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## MEMO

**Date: May 22, 2013**

**To: Board of Finance**

**From: Jesse Bridges, Director, Department of Parks & Recreation**

**Re: Bike Path Rehabilitation: Design & Engineering**

### I. BACKGROUND

The 2012 Burlington Bike Path Feasibility Study identified necessary upgrades to the Bike Path that satisfy current standards and improve safety, enhance user amenities, and raise its standing to that of a world class regional trail. The rehabilitation of the Bike Path requires design strategies that incorporate urban and rural place-making and planning, civil and structural engineering, geotechnical expertise, environmental remediation, as well as innovative and intentional landscape architectural design. The path will integrate conservation, sustainability, connectivity and accessibility along its entirety.

### II. PROCESS

An RFQ for Professional Design/Engineering Services for the Rehabilitation of the Burlington Bike Path was issued in March of 2013. With the support of the CCRPC and VTrans, City staff evaluated qualifications on April 4 and conducted finalist interviews on April 15. Three consultant teams were interviewed: Hoyle, Tanner & Associates, Inc., Engineering Ventures and Vanasse Hangen Brustlen, Inc.

DPR, in cooperation with DPW & CEDO, selected Vanasse Hangen Brustlen, Inc. (VHB) to develop the preliminary design for the entire Bike Path, in addition to a detailed design development package for the heavily used waterfront area in/around the Waterfront TIF district (Sections 6-10).

### III. SCOPE

The project scope is as follows:

- Phase A – Project Definition  
Preliminary design, survey & construction cost development for the entire path, inclusive of 25% and 60% design drawings.
- Phase B – Project Design  
Final design development including the preparation and completion of all associated environmental review and permitting documents, bid-ready documents and specifications for sections 6-10 (Perkins Pier to North Beach), inclusive of 85% and 100% contract plans for these sections.

#### IV. COSTS

The estimate for this scope of work is comprised of a cost plus fixed fee not to exceed \$540,000.

#### V. FUNDING STRATEGY

The proposed funding strategy for is as follows:

<b>Fiscal Year</b>	<b>Revenue</b>	<b>Fund</b>
FY14/FY15	\$220,000	Bike Path Maintenance & Improvement Fund
FY14	\$50,000	Parks Foundation Fundraising
FY13/FY14/FY15	\$120,000	Penny for Parks
FY14	\$150,000	TIF
<b>Revenue Total</b>	<b>\$540,000</b>	

#### VI. SCHEDULE

The anticipated schedule is outlined below:

- 5/23/13 Board of Finance presentation/approval
- 6/3/13 City Council presentation/approval
- 6/4/13 Contract signing & project kick-off
- September 2014 Construction Start for TIF Sections

#### **DEPARTMENT RECOMMENDATION**

*The Departments of Parks & Recreation recommends BOF approval of the project, funding strategy, and, pending full City Council approval, the execution and signing of contract by the Parks Director.*

# COST ESTIMATE SUMMARY SHEET

<b><i>VHB</i></b>	<b>City of Burlington, VT</b> <b>Cost Summary</b> <b>Burlington Bike Path Rehabilitation</b> <b>Preliminary/Final/TIF District</b>			
TASK DESCRIPTION	Cost Summary			
<b>VHB Labor:</b>				
<b><u>Total Hours</u></b>	<b><u>Sections 1-5 &amp; 11-16</u></b>	<b><u>Sections 6-10</u></b>	<b><u>TIF District</u></b>	<b><u>TOTAL</u></b>
Project Management	\$14,081.68	\$4,446.85	\$3,290.67	\$18,528.53
Graphics, Visualization, and Public Meetings	\$12,999.79	\$4,105.20	\$3,037.85	\$17,104.99
Survey (Topographical and Utility Location)	\$41,368.62	\$13,063.77	\$9,667.19	\$54,432.40
Underground Utility Survey	\$0.00	\$5,000.00	\$3,700.00	\$5,000.00
Pavement Design	\$46,387.97	\$14,648.83	\$10,840.13	\$61,036.80
NEPA Permitting	\$0.00	\$46,380.62	\$34,321.66	\$46,380.62
Bike/Ped Engineering	\$63,815.55	\$45,418.00	\$33,609.32	\$109,233.55
General Environmental Analysis and Permits	\$47,154.31	\$14,890.83	\$11,019.21	\$62,045.14
Right-of-Way Process	\$0.00	\$18,652.80	\$13,803.07	\$18,652.80
Project Advertisement	\$0.00	\$7,648.66	\$5,660.01	\$7,648.66
<b>VHB Direct Expenses</b>	\$12,076.40	\$3,813.60	\$2,822.06	\$15,890.00
<b>GeoDesign</b>	\$31,219.28	\$9,858.72	\$7,295.45	\$41,078.00
Direct Expenses	\$23,624.60	\$7,460.40	\$5,520.70	\$31,085.00
<b>SE Group</b>	\$30,605.20	\$9,664.80	\$7,151.95	\$40,270.00
Direct Expenses	\$912.00	\$288.00	\$213.12	\$1,200.00
<b>Sub-Totals:</b>	<b>\$324,245.40</b>	<b>\$205,341.08</b>	<b>\$151,952.39</b>	<b>\$529,586.48</b>

# COST ESTIMATE SUMMARY SHEET

<b>VHB</b>	<b>City of Burlington, VT</b> <b>Cost Summary</b> <b>Burlington Bike Path Rehabilitation</b> <b>Phase A/Phase B Services Breakdown</b>				
TASK DESCRIPTION	<b>Cost Summary</b>				
<b>VHB Labor:</b>	<b>Phase A</b>	<b>Phase B</b>			
<u><b>Total Hours</b></u>	<u><b>Conceptual Plans (25%)</b></u>	<u><b>Preliminary Plans (60%)</b></u>	<u><b>Final Plans (85%)</b></u>	<u><b>Contract Plans/Advertise</b></u>	<u><b>Total</b></u>
Project Management	\$7,411.41	\$7,411.41	\$1,852.85	\$1,852.85	\$18,528.52
Graphics, Visualization, and Public Meetings	\$12,828.74	\$4,276.25	\$0.00	\$0.00	\$17,104.99
Survey (Topographical and Utility Location)	\$54,432.40	\$0.00	\$0.00	\$0.00	\$54,432.40
Underground Utility Survey	\$5,000.00	\$0.00	\$0.00	\$0.00	\$5,000.00
Pavement Design	\$61,036.80	\$0.00	\$0.00	\$0.00	\$61,036.80
NEPA Permitting	\$46,380.62	\$0.00	\$0.00	\$0.00	\$46,380.62
Bike/Ped Engineering	\$54,758.78	\$29,209.05	\$18,263.85	\$7,001.87	\$109,233.55
General Environmental Analysis and Permits	\$15,511.29	\$31,022.57	\$15,511.29	\$0.00	\$62,045.15
Right-of-Way Process	\$0.00	\$9,326.40	\$9,326.40	\$0.00	\$18,652.80
Project Advertisement	\$0.00	\$0.00	\$0.00	\$7,648.66	\$7,648.66
<b>VHB Direct Expenses</b>	\$4,767.00	\$4,767.00	\$3,178.00	\$3,178.00	\$15,890.00
<b>GeoDesign</b>	\$41,078.00	\$0.00	\$0.00	\$0.00	\$41,078.00
Direct Expenses	\$31,085.00	\$0.00	\$0.00	\$0.00	\$31,085.00
<b>SE Group</b>	\$20,135.00	\$20,135.00	\$0.00	\$0.00	\$40,270.00
Direct Expenses	\$600.00	\$600.00	\$0.00	\$0.00	\$1,200.00
<b>Sub-Totals Per Design Stage:</b>	<b>\$355,025.04</b>	<b>\$106,747.68</b>	<b>\$48,132.39</b>	<b>\$19,681.38</b>	<b>\$529,586.49</b>
<b>Sub-Totals Per Phase:</b>	<b>\$355,025.04</b>	<b>\$174,561.45</b>			<b>\$529,586.49</b>



**AGREEMENT FOR PROFESSIONAL SERVICES  
BETWEEN  
CITY OF BURLINGTON, VT  
DEPARTMENT OF PARKS AND RECREATION  
645 PINE STREET  
BURLINGTON, VT 05401**

**AND**

**VANASSE HANGEN BRUSTLIN, INC. (VHB)  
7056 US ROUTE 7  
P.O. BOX 120  
N. FERRISBURGH, VT 05473**

**BURLINGTON BIKE PATH REHABILITATION  
May 3, 2013**

This Agreement is comprised of Part I, Attachment A, Attachment B, and Part II. Part I and Attachment A and B includes the details of the services to be performed and compensation. Part II contains the general terms and conditions of the Agreement between the City of Burlington Department of Parks and Recreation and Vanasse Hangen Brustlin, Inc. (VHB).

**PART I**

**PROJECT DESCRIPTION:**

The City of Burlington has selected VHB to perform consultant engineering services for the rehabilitation of the Burlington Bike Path.

The project limits are as generally described in Attachment A.

**SCOPE OF WORK:**

VHB will complete the work for the City of Burlington per Attachment A which describes the scope of work unless otherwise noted.

**COMPENSATION:**

VHB will perform the services on a cost plus fixed fee basis not to exceed five hundred and twenty-nine thousand, five hundred and eighty-six dollars and forty-eight cents (\$529,586.48) and as described in Attachment B.

**VANASSE HANGEN BRUSTLIN, INC.**

By: \_\_\_\_\_  
Francis S. O'Callaghan, PE  
Senior Vice President

Date: \_\_\_\_\_

**CITY OF BURLINGTON, VT**

By: \_\_\_\_\_  
Title: \_\_\_\_\_

Date: \_\_\_\_\_

Together, Part I which consists of Attachment A, Attachment B, Attachment C, and Attachment D, and Part II constitute the entire Agreement.

**Part 1  
Attachment A**

**PROPOSED SCOPE OF SERVICES  
FOR  
VANASSE HANGEN BRUSTLIN, INC.  
(VHB)  
TO PERFORM  
ENGINEERING SERVICES  
FOR THE  
BURLINGTON BIKE PATH  
REHABILITATION PROJECT  
  
FOR  
THE CITY OF BURLINGTON  
DEPARTMENT OF PARKS AND RECREATIONS  
645 PINE STREET  
BURLINGTON, VT**

**Agreement for Consultant Engineering Services**

This Agreement is composed of Part I and Part II.

- Part I is outlined on the following pages and includes details of the services to be performed, schedule of the services, and compensation.
- Part II (attached) contains the Terms and Conditions of the Agreement, which are the general terms of the engagement between the City of Burlington, hereinafter called the "Client", and Vanasse Hangen Brustlin Inc. (VHB).

Services under this proposal are outlined in general conformance with the Vermont Agency of Transportation's (VTrans) Local Transportations Facilities (LTF) project development process for "Phase A – Project Definition" and "Phase B – Project Design". It is assumed that the City does not require any services for "Phase C – Construction", however if subsequent services are requested, VHB will develop an additional scope and fee to be provided under a contract amendment at the completion of Phase B.

**Sub-Consultant Team**

The services of this Agreement will be performed by VHB and the following sub-consultants:

- A. GeoDesign – Subsurface Investigations, and Geotechnical Engineering
- B. SE Group – Landscape Architecture and Placemaking

Each of these team members will enter into a sub-agreement with VHB for their professional services and their subsequent scope of services and costs are included under this Agreement.

VHB and all of our sub-consultants have current AF-38 forms on file with the VTrans Audit Section and are registered with Vermont Secretary of State's office.

**Background**

The City of Burlington Bike Path Rehabilitation project proposes the rehabilitation of the seven and one half mile shared-use path that runs through downtown Burlington from Austin Drive near Oakledge Park to the Winooski River (Sections 1 to 16). The Client would like this project to be completed on an accelerated schedule with construction of the 1.7-mile component from Perkins Pier to North Beach scheduled in 2014 (Sections 6 to 10). Wherever possible, the VHB Team will look to complete tasks in parallel and/or expedite processes in keeping with this schedule. Following is a Scope of Services for Phase A and Phase B.

**Project Approach**

Following is a discussion of the project development steps required for the three phases of the LTF Process, as well as the specific approach VHB will take for this project:

Phase A – Project Definition

Phase B – Project Design

Phase C – Construction

The following task can be modified in terms of sequence to best suit this project after a thorough discussion during the Pre-Design Workshop.

**Project Definition (Phase A)**

While this project already has a defined need, has incorporated extensive public outreach, and has completed a majority of effort related to Phase A during previous studies, it must still be developed in a process that ensures that the proposed course of action meets appropriate design and funding criteria. This process includes identifying environmental and cultural resources in the area while developing the alternative solutions. All projects are expected to be technically sound, well-designed, cost-effective, and compatible with their surroundings with solicited input from local citizens. Following is an outline of the remainder of the LTF project development process necessary for the definition phase of the project that takes design through Phase A and the completion of 25% Conceptual Design Plans.

**Predesign Workshop**

At the outset of the project, VHB will schedule a Predesign Workshop with members of the City of Burlington Department of Parks and Recreation (DPR), Department of Public Works (DPW), the Chittenden County Regional Planning Commission (CCRPC), and other required stakeholders as deemed appropriate by the City. This workshop is intended to kick off the project and develop a mutual understanding of project goals, schedule milestones, regulatory requirements, and technical challenges to address as a priority. The roles and expectations for all attendees as well as the specifics of the project development process will be discussed at this meeting and protocols will be agreed upon for any variations in the LTF process. VHB will plan to chair the meeting, organize and present information, and distribute meeting notes with the City's oversight.

**Local Concerns Meeting (LCM)**

This is the first of three public meetings to give local citizens a chance to comment on the project. This meeting is considered to have been completed already for this project through previous work by the City and has been documented through the 2012 Feasibility Study. No services are needed under this agreement.

**Purpose and Need Statement**

VHB will review the projects Purpose and Need (P&N) Statement as presented in the 2012 Feasibility Study. Some of the key points discussed in the 2012 P&N statement include upgrading the path to current design standards, improving the paths ability to attract and host visitors, improve safety on the path, enhance connectivity, addressing residential concerns, and preserving the path as a local treasure. The P&N is the backbone of the project development process that will not describe a solution or the preferred alternative, but will be written so that the needs and goals of the project are clearly defined. Without a well-defined P&N Statement, it can be difficult to establish reasonable, prudent, and practicable alternatives as required by the federal funding process. VHB will adjust the P&N statement as needed, and with City concurrence, to ensure that it clearly justifies that the corrective efforts are worthy of the expenditure of public funds.

**Data Collection: Topographic and Right-of-Way Survey, Base Plan Preparation, and Utility Location**

The VHB Team will acquire all survey, prepare base plans, and identify any possible utility conflicts for the proposed work in accordance with VTrans standards. This will include ROW information

collected in the field, referring to the 2012 Feasibility Study, and data research at the City offices for facilitating potential temporary and/or permanent property easements and acquisitions. The survey work will be completed by VHB surveyors for compliance with standard VTrans protocols. The project area has been surveyed in the past for the 2002 Feasibility Study and if this information is available it will be reviewed and evaluated to determine whether a predominately new survey is needed.

The survey work will be completed in MicroStation format. The limits of survey include a corridor of approximately 7.5 miles and a width of 25 feet centered on the existing bike path. All survey work shall be performed under the supervision of a Vermont Licensed Land Surveyor.

Prior to survey, individual property owners will be notified by letter written on VHB letterhead which introduces the surveyors and informs the property owners of the survey schedule. VHB will notify the City prior to performing survey. All work within the railroad ROW requires advance notification to the railroad and must be in conformance with all State and Federal regulations (including the use of railroad flaggers). These survey efforts will require coordination with VTR to provide railroad flagger assistance and worker protection on the railroad right-of-way between train schedules. VHB will coordinate with any necessary officials including a representative from VTR, the Burlington Police Department, or anyone else who may be appropriate to coordinate rail or roadway traffic control during survey of intersections of the path, railroad, and roadway.

Permanent vertical and horizontal ground control will be established in the field and documentation will be done in accordance with VTrans standards. The survey will be referenced horizontally to the North American Datum of 1983 [NAD 83 (1996)] and vertically to the North American Vertical Datum of 1988 (NAVD 1988).

The survey data will be imported into MicroStation using current VTrans Standards and will create a 3-dimensional digital terrain model (DTM) as well as an annotated base plan showing all the existing detail. VHB will collect necessary data utilizing the City's GIS system to graphically depict the Right-of-Way boundary and abutting parcel lines. Approximate existing property lines and owners names will be added to the base plan. Three copies of the survey plots will be provided to the City at a 1" = 50' scale. After the initial plot, an engineering field review will be completed to verify the survey plot and to identify additional engineering related survey needs.

VHB proposes a phased effort for survey services to include Phase 1: Topographic Survey and Base Map, Phase 2: Utility Survey for Section 6-10, and Phase 3: Right-of-Way (ROW) Survey for Sections 6-10. Phase 1 will consist of topographic survey and base plan preparation for the entire project limits, from Section 1 to Section 16. A topographic base plan with one foot intervals will be generated. Phase 2 will locate and/or verify the location of subsurface utilities within the project limits for Sections 6 to 10 of the bike path to the maximum extent practicable and will depict these utilities on the plans in relation to survey control points. VHB will locate and/or verify the location of subsurface utilities within the project limits to the maximum extent practicable and will depict these utilities on the plans in relation to survey control points. Underground utility information shall include horizontal and vertical location, facility size and type, and ownership. Local electric power, natural gas, cable television, and telephone companies will be contacted to provide preliminary information such as size, type, configuration and general location of any existing or

planned underground pipes, ducts, underground vaults, transformers, pedestals, switch boxes, etc.

Underground utilities will be identified based on information available from property owners, City records and visible field evidence. Phase 3 will include ROW survey for the final design Sections 6 to 10.

### **Natural Resources Field and Desktop Investigations**

To complement the base information for project permitting and design, VHB will perform field investigations for natural resources for bike path Sections 1 to 16. The delineation of jurisdictional wetlands and the ordinary high water (OHW) for streams bisecting the bike path will be carried out in accordance with US Army Corps of Engineers (USACE) guidance and the delineation of top of bank (TOB) in accordance with Vermont Agency of Natural Resources (ANR) Stream Buffer Guidance. The width of the study area for wetland and stream delineation will be 75 feet from the edge of the bike path pavement or the outer edge of any associated ditch or embankment. These investigations will help identify any potential constraints or considerations for widening the bike path and installing any associated infrastructure such as stormwater treatment practices, lighting, signage, and so on. VHB assumes that this effort would result in the first comprehensive wetland delineation of the bike path. However, VHB will assess any pre-existing wetland delineation information for accuracy and will incorporate pertinent information into the project database. During delineation fieldwork, VHB will GPS-locate delineation flagging and collect the data required per federal and state delineation and classification protocols. VHB will coordinate a joint field visit as necessary with the USACE and staff from the Vermont Department of Environmental Conservation (DEC) Wetlands Program and Rivers Program.

VHB will also conduct a survey for vernal pools within the investigation area described above during the 2013 wetland delineation but no later than mid-May. The survey will include sampling of inundated depressions for faunal species whose presence typically defines a vernal pool, using a 75-foot investigation area (as measure from the project limits) when forested conditions are present. The USACE, New England District definition of vernal pool fauna, in combination with the Vermont Wildlife Diversity Program (WDP) parameters, will be used to define or discount vernal pool habitat. If present, vernal pool limits will be flagged and GPS-located, and the pertinent data collected to describe biotic and abiotic features of the pool and surrounding envelope. This scope includes one additional day to field verify any questionable areas. If the date upon which notice to-proceed with this agreement is received does not allow sufficient time to complete the vernal pool survey in 2013, it will be completed in the spring of 2014. However, potential vernal pools would be earmarked for 2014 investigation during the 2013 field campaign. Because the highly developed conditions within Sections 6-10 likely preclude the presence of vernal pools, such a delay should not affect the development of final design plans.

