted in minimizing costs, schedule delays, and help mitigate OHM to facilitate regulatory closure at the completions of construction activities.

Site Remediation

Paul has been responsible for remedial design, implementation and oversight to mitigate petroleum and hazardous material releases impacting soil, groundwater and other site media. Remediation systems installed or operated under his supervision include light non-aqueous phase liquid (LNAPL) recovery; soil-vapor extraction; air or biosparging; pumping and treatment; vacuum enhanced groundwater extraction; in-situ bioremediation; and hydrogen peroxide injection technology. Treatment methods employed have included oil/water separation, air stripping, catalytic oxidizing, and carbon adsorption. Paul's permit application experience to facilitate assessment or remedial activities includes preparation of United States Environmental Protection Agency (USEPA) Remedial General Permit (RGP) applications for discharges to receiving water bodies; and preparation and presentation of Notices of Intent (NOIs) for work in areas under wetlands jurisdiction. Paul managed the installation and operation of an iSOC® remedial system which utilized oxygen injection to enhance bioremediation in an effort to mitigate petroleum impacts in groundwater. The biosparge technology proved to be a more cost effective remedial alternative which successfully reduced contaminant levels in site media. Paul has managed numerous

remedial projects using excavations as the preferred method of addressing soil impacts. Most recently to facilitate the development of a commercial property, Paul provided LSP oversight for the removal of approximately 20,000 tons of soil impacted by pesticides and other hazardous contaminants to approved facilities in Massachusetts and New Hampshire.

LSP and PG Services

Paul has worked throughout New England with regulators and clients to define and achieve project goals in the most cost effective and efficient manner possible. A Licensed Site Professional (LSP) in Massachusetts and a Professional Geologist (PG) in New Hampshire, he has provided professional oversight and certification for environmental projects conducted in those states, and he has supervised and certified well over 100 Massachusetts Contingency Plan (MCP) or New Hampshire Department of Environmental Protection (NHDES) submittals to fulfill regulatory and client requirements. He has worked on projects with ranging complexity and based on his efforts, provided either an opinion that no further action was required or formulated and implemented cost effective remedial and risk management strategies to address contaminants of concern and meet regulatory milestones.

Site Assessment

Paul has extensive experience conducting Environmental Protection Agency (EPA) Brownfields Phase I and Phase II site assessments including developing EPA Quality Assurance Project Plans (QAPPs); comprehensive case reviews to target assessment activities; design and installation of groundwater monitoring well networks often in complex subsurface flow regimes; hydrogeologic site characterizations; surficial and down borehole geophysical surveys; and design and implementation of sampling programs. He has designed sampling programs to assess a variety of site media such as soil, groundwater, surface water, sediment, and indoor air. Contaminants of concern typically have included petroleum and chlorinated compounds, metals, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs).Example projects under Paul's supervision have included complex bedrock assessment and remedial sites near sensitive receptors.

Charles Passanisi

MBTA Coordination

Charlie is a Senior Project Manager with VHB Transit & Rail. His expertise is in project controls, budget, and finance management. Charles joined VHB from the Massachusetts Bay Transportation Authority (MBTA), where his 20+-year tenure was completed in the role of Deputy Director of Budget-Capital. For the last 10 years of his service he was heavily involved in management of the MBTA's Federal grants administration.

Education

MS, Computer Information Systems, Bentley College, 1999

MBA, Business, Suffolk University, 1992

BS, Business Administration with minor in Spanish, Massachusetts College of Liberal Arts, 1984

31 years of professional experience

MBTA, Railroad General Engineering On-call Contract, Eastern Massachusetts

Charlie was a Task Leader to support the Massachusetts Bay Transportation Authority (MBTA) Railroad Operations in ongoing rolling stock projects. The rolling stock projects included a locomotive truck overhaul program, coach truck overhaul program and LED Lighting Safety Program. Charlie responsibilities included the review of the Independent Cost Estimate prior to procurement and review of project initiation agreements with MBTA's Commuter Rail Operator to ensure work is not already provided through the current Operating and Maintenance Agreement. While the current contract to provide general engineering services started in 2012, VHB has had an on-call contract with MBTA Railroad Operations for over serval years. 2012 – ongoing

