



PROPOSAL / OCTOBER 25, 2022

Quinebaug Valley Rail Trail Design Services







BUILD | SUPPORT | CONNECT

Engineers
Environmental Scientists
Software Developers
Landscape Architects
Planners
Surveyors

www.bscgroup.com

OCTOBER 25, 2022

Peg Dean
CDBG/Economic Development Coordinator
41 Elm Street
Southbridge, MA 01550

RE: Quinebaug Valley Rail Trail Design Services Proposal

The Town of Southbridge is about to realize its long-standing vision of building a rail trail from Dudley to Sturbridge that will serve as an asset to the community that adds recreation opportunities and reconnects the community with its history and natural beauty. We understand the necessity of this project to municipal development, economic revitalization, social justice, environmental sustainability, as well as multi-modal connectivity. BSC Group offers a knowledgeable, experienced team to the following advantages for the Quinebaug Valley Rail Trail project:

Extensive Experience in Recreational Trail Engineering and Design and Consensus Building. BSC has successfully guided many communities through the complex intricacies of trail development, from initial planning, design, and funding to public outreach and construction. Our team is adept at all disciplines of trail conceptual design, including safety standards, permitting, wetland assessment and delineation, floodplain management, and transportation planning. Communities in which we have provided trail design services include Ashland, Boston, Hingham, Hudson, Lowell, Peabody, and Worcester, MA, as well as Bolton, Coventry, Milford, Newington, and Storrs, CT, many with conditions similar to those being faced in the Town of Southbridge.

Cost-Efficient and Collaborative Approach. Our passion is supporting municipal recreation projects to enhance communities and our natural environment. These important projects should never be cost-prohibitive, and we are proud of our efforts to help clients wisely use available funding to design and construct improvements to meet program needs and community expectations.

Experience Leading Active Public Participation Programs. BSC regularly provides support for municipalities in their public engagement efforts to encourage diverse and productive participation.

We can assist by communicating proposed improvements with simulations and colored renderings, creating project specific branding, including logos to build recognition, websites and a social media presence, and special events to draw various groups. We look forward to working with the Town to engage residents through public meetings to build consensus and garner support for the construction of the QVRT.

Expert Project Management Team. Bill Paille, PE, will be serving as Project Manager and will have primary responsibility for this project. Bill has nearly three decades of engineering experience and leads many of the firm's trail, bikeway, and greenway designs, including projects in Ashland, Peabody, Newton, and North Reading. Bill has also contributed to many roadway reconstruction and streetscape improvement projects. Notably, Bill previously served as the Director of Transportation for the City of Newton, providing a diverse engineering background that combines municipal and consulting experience, enabling him to approach public planning projects with a robust understanding of the issues that affect funding, public approval, and permitting.

Familiarity with the QVRT Project and the Town of Southbridge. BSC Group completed the Feasibility study for the Quinebaug Valley Rail Trail (QVRT), giving our team a wealth of information on which to build upon to efficiently advance the design stage. BSC also provided consulting services for the development of the town's Urban Revitalization Plan, which provides context for how the project fits within the fabric of the larger community. In addition, we have included Joseph Coan Landscape Architecture (JCLA) on our project team to provide landscape architecture design services. JCLA completed the 75% design for a portion of the original QVRT project, as well as Southbridge's World War Memorial Park project, and is currently working on Dresser Park project. We have also included O'Reilly, Talbot & Okun Engineering (OTO), a specialty engineering firm, to our team to provide Geotechnical Engineering services. With many members of our proposed team having worked with the town on related projects, the BSC Team has developed a strong foundation of knowledge of the Southbridge area, Town officials, and the procedures and protocols required for a project like the Quinebaug Valley Rail Trail Design.

Thank you for your thoughtful consideration of our proposal. If you have any questions regarding our submission or would like to schedule an interview, please do not hesitate to contact me at 617-896-4335 or JFasser@bscgroup.com.

Sincerely,



Jef Fasser, RLA, AICP, LEED AP

Vice President, Principal

BSC Group, Inc.

617-896-4553

jfasser@bscgroup.com



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Blackstone Gateway Park, Worcester, MA

Qualifications and Experience

ABOUT BSC GROUP

At BSC, we partner with our clients to deliver creative and practical open space, transportation, land development, and environmental solutions. We also help them find climate-resilient solutions. Clients trust BSC to work with them to expertly guide siting, strategically navigate regulatory processes, and holistically design infrastructure to help achieve their vision.

BSC's engineers, planners, and scientists take pride in their ability to respond nimbly to move projects forward. We solve complex challenges by applying expertise across disciplines, sharing ideas and perspectives to see a project from every side.

The purpose of our work is to improve the quality of life in and around our communities using our skills and experience to promote balance between the built and natural environment. Proudly employee-owned, our people are the heart of our company.

The BSC team is comprised of design professionals who have direct experience QVRT site, and a vested interest in efficiently bring the rail trail into reality.

TRAIL DESIGN QUALIFICATIONS

BSC is well-versed in serving the needs of communities for public improvement projects of many types, including trails, bikeways, pedestrian enhancements, multi-modal projects, and complete streets.