VHB may require access to parcels beyond the project right-of-way in order to complete the wetland survey (e.g., apparent wetlands between Blodgett Oven Company and bike path on west side of fence). VHB will coordinate with the City to acquire permission to enter such areas in

advance of performing the delineation. If permission is denied, the limits of wetland areas will be approximated using available information and field observations from publically accessible areas.

VHB will perform a formal desktop query of the WDP database for known element occurrences (EOs) of rare, threatened or endangered (RTE) species or significant natural communities, and will include a natural community review during the aforementioned wetland and stream field survey. Based on the preliminary assessment, VHB will conduct a targeted search of the investigation areas focusing on potential suitable habitat areas that are proposed for permanent disturbance to identify specific threatened or endangered plant species, and significant or rare natural community types. The search will focus on those Vermont or Federal threatened and endangered species or significant community types that are known by the WDP within the project vicinity. These surveys, if necessary, will be conducted during the appropriate time for that species in 2013. We assume that targeted surveys for plants would require that surveys be completed in two separate timeframes, based on the appropriate survey window for the particular suite of target species. Habitat-level surveys for rare RTE animal species will be carried out at this time. No detailed population surveys are proposed.

The results from each field and desktop investigation described above will be reported in a summary technical report which will also provide a description of the individual survey methods. Included will be pertinent data forms, site mapping, resource summary spreadsheets, site photographs or other information pertinent to the studies. This technical report will be included as part of the Resource Investigation Report, which will subsequently be used to support the process of compliance with the National Environmental Policy Act (NEPA) as described below. This same report can act as an appendix for other state and federal permit applications.

### **Hazardous Waste Assessment**

Based on the information provided in the 2012 Feasibility Report, it is understood that a number of hazardous waste sites and generators are present near the bike path in the southern portion of the project area. VHB will query online databases maintained by the DEC to ensure the most up-to-date publically available information is reviewed for each site. To document any potential Oil and Hazardous Materials (OHM) concerns identified in the database search, VHB will review available DEC files to provide more information about reported OHM on or adjacent to the project area. The DEC files may provide additional information regarding the degree and extent of contamination that may be present in soil or groundwater in the project vicinity; past ownership; historic land use in the project area; past usage, storage and disposal of OHM on and adjacent to the project area; and other evidence of potential environmental impacts. VHB will review documents including any prior Environmental Site Assessments, if applicable and/or available for review. VHB will also evaluate applicable reports on file at the DEC from active or closed hazardous sites, spills, or USTs that are identified in the project area, to obtain maps, plans, reports, and data describing the known location, degree, and extent of hazardous materials, and contaminated soil and groundwater. VHB will acquire from the City any applicable reports describing OHM concerns within the project corridor, Corrective Action Plans, and so on.

Based on the information obtained from the hazardous waste assessment, VHB will develop a Health and Safety Plan for implementation during project construction, as described below in Phase B.

### **Historic and Archeological Resources**

The 2012 Feasibility Study assumes that the findings of the 2002 study remain valid; that there are no significant historic or archaeological resources within the project corridor. However, the 2002 study noted that there are 16 locations that are sensitive for prehistoric archeological sites and recommends a Phase I study in advance of construction to confirm.

VHB will consult with Scott Newman, VTrans Historic Preservation Officer (HPO), to confirm that project alternatives would have no effect on historic properties. VHB will prepare a brief Determination of No Effect letter for VTrans HPO concurrence. VHB will review the Archeological Resources Assessment (ARA) prepared for the 2002 Feasibility Study to determine the likelihood of project alternatives resulting in impacts to archeological resources. VHB will then consult with Jeannine Russell, VTrans Archeology Officer to discuss the project and the implications of the findings of previous studies of archaeological resources, the possible need for additional studies (e.g., Phase I Site Identification Survey), and the ramifications of potential impacts with respect to Section 106 of the National Historic Preservation Act (NHPA). Because the physical extent and number of potential Phase I study sites is unknown at this time, such work is not included in this scope of services. These services can be provided as required.

Outreach to the VTrans HPO and the Environmental Program Manager for the Federal Highway Administration (FHWA) will also confirm that the rehabilitation of the bike path will not result in the use of a Section 4(f) resource or require a Section 4(f) Evaluation. This assumption is based on the fact that there would be no proposed change in use and, because the bike path was originally constructed using federal dollars, it was subject to the FHWA's *Negative Declaration/Section 4(f) Statement and Determination for Independent Bikeway or Walkway Construction Projects*.

### **Alternatives Investigation**

This first step in evaluating options will be undertaken with a consideration of all input received to-date from previous studies, the City, public, and other entities. Various alternatives will be investigated before a preferred alternative is recommended and selected for individual sections of the bike path. It may be possible that we will break the Bike Path into discrete components that may or may not conform with the 16 Sections of the Feasibility Study, or may agglomerate them as it is undefined at this point whether a different alternative will be proposed for each of the 16 sections as previously designated. Alternatives will be developed using appropriate design standards, guidelines, and specifications. The findings of the alternatives investigation will be submitted in a formal report.

Natural resources and potential environmental concerns in the project area that will be identified within the formal report will include the following major criteria applicable to this project:

- Wetlands and Waters of the U.S.
- Navigable Waters
- Special Flood Hazard Areas



- Rare, Threatened, or Endangered Plants and Animals (or suitable habitat)
- Significant Natural Communities and Necessary Wildlife Habitat
- Section 4(f) Properties
- Historic and Archaeological Resources
- Stormwater Management Options
- Hazardous Waste Sites

In addition to identifying the possible resource impacts, VHB will provide a summary of possible permit needs for each of the alternatives investigated.

VHB will develop concept sketch plans for each of the proposed alternatives.

### **Resource Identification Report**

Prior to the Alternatives Presentation Meeting, VHB will prepare a draft Resource Identification Report (RIR) which will include a summary of all resources that may have an effect on the alternatives, a resource identification map that delineates resource locations and any relevant correspondence with state and federal agencies pertaining to resources. The City and other appropriate entities recommended by the City will have an opportunity to review and comment on the report prior to VHB providing a final version. The RIR will assist with the determination of the appropriate level of documentation required for compliance with NEPA requirements.

### **Alternatives Presentation Meeting**

VHB will present the outcome of the alternatives investigation at an Alternatives Presentation Meeting with the City and other necessary stakeholders to solicit public input and comment. This meeting will be publicly advertised and minutes will be recorded. An evaluation matrix of alternatives and the concept plans with supporting documentation will be presented in the form of a slideshow at this time.

### **Preferred Alternative Selection**

The desired outcome of the efforts up to this point is for the selection of a preferred alternative for each section of the bike path. A summary of the material presented at the alternatives presentation meeting and supporting documentation will be compiled into a document for the file which can be used for any potential funding pursuits. This information will be the basis for the completion of the conceptual plans (25%) as well. The preferred alternatives for each section will be identified with a clear explanation as to why it is preferred. These alternatives will coincide with the alternatives recommendations from the Burlington Bike Path Crossings Study which VHB is advancing in parallel with this project for the CCRPC.

### **MicroStation and CADD Requirements**

Municipalities are generally required to use the most recent version of Bentley Systems MicroStation engineering design software when the proposed project will have impacts on state ROW. VTrans has developed this requirement to ensure that the electronic files are compatible with its electronic archival system. It is still unknown whether this project will have any significant effect on the state railroad ROW, but VHB has assumed that MicroStation is the preferred

software platform for this project. VHB is well-versed with MicroStation and will assist team members with maintaining state standards. VHB also is proficient in using AutoCAD software as our clients are split approximately 50/50 in the use of these two design tools for developing plans, and our team can convert files over to this platform for final City electronic file storage if requested.

### **Conceptual (25%) Plans**

Once the preferred alternative has been approved, VHB will develop conceptual plans for sections 1-16 (Oakledge Park to the Winooski River) of the bike path. These plans will be based on the 3-dimensional topographic survey and include the following elements:

- Title Page
- Typical Bike Path Sections
- Base Plan showing Bike Path Centerlines
- Placemaking Concepts
- Construction Limits and Existing Right-of-Way Delineation
- Mapping and Identification of Environmental Resources
- Pavement Structure Thickness Design
- Traffic Control
- Crossing Improvements (from the CCRPC Crossing Study Project)
- Status of existing and proposed ROW limits and property bounds
- Conceptual Drainage Plan and Profile Sheets

VHB will submit the draft Conceptual Plans for review and approval and schedule a comment review meeting to discuss changes to the plans and facilitate revisions as needed to finalize the Conceptual Plans. Once approval is received from the City, VHB will request a public informational meeting to present the conceptual plans.

### **Phase I Archeological Site Identification Survey**

Based on the limits of disturbance determined for the conceptual plans and earlier coordination with the VTrans Archeology Officer, VHB will coordinate with the latter to determine the Area of Potential Effect (APE) for project improvements and determine if a Phase I Site Identification Survey(s) is required for any location within the APE. Because VHB cannot predict this outcome at this point, this scope of services does not include any Phase I surveys. VHB or another entity qualified to perform this work as a subconsultant to VHB (e.g., University of Vermont Consulting Archaeology Program) can provide these services as required and with City approval.

**Compliance with the National Environmental Policy Act (NEPA)**

All projects that involve a federal action must meet the requirements of the National Environmental Policy Act of 1969 (NEPA). Should Federal Highway Administration (FHWA) allocated funds to this project, NEPA compliance and documentation will be required. There are three classes of actions that prescribe the level of documentation required in the NEPA process:

- Categorical Exclusion (CE)
- Environmental Assessment (EA)
- Environmental Impact Statement (EIS)

The rehabilitation of the Bike Path would likely meet the FHWA criteria for a CE per 23 CFR Part 771 (c)(3): *Construction of bicycle and pedestrian lanes, paths, and facilities*. The 2012 Feasibility Study contains information that would assist in the completion of the CE checklist for the project. Additional necessary details regarding potential impacts to natural resources and associated state regulatory processes and permits would be informed by VHB's geospatial database and field surveys performed under preceding tasks. VHB will complete the CE checklist and develop supporting mapping, memoranda, or reports to support the project's eligibility for a CE.

Circumstances that can render a project ineligible for a CE typically include the likelihood of impacts to endangered species, protected cultural sites, and wetlands. This project does not seem to fall outside the generally accepted limits of a CE, as any resources impacts should be capable of being mitigated to FHWA satisfaction. VHB has extensive experience with the full NEPA process to include CEs, EAs, and EISs if the project is required to proceed beyond a CE level of permitting.

VHB will perform outreach to state and federal agencies as necessary to gather any input required to complete the CE Evaluation Checklist currently used by the VTrans Environmental Section. Agencies include, at a minimum:

- US Environmental Protection Agency
- US Army Corps of Engineers
- US Fish and Wildlife Service
- National Marine Fisheries Service
- Vermont Agency of Natural Resources
  - DEC Wetlands Program
  - DEC Rivers Program
  - DEC Stormwater Program
  - DEC Waste Management Division
- Vermont Division for Historic Preservation
- Vermont Fish and Wildlife Department
- Chittenden County Regional Planning Commission
- Others as identified by FHWA, VTrans or the Town

A variety of previously completed investigations and studies will provide much of the information necessary to complete this task, including:

- the RIR completed by VHB
- the 2002 and 2012 Feasibility Studies

These documents will be included as appendices to the CE Environmental Analysis Sheet. VHB will also determine the effects of any temporary detour(s) required during bike path rehabilitation and develop any necessary plans to be attached to the CE documentation. The CE Environmental Analysis Sheet will be populated with narrative support as necessary to describe the potential effects of the project on each resource.

A number of resource impact topics within the Environmental Analysis Sheet do not apply to the project or would experience minimal impacts during construction. Accordingly, no detailed evaluation of these resources is proposed. These include:

- Air Quality
- Noise
- Agricultural Land
- Social and Economic Concerns
- Aesthetic Concerns

#### **Other Permit Requirements**

VHB will also evaluate Act 250 permit requirements. It is anticipated that this project will fall under the 10-acre threshold for impacts and that a Jurisdictional Opinion can be obtained that confirms that no Act 250 permitting will be required. It is also assumed that no lands will be involved that have been acquired or have been improved in whole or in part using monies from the Land and Water Conservation Fund (LWCF). Therefore, no lands would be involved that are subject to Section 6(f) of the Land and Water Conservation Act and thus no mitigation for conversion of such lands would be required. VHB will secure mapping from the City or the Vermont Department of Forests, Parks & Recreation (the administrator of the LWCF) to confirm that this is the case.

Other permits that are currently anticipated and that will be confirmed at this time include:

- Section 404 of the Clean Water Act (USACE)
- Section 401 of the Clean Water Act (Water Quality Certification from DEC)
- Vermont Wetland Individual Permit from the DEC Wetland Program
- Construction Phase Stormwater Discharge Permit from the DEC Stormwater Program
- Operational Phase Stormwater Discharge Permit from the DEC Stormwater Program
- Authorization from the City and DEC Rivers Program for Special Flood Hazard Area (SFHA) encroachment.

**Public Informational Meeting**

VHB will present the final approved Conceptual Plans to the public at a meeting with the City to solicit input and comment. This meeting will be publicly warned and minutes will be recorded. Any comments needing plan revisions will be addressed in the 60% Plans during Phase B of the project.

**Completion of Project Definition (Phase A)**

Completion of all the above steps will signify the end of the project definition process (Phase A).

**Project Design (Phase B)**

Once VHB receives an authorization to proceed with Phase B work, the following steps will be completed:

**Preliminary (60%) Plans**

VHB will develop plans at this stage in order to initiate contact with any affected utility companies and obtain any additional project permits. This level of plan development is essentially equivalent to the VTrans Project Development "preliminary plan" stage. VHB will provide the following features on the plans: bike path width and depth transitions, path barriers, cut-fill limits, drives, intersection approaches, drainage and stormwater management approaches/facilities, rail details, erosion prevention and sediment control (EPSC), traffic signs, pavement markings, lighting, signalization and detours. All cross sections will be templated and construction limits and notes will be placed on the general plans sheets. In addition, an itemized quantity sheet will be developed and included in the plans.

VHB will prepare a construction cost estimate to accompany the 60% design plans for the design and construction of all sections 1-16.

**Geotechnical Explorations**

Geotechnical investigations will be made at this point by GeoDesign, Inc. to determine the design of structural foundations for retaining walls. A more detailed scope of work from GeoDesign, Inc. is attached here.

**Pavement Rehabilitation and Design**

A condition assessment for each segment will give input for the detailed consideration for existing pavement distresses and possible causes of these distresses. The pavement distresses will be evaluated based on severity and extent during the initial site visit. VHB will use the Road Manager 2000<sup>TM</sup> computer software as the tool for analyzing the distress conditions of the subject segments. The segments designated from VHB's pavement distress survey may not coincide with the 16 sections established on the path. The pavement condition index (PCI) will be assessed from individual numerical ratings for each deficiency found. The more pronounced and abundant pavement defects the lower the PCI. On a scale from 0 to 100, an index of "0" would typify the serviceability of a near gravel type roadway, whereas an index of "100" would typify a near perfect, newly paved or constructed pavement.

During the site visit, forty (40) test pits will be located for future subsurface sampling and testing. VHB will obtain Dig Safe permits and approval. No other permits or approvals are included. The need or expense to obtain a Bond is not included in the scope. VHB will perform a photo log of existing pavement and establish a Pavement Condition Index (PCI) rating for VHB assigned pavement areas.

**Pavement Material Testing & Soil Analysis**

Traffic control is anticipated to be established with traffic cones and warning signs. The cones and signs shall be set up to warn pedestrian traffic approaching from both directions and shall be set up to delineate the work zone. VHB cannot guarantee safe and adequate passage for pedestrians around the work zone. Pedestrians who pass the work zone do so at their own risk. Any additional flaggers, signs, equipment or details will require additional fees. Pavement test pit samples will be taken to obtain base, subbase, subgrade materials with a structural evaluation of the subgrade support using the dynamic cone penetrometer where possible. VHB's AASHTO Certified materials testing laboratory will evaluate the pavement and soils conditions by testing, to include forty (40) pavement test pits, 18" x 18" x 30"+/-, dispersed over the path or areas of widening in both distressed and non-distressed areas. Pavement test pits will be patched with existing gravel materials and industry standard cold patch.

VHB will remove each of the material layers in the pavement structure by layer sampling, based on American Society of Testing and Materials (ASTM) techniques, then bag and tag for shipment to VHB's AASHTO materials testing laboratory. In the laboratory, the materials will be evaluated for similar characteristics and a representative sample will be made on those materials prior to them being analyzed.

VHB will test the pavement materials for depth, classification, quality of base, subbase and subgrade. Provide American Association of State Highway and Transportation Officials (AASHTO) and Unified Soil Classification for the subgrade materials, including Atterberg Limits, all in accordance with ASTM or AASHTO criteria.

**Evaluation of Findings/Recommendations**

VHB will conduct an AASHTO Elastic Layer pavement design for the alternatives considered. Recommended alternatives will be evaluated based on considerations of life-cycle cost, maintenance, and rehabilitation or reconstruction options for each pavement area, for a proposed twenty year period. Traffic information, including the percentage of trucks will be the responsibility of VHB/Vermont. No automated traffic counts are anticipated or included.

A technical Pavement Engineering report will document the investigation, evaluation and recommendations for each section designated within project area. The development of technical specifications for the pavement materials is not anticipated and not included in this scope.

The information to be furnished by VHB is based upon selected sample areas, the number of samples based upon reasonable cost, from which these materials are utilized to form engineering judgments, assumptions, deductions, and to form conclusions for reports. No assurance is given that the materials have remained unchanged, nor will the samples necessarily be typical of other locations.

**Utility Relocation**

VHB does not anticipate significant private or public utility impacts as part of this project. VHB will consider present and future utility installations within the project corridor based upon input from the City representatives.

Existing ROW limits and appropriate clear zones will be clearly delineated on the plans for sections 6-10. The clear zone for a project delineates the area outside of which above-ground utility facilities must be located on a project. Preliminary plans will be provided to affected utilities with a request that existing utility facilities be plotted or their locations verified.

VHB will assist the City in preparing any utility agreements necessary for the project as requested using a VTrans shell Utility Relocation Agreement.

**Environmental Analysis and Permit Applications**

Permits or sign-offs will be obtained at this 60% stage in the project development process for the final design Sections 6-10. The following permits are anticipated to be required. All permit processing or administrative fees levied by the agencies are the responsibility of the City.

*Department of the Army Section 404/Section 10*

VHB assumes that the project will require the placement of fill materials into Lake Champlain below the ordinary high water (OHW) mark at select locations. For Sections 6-10 (slated for final design), some encroachment may be required to address shoreline erosion in close proximity to the bike path. For Section 4 (Barge Canal Beach to Treatment Plant), more extensive fill below OHW may be required if the bike path is widened lakeward. The discharge of fill materials into Lake Champlain over an area of up to 5,000 square feet can be authorized under the Vermont General Permit. Once that threshold is exceeded (for either temporary or permanent impacts), an Individual Permit would be required. Though the rehabilitation of the bike path will be phased over time, the USACE must review such projects for their anticipated overall impact (i.e., Sections 1 to 16).

Based on the likelihood that temporary and/or permanent impacts below OHW at Section 4 will exceed 5,000 square feet, VHB assumes that a Department of the Army Section 404 Individual Permit (IP) will be required. VHB will conduct one pre-application meeting with the USACE, with invitations extended to the Environmental Protection Agency (EPA), US Fish and Wildlife Service (USFWS), and the Department of Environmental Conservation (DEC) Wetlands Program and Lakes and Ponds Management and Protection Program, as well as various City of Burlington departments and the Conservation Board. VHB will prepare all necessary IP application materials, including the ENG 4345 form, natural resource information, data sheets, abutter notification forms, impact exhibits, and associated mapping. The preliminary (60%) plans will form the basis for the impact calculation.