MassDOT/MBTA, South Coast Commuter Rail Extension, Southeastern Massachusetts

Charlie has performed Operations & Maintenance Cost Estimation analysis for diesel and electrified operations of the proposed Commuter Rail service alternatives, which includes a significant environmental justice area. This projected $1.5 billion project supported by the Massachusetts Department of Transportation (MassDOT) and Massachusetts Bay Transportation Authority (MBTA) has included operational and systems analysis and geometric assessment, including South Station platforms and rail infrastructure, planning, permit acquisition, mitigation, and conceptual and phased final engineering for 60 miles of track work, over 50 grade crossings, eight new commuter rail stations including multimodal terminals in New Bedford and Fall River, and repair or replacement for more than 50 bridges. 2001-ongoing [overall project], 2009-2011 [TIGER]

MassDOT/MBTA, Northwest Corridor Project, East Cambridge, Somerville, and Medford, MA

As Project Controls Manager, Charlie managed the development of the New Starts Finance Plan, during the engineering services for the proposed $1.2 billion Northwest Corridor transit enhancement project into East Cambridge, Somerville, and Medford for the Massachusetts Department of Transportation (MassDOT) and Massachusetts Bay Transportation Authority (MBTA). The current project involves completion of the planning/engineering services, preparation of a Federal Transit Administration (FTA) New Starts Application including the development of an MBTA Finance Plan for the proposed extension of Green Line light rail service. Following alternatives analysis and evaluation of the environmental impacts of the various alignments for extending light rail in the study area, acceptance of a Draft Environmental Impact Report (DEIR)/Environmental Assessment (EA), and completion of final state and federal environmental permit documents, the project is advancing to engineering design and then to construction document development. 2010-2012

Charles Passanisi

MassDOT, Massachusetts Multimodal Strategic Plan, Massachusetts

Charlie was responsible for the development of transit metrics for various transit asset classes that were incorporated into the Planning for Performance Tool. The Massachusetts Department of Transportation (MassDOT) wanted to bring together management of the various transportation modes/facilities/infrastructure in the Commonwealth of Massachusetts and develop a capital prioritization tool that represented all MassDOT transportation disciplines. The project involved documentation and analysis of modal statuses, development of a short and long-range planning tool to analyze the impact of various capital investment scenarios, extensive stakeholder coordination, and development of recommendations. 2011-2013

MassDOT, South Station Expansion Project, Boston, MA

For the various mid-day layover facility alternatives, Charlie performed Operations and Maintenance Cost Analysis to reflect proposed increase in service and equipment moves to and from the mid-day facilities at Boston's South Station for the Massachusetts Department of Transportation (MassDOT). In addition, he completed capital cost analysis for the various mid-day layover facility alternatives The SSX project will improve northeast corridor (NEC) service delivery and enable growth in Massachusetts Bay Transportation Authority (MBTA) commuter rail and Amtrak high-speed and regional intercity rail service. Studies have identified capacity at South Station as a constraint to expanding service and delivering on-time performance currently. The project involves a development alternatives analysis, Massachusetts Environmental Policy Act (MEPA) Environmental Impact Report, National Environmental Policy Act (NEPA) Environmental Assessment, preliminary engineering and design of construction staging for a proposed addition of eight new platforms and tracks within South Station. This will be enabled through the expansion of the station's footprint to the east and the addition of a second service level within the terminal. The project includes operations planning, station and offsite access and circulation planning and design, environmental permitting and track, signal and communications, structural, utility, and civil engineering services associated with the station and a mid-day layover facility, and facilitating extensive public, agency, and private developer involvement in the project; and analysis of potential public and private funding strategies. 2012-ongoing

RIDOT, South County Commuter Rail – Phase II, Rhode Island

For the Rhode Island Department of Transportation (RIDOT) Charlie has performed Operations & Maintenance Cost Estimation analysis for diesel operations of the proposed commuter rail service alternatives. This project involved preparing a feasibility analysis focused on the operations of a proposed commuter rail service south of Providence along an active Northeast Corridor track carrying freight trains and regional passenger service, including a link to the Phase I T.F. Green and Wickford Junction Stations. The study involves a detailed definition and service structure of the proposed commuter rail to be operated to and from Cranston, East Greenwich, Kingston and Westerly, and analyzes the service plan alternatives provided by the Massachusetts Bay Transportation Authority (MBTA), the Connecticut Department of Transportation (ConnDOT) Shoreline East, or Amtrak, including preparing the operating and maintenance cost estimates of the preferred operating plan. 2012- ongoing

Stephen Derdiarian, RLA, LEED AP

Landscape Architecture

Steve is Director of Landscape Architecture Design and an urban designer at VHB. His experience involves diverse projects throughout New England for both public and private-sector clients that encompass health and academic institutions, corporate campuses, municipal neighborhoods and town centers, parks, streetscape amenities, and traffic control design techniques for transportation projects.