IP applications typically require the preparation of an alternatives analysis, which summarizes the steps taken by the applicant to ensure the project has avoided impacts to wetlands and waters of the US to the extent practicable and has minimized those impacts that are unavoidable. The alternatives analysis presents justification for the project being the least environmentally damaging practicable alternative (LEDPA). For this project, VHB assumes that the USACE will not

require an evaluation of project-wide alternatives but will be concerned only with those areas where impacts are proposed. For example, should impacts be proposed at Section 4 due to lakeward expansion of the bike path footprint, what other alternatives were evaluated and why they were inappropriate would be discussed. The alternatives analysis will take the form of a standalone written report with map support.

Based on the precedent established in Permit No. NAE-2009-0587 for the proposed Moran Center at Waterfront Park, no mitigation will be required for impacts below OHW in Lake Champlain (i.e., unvegetated open-water wetlands). Due to the nature of the project as rehabilitation on existing alignment, direct (permanent) and temporary impacts to vegetated wetlands are considered unlikely. However, should any temporary or permanent impacts occur to vegetated wetlands as a result of the project, the USACE will require compensatory mitigation. This scope of work assumes that such mitigation would be addressed via a payment made or arranged by the City into the Ducks Unlimited In-Lieu Fee Program (DU-ILF). No other means of compensatory mitigation is proposed by this scope of services.

#### *Section 401 Water Quality Certification*

Coincident with the preparation of the 404 IP application, VHB will prepare and submit an application to the DEC Watershed Management Division requesting an Individual Section 401 Water Quality Certification. The required form and format for Individual 401 Water Quality Certification will be used, and that information developed/compiled as part of the 404 IP application can be substantially utilized. The application would consist of the DEC form and a brief supporting project narrative. Project design plans, details, EPSC plans, and impact information developed for the 404 IP application will be utilized.

Included with this task are one pre-application site visit, if necessary, with DEC Watershed Management Division. This task includes written response to one round of DEC comments assumed to be minor and text-based. It is assumed that DU-ILF mitigation (if required) and/or DEC-issued stormwater permits will be satisfactory for 401 WQC issuance and that no further mitigation will be required.

This task does not include any baseline (pre-construction) water quality monitoring or post-construction monitoring plan development, or technical hearing preparation or attendance.

#### *DEC Wetland Permit*

It is unlikely that rehabilitation of the bike path will result in direct impacts to wetlands regulated by the state. However, impacts to Class II wetland buffers may occur in the case of bike path widening. Wetland and/or wetland buffer impacts that are not considered an Allowed Use will require a Vermont Wetland Permit (VWP) pursuant to the Vermont Wetland Rules. Whether a general permit or individual permit will be required cannot be ascertained at this time. However, because of the relatively low impact thresholds established by DEC, it is likely that an IP will be required. In support of the Project's anticipated application for an individual VWP, VHB will:

- participate in one pre-application coordination meeting with the ANR, Wetlands Program project managers;



- complete and submit the required VWP application, along with all required supporting information to the DEC Wetlands Program office, pertinent municipalities, and regional planning commission(s);
- participate in one agency review site meeting;
- respond to one round of comments from the DEC and the City.

#### *Encroachment in Special Flood Hazard Areas*

The placement of fill within Lake Champlain for either shoreline stabilization or to widen the bike path (e.g., Section 4) will result in an encroachment within Federal Emergency Management Agency (FEMA) Special Flood Hazard Area (SFHA) Zone AE (1% annual chance of flood, 102 feet NAVD88). Also, portions of the bike path near the Water Treatment Plant lie within this same zone. Therefore, rehabilitation of the surface may result in some change in topographic contours within the SFHA.

National Flood Insurance Program (NFIP) regulations (44 CFR §60.3) require that a permit from the City be obtained for any development in a FEMA-mapped floodplain. City ordinance places FEMA-mapped SFHA's within the Natural Resource Protection Overlay District (NR District), and District-Specific Regulations are in place that govern development. Vermont law (24 VSA §4424) requires that all municipal permit applications for floodplain development be sent to the DEC Rivers Program for a review and comment.

VHB will prepare a plan sheet(s) that satisfy the requirements of both the DEC Development Review Submission Checklist and the NR-District Specific Regulations, including (but not limited to):

- existing and proposed contours/elevations in the same datum as the most recent NFIP Flood Insurance Rate Map (or with a datum conversion);
- the location and extent of any proposed fill;
- NFIP floodway delineation; and
- NFIP Floodway Fringe delineation.

VHB will complete the DEC Development Review Submission Checklist and submit the materials to the DEC River Program and the City's Development Review Board (DRB). VHB will evaluate the possibility of securing a variance for SFHA encroachment and pursue such a variance if eligible. If a variance is not possible, VHB assumes that hydraulic modeling and a no-rise certification will not be required to obtain permission for encroachment in Zone AE. This task includes one meeting with / hearing before the Development Review Board.

#### *Construction Stormwater Discharge Permit*

VHB will prepare an EPSC plan set for Sections 6-10 in accordance with DEC Stormwater Program requirements. In addition, for the purposes of submitting a complete application to the DEC Stormwater Program, VHB will also be preparing the following supporting materials:

- Cover letter
- Notice of Intent (NOI) form

- EPSC Plan Narrative
- EPSC Plan Summary Form
- Site map with proposed limits of disturbance (LOD) and adjacent water resource areas
- Soils map

#### *Operational Stormwater Discharge Permit*

Based on the stormwater management approaches/facilities developed for the preliminary plans, VHB will develop an operational phase stormwater management plan set and complete and submit an operational stormwater discharge permit application to the DEC Stormwater Program. This application will include the following supporting materials:

- Cover letter
- Notice of Intent (NOI) form
- Pre- and post-development watershed maps
- Pre- and post-development hydrologic modeling (via HydroCAD) output data
- Vermont Stormwater Management Manual (VSMM) worksheets and calculations
- Site map
- Soils map

A permit that may be required but cannot be confirmed at this time is an Endangered and Threatened Species Takings Permit from the Vermont Fish and Wildlife Department (VTFWD). In addition, a Stream Alteration Permit from the DEC Rivers Program is not anticipated to be required unless culvert replacement is proposed (e.g., Blanchard Beach).

A Shoreland Encroachment Permit from the DEC Lakes and Ponds Management and Protection Section is not anticipated, as it is unlikely that the project would be found to have an adverse effect on the public good.

#### **Property Owner Visits**

Upon receipt of information from affected utility companies in sections 6-10, VHB will incorporate that any relocation routes are incorporated into the plans. Property owner visits for any impacted owners in sections 6-10 will be scheduled with the City to explain the project and its impact on their property. VHB and the affected utility company representatives generally participate in these property owner meetings.

#### **Right-of-Way Acquisition**

The project is ready to enter this phase of the project development process for sections 6-10 once the following is complete:

- Environmental Document (CE)
- ROW Authorization

It is anticipated that the project will require minimal ROW acquisition. In the event that there is necessary acquisition, the project must follow the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended 49 CFR – Part 24 (Uniform Act), as the responsibility for ensuring that the provisions of the Uniform Act are met rest with the City. VHB is well-versed with ROW procedures and property acquisition process and has experience assisting VTrans with this process and will assist the City as requested.

**Right-of-Way Plans**

ROW work will be completed in compliance with VTrans procedures. VHB will prepare detailed ROW plans including researching title abstract data and details relating to water and sewer systems, city easements, property line locations, railroad, right-of-way, driveways, etc. The plans will show the proposed centerline of the bike path, existing ROW limits, construction limits, temporary and permanent easements, and any proposed taking lines.

**Appraisals and Appraisals Review**

Appraisals and appraisal reviews will be handled directly by the City with the VHB Team's assistance.

**Re-Evaluation of the Categorical Exclusion**

Any changes to the project scope, construction limits, impacts, or to any proposed mitigation since issuance of the Categorical Exclusion will need to be documented and submitted to the City. It is worth noting that changes to the project or a time frame greater than three years since the Categorical Exclusion was approved, may necessitate re-evaluation of the Categorical Exclusion by VTrans and the Federal Highway Administration.

**Final (85%) Plans**

VHB will prepare Final Plans for only sections 6-10 of the bike path (Perkins Pier to North Beach) and incorporate any changes required by permitting agencies, the ROW acquisition process and final utility relocation. Right-of-Way plan sheets will be included, identifying the proposed acquisition lines. These plans will show final design details along with an updated listing of quantities and will be accompanied by an updated construction cost estimate, specifications and special provisions. The specifications will include material testing and sampling requirements in keeping with the latest VTrans Material Sampling Manual (MSM).

**Contract (100%) Plans**

VHB will prepare contract plans for sections 6-10 incorporating any final changes since the review and acceptance of the Final (85%) plans. All changes will be documented and formal Responses to Comments will be provided. Contract specifications, special provisions and a final construction cost estimate will be provided.

Upon completion of the Contract Plans, VHB will review all project documents and assemble the final submittal package for City and VTrans review. The Environmental Document will be current and all right-of-way will be cleared. Applicable permits will be obtained and accounted for. The Design and Utility Clearance Certificate will be signed and sent to the City.

**Health and Safety Plan**

VHB will develop a site-specific worker Health and Safety Plan (HASP) meeting OSHA and EPA requirements, to be included with the bid documents for contractors to follow in order to comply with worker protection requirements in the event that oil or hazardous material contamination is likely to be encountered during construction.

The HASP will address hazard identification and risk analysis, site controls, personal protective equipment, monitoring, decontamination, emergency procedures, communication, and other health and safety issues as applicable to the project.

**Bidding Services**

Following the acceptance of the Final Submission including Contract Documents, and following approval by the City to advertise the project for construction, VHB will assist with bidding the project. VHB will provide any necessary addenda to respond to questions that are received from prospective bidders during the bid period.

**Construction (Phase C)**

VHB does not anticipate providing any construction assistance through this scope of work.

## **Part I**

## **Attachment B**

## **Cost Estimate**

## **Burlington Bike Path Rehabilitation**

## COST ESTIMATE SUMMARY SHEET

<b>VHB</b>	<b>City of Burlington, VT</b> <b>Cost Summary</b> <b>Burlington Bike Path Rehabilitation</b> <b>Phase A and B Services</b>				
TASK DESCRIPTION	Cost Summary				
<b>VHB Labor:</b>					
<b><u>Total Hours</u></b>	<b><u>Total Hours</u></b>	<b><u>Direct Labor</u></b>	<b><u>Overhead (156.77%)</u></b>	<b><u>Fee (10%)</u></b>	<b><u>TOTAL</u></b>
Project Management	144	\$6,560.00	\$10,284.11	\$1,684.41	\$18,528.52
Graphics, Visualization, and Public Meetings	196	\$6,056.00	\$9,493.99	\$1,555.00	\$17,104.99
Survey (Topographical and Utility Location)	736	\$19,271.72	\$30,212.28	\$4,948.40	\$54,432.40
Underground Utility Survey	Lump sum cost from Underground Utility Locators				\$5,000.00
Pavement Design	480	\$21,610.00	\$33,878.00	\$5,548.80	\$61,036.80
NEPA Permitting	545	\$16,421.00	\$25,743.20	\$4,216.42	\$46,380.62
Bike/Ped Engineering	1182	\$38,674.00	\$60,629.23	\$9,930.32	\$109,233.55
General Environmental Analysis and Permits	715	\$21,967.00	\$34,437.67	\$5,640.47	\$62,045.14
Right-of-Way Process	212	\$6,604.00	\$10,353.09	\$1,695.71	\$18,652.80
Project Advertisement	70	\$2,708.00	\$4,245.33	\$695.33	\$7,648.66
<b>Sub-Total:</b>	<b>4,280</b>	<b>\$139,871.72</b>	<b>\$219,276.90</b>	<b>\$35,914.86</b>	<b>\$400,063.48</b>
<b>Subconsultants and VHB Direct Expenses:</b>					
<b>GeoDesign, Inc.</b>					
Geotechnical Engineering					\$41,078.00
Direct Expenses (Incl. Borings):					\$31,085.00
					<b>Sub-Total: \$72,163.00</b>
<b>SE Group</b>					
Landscape Architecture & Placemaking Design					\$40,270.00
Direct Expenses					\$1,200.00
					<b>Sub-Total: \$41,470.00</b>
<b>VHB Direct Expenses (see separate sheet breakdown)</b>					<b>\$15,890.00</b>
<b>Project Total:</b>					
					<b>\$529,586.48</b>

**PROJECT MANAGEMENT**  
**Estimated Direct Labor Hours and Costs**

<div>VHB</div>		City of Burlington, VT Project Management - Cost Summary Burlington Bike Path Rehabilitation								
TASK DESCRIPTION		Director / Project Manager	Task Manager	Senior Project Engineer	Project Engineer	Staff Engineer	CADD/ GIS Tech.	Admin.	Total Hours	Direct Labor Costs
	PHASE A - Project Definition									
	PROJECT MANAGEMENT									
	Assume 8 months at a minimum of 4 hours per week	64				64		16	144	\$6,560.00
	TOTAL HOURS:	64	0	0	0	64	0	16	144	
	DIRECT HOURLY RATES :	70.00	55.00	43.00	35.00	27.00	25.00	22.00		
	TOTAL LABOR COSTS :	\$ 4,480.00	\$ -	\$ -	\$ -	\$ 1,728.00	\$ -	\$ 352.00		\$ 6,560.00

**Graphics, Visualization, and Public Meetings**  
**Estimated Direct Labor Hours and Costs**

<div>VHB</div>		City of Burlington, VT							
		Graphics, Visualization, and Public Meetings - Cost Summary							
		Burlington Bike Path Rehabilitation							
TASK DESCRIPTION		Director / Project Manager	Task Manager	Senior Project Engineer	Project Engineer	Staff Engineer	CADD/ GIS Tech.	Total Hours	Direct Labor Costs
	PHASE A - Project Definition								
	LOCAL CONCERNS MEETING	Included in previous phase							
	Graphics, Visualization, and Preparation								
	ALTERNATIVES PRESENTATION MEETING								
	Graphics, Visualization, and Preparation	8			8	24	64	104	\$3,088.00
	PUBLIC INFORMATIONAL MEETING								
	Graphics, Visualization, and Preparation	12			8	24	48	92	\$2,968.00
	TOTAL HOURS:	20	0	0	16	48	112	196	
	DIRECT HOURLY RATES :	70.00	55.00	43.00	35.00	27.00	25.00		
	TOTAL LABOR COSTS :	\$ 1,400.00	\$ -	\$ -	\$ 560.00	\$ 1,296.00	\$ 2,800.00		\$ 6,056.00



# SURVEY

## Estimated Direct Labor Hours and Costs

<b>VHB</b>		<b>City of Burlington, VT</b> <b>Survey - Cost Summary</b> <b>Burlington Bike Path Rehabilitation</b>							
		Director / Project Manager	Project Manager	Project Surveyor	Project Surveyor/ CADD	Surveyor Field/ Work/Research	Admin	Total Hours	Direct Labor Costs
	<b>PHASE A - Project Definition</b>								
<b>1.01</b>	<b>Topographic Survey (Sections 1-16)</b>								
1.01.1	Coordination		8					8	\$373.92
1.01.2	Topographic Survey		4	16	8	16	4	48	\$1,271.92
1.01.3	Horizontal/Vertical Control		16	160	100	160		436	\$11,437.44
1.01.4	Existing Utility Survey		12	16	16	16	4	64	\$1,869.84
<b>2.01</b>	<b>Detailed Utility Survey (Sections 6-10)</b>								
2.01.1	Underground Utility Survey	Lump sum cost from Underground Utility Locators							\$5,000.00
<b>3.01</b>	<b>ROW Survey (Sections 6-10)</b>								
3.01.1	Existing ROW Survey			60	24	80	16	180	\$4,318.60
	<b>TOTAL HOURS:</b>	0	40	252	148	272	24	736	
	<b>DIRECT HOURLY RATES :</b>	70.00	46.74	29.31	28.00	20.00	18.00		
	<b>TOTAL LABOR COSTS :</b>	\$ -	\$ 1,869.60	\$ 7,386.12	\$ 4,144.00	\$ 5,440.00	\$ 432.00		\$ 19,271.72

**PAVEMENT DESIGN ENGINEERING**  
**Estimated Direct Labor Hours and Costs**

<div style="text-align: center; font-size: 2em; font-weight: bold;">VHB</div>		<div style="text-align: center;"> <b>City of Burlington, VT</b>  <b>Pavement Design - Cost Summary</b>  <b>Burlington Bike Path Rehabilitation</b> </div>								
		Project Manager	Operations Manager	Senior Project Engineer	Pavement Technician	Pavement Technician	Pavement Engineer	Pavement Technician OT	Total Hours	Direct Labor Costs
	<b>PHASE B - Project Design</b>									
<b>1.01</b>	<b>Project Meetings</b>									
1.01.1	Attend and Document Predesign Meeting with City and Planning Commission	16	1						17	\$800.00
1.01.2	Project Administration and Attendance at City/Task Force Meetings (Assume 2)	8	8	16					32	\$1,248.00
<b>1.02</b>	<b>Existing Pavement Conditions &amp; Pavement Segmenting</b>									
1.02.1	Field Distress Survey	1		16			8		25	\$880.00
1.02.2	Locate and Mark Test pits			8					8	\$304.00
1.02.3	Obtain Dig Safe Permits		8	8					16	\$560.00
<b>1.03</b>	<b>Test Pit Sampling</b>									
1.03.1	Test Pit Sampling		4		40	40		16	100	\$2,568.00
<b>1.04</b>	<b>Laboratory Testing &amp; Reporting</b>									
1.04.1	Laboratory Testing		8		70	16			94	\$2,358.00
1.04.2	Laboratory Reporting		16	40					56	\$2,032.00
1.04.3	Soil Disposal				4	4			8	\$188.00
<b>1.05</b>	<b>AASHTO Pavement Designs &amp; Recommendations</b>									
1.05.1	Design Alternatives	4		64			16		84	\$3,072.00
1.05.2	Pavement Recommendations			32					32	\$1,216.00
<b>1.06</b>	<b>QA</b>									
1.06.1	Design Review	8							8	\$384.00
	<b>TOTAL :</b>	37	45	184	114	60	24	16	480	\$15,610.00
	<b>TOTAL HOURS:</b>	37	45	184	114	60	24	16	480	
	<b>DIRECT HOURLY RATES :</b>	48.00	32.00	38.00	25.00	22.00	28.00	35.00		
	<b>TOTAL LABOR COSTS :</b>	\$ 1,776.00	\$ 1,440.00	\$ 6,992.00	\$ 2,850.00	\$ 1,320.00	\$ 672.00	\$ 560.00		\$15,610.00
	<b>DIRECT EXPENSES:</b>									\$6,000.00
	<b>TOTAL LABOR &amp; DIRECT EXPENSES:</b>									\$21,610.00

**NEPA PERMITTING**  
**Estimated Direct Labor Hours and Costs**


<div style="text-align: center; font-size: 2em; font-weight: bold;">VHB</div>		<div style="text-align: center;"> <b>City of Burlington, VT</b>  <b>NEPA Permitting - Cost Summary</b>  <b>Burlington Bike Path Rehabilitation</b> </div>							
		Project Manager	Sr. Proj. Engineer/ Task Manager	Sr. Engineer/ Scientist	Engineer/ Scientist	Sci/Eng Technician	Technician/ Admin	Total Hours	Direct Labor Costs
	<b>PHASE A - Project Definition</b>								
<b>1.01</b>	<b>Natural Resources Field and Desktop Investigations</b>								
1.01.1	Database Queries (Wildlife Diversity Program) & Agency Outreach		6		20			26	\$750.00
1.01.2	Wetland and Stream Delineation and Vernal Pool Survey		14		48	40		102	\$2,582.00
1.01.3	Field Work for RTE Plants/ Wildlife Habitat/ Natural Communities		20		14	12		46	\$1,476.00
1.01.4	Natural Resources Technical Report	1	12		52		8	73	\$1,978.00
1.01.5	Prepare for and Attend City and Agency Site Visit		10		4			14	\$546.00
<b>2.01</b>	<b>Hazardous Waste Assessment</b>								
2.01.1	DEC Site File Search and Evaluation		16		32			48	\$1,488.00
<b>3.01</b>	<b>Historic and Archeological Resources</b>								
3.01.1	Coordination with VTrans Historic Preservation and Archeology Officers		18					18	\$810.00
3.01.2	Prepare Determination of No Effect for Historic Resources		12	8				20	\$796.00
3.01.3	Section 4(f) Determination (FHWA coordination)		4	2				6	\$244.00
<b>4.01</b>	<b>Resource Identification Report</b>								
4.01.1	Preparation of Report		6	6	36		4	52	\$1,386.00
4.01.2	Circulation for City & VTrans Review & Document Revision		4		8			12	\$372.00