38 years of professional experience

Education

BS, Landscape Architecture, State University of New York, 1978

BS, Environmental Science, State University of New York, 1977

Registrations/ Certifications

Registered Landscape Architect MA, 1980; RI, 2014

LEED Accredited Professional, 2009

Affiliations/ Memberships

American Society of Landscape Architects

Boston Society of Landscape Architects

Arlington Center Streetscape Master Plan, Arlington, MA

As part of the VHB team, Steve was the Project Manager and Landscape Architect involved in the preparation of a comprehensive Master Plan for streetscape improvements in Arlington Center. He provided a detailed plan and photographic inventory of existing conditions in Arlington Center and presented the findings in public forums. VHB also assisted in defining a program of needs, desires and priorities for potential improvements. Utilizing the program as a guide, VHB prepared a comprehensive Arlington Center Streetscape Master Plan, which incorporates images of recommended streetscape amenities including planters, benches, trash receptacles, bicycle racks, tree pit borders, and light standards. Plan renderings were also provided indicating opportunities for the redesign of public park areas currently in poor condition. This Master Plan will serve as the guiding document for phased streetscape and urban park improvements in the years to come.

Community Field Park Improvements, Holyoke, MA

Steve provided planning, landscape architectural, and project management services for a comprehensive redevelopment of a community park. Introduced project features included play areas for 2-5 and 5-10 year old children, a new 400-foot-long ice skating path and associated warming house/bathroom building, water play feature, picnic areas, informal recreation field, and a dog park. Central to project design was the daylighting of a previously culverted stream, the new channel featuring extensive native plantings to naturalize appearance and function. Site roadway and parking areas were also comprehensively redesigned for a more park-like appearance and improved usability.

Heritage Park, Amesbury, MA

Steve provided planning and landscape architectural design for a new Heritage Park and village center. The design extended the downtown experience to take advantage of new economic development, recreation, and historic interpretation opportunities. The park design focused upon the historic Carriage Building, which was planned to be relocated and converted into a museum central to the site, and offered informal play spaces, outdoor event areas, historic interpretation features, a river overlook platform/canoe launch, and a gateway pedestrian bridge linking the site to the River Walk, also designed by VHB.

Fisherville & Farnumsville Mill, South Grafton, MA

Steve was Manager of landscape architectural services and Principal Designer for the comprehensive redesign of open space and streetscape for a two-mile section of Main Street in an historic section of South Grafton. Extensive public outreach fostered consensus

on design approaches and established a three-phased approach to implementation. He prepared construction documents for the initial phase, a major new village green to be called Mill Villages Park.

Police Cove Park, Barrington, RI

Steve was Principal Landscape Architect and Planner in the preparation of a vision plan, schematic design, and construction documents for a park on the Barrington River waterfront. The park design provides for a multi-use space featuring a central waterfront plaza affording outward views of the river, an outdoor dining area with facilities for vendors, a flexible-use space for seasonal events, a promenade walkway along the riverfront, a new boat ramp and transient boating dock and a patron parking area. Connections to the adjacent East Bay Bike Path, also designed by VHB, are provided as part of a theme of multimodal connectivity to other town gathering places and amenities. Projects for Public Spaces was engaged in the design process to share the philosophy of "The Power of Ten," which works to combine complimentary uses and features in ways that foster a park's ability to attract the public and sustain interest.

Sharon Streetscape Revitalization, Sharon, MA

Steve was Task Manager and Principal Landscape Designer for the revitalization of Sharon's town center. He developed a Transportation Enhancement Application that was key to gaining funds for the proposed streetscape improvements, including brick walkways and plazas, ornamental paver crosswalks, street tree plantings, ornamental lighting, and street furnishings. The design theme visually ties Sharon's village center to the municipal center by linking public plazas with a streetscape vernacular of historic materials.