**NEPA PERMITTING**  
***Estimated Direct Labor Hours and Costs***

<div>VHB</div>		City of Burlington, VT NEPA Permitting - Cost Summary Burlington Bike Path Rehabilitation							
TASK DESCRIPTION		Project Manager	Sr. Proj. Engineer/ Task Manager	Sr. Engineer/ Scientist	Engineer/ Scientist	Sci/Eng Technician	Technician/ Admin	Total Hours	Direct Labor Costs
5.01	Phase I Archeological Site Identification Survey (no survey proposed)								
5.01.1	Coordination with VTrans Archeology Officer to Determine Need for Further Study		10		4			14	\$546.00
6.01	Compliance with the National Environmental Policy Act (NEPA, if required)								
6.01.1	Agency Outreach and Coordination		8			6	2	16	\$510.00
6.01.2	Compile Available Data and Prepare CE Appendices		2		2	12	6	22	\$468.00
6.01.3	Develop Traffic Management Strategies		8	8				16	\$616.00
6.01.4	Complete CE Checklist		6		14			20	\$606.00
6.01.5	Respond to Comments from VTrans, FHWA, and the City		4		6			10	\$324.00
6.01.6	Submit Final RIR		2		4		6	12	\$276.00
7.01	Other Permit Requirements								
7.01.1	Prepare Summary of Anticipated Permit Requirements		4					4	\$180.00
	Prepare Jurisdictional Opinion Request and Coordinate with Dist. Comm.	1	1	8	4			14	\$467.00
	TOTAL HOURS:	2	167	32	248	70	26	545	
	DIRECT HOURLY RATES :	70.00	45.00	32.00	24.00	20.00	15.00		
	TOTAL LABOR COSTS : \$	140.00	7,515.00	1,024.00	5,952.00	1,400.00	390.00		\$ 16,421.00

# BIKE/PEDESTRIAN ENGINEERING

## Estimated Direct Labor Hours and Costs

<div style="text-align: center;">  </div>		<div style="text-align: center;"> <b>City of Burlington, VT</b>  <b>Bike/Pedestrian Engineering - Cost Summary</b>  <b>Burlington Bike Path Rehabilitation</b> </div>						
		Director / Project Manager	Task Manager	Senior Project Engineer	Staff Engineer	CADD/ GIS Tech.	Total Hours	Direct Labor Costs
	<b>PHASE A - Project Definition</b>							
<b>1.01</b>	<b>Predesign Workshop</b>							
1.01.1	Prepare for, Attend, and Document Predesign Conference with City, CCRPC, VTrans, and others	4	8		4		16	\$868.00
<b>1.02</b>	<b>Local Concerns Meeting</b>	Included in previous phase						
1.02.1	Prepare for, Attend, and Document Local Concerns Meeting							
<b>1.03</b>	<b>Purpose &amp; Need Statement</b>							
1.03.1	Revise P&N Statement		2				2	\$122.00
<b>1.04</b>	<b>Data Collection/Base Plan Preparation</b>							
1.04.1	Field Review (see separate Survey sheet for Topographic and ROW Survey)			8	4		12	\$404.00
1.04.2	Prepare Base Plans for Use in Design Phases			2	4	16	22	\$544.00
<b>1.05</b>	<b>Alternatives Investigations</b>							
1.05.1	Develop Alternatives for Sections 1-16	4	12	32	40	40	128	\$4,148.00
1.05.2	Develop Approximate Construction Footprint for Each Alternative		2	4	8	16	30	\$842.00
1.05.3	Estimate Construction Costs and Impacts for Each Alternative		2	8	8		18	\$626.00
1.05.4	Contribute to Evaluation Matrix and Written Description of Pros and Cons for Each Alternative	1	2	8	4		15	\$596.00
<b>1.06</b>	<b>Alternatives Presentation Meeting</b>							
1.06.1	Prepare for, Attend, and Document Alternatives Presentation Meeting		4		8	8	20	\$628.00
1.06.2	Modify Pre-Conceptual Plans Based on Meeting, and Document the Selection of Preferred Alternative		2	8	4	8	22	\$710.00
<b>1.07</b>	<b>Develop Conceptual Bike Path Plans</b>							
1.07.1	Confirm Bike Path Design Criteria with City and VTrans	1	2	4			7	\$344.00
1.07.2	Develop Conceptual Typical Bike Path Sections		2	2	4	8	16	\$482.00
1.07.3	Develop Plan Sheets Showing Bike Path Centerline		4	16	24	40	84	\$2,372.00
1.07.4	Incorporate Conceptual Landscape Architecture Design (Design by SE Group)		1	2	8	8	19	\$521.00
1.07.5	Conceptual Drainage & Stormwater Management Design		2	2	4	2	10	\$344.00
1.07.6	Define Bike Path and Roadway Construction Limits		2	4	8	8	22	\$658.00
1.07.7	Pavement Structure Design (see separate Pavement sheet)		1	2	4		7	\$237.00
1.07.8	Develop Conceptual Construction Phasing/Traffic Control Plans		2	8	8	24	42	\$1,178.00
1.07.9	Prepare Conceptual Bike Path Construction Cost Estimate		2	4	16		22	\$674.00
1.07.10	Conceptual Design Submission, including QA/QC		4	8	6	8	26	\$882.00
1.07.11	Coordination Meetings (3)	18	4	8	16		46	\$2,208.00
	<b>PHASE A TOTAL :</b>	28	60	130	182	186	586	\$19,388.00

# BIKE/PEDESTRIAN ENGINEERING

## Estimated Direct Labor Hours and Costs

VHB		City of Burlington, VT Bike/Pedestrian Engineering - Cost Summary Burlington Bike Path Rehabilitation						
TASK DESCRIPTION		Director / Project Manager	Task Manager	Senior Project Engineer	Staff Engineer	CADD/ GIS Tech.	Total Hours	Direct Labor Costs
	<b>PHASE B - Project Design</b>							
<b>2.01</b>	<b>Develop Preliminary Bike Path Plans</b>							
2.01.1	Develop Preliminary Typical, Plan, and Cross Section Sheets	2	8	40	48	48	146	\$4,452.00
2.01.2	Incorporate Preliminary Landscape Architecture Design (Design by SE Group)		2		4	8	14	\$406.00
2.01.3	Develop Preliminary Construction Phasing/Traffic Control Plans		4	4	4	16	28	\$864.00
2.01.4	Prepare Preliminary Bike Path Construction Cost Estimate		4	24	40	8	76	\$2,340.00
2.01.5	Preliminary Design Submission, including QA/QC	2	4	8	8	4	26	\$980.00
2.01.6	Develop Color Presentation Plans and Meeting Materials for Public Information Meeting	2	4		4	4	14	\$576.00
2.01.7	Present Preliminary Design Plans at Public Information Meeting and Document Proceedings	4	4		8		16	\$724.00
<b>3.01</b>	<b>Develop Final Bike Path Plans</b>							
3.01.1	Develop Final Typical, Plan, and Profile Sheets	2	4	16	20	32	74	\$2,228.00
3.01.2	Incorporate Final Landscape Architecture Design (Design by SE Group)		2		4	8	14	\$406.00
3.01.3	Develop Final Construction Phasing/Traffic Control Plans		4		8	8	20	\$628.00
3.01.4	Prepare Final Design Specifications	2	4	8	16	12	42	\$1,364.00
3.01.5	Prepare Final Bike Path Construction Cost Estimate		4		8		12	\$444.00
3.01.6	Final Design Submission, including QA/QC	4	4	8	8	16	40	\$1,396.00
<b>4.01</b>	<b>Develop Contract Plans and Specifications</b>							
4.01.1	Develop Contract Typical, Plan, and Profile Sheets		8		16	16	40	\$1,256.00
4.01.2	Prepare Contract Bike Path Construction Cost Estimate		2		4	4	10	\$314.00
4.01.3	Contract Design Submission, including QA/QC	4	4		8	8	24	\$908.00
	<b>PHASE B TOTAL :</b>	22	66	108	208	192	596	\$19,286.00
	<b>TOTAL HOURS:</b>	50	126	238	390	378	1182	\$38,674.00
	<b>DIRECT HOURLY RATES :</b>	70.00	61.00	38.00	25.00	23.00		
	<b>TOTAL LABOR COSTS :</b>	\$ 3,500.00	\$ 7,686.00	\$ 9,044.00	\$ 9,750.00	\$ 8,694.00		\$ 38,674.00

# GENERAL ENVIRONMENTAL ANALYSIS AND PERMITS

## Estimated Direct Labor Hours and Costs

<div>VHB</div>		City of Burlington, VT General Environmental Analysis and Permits - Cost Summary Burlington Bike Path Rehabilitation							
TASK DESCRIPTION		PM/ Historic Preservation Planner	Senior Project Engineer/ Task Manager	Sr. Engineer/ Scientist	Engineer/ Scientist	Sci/Eng Technician	Technician/ Admin	Total Hours	Direct Labor Costs
	Phase B - Project Design								
1.01	Section 404 / Section 10 Individual Permit Application								
1.01.1	Prepare for and Attend Pre-Application Meeting	1	8					9	\$430.00
1.01.2	Prepare Application Forms, Impact Exhibits, and Supporting Materials		8		52	8	2	70	\$1,798.00
1.01.3	Prepare Alternatives Analysis		12	4	6			22	\$812.00
1.01.4	Respond to City and Agencies Review	1	2					3	\$160.00
1.01.5	Prepare for and Attend City and Agency Site Visit		12		4		6	22	\$726.00
2.01	Section 401 Water Quality Certification								
2.01.1	Prepare for and Attend Pre-Application Meeting		4		4			8	\$276.00
2.01.2	Prepare Application Forms, Impact Exhibits, and Supporting Materials	1	8		40		6	55	\$1,480.00
2.01.3	Respond to City and DEC Review		2		16			18	\$474.00
2.01.4	Submit Revised Materials and Coordinate with DEC		4		4		2	10	\$306.00
3.01	DEC Vermont Individual Wetland Permit								
3.01.1	Prepare for Pre-Application Meeting (attendance assumed joint under Task 1.01.1)		2					2	\$90.00
3.01.2	Prepare Application Forms, Impact Exhibits, and Supporting Materials	1	16		40		4	61	\$1,810.00
3.01.3	Respond to City and Agencies Review		2		42		2	46	\$1,128.00
3.01.4	Submit Revised Materials and Coordinate with DEC		4		8		2	14	\$402.00
3.01.5	Prepare Distribution Materials						4	4	\$60.00
4.01	Encroachment in Special Flood Hazard Areas (SFHA)								
4.01.1	Prepare Site Plan(s) for Areas of SHFA Encroachment		4	16				20	\$692.00
4.01.2	Prepare Narrative Description of Encroachment		2	8	4			14	\$442.00
4.01.3	Complete DEC Development Review Submission Checklist		8	4				12	\$488.00
4.01.4	Prepare for an Attend DRB Meeting / Hearing		2	8	2	12		24	\$634.00
4.01.5	Respond to DRB and DEC Review		1	8				9	\$301.00
4.01.6	Submit Revised Materials and Coordinate with DRB / DEC	1	2	8			4	14	\$476.00

# GENERAL ENVIRONMENTAL ANALYSIS AND PERMITS

## Estimated Direct Labor Hours and Costs

<div>VHB</div>		City of Burlington, VT General Environmental Analysis and Permits - Cost Summary Burlington Bike Path Rehabilitation							
TASK DESCRIPTION		PM/ Historic Preservation Planner	Senior Project Engineer/ Task Manager	Sr. Engineer/ Scientist	Engineer/ Scientist	Sci/Eng Technician	Technician/ Admin	Total Hours	Direct Labor Costs
5.01	Construction Stormwater Discharge Permit								
5.01.1	Develop EPSC Plan Set		4	24				28	\$948.00
5.01.2	Prepare Cover Letter, NOI, EPSC Plan Narrative, EPSC Plan Summary Form		4	12	12		4	32	\$912.00
5.01.3	Prepare Supporting GIS-Based Maps (soils, water resources, etc.) and Risk Eval.			4	8			12	\$320.00
5.01.4	Respond to City and DEC Review		4	8	4			16	\$532.00
5.01.5	Submit Revised Materials and Coordinate with DEC	1	4	8			2	15	\$536.00
6.01	Operational Stormwater Discharge Permit								
6.01.1	Develop Stormwater Management Plan Set		4	40				44	\$1,460.00
6.01.2	Prepare Pre/Post-Development Watershed Mapping			4	4			8	\$224.00
6.01.3	Perform Pre/Post-Development Hydrologic Modeling (HydroCAD)			32	2			34	\$1,072.00
6.01.4	Complete VSMM Worksheets and Calculations			16				16	\$512.00
6.01.5	Prepare Supporting GIS-Based Maps			4	4			8	\$224.00
6.01.6	Prepare Cover Letter, NOI, Stormwater Management Plan Narrative		4	16	2			22	\$740.00
6.01.7	Respond to City and DEC Review		4	24	2			30	\$996.00
6.01.8	Submit Revised Materials and Coordinate with DEC	1	4	8				13	\$506.00
	PHASE B TOTAL :	7	135	256	260	20	38	715	\$21,967.00
	TOTAL HOURS:	7	135	256	260	20	38	715	
	DIRECT HOURLY RATES :	70.00	45.00	32.00	24.00	20.00	15.00		
	TOTAL LABOR COSTS : \$	490.00	\$ 6,075.00	\$ 8,192.00	\$ 6,240.00	\$ 400.00	\$ 570.00		\$21,967.00



**RIGHT OF WAY PROCESS**  
**Estimated Direct Labor Hours and Costs**


<b>VHB</b>		<b>City of Burlington, VT</b> <b>Right of Way Process - Cost Summary</b> <b>Burlington Bike Path Rehabilitation</b>							
		Director / Project Manager	Task Manager	Senior Project Engineer	Project Engineer	Staff Engineer	Admin	Total Hours	Direct Labor Costs
	<b>Phase B - Project Design</b>								
<b>1.01</b>	<b>Property Owner Visits</b>								
1.01.1	Project Administration and Correspondence	4	8			8		20	\$800.00
1.01.2	Contact Property Owners and Set Up Meetings		4			32		36	\$820.00
1.01.3	Preparation for Meetings	2	8			16		26	\$820.00
1.01.4	Travel and Meeting Time		40			40		80	\$2,600.00
<b>2.01</b>	<b>Appraisals and Appraisals Review</b>								
2.01.1	Assist the City as needed for Appraisals and Review	2	8		8	16		34	\$1,012.00
<b>3.01</b>	<b>Right-of-Way Plans</b>								
3.01.1	Incorporate ROW on Final Plans		8		8			16	\$552.00
	<b>PHASE B TOTAL :</b>	8	76	0	16	112	0	212	\$6,604.00
	<b>TOTAL HOURS:</b>	8	76	0	16	112	0	212	
	<b>DIRECT HOURLY RATES :</b>	70.00	45.00	32.00	24.00	20.00	15.00		
	<b>TOTAL LABOR COSTS : \$</b>	<b>560.00</b>	<b>\$ 3,420.00</b>	<b>\$ -</b>	<b>\$ 384.00</b>	<b>\$ 2,240.00</b>	<b>\$ -</b>		<b>\$6,604.00</b>

# PROJECT ADVERTISEMENT SUPPORT

## Estimated Direct Labor Hours and Costs

VHB		City of Burlington, VT Advertisement - Cost Summary Burlington Bike Path Rehabilitation								
TASK DESCRIPTION		Director / Project Manager	Task Manager	Senior Project Engineer	Project Engineer	Staff Engineer	CADD/ GIS Tech.	Admin.	Total Hours	Direct Labor Costs
	<b>PROJECT ADVERTISEMENT SUPPORT</b>									
<b>1.01</b>	<b>Project Advertisement Support</b>									
1.01.1	Develop Contract Documents	2	8			24			34	\$1,228.00
1.01.2	Advertise Project	2	4			4			10	\$468.00
1.01.3	Addenda and Response to Questions	2	8			16			26	\$1,012.00
	<b>TOTAL HOURS:</b>	6	20	0	0	44	0	0	70	
	<b>DIRECT HOURLY RATES :</b>	70.00	55.00	43.00	35.00	27.00	25.00	22.00		
	<b>TOTAL LABOR COSTS :</b>	<b>\$ 420.00</b>	<b>\$ 1,100.00</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,188.00</b>	<b>\$ -</b>	<b>\$ -</b>		<b>\$ 2,708.00</b>

### ***DIRECT EXPENSES ESTIMATE***

<div style="text-align: center;">  </div>		<div style="text-align: center;"> City of Burlington, VT  <b>Direct Expenses</b>  <b>Burlington Bike Path</b>  <b>Rehabilitation</b> </div>			
	DESCRIPTION	Cost	Unit	Quantity	Direct Expense Cost (Rounded)
1	Full Size Plotting - Working Drawings	\$0.22	SF	2000	\$440.00
2	Half Size Printing - Working Drawings	\$0.10	EA	5000	\$500.00
3	Full Size B&W Plotting (Rolls)	\$1.00	SF	250	\$250.00
4	Large Format Photocopying (Black & White)	\$0.25	SF	500	\$125.00
5	Color Plots (Hearing roll plans, 40 scale, 4 versions)	\$12.00	SF	200	\$2,400.00
6	Photographs	\$12.00	Roll	100	\$1,200.00
7	Photocopying (Black & White)	\$0.06	EA	10000	\$600.00
8	Photocopying (Color)	\$1.25	EA	1000	\$1,250.00
9	Mylars - ROW Record Drawings: 75 total at 6 s.f./ Sheet	\$5.70	SF	0	\$0.00
10	Travel	\$0.565	Miles	5000	\$2,825.00
11	Postage and Deliveries	\$500.00	Unit	1	\$500.00
12	Lodging (assume \$90 / room/ night)	\$90.00	Night	10	\$900.00
13	Telephone	\$500.00	Unit	1	\$500.00
14	Traffic Counts	\$0.00	Unit	1	\$0.00
15	Railroad Flagging Services (for survey)	\$85.00	Hr	20	\$1,700.00
16	Burlington Police Dept. Flagging (for survey)	\$85.00	Hr	20	\$1,700.00
17	Misc. expenses	\$1,000.00	Unit	1	\$1,000.00
					\$15,890.00
				<b>Total</b>	<b>\$15,890.00</b>

## **Part I**

### **Attachment C**

#### **Sub Consultant Scopes of Work and Fees**

##### **Burlington Bike Path Rehabilitation**

## **CITY OF BURLINGTON**

### **Rehabilitation of Burlington Bike Path**

#### **SE GROUP - Scope of Work**

##### **Phase 1.0 – Preliminary Design / Master Plan – Entire Bike Path Sections 1-16**

The purpose for Phase 1 of the project is to develop a master plan for amenities and improvements along the entire length of the Burlington Bike Path (Sections 1-16), leveraging the original scoping analysis completed by the City. The Master Plan will develop, in graphical form, recommendations for these amenities and improvements and will serve as the basis for developing a more refined cost estimate. The Phase will also include several public meetings (3) and coordination with the City and the other consultants to assure the project workflow is maintained according to schedule.

##### ***Task A: Meetings and Project Kick-Off***

This first phase includes SE Group attendance at the initial “kick-off” meeting were schedules, deliverables and specific strategic guidance on the development of the master plan will be discussed. SE Group will also work with VHB to develop a project base plan for all design work. SE Group staff will tour the entire bike path, photo-documenting existing conditions with particular emphasis on how the pathway intersects with neighborhoods, parks and the road network. The goal is to develop a solid understanding of the current setting in context with the surroundings.