Summer Street Concept Improvement Plan, Fitchburg and Lunenburg, MA

Steve was Principal Landscape Architect for the development of a Concept Improvement Plan for approximately one mile of roadway in Fitchburg and Lunenburg. Working closely with the two municipalities, VHB landscape architects developed an inventory and analysis of existing conditions to set the framework for a comprehensive concept plan incorporating complete streets principals. Considerations included development of visual gateways at corridor entrance, distinctive streetscape themes for retail and residential sections of the corridor, incorporation of features promoting pedestrian and cyclist usage and development of a palette of landscape and hardscape elements to unify the corridor. A public review site walk and community outreach meetings informed the planning process. VHB prepared several alternative concept plans exploring design possibilities followed by a final Concept Improvement Plan reflecting consensus by the two communities.

The Canal District, Worcester, MA

Steve was Lead Landscape Architect for the design of comprehensive streetscape improvements in Worcester's historic Canal District. Design features included expanded pedestrian spaces at key locations along the four major street corridors comprising the Canal District, introduction of pedestrian oriented traffic calming plazas at intersections, extensive street tree plantings coordinated with walkway pavement surface treatments, use of brick-appearance textured pavement surfaces at crosswalks, and the introduction of ornamental lighting.

Nicole Benjamin-Ma

Cultural Resources

Education

MA, Historic Preservation, Goucher College, 2013

BA, Anthropology, Rutgers University, 1998

Affiliations/ Memberships

Boston Preservation Alliance, Young Advisors Board Secretary

Boston Society of Architects, Historic Resources Committee

National Trust for Historic Preservation

Vernacular Architecture Forum

Society of Architectural Historians

Nicole is a Preservation Planner with knowledge of architectural history and local, state, and federal historic compliance regulations. Nicole, who meets the Secretary of the Interior's Professional Qualification Standards for Architectural Historian (36 CFR 61), has worked with both public agencies and private developers to help them comply with permitting requirements and other project historical needs.

6 years of professional experience

Bike-Ped Rail-Trail, Goffstown, NH

For the design of a rails-to-trails project in Goffstown, Nicole prepared a Project Area Form for the New Hampshire Division of Historical Resources, evaluating the integrity and significance of the New Hampshire Central Railroad.

MassDOT, Cranberry Highway/State Route 6, Wareham, MA

For the Massachusetts Department of Transportation (MassDOT), Nicole conducted analysis of architectural resources located along a state highway in compliance with Section 106 requirements. She performed a windshield survey to identify resources over 50 years old and performed map analysis to help identify owners. Nicole also prepared an historic context for the development of the roadway within the history of the town and wrote brief architectural descriptions for 30+ structures and areas. She completed individual and area inventory forms for the Massachusetts Historical Commission (MHC), along with a draft letter report with National Register recommendations.

Due Diligence Memoranda, MA

Nicole has researched previously-inventoried cultural resources for a variety of road improvement projects and proposed developments within central and western Massachusetts. Southborough scheduled for reconstruction. She evaluated potential areas of consideration and drafted summary statement of results. A representative sample includes:

- Main Street (Route 30), Southborough, MA
- Grafton Street (Route 122), Worcester, MA
- One Moody Street, Waltham, MA
- Eliot Street, Springfield, MA
- McKeon Road, Worcester, MA
- Hickory Hill, Methuen, MA

MaineDOT, Cultural Resources On-Call Services, Maine

As Architectural Historian, Nicole performed surveys to identify resources over 50 years old as part of an on-call contract with the Maine Department of Transportation (MaineDOT). She prepared and/or updated inventory forms for buildings and farmsteads, evaluated resource integrity, and assisted in drafting recommendations for National Register eligibility. She also performed National Register evaluations and prepared related documentation, including determination of effects memos and property documentation as a mitigation measure, for properties affected by MaineDOT projects throughout Maine.

B Work Sample

Swansea Bikeway | Swansea, MA

Rail-with-Trail | Richmond, VA

B

Work Sample (Attached CD)

Alternatives Analysis,

Yankee Doodle Bike Path, Billerica, MA