Also during this phase SE Group will review the previously completed Bike Path scoping analysis and confirm its role in defining the design program for the master plan; identifying opportunities for design and character elements.

##### ***Task B: Design Themes and Amenities***

Our next phase of work will explore general design themes and amenities that might be considered as part of the master plan. Even at this earliest point, these themes (expressed through the use of image boards and sketches) can be helpful to get input from the City on the general trajectory for the master plan. The types of themes that will be explored will respond to the existing conditions, identified opportunities and our insight on ways to provide cohesion within the bike path experience through design.

##### ***Task C: Concept Master Plan***

The majority of the effort under Phase 1 will be expended on developing a conceptual master plan. Working with input from the City and the public engagement process, we will develop a system wide plan that addresses the identified design theme and amenities. Presented graphically with vignettes highlighting specific improvements/enhancements,, the concept master plan will present a vision for the rehabilitation of the bike path. Our work will be closely coordinated with VHB to assure that any design element is responsive to structural or civil improvements needed.

##### ***Task D: Final Master Plan***

Following review of the Concept Master Plan with the City and any additional input gleaned from the public (if appropriate), SE Group will then work to finalize the concept into the final master plan. Building from the concept plan, the final will include some additional details to help solidify design options and provide a sound basis on which discussions over costing and phasing can occur. The final plan will include the overall path along with specific vignettes which identify areas of key improvements. All work will be coordinated with VHB to assure integration with structural, civil and environmental considerations.

***Task E: Cost Estimates***

Using the final master plan as the basis of the cost estimate, we will prepare a preliminary cost estimate based on the design and character elements scoped out through our work.

***Task G: Project Management and Coordination***

We anticipate attending up to (8) project coordination meetings during this phase of work.

131 Church Street  
Burlington Vermont 05401

## CITY OF BURLINGTON, VERMONT

### Rehabilitation of Burlington Bike Path

TASK DESCRIPTION		Principal	Senior Landscape Architect / Project Manager	Landscape Architect	CAD Technician	Total Hours	Direct Labor Costs
1.0	Preliminary Design / Master Plan - Entire Bike Path Sections 1-16						
1.01	Attend Kickoff Meeting with VHB and City	4	4			8	\$1,020.00
1.02	Site visit, tour bike path and photo document	8	12	12	8	40	\$4,520.00
1.03	Develop Image Boards and Graphics For Design Themes and Amenities		20		20	40	\$4,200.00
1.04	Develop Concept Master Plan with City and VHB	16	35	35	35	121	\$13,200.00
1.05	Present Concept Master Plan For Design Themes and Amenities	4	8		12	24	\$2,500.00
1.06	Prepare Final Master Plan as per City and Committee Comments	4	35		35	74	\$7,850.00
1.07	Preliminary Cost Estimate for Landscape Features and Amenities		12		12	24	\$2,520.00
1.08	Public Meetings (3)	4	12		4	20	\$2,380.00
1.09	Project Management and Coordination Meetings (8)		16			16	\$2,080.00
	Sub Totals :	40	154	47	126	367	\$40,270.00
	TOTAL HOURS:	40	154	47	126		
	DIRECT HOURLY RATES :	125.00	130.00	110.00	80.00		
	TOTAL DIRECT LABOR COSTS : \$	5,000.00	\$ 20,020.00	\$ 5,170.00	\$ 10,080.00		\$40,270.00
	ESTIMATED DIRECT EXPENSES						\$1,200.00
	TOTAL						\$41,470.00



**GEODESIGN**  
INCORPORATED

GEOTECHNICAL ENGINEERS AND ENVIRONMENTAL CONSULTANTS

May 3, 2013  
File No. 0837-069

Mark Colgan, P.E.  
Vanasse Hangen Brustlin, Inc.  
7056 US Route 7  
P.O. Box 120  
North Ferrisburgh, VT 05473

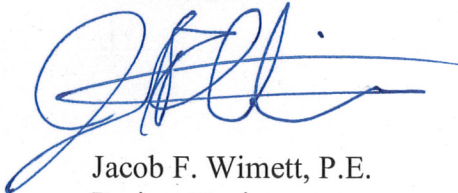
RE: Proposal for Geotechnical Engineering  
Rehabilitation of the Burlington Bike Path – Burlington, VT

Dear Mark:

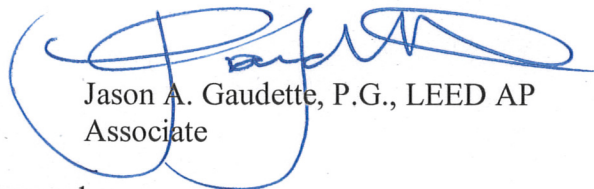
GeoDesign is pleased to submit this proposal to perform geotechnical engineering services for rehabilitation of the Burlington Bike Path in Burlington, Vermont. This proposal provides an engineering scope, associated fees, and anticipated schedule.

We appreciate the opportunity to be of service to you on this project and look forward to this collaboration. If you have any questions, please contact Jason A. Gaudette at 802-674-2033 (Ext. 205).

Sincerely,  
GeoDesign, Inc.



Jacob F. Wimett, P.E.  
Project Engineer



Jason A. Gaudette, P.G., LEED AP  
Associate

Enclosures: Engineering Scope and Cost Proposal  
Budget Breakdown Spreadsheet  
VHB/GeoDesign Subconsultant Terms & Conditions

Submitted: One electronic copy via email.



**PROPOSAL**

**REHABILITATION  
OF THE  
BURLINGTON  
BIKE PATH**

**Burlington, VT**

**VANASSE HANGEN BRUSTLIN, INC.**

**Mr. Mark Colgan, P.E.**

**7056 U.S. Route 7**

**P.O. Box 120**

**North Ferrisburgh, VT 05473**

**May 3, 2013**



**G E O D E S I G N  
I N C O R P O R A T E D**

**54 Main Street, P.O. Box 699, Windsor, Vermont 05089**

**(T) 802.674.2033, (F) 802.674.5943**

**GeoDesign Project Number: 837-69**



Following VHB's email notice of award dated April 22, 2013, we have prepared this proposal for geotechnical engineering services for the captioned project.

The following information was available for download on the City of Burlington Department of Parks and Recreation website (<http://www.enjoyburlington.com>):

- Request for Engineering Qualifications issued by the City of Burlington Department of Parks and Recreation (dated March 8, 2013);
- 2012 Burlington Bike Path Fact Sheet;
- Public Forum Presentation presented March 24, 2012;
- Bike Path Improvement Feasibility Study Executive Summary, Report and Appendices prepared by RSG, Inc. (dated February 2012);
- Parts 1 through 4 of Island Line Sign and Amenities Plan prepared by Landworks (dated February 2005); and,
- Bike Path Improvement Feasibility Study prepared by Burlington Public Works (dated March 19, 2013).

For scoping anticipated geotechnical services for this project, we focused our review on RSG's February 2012 Feasibility Study and input from VHB based on our discussions following the notice of award.

## **Background**

The City of Burlington (City) Bike Path has served an important role in the recreation, health, transportation, and tourism of the City and is known as the "crown jewel of the Queen City". As a result of several planning and feasibility studies conducted in the past decade, the City recognized that a comprehensive rehabilitation was past due.

To protect the bike path future, the City Council passed a resolution in September 2010 creating a 12-member Bike Path Task force to review the current status of the path and study the required improvements, and develop an action plan aimed at closing the funding gap while rehabilitating and upgrading the path to a world-class facility. The Burlington Bike Path Improvement Feasibility Study report prepared by RSG in February 2012 identified upgrades that satisfy current standards and improve safety, enhance user amenities, and raise its standing to a world-class regional trail.

## **Geotechnical Issues**

We recognize that geotechnical issues vary widely for designing and constructing the proposed path improvements. Generally, the proposed new path width (11 feet paved with 2-foot limestone shoulders) raises geotechnical concerns in several areas. Based specifically on the



action items identified in the path improvement feasibility study and our understanding of VHB's scope of work, we expect our services will be based on the following geotechnical issues related to path improvements:

- geologic reconnaissance and development of treatment recommendations for stabilizing slopes subjected to localized erosion;
- consultation and input on hand-dug explorations, soil testing results, and pavement section recommendations performed and developed by VHB for rehabilitating the full-length of the path, including realignment areas;
- subsurface explorations, soil and groundwater characterization, soil contamination potential, and design parameter input for up to 5000 lineal feet of slope constraint areas with engineered improvement concepts (i.e., retaining walls) to be designed by VHB;
- subsurface explorations, soil contamination potential, design parameter input, and review of new boardwalk support options, and geotechnical recommendations for widening an approximately 1050-foot long section of the existing path at the barge canal seawall;
- subsurface explorations, soil contamination potential, and design parameter input for two approximately 500-foot long proposed retaining walls (one located north of the barge canal bridge and one west of the water treatment plant and north of Roundhouse Point) to be designed by VHB);
- input on drainage for improvement areas related to new path alignments, intersections, grades, slope treatment areas, and retaining walls (described above); and,
- review and input on geotechnical aspects of plans and specifications developed by VHB.

## Scope of Services

We will perform the following scope of services:

1. ***Geologic Reconnaissance and Slope Treatment Review*** – We will perform a geologic site reconnaissance with emphasis on slope areas identified in RSG's February 2012 Feasibility Study as problematic. We anticipate this effort will consist of two days of review/evaluation by a Project Engineer, and one day of effort by our Project Manager. Specifically, we will review existing conditions at:
  - a. slope constraint areas where proposed path widening creates a conflict with the adjacent slope;
  - b. erosion areas behind Burlington College where footpaths connect with the woods; and,
  - c. near-shoreline areas approximately 0.5 miles north of the south overlook (between Starr Farm Beach and Northshore Drive) where slope stabilization improvements have already been completed.



We will document our findings with field notes and photographs, and provide a summary memorandum of recommendations for VHB's use in developing construction documents and slope treatment repair details. Recommendations may include addressing global slope stability with additional explorations and study, if deemed appropriate, that are currently excluded from our scope of work. We anticipate further study may be required at the near-shoreline areas given our familiarity with existing repairs and RSG's study notes.

We will also scope potential areas for subsurface explorations at the slope constraint areas during our geotechnical reconnaissance visits.

2. ***Consultation/Input on Path Rehabilitation*** – We understand VHB will explore along the existing path and new alignments with shallow, hand-dug test pits (anticipated to be 18" x 18" square to approximately three feet deep) and perform testing of collected soil samples. We will review subsurface exploration data, laboratory soil testing results, and pavement section recommendations developed by VHB on an as requested basis. We will provide input and recommendations in the form of brief memoranda and hand-marked up sketches. As requested, we will perform frost susceptibility analyses (up to six areas) using soil classifications and test results provided by VHB and performed by GeoDesign as part of our subsurface exploration and laboratory testing programs (described below).
3. ***Subsurface Explorations*** – We will coordinate and perform subsurface explorations at the new retaining wall areas, slope constraint areas, and for widening the existing path at the barge canal seawall. Prior to beginning explorations, we will make one site visit to layout proposed locations for Dig Safe and review drill rig access and potential utility conflicts. Explorations will consist of soil borings using either rubber tired or tracked equipment, and will supplement VHB's shallow test pits along the path. The purpose of the borings is to obtain soil and groundwater information deep enough for retaining wall design and for reviewing and selecting boardwalk support options at the seawall. We anticipate the subsurface exploration programs will consist of the following:
  - a. ***Proposed Retaining Walls*** – We will perform soil borings to supplement the existing subsurface data where appropriate to provide design criteria for two proposed ~500-foot long retaining walls, anticipated to be approximately +/- 5' high where the path grade will be raised to above flood zone levels. We understand these areas are located north of the barge canal bridge, and west of the water treatment plant and north of Roundhouse Point (as identified in RSG's study). We anticipate proposed retaining wall borings will be drilled to between approximately 10 and 20 feet deep and recommend an allowance for up to two days of drilling. Bedrock coring will not be performed.
  - b. ***Constrained Slope Areas*** – We will perform soil borings to supplement the existing subsurface data where appropriate to provide design criteria at areas of constrained slopes. We understand that there is up to 5000 lineal feet of constrained slopes located throughout the project at areas identified in Figure 22 of RSG's study. We anticipate these areas will require engineered solutions (i.e., retaining walls of varying heights) to address slope issues. We assume retaining walls will average approximately five feet tall, per RSG's study. We will identify slope constraint areas where borings will be



appropriate at the time of our geological reconnaissance visits. We anticipate proposed constrained slope area borings will be drilled to between approximately 10 and 20 feet deep and recommend an allowance for up to five days of drilling. Bedrock coring will not be performed.

- c. **Barge Canal Seawall** – We understand options for widening the path may include a pile supported boardwalk, metal decking cantilevered out from the existing wall, and widening/repaving over the existing seawall. Our exploration program will consist of up to three days of soil borings. Borings may extend up to 40 feet deep for evaluating soil bearing conditions depending on the support alternatives. Bedrock coring will not be performed.

For the proposed borings described in Tasks 3a., 3b., and 3c., a GeoDesign representative will be on-site full time to coordinate the exploration programs, observe the borings, log soil samples, and make adjustments to the exploration programs as the subsurface conditions become evident. As described above, we anticipate up to eight days may be required to complete our subsurface exploration programs at the retaining walls, slope constraint areas, and seawall area. We will subcontract a soil boring contractor to perform the work, call in Dig Safe, and coordinate drilling access and utility clearance with VHB and the City of Burlington.

- 4. **Geotechnical Laboratory Testing Allowance** – We have carried an allowance for soil laboratory testing. Testing will be performed as required by GeoDesign's soil testing laboratory, and/or by a soil testing laboratory subcontractor to characterize soil properties for frost susceptibility, retaining wall design, and excavation/disposal. Testing may include, but is not limited to:

- a. Grain Size Analysis (washed sieve, hydrometer);
- b. Moisture Contents;
- c. Atterberg Limits Tests; and,
- d. Environmental analytical testing for VOC, PAH, and RCRA8 Metal contaminants (up to 10 of each test).

- 5. **Geotechnical Reporting, Engineering, Input, & Consultation** – We recommend an allowance for geotechnical reporting, engineering, input, and consultation for the areas described above and possibly others described in RSG's February 2012 study. We will provide a geotechnical data report for the new retaining walls, slope constraint areas and barge canal sites to summarize our subsurface findings and laboratory test results. This data report will include our boring logs, laboratory test results, up to nine exploration location plans, and up to nine subsurface profiles. Engineering analysis for (i.e., bearing capacity, seismic site class, global stability, etc.) will not be included in our data report.

While not included in our data report, we anticipate providing geotechnical recommendations for foundation design criteria depending on the engineered solutions to be implemented at the



above identified areas. Our recommendations will be transmitted as needed in the form of memoranda and hand sketches.

In addition to the above, we anticipate providing our input in the form of memoranda, hand sketches, and mark-ups of drawings provided by VHB including, but not limited to, the following areas:

- a. new path alignments (assumes approximately 700 feet through Oakledge Park, bridge approaches south of Proctor Place;
- b. new path intersections (assumes review of alternatives to improve the North Beach campground crossing and adjustments to vertical alignment at the North Ave. Ext. intersection); and,
- c. drainage (assumes at new retaining wall and slope treatment areas and between the Moran Plant and dog park).

6. **Construction Document Review & Input** – We will provide input on geotechnical related aspects of the project plans and specifications developed by VHB for consistency with our subsurface findings and recommendations. Input will be focused on pavement section design, retaining wall design and seawall path widening, slope area treatments, and drainage. At this stage we recommend a general allowance for this task as final rehabilitation documents will depend heavily on findings and recommendations to be developed during the explorations and review of alternatives and options between VHB and GeoDesign.

#### **Fees**

We will perform these services on a cost plus fixed fee basis broken down, by task, as shown below and in the attached staff labor and direct expense estimates:

• <b>Geologic Site Reconnaissance &amp; Slope Area Review</b>	<b>\$6,000</b>
• <b>Consultation / Input for Path Rehabilitation Allowance</b>	<b>\$3,500</b>
• <b>Site Visit For Borehole Layout / Drill Access / Utility Scoping</b>	<b>\$1,400</b>
• <b>Subsurface Explorations for Proposed Retaining Walls:</b>	
○ <i>Assumes 2 days Subcontractor Drilling</i>	<i>\$4,700</i>
○ <i>Full-Time Observation by GeoDesign</i>	<i>\$2,500</i>
• <b>Subsurface Explorations for Slope Constraint Areas:</b>	
○ <i>Assumes 5 days Subcontractor Drilling</i>	<i>\$11,300</i>
○ <i>Full-Time Observation by GeoDesign</i>	<i>\$6,200</i>
• <b>Subsurface Explorations for Barge Canal Seawall:</b>	
○ <i>Assumes 3 days Subcontractor Drilling</i>	<i>\$5,600</i>
○ <i>Full-Time Observation by GeoDesign</i>	<i>\$3,700</i>
• <b>Laboratory Testing Allowance</b>	<b>\$7,000</b>
• <b>Geotechnical Reporting, Engineering, Input, &amp; Consultation:</b>	
○ <i>Compile Data Report for Retaining Walls/Slopes/Seawall</i>	<i>\$7,600</i>
○ <i>Engineering Analysis and Memo for Retaining Walls</i>	<i>\$2,100</i>



○ <i>Engineering Analysis and Memo for Slope Constraint Areas</i>	<b>\$2,100</b>
○ <i>Engineering Analysis and Memo for Seawall Widening</i>	<b>\$2,100</b>
○ <i>Engineering Analysis and Memo for New Path Alignments/ Intersections/Drainage</i>	<b>\$2,900</b>
● <b>Construction Document Review Allowance</b>	<b>\$3,500</b>

### Assumptions

We have made the following assumptions for this proposal:

- All exploration locations are accessible by truck, ATV, or track mounted drilling equipment. Scope and fees for water based (barge) explorations are not included.
- All explorations can be performed consecutively (i.e., multiple mobilizations to the site are not required).
- VHB will coordinate access to borings with property owners adjacent to the project site to allow access for subsurface exploration equipment.
- Explorations for Barge Canal Seawall can be performed on the lake side of the bike path with an ATV mounted rig. If drilling on the bike path in this area where access is limited to eight feet in width is required, a specialized drill rig may be required that could result in additional fees.
- GeoDesign will perform one site visit to scope site access and possible utility conflicts and layout proposed borings. We will call in Dig Safe and coordinate utility clearance with the City of Burlington using existing utility plans provided by them. We assume that additional underground utility location (if needed) will be provided by others. Additional trips to clear locations or layout additional borings will result in additional fees.
- In accordance with IBC 2012, GeoDesign will provide staffing full time throughout soil boring operations.
- GeoDesign will provide field screening of samples with a PID, analytical environmental testing and reporting of soil contamination encountered in explorations. Any remedial design services, which may be required if contamination is encountered, are not included in this proposal.
- Proposed structure and retaining wall locations will be provided by VHB prior to commencing explorations.
- Boring locations will be surveyed in the field by VHB and GeoDesign will be provided a plan view with ground surface elevations at each location.
- All field surveying will be performed by others.
- Borings will be backfilled with auger cuttings (i.e., grout backfilling is not needed) and patched with asphalt patch on the bike path as required by City staff, (where appropriate).



- Up to five monitoring wells will be installed at locations agreed upon between GeoDesign and VHB. We have assumed up to 100 feet of well materials (e.g., well screen, solid riser, and backfill materials) may be required.
- Site reconnaissance and review of slope treatment areas will take two days to complete with one to two engineering staff.
- Exploration work will be completed in 2013 in non-winter conditions (i.e., above freezing temperatures and no ice).
- The time and extent of our subsurface exploration program depicted above is based on reaching suitable soils within proposed exploration days estimated. If unsuitable soils (i.e. non-engineered fill or loose natural soil) are present at anticipated borehole termination depths additional effort may be required resulting in an increase in fees from those proposed herein.
- Delay of explorations will result in additional time and expense beyond estimates listed in this proposal. Examples of uncontrolled delays include stoppages by VHB or the City of Burlington related to path usage or complaints. Exploration equipment breakdown will be the responsibility of the individual sub-contractors and will not increase exploration costs.
- Global slope stability analysis will not be required and is not included in our scope/fee.
- Settlement analysis in fine grained soils is not required and will not be a part of our scope/fee.

## Schedule

We are prepared to begin our site reconnaissance within two weeks of receiving Notice to Proceed (NTP). We will prioritize field explorations with VHB and coordinate completion of soil borings on a mutually agreed upon schedule between GeoDesign, VHB, and the City of Burlington. We will provide draft boring logs within one week of completing field work and provide our geotechnical data report within four weeks of completing all explorations. Geotechnical memoranda will be provided on an agreed upon schedule as potential design concepts are advanced. Our input to plans and specifications will be provided on an as-requested basis and will be prioritized once path rehabilitation alternatives and designs are finalized.

## Terms and Conditions

GeoDesign, Inc. will perform these services per the attached Subconsultant Terms and Conditions established between GeoDesign, Inc. and VHB.



**Bike Path Rehabilitaion**  
 Burlington, Vermont  
 GeoDesign, Inc.  
 Staff-Hour/Cost Estimate  
 May 3, 2013

Scope Item	Principal	Associate	Sr. Project Engineer	Project Engineer	Engineer II	Word Processing/ Clerical	Totals
<b>Average Direct Hourly Rates by Category</b>	\$74	\$46	\$35	\$31	\$28	\$25	
Geologic Reconnaissance / Slope Treatment Review		18		38		1	57
Consultation/Input on Path Rehabilitation	4	9		16			29
Digsafe Layout / Rig Access / Utility Clearance		1		13			14
Slope Constraint Borings		5		50			55
Barge Canal Seawall Borings		3		30			33
Retaining Wall Borings		2		20			22
Slope Constraint / Seawall / Retaining Wall Data Compilation and Review		4.5		62			66.5
Slope Constraint / Seawall / Retaining Wall Data Report	1	2		8		4	15
Engineering Analysis and Memo for Slope Constraint Areas	1	3	4	12		1	21
Engineering Analysis and Memo for Retaining Walls	1	3	4	12		1	21
Engineering Analysis and Memo for Barge Canal Seawall	1	3	4	12		1	21
Engineering Analysis and Memo for Drainage and New Path Intersections/Alignments	1	5	6	15			27
Two Rounds of Plan and Spec Review	3	11		16			30
<b>Total Labor Hours</b>	<b>12</b>	<b>70</b>	<b>18</b>	<b>304</b>	<b>0</b>	<b>8</b>	<b>412</b>
<b>Total Direct Labor Costs</b>	<b>\$888</b>	<b>\$3,197</b>	<b>\$630</b>	<b>\$9,424</b>	<b>\$0</b>	<b>\$200</b>	<b>\$14,339</b>

<b>Total Direct Labor Costs:</b>	<b>\$14,339</b>
<b>Overhead Costs (160.44%):</b>	<b>\$23,005</b>
<b>Direct &amp; Overhead Subtotal:</b>	<b>\$37,344</b>
<b>10% Fixed Fee:</b>	<b>\$3,734</b>
<b>Direct Expenses :</b>	<b>\$31,085</b>
<b>Total:</b>	<b>\$72,163</b>

**Bike Path Rehabilitation – Burlington, Vermont**  
**DIRECT EXPENSES COST ESTIMATE**  
**GeoDesign, Inc.**

**May 3, 2013**

**Assumptions:**

Field effort is calculated as follows (excluding oversight costs):

- Up to 3 staff-days (two days with one to two staff) for geologic site reconnaissance.
- Up to 1 staff-day of onsite utility clearance and accessibility review of exploration locations.
- Up to 3 staff-days of soil boring observation for the barge canal seawall.
- Up to 2 staff-days of soil boring observation for new retaining walls.
- Up to 5 staff-days of soil boring observation for slope constraint areas.
- Estimated 10 hours/day Geo**Design** time and 8 hours/day driller time in the field for inspection.

**Inspection / Field Testing Costs (Estimated)**

- Mileage Windsor, VT to Burlington, VT round trip:
    - 204 miles x 2 trips x \$0.565/mile (Site Reconnaissance) = \$230
    - 204 miles x 1 trip x \$0.565/mile (Site Visit for Access and Utilities) = \$115
    - 204 miles x 2 trips x \$0.565/mile (Exploration Inspections) = \$230
    - Hotel - \$100/night x 8 nights (Exploration Inspections) = \$800
    - Per Diem - \$50/day x 8 days (Exploration Inspections)= \$400
- Subtotal (Including Contingency)      \$1,775**

**Private Utility Locator Costs (Estimated)**

- Assumes Not Required

**Subtotal (Including Contingency)      N/A**

**Soil Boring Subcontractor Costs (Estimated)**

- Drill Rig Mobilization/Demobilization (Assumes 1) = \$1,200
  - Barge Canal Seawall Drilling (8 hours/day) – \$1,500/day x 3 days = \$4,500
  - New Retaining Walls Drilling (8 hours/day) – \$1,500/day x 2 days = \$3,000
  - Slope Constraint Area Drilling (8 hours/day) - \$1,500/day x 5 days = \$7,500
  - Well Material (Assumes up to 8 wells for 160' total depth at \$13/foot) = \$2,080
  - Flush Mount Covers (Assumes 8 at \$150 each) = \$1,200
  - General Supplies Allowance (Asphalt Patch, Bentonite, etc.) = \$600
  - Per Diem - \$150/crew/day x 10 days = \$1,500
- Subtotal (Including Contingency)      \$21,580**

**Bike Path Rehabilitation – Burlington, Vermont**  
**DIRECT EXPENSES COST ESTIMATE**  
**GeoDesign, Inc.**

**May 3, 2013**

**Laboratory Testing Costs (Estimated)**

• Sieve Hydrometer Grain Size Analysis (\$150/test x 15 tests) =	\$2,250
• Water Content Determination (Allowance for Multiple) =	\$500
• Atterberg Limits Testing (\$85/test x 10 tests) =	\$850
• Environmental Analytical Testing (Allowance)	
○ EPA 8260B VOC \$124/test x 10 tests =	\$1,240
○ EPA 8270 PAH \$124/test x 10 tests =	\$ 1,240
○ RCRA 8 Metals \$90/test x 10 tests =	\$900
<b>Subtotal</b>	<b>\$6,980</b>

**Photoionization Detector (PID) Rental**

• Assumes 10 days of Explorations (\$75/day x 10 days) =	\$750
<b>Subtotal</b>	<b>\$750</b>

<b>Subtotal of Estimated Exploration &amp; Laboratory Expenses</b>	<b>\$31,085</b>
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Presentation

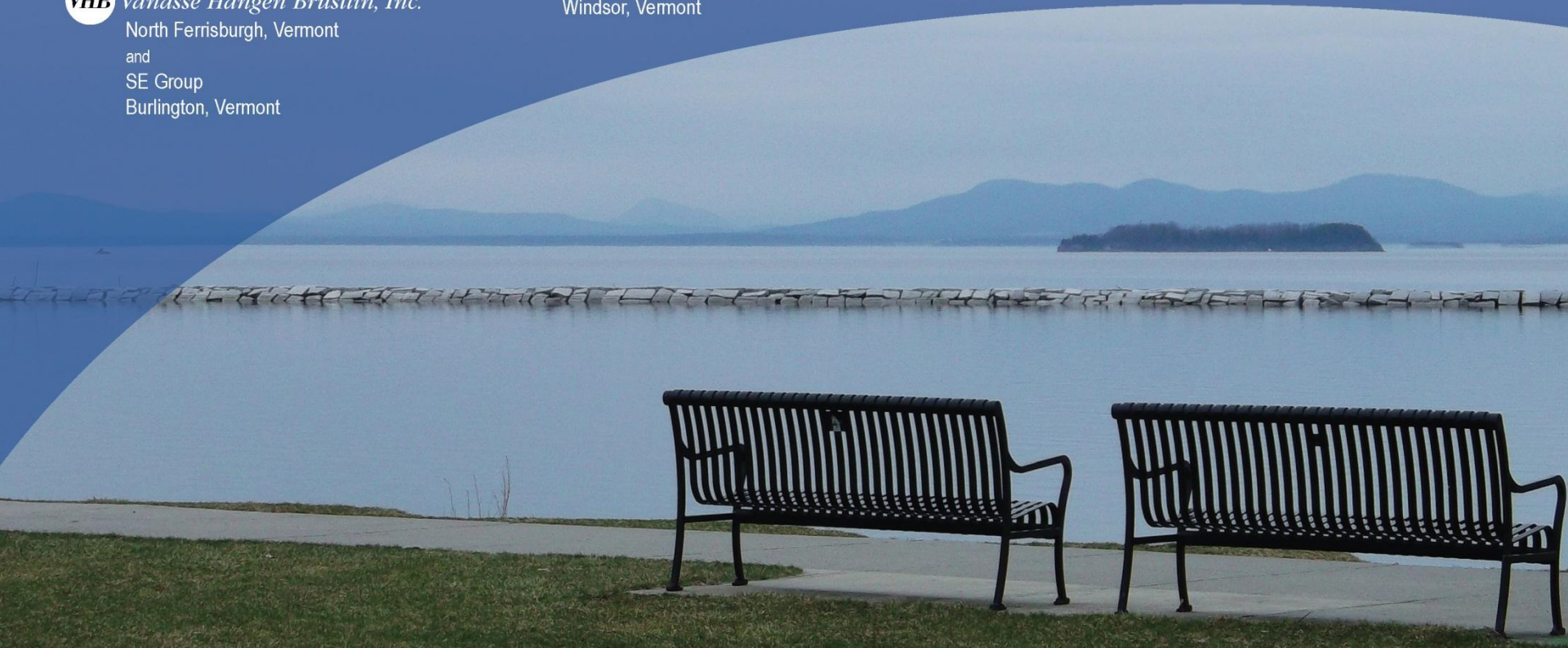
# Burlington Bike Path Rehabilitation

**Presented to**  
**Burlington Department of Parks and Recreation**  
**Burlington, Vermont**

**In Association with**  
GeoDesign, Inc.  
Windsor, Vermont



**Presented by**  
*Vanasse Hangen Brustlin, Inc.*  
North Ferrisburgh, Vermont  
and  
SE Group  
Burlington, Vermont

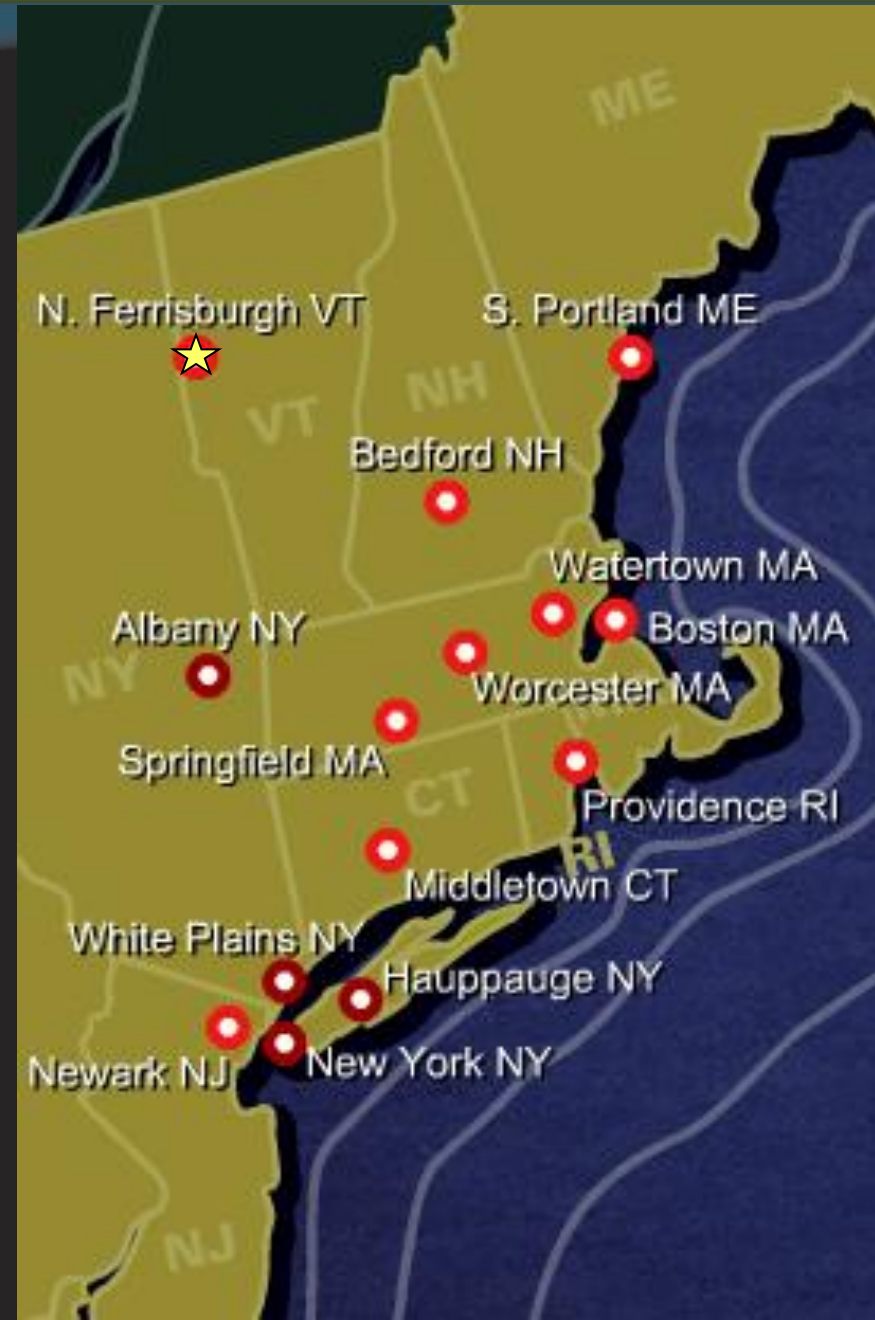


## Project Team

- **Mark Colgan** – VHB Project Manager
- **Greg Bakos** – VHB Bike/Pedestrian Design Manager
- **Erin Parizo** – VHB Bike/Pedestrian Engineer
- **Brad Ketterling** – VHB Environmental Manager
- **Michael Willard** – SE Group Senior Landscape Architect

## VHB at a Glance:

- 900 Employees in 22 East Coast Offices
- 44 Professionals in North Ferrisburgh, VT
- Bike/Ped Design Since 1985





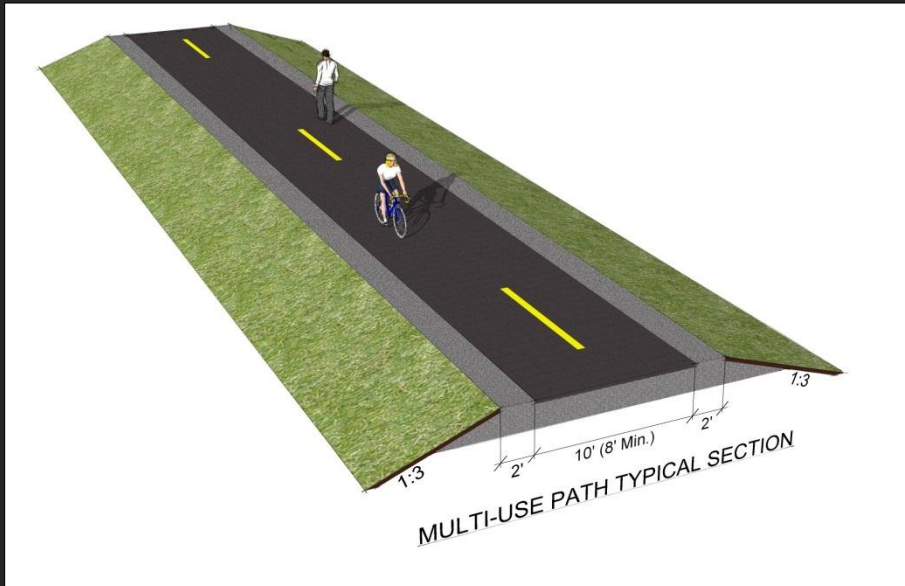
## Presentation Overview:

- Design Considerations
- Understanding the Process
- Relevant Experience
- Why the VHB Team?



## Design Considerations

- Pavement Rehabilitation & Typical Section





# Design Considerations

- Pavement Rehabilitation
  - Pavement testing
  - Pavement Design
  - Construction Logistics





# Design Considerations

- Typical Section
  - Widen Path
  - Define shoulders
  - Address Constraints



# Design Considerations

- Flood Impacts and Protection





# Design Considerations

- Flood Restoration



Spring Flood - 2011



Rehabilitated Path - 2012  
10' path & 2' shoulder

# Design Considerations

- Flood Protection



Blackstone River Bikeway Flood - 2005

# Design Considerations

- Road Crossings





# Design Considerations

## ■ Road Crossings

### Complex Intersections



### Engineered Solutions



## Design Considerations

- Access / Connections





## Design Considerations

### ■ Access / Connections



Informal Connection – South of Lakeview Cemetery



Access to North  
Beach/Campground

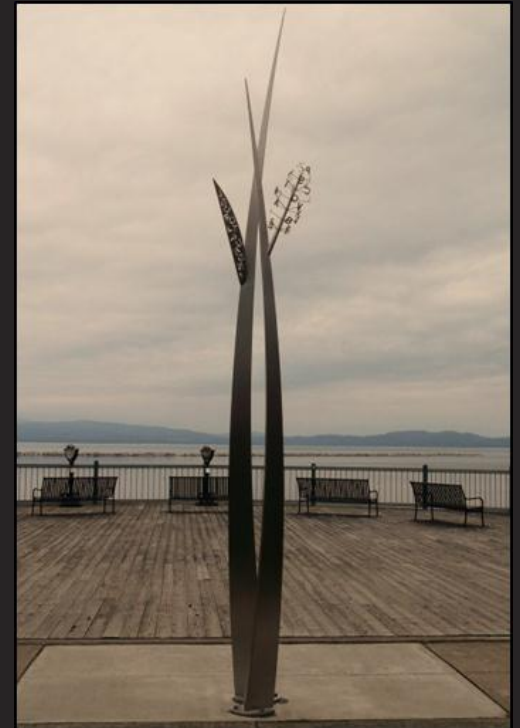


Consider Formal  
Connections, and  
Wayfinding Signs



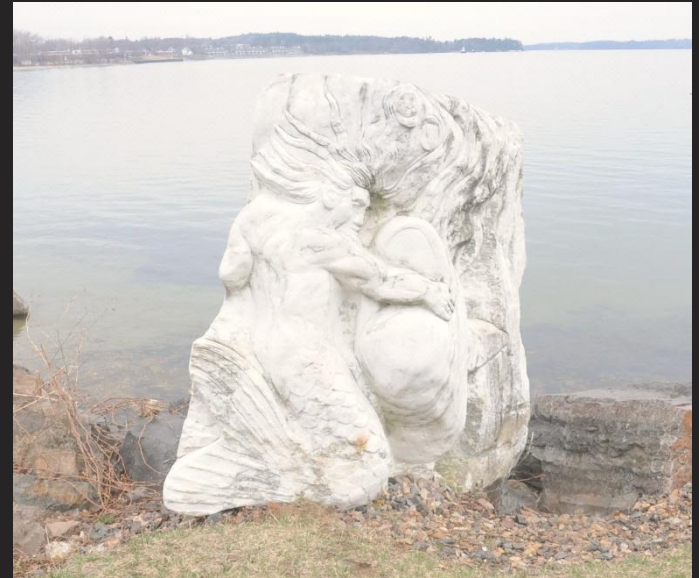
## Design Considerations

- Vision / Inspiration / Placemaking



## Design Considerations

- Vision / Inspiration & Placemaking





# Vision / Inspiration / Placemaking





# Vision / Inspiration / Placemaking



Wayfinding





# Vision / Inspiration / Placemaking



Workout Stations



Gateways



Seating & Lookouts



## Understanding the Process

- NEPA
- Environmental Permitting
- State (LTF) Process
- Public Outreach
- Schedule
- Level of Effort Breakdown

# Understanding the Process

## ■ NEPA

- National Environmental Policy Act (1969)
- Required with Federal Funding
- Public Decision Making Process
- Public Disclosure of Impacts
- CE, EA, or EIS





# Understanding the Process

- NEPA
- Environmental Permitting
  - Wetlands and Waters of the U.S.
  - RTE Species/Habitat
  - Stormwater
  - Floodplains
  - Hazardous Waste Sites/Generators

## Wetlands



Leddy Park



Moran Plant / Urban Reserve



# RTE Species



## Stormwater



Proctor Place



Leddy Park



# Floodplains



# Understanding the Process

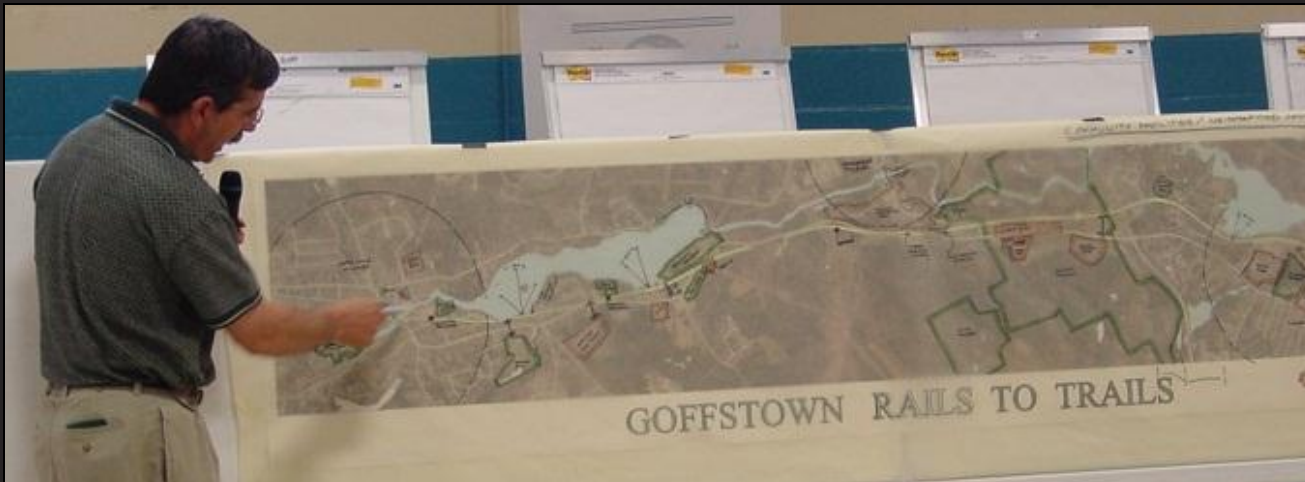
- NEPA
- Environmental Permitting
  - Wetlands and Waters of the U.S.
  - RTE Species/Habitat
  - Stormwater
  - Floodplains
  - Hazardous Waste Sites/Generators

# Understanding the Process

- NEPA
- Environmental Permitting
- State (LTF) Process
  - Phase A - Project Definition
  - Phase B - Project Design
  - Phase C - Construction

# Understanding the Process

- NEPA
- Environmental Permitting
- State (LTF) Process
- Public Outreach





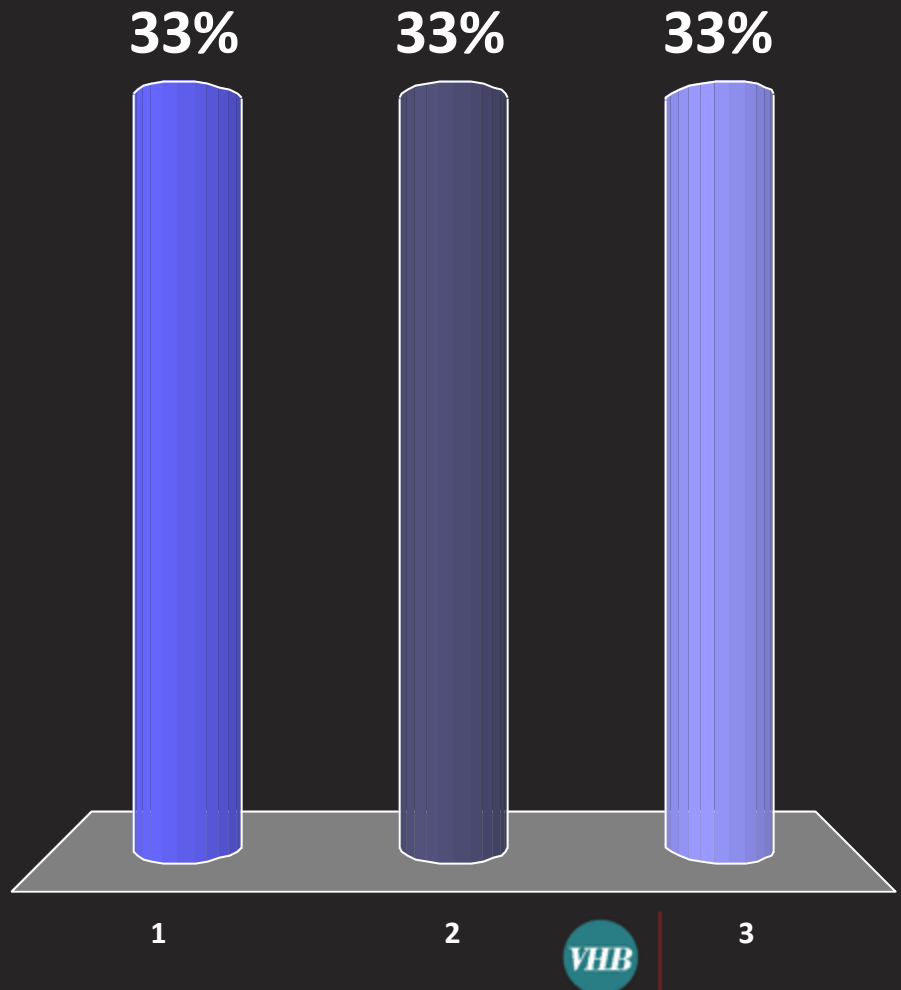
## Public Outreach

- Turning Point Technology
  - Interactive Audience Survey
  - Instantaneous Results
  - Anonymous Feedback
  - Results are Documented



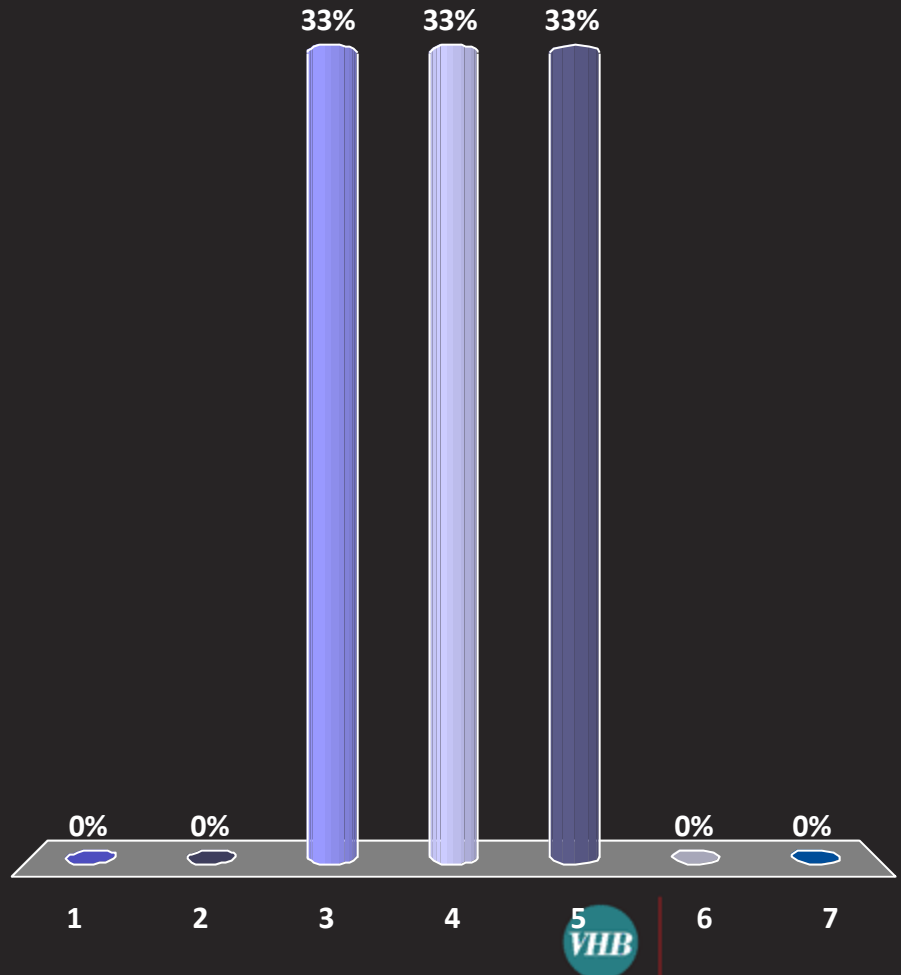
## What type of bike valve is this?

1. Presta
2. Schrader
3. Other



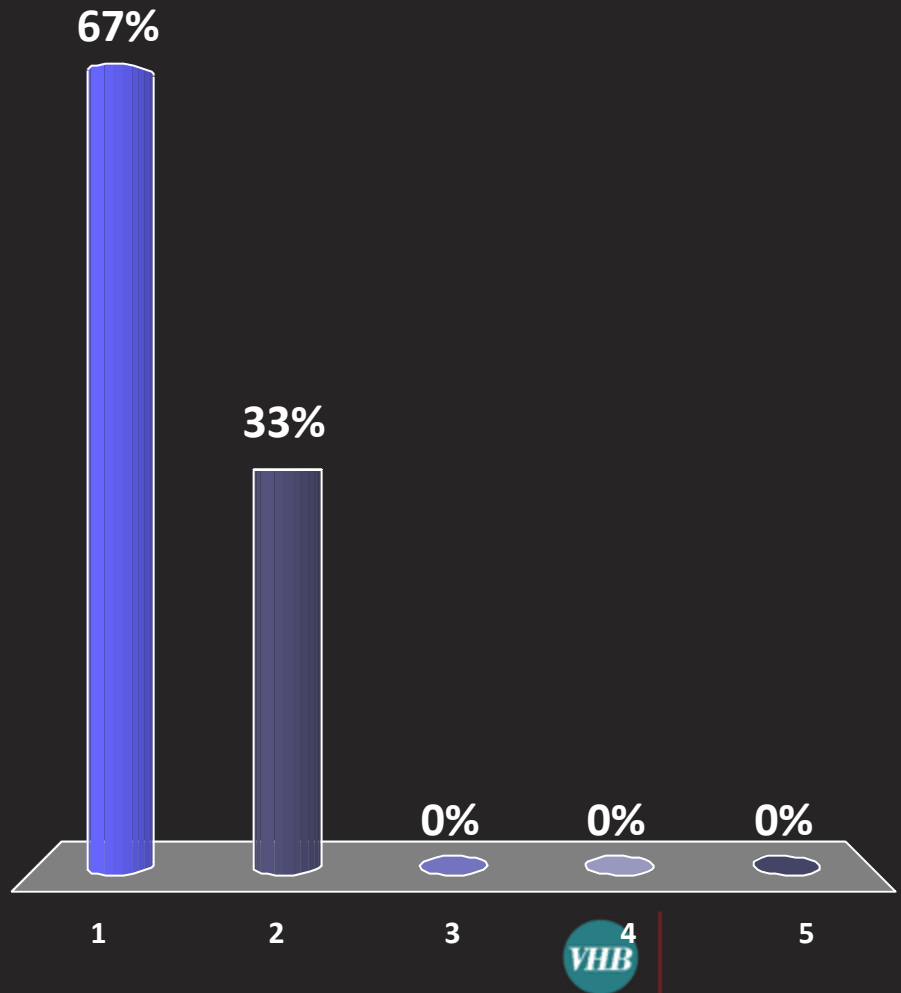
## How often do you use the Bike Path?

1. Daily
2. A few times a week
3. Weekly
4. A few times a month
5. Monthly
6. Rarely
7. Never



The Burlington Bike Path is important to the local economy.

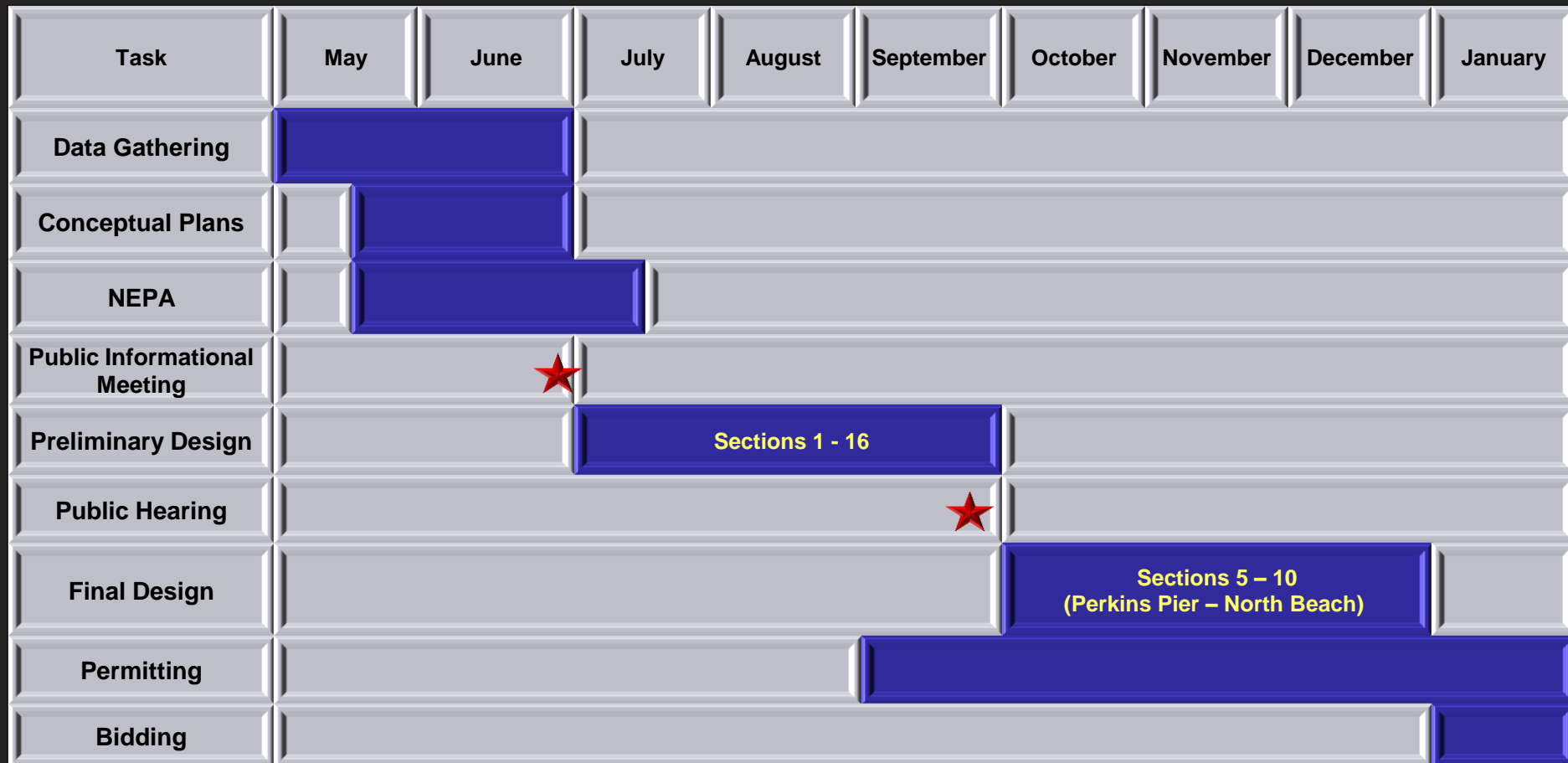
1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



## Understanding the Process

- Environmental Permitting
- State (LTF) Process
- Public Outreach
- Schedule
  - Construction to Begin Spring 2014

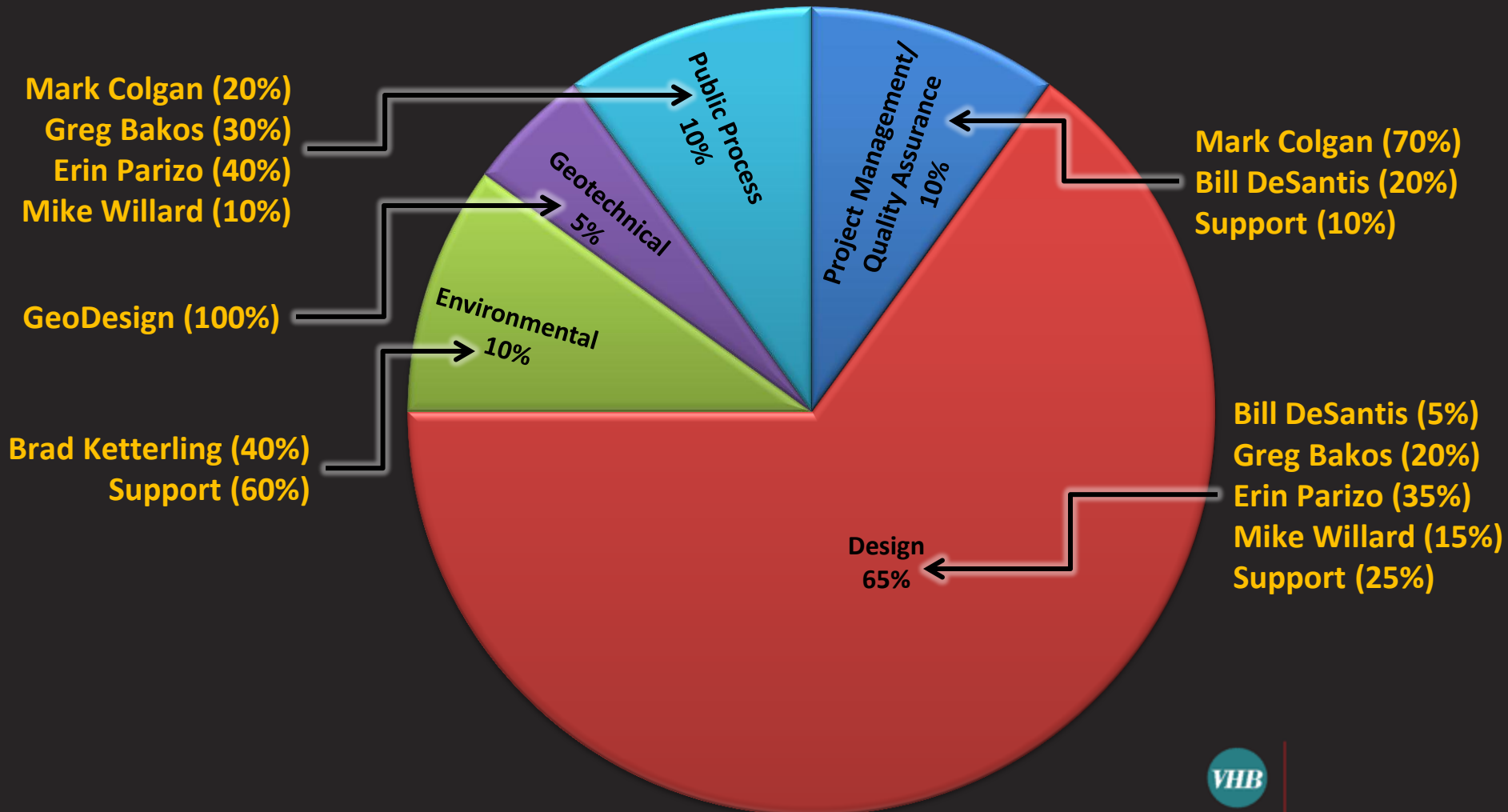
## Accelerated Schedule



## Understanding the Process

- Environmental Permitting
- State (LTF) Process
- Public Outreach
- Schedule
- Level of Effort Breakdown

## Burlington Bike Path Team – Level of Effort





# Relevant Trail Design Experience

## Lamoille Valley Rail Trail





# Relevant Trail Design Experience

## Missisquoi Valley Rail Trail





# Relevant Trail Design Experience

## Piscataquog Trailway





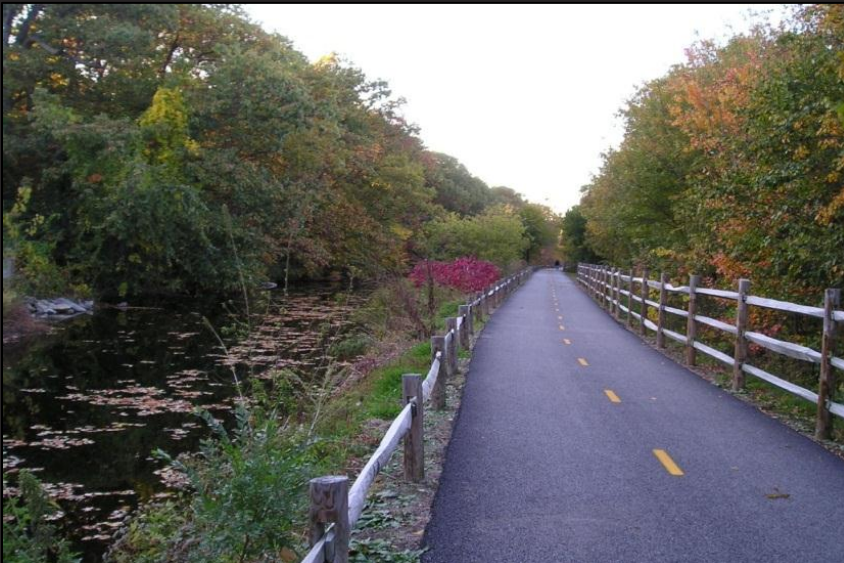
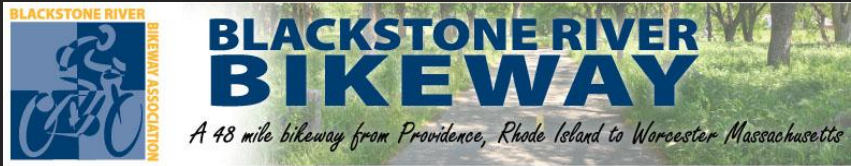
# Relevant Trail Design Experience

## Northern Rail Trail





# Relevant Trail Design Experience





# Relevant Trail Design Experience

## Connecticut River Walk and Bikeway



## Keys to Success:

- Engage the Public and Stakeholders Early
- Design to Fit the Available Funds
- Plan Construction Phasing and Bike and Pedestrian Detours
- Work Closely with City Staff
- Communicate!



Thank you for this Opportunity to Propose



We Welcome Your Questions





## REQUEST FOR QUALIFICATIONS (RFQ)

**Date:** March 8, 2013 (revised March 18, 2013)  
**To:** Open Invitation to Professional Design/Engineering Consultants  
**From:** Department of Parks & Recreation, Planning Division  
**Re:** Professional Design/Engineering Services for the Rehabilitation of the Burlington Bike Path

### I. GENERAL INFORMATION & SCHEDULE

This Request for Qualifications invites responses from qualified, experienced professional design and engineering consultants to assist the City of Burlington Department of Parks & Recreation in the rehabilitation of the Burlington Bike Path, specifically in regards to design development and permitting. Questions concerning this RFQ must be made via email per the schedule outlined below. Responses to all submitted questions will be posted as they are received at:  
<http://www.enjoyburlington.com/Projects/BikePathRehabilitation.cfm>.

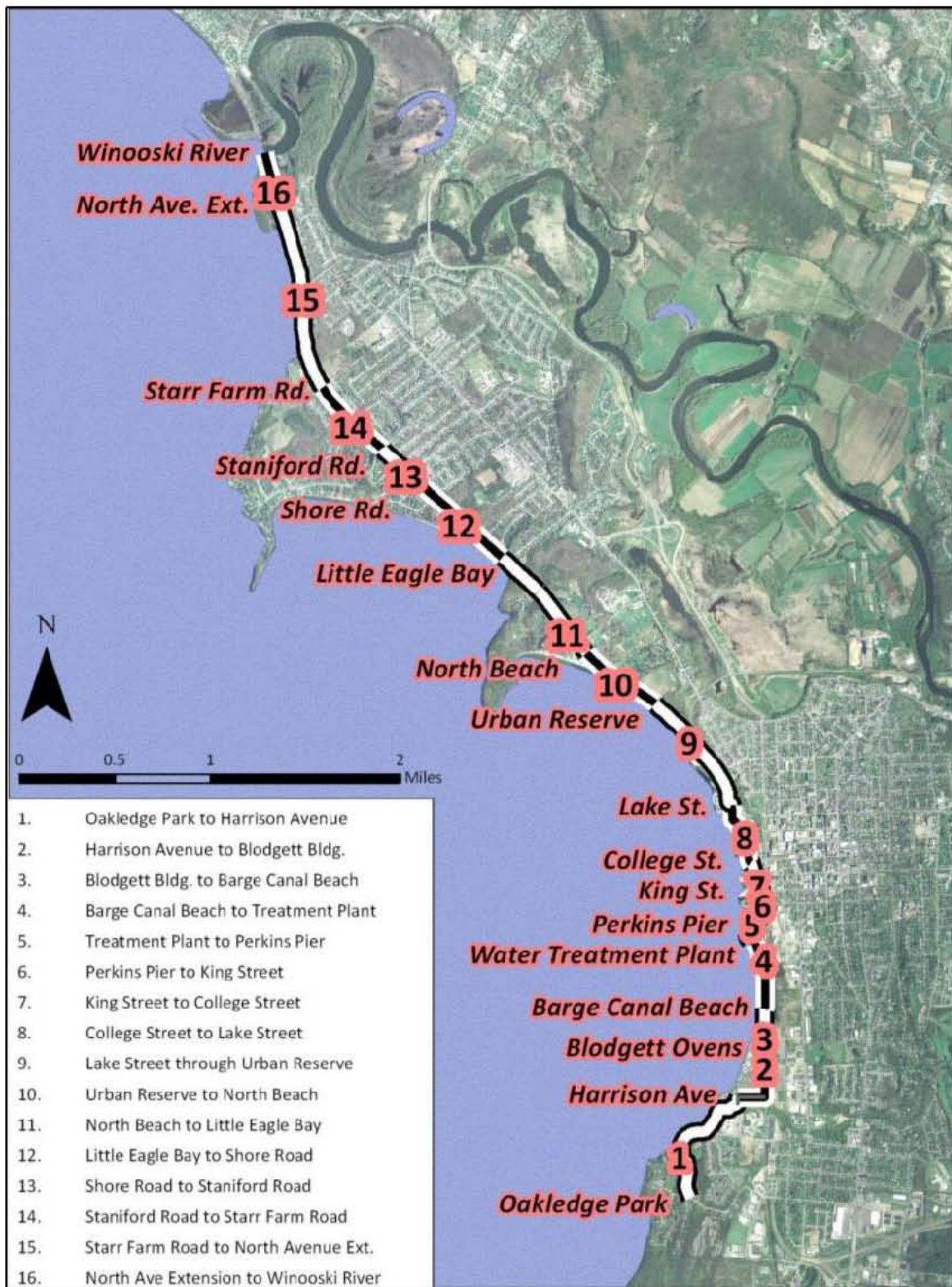
Issue date: Friday, March 8, 2013 at 8:00 AM  
Questions due: Friday, March 22, 2013, by 12:00 PM  
Proposals due: Friday, March 29, 2013 by 12:00 PM

Inquiries/submissions to: Jen Francis, Parks Planner  
Department of Parks and Recreation  
645 Pine Street, Suite B, Burlington, VT 05401  
[jsfrancis@burlingtonvt.gov](mailto:jsfrancis@burlingtonvt.gov)  
(802) 865-7248

### II. PROJECT DESCRIPTION

Following the 2012 Burlington Bike Path Feasibility study, the purpose of this project is to develop a preliminary design for the entire Bike Path (16 sections), along with a detailed design development package for specific sections including all associated permitting. The complete feasibility study is comprised of an executive summary, final report and appendices that are available here:  
<http://www.enjoyburlington.com/Parks/BikePath1.cfm>

The 7.5 mile Burlington Bike Path, part of the regional Island Line bike path, is valuable to the local community and the region as a recreation, health, transportation, tourism, and economic resource. Sections of the bike path were originally constructed in the mid-1980s and it is past due for a comprehensive rehabilitation. The City Council resolution refers to the Waterfront Bike Path as “a crown jewel of the Queen City.” The feasibility study identified necessary upgrades to the Bike Path that satisfy current standards and improve safety, enhance user amenities, and raise its standing to that of a world class regional trail.



*Map of the 16 Sections of the Bike Path*

The Bike Path preliminary design may require approval from city boards, commissions and City Council. A keen focus on both positive public outreach and sound project development is required.

Existing supporting documents include:

- 2002 Harbor Management Plan
- 2004 Open Space Protection Plan
- 2005 Island Line Sign & Amenities Plan
- 2012 Burlington Bike Path Feasibility Study
- 2012 Plan BTv: Downtown & Waterfront Master Plan
- 2013 Open Space Protection Plan Update (in process)
- 2013 Parks Master Plan (in process)
- 2013 Burlington Partnership for a Healthy Community (in process)
- FY13 & FY14 Penny for Parks Implementation Plan
- FY14 Bike Path Improvements & Maintenance Plan

The rehabilitation of the Bike Path requires design strategies that incorporate urban and rural place-making and planning, civil and structural engineering, geotechnical expertise, environmental remediation, as well as innovative and intentional landscape architectural design. Our path needs to integrate conservation, sustainability, connectivity and accessibility along its entire seven and a half miles; through neighborhoods, parks, urban wilds, businesses and some of the best views in the world.

For information on the City of Burlington's Parks and Recreation Department, please visit:

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

### **III. PROJECT SCOPE & SCHEDULE**

#### Project Scope

The selected consultant team will provide the City with professional services to realize the successful creation of a vibrant and innovative bike path design. It is anticipated that consultant teams will provide, at a minimum, appropriate engineering, landscape, geotechnical, general civil, storm water, and environmental/brownfield expertise to complete the following tasks:

- Task 1: Preliminary design, survey & construction cost development for the entire path (Sections 1-16)
- Task 2: Final design development including the preparation and completion of all associated environmental review and permitting documents, bid-ready documents and specifications (Sections 5-10: Perkins Pier to North Beach)

These tasks must be coordinated and integrated with the Waterfront Access North improvement project, currently underway and managed by the Department of Public Works.

Extensive outreach to community partners will include information developed in the preliminary design, and public engagement will occur between these two tasks. Detailed design development will be concentrated on the high-traffic areas within the Waterfront TIF district which can be found at [http://www.burlingtonvt.gov/uploadedFiles/BurlingtonVTgov/Departments/CEDO/Tax Increment Financing/Waterfront%20TIF%20Map.pdf](http://www.burlingtonvt.gov/uploadedFiles/BurlingtonVTgov/Departments/CEDO/Tax_Increment_Financing/Waterfront%20TIF%20Map.pdf). Permitting requirements may include, but are not limited to, National Environmental Policy Act (NEPA), Vermont Agency of Natural Resources and Department of Environmental Conservation, U.S. Army Corps of Engineers, and the City of Burlington. The project will be completed in coordination and cooperation with the Department of Parks & Recreation (DPR), Department of Public Works (DPW), Community Economic Development Office (CEDO), Planning & Zoning (P&Z), and the CCRPC.

The final deliverable will include, but not be limited to:

- Survey of entire path including deed research where appropriate
- ArcGIS-compatible geographic data collection
- AutoCAD design drawings
- Consultant to determine limits of each section with input from DPR
- Preliminary plan for the entire Bike Path
- Accurate identification of costs relative to tasks for each section
- January 2014 construction-ready bid documents for Sections 5-10
- Spring 2014 construction-ready permitting for Sections 5-10

Generating a holistic view, comprehensive plan and a detailed cost estimate is paramount to the future success of this project, which includes the acquisition of a variety of funding sources. As confirmed by the Chittenden County Regional Planning Commission (CCRPC), during this project development process it is critical to be mindful of actions that may be required by potential/future funding agencies to remain eligible for particular opportunities (e.g. required scoping study for federal funding). The City feels that the the 2012 Bike Path Feasibility Study, with its thorough public engagement process, environmental and right-of-way reviews, conceptual design alternatives, and City Council approval, fulfills the scoping study requirement.

#### Schedule

The City anticipates the selection of the consultant early in June of 2013 and the completion of all related work within eight months from the kick-off meeting date, in preparation for January 2014 bidding and spring construction of Sections 5-10. All work included in the scope of this RFP must be completed in anticipation of this spring 2014 construction start date.

### **IV. PROCESS OVERVIEW, SUBMITTAL CONTENTS & REQUIREMENTS**

#### Process Overview

**This process begins with the receipt of qualification submittals in response to the RFQ outlined herein. Applicants will receive a confirmation email after their submittal is received. Qualifications will be evaluated and invitations will be made to three of the top-ranked consultants to participate in finalist interviews. The final scope and contract will then be negotiated with the selected consultant. Consultants not selected will be notified via email of the selection outcome. A Selection Committee comprised of representation from both the City and the State will be engaged for the RFQ evaluation process. This change in process has been made to maintain Federal compliance specific to the Brooks Act.**

#### Submittal Contents

Qualified consultants must demonstrate a history of successful bike path design, engineering, and permitting experience that incorporates innovative and sustainable strategies. Proposals will be evaluated based on both the expertise of the consultant team and the overall experience of the team.

Submittals should be limited to a total of 14 pages (including Attachment A) and contain:

- A. Cover Letter**
- B. Attachment A (provided in this RFQ):** Signed by a representative of the lead consultant team attesting that all terms, conditions and procedures outlined in this RFQ are understood and have been followed.

- C. **Project Understanding Statement:** A statement describing the applicant's understanding of the project and the special skills and innovative thinking that the team would bring to the table
- D. **Project Approach:** A narrative of the consultant's approach to completing the project within the proposed timeframe.
- E. **Proposed Project Team Members:** A description of the applicant's organizational composition, disciplines, and the primary role of each individual/firm on the team. Organizational charts may be included, if appropriate. Clearly indicate the applicant's designated team leader for the project and the specific individuals who will be assigned to perform the work and their respective expertise.
- F. **Specific Project Experience:** Descriptions detailing completed, similar or relevant project experience that the applicant has executed. Include graphic representation. Links to similar or relevant projects are encouraged.
- G. **List of References:** Provide a minimum of four client references with which the applicant has provided similar planning/design services within the last five years. Include the name and phone number of the contact person and a description of the role and services provided to that contact.
- H. **Additional Information:** Provide other information relevant to indicate the applicant's abilities to successfully complete a project of this nature.

#### Requirements

Additional requirements are as follows:

- Proposers are solely responsible for ensuring that proposals arrive on time.
- Each consultant MUST provide their submittal electronically as a PDF.
- Additional detail beyond the contents described above WILL NOT be considered.
- Faxed proposals WILL NOT be accepted.
- Late replies WILL NOT be considered.
- The 14 pages may be 7 double-sided or 14 single-sided pages, including cover page.

### **V. EVALUATION CRITERIA & ANTICIPATED SCHEDULE**

#### Evaluation Criteria

Submittals will be evaluated by City staff using the following criteria as a measure of the applicant's ability to successfully complete the project scope of work. Consultants will be scored up to a maximum of 100 points based on the following:

- |  |          |
|--|----------|
| 1. <b>Experience &amp; Qualifications</b> relevant to key personnel and/or sub-contractors | (15 pts) |
| 2. <b>Project Understanding</b> of the project, goals, issues, and local need              | (15 pts) |
| 3. <b>Technical Understanding</b> Depth of relevant technical experience                   | (15 pts) |
| 4. <b>Municipal Experience</b> with agencies of similar size, structure and complexity     | (15 pts) |
| 5. <b>Depth of Related Skills</b> required to successfully complete the project            | (10 pts) |
| 6. <b>Demonstration of Innovative Approaches</b> Levels of utilization and solutions       | (10 pts) |
| 7. <b>Ability to Meet the Schedule</b> required to complete the plan and deliverables      | (10 pts) |
| 8. <b>Quality &amp; Clarity</b> and completeness of Submittal Package                      | (10 pts) |

#### Anticipated Schedule

The City reserves the right to amend dates. While the timeline may be subject to change, all participating parties will be notified. The anticipated schedule is as follows:

- March 8, 2013                      RFQ issue
- **March 18, 2013**                      **RFQ clarification issued**



- March 22, 2013 RFQ questions due (via email)
- March 29, 2013 RFQ closing
- Week of April 1, 2013 RFQ review
- **Week of April 1, 2013 Notification of selection of qualified consultants and invitation to top three teams to participate in finalist interviews**
- **Week of April 8, 2013 In-person finalist interviews and consultant selection**
- **Week of April 15, 2013 Negotiation of final scope & contract**
- **Week of April 29, 2013 Project kick-off**

## VI. TERMS & CONDITIONS

### Communications

It is extremely important that all respondents are given clear and consistent information. Therefore, all respondents are required to submit any questions related to this project or RFQ process via email. Responses to all submitted questions will be posted on the Parks & Recreation website at: <http://www.enjoyburlington.com/Projects/BikePathRehabilitation.cfm>. Questions concerning this RFQ must be received via email per the schedule outlined on page 1. Inquiries received after this date will not be considered or answered. Respondents should not communicate with any City department or employee during the submission process except as described above. In addition, no communications should be initiated by a respondent to any City Official or persons involved in evaluating or considering the statement of qualifications. Communication with any parties for any purpose other than those expressly described herein may cause an individual firm, or team to be disqualified from participating.

### General Compliance with Laws

The Consultant shall comply with all applicable Federal, State and local laws, including but not limited to the Burlington Livable Wage Ordinance.

### Other terms

Costs for preparing the Statement of Qualifications in response to this request are solely the responsibility of the respondent. The City of Burlington reserves the right to accept or reject any or all proposals, with or without cause, and to waive immaterial defects and minor irregularities in responses. All decisions related to this solicitation by the City will be final. The City reserves the right to request clarification of information submitted and to request additional information of one or more respondents. All materials submitted in response to this RFQ will become the property of the City upon delivery. This solicitation in no way obligates the City of Burlington to award a contract.

**General Compliance with Laws:** the Consultant shall comply with all applicable Federal, State and local laws, including but not limited to the Burlington Livable Wage Ordinance.

**Equal Opportunity:** the selection of consultant shall be made without regard to race, color, sex, age, religion, national origin, or political affiliation. The City of Burlington is an Equal Opportunity Employer and encourages proposals from qualified minority and woman-owned businesses.

It will be necessary for responding parties to comply fully with the terms and conditions outlined in this document if they are to be considered. A letter attesting that the respondent has read, understands, and followed all procedures is a part of this RFQ must be included as part of the final submittal (see Attachment A).



## ATTACHMENT A

### Understanding of RFQ Procedure, Terms and Conditions

*This page to be returned with qualifications submission*

I acknowledge that I have read and understand all procedures and requirements of the above reference RFQ and have complied fully with the general terms and conditions outlined in the RFQ.

Consultant Team: \_\_\_\_\_

Representative's Printed Name: \_\_\_\_\_

Representative's Signature: \_\_\_\_\_

Date: \_\_\_\_\_