Trails and greenways must be planned for and designed to respond to the needs and interests of a large constituency, offering resources for active and passive recreation. BSC's approach emphasizes elements most critical to project success, including community engagement, funding options, and environmental impacts and permitting. We also consider the impacts of proposed actions on traffic, public transportation, the local economy, and municipal services to assure that recommended alternatives positively affect the community.

In response to the Town of Southbridge's Request for Proposals, we offer an overview of our qualifications in key project areas, in the pages that follow.

The BSC Team: Expertise in Planning, Assessing, and Design and Engineering of Recreational Trails



Prime Consultant: BSC Group

BSC has performed planning and design services for numerous linear projects, including multi-use trails, bicycle paths, greenways, and pedestrian trails that required compliance with MassDOT and AASHTO standards. In fact, BSC Group completed the Feasibility study for the Quinebaug Valley Rail Trail (QVRT), giving us a wealth of information on which to build upon as the project advances to the design stage. In addition to QVRT, BSC has provided trail/bikeway planning, routing, and design services for projects in Ashland, Boston, Hingham, Hudson, Lowell, and Peabody, and Worcester, MA, as well as Bolton, Coventry, Milford, Newington, and Storrs, CT.

BSC's experience also includes developing the Town of Southbridge's Urban Revitalization Plan, which provides context for how the project fits within the fabric of the larger community.

Key Contacts

Jef Fasser, RLA, AICP
Principal-In-Charge
617-896-4335

Bill Paille, PE
Project Manager
617-896-4312



Subconsultant - Landscape Architecture: Joseph Coan Landscape Architecture (JCLA)

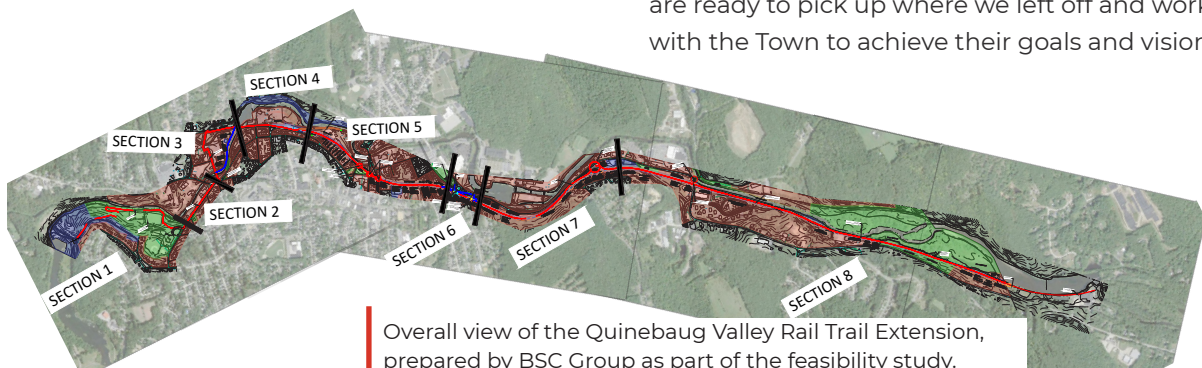
To strengthen our qualifications for this project, we have teamed with Joseph Coan Landscape Architecture (JCLA). JCLA is known to the Town of Southbridge through his work completing the 75% design for a portion of the original QVRT project, the World War Memorial Park project, and the Dresser Park project (currently in the design phase). JCLA provides a strong technical skillset in site grading, stormwater control measures, and site layout in combination with a passion for design and artistic flair to create vibrant and unique landscapes based on the distinctive characteristics of the sites they design.



Subconsultant - Geotechnical Engineering: O'Reilly, Talbot & Okun Engineering (OTO)

We have also included O'Reilly, Talbot & Okun Engineering (OTO), a specialty engineering firm, to our team to provide Geotechnical Engineering.

With many members of our proposed team having worked with the town on related projects, the BSC Team has developed a strong foundation of knowledge of the Southbridge area, Town officials, and the procedures and protocols required for a project like the Quinebaug Valley Rail Trail Design. We have a foundation of site-specific knowledge when it comes to the opportunities and constraints of the project. We are ready to pick up where we left off and work with the Town to achieve their goals and vision.



Overall view of the Quinebaug Valley Rail Trail Extension, prepared by BSC Group as part of the feasibility study.



Teaming partner Joseph Coan Landscape Architecture, completed the 75% design for a portion of the original project.

Trail Connectivity

Trail connectivity is an important issue in the successful design of trails today, and making sure that these connections provide safe and easily accessible routes for the community, including children, is a key factor. Our team's experience includes creating cohesive, well-designed bike trail systems that include a coordinated approach for signs and orientation and additional "user-friendly" amenities such as rest areas and upgraded landscaping. We believe our team is well prepared to collaborate with key stakeholders to design key access points and work with communities to determine the most appropriate linkages along a choice route. We take pride in understanding the complexity and nuances of bicycling and building effective plans and designs that not only solve the issues of gaps and barriers but build on the opportunities to plan bicycle links for a broad spectrum of users.

Environmental/Regulatory Permitting

BSC has a strong record of performance in helping our clients obtain necessary permits and achieve regulatory compliance at the federal, state, and municipal levels. Our regulatory analysis and responsible strategy toward permit applications result in timely and complete project approvals. Because the majority of the projects we design require regulatory approvals, we have earned extensive experience securing permits and approvals through commissions and boards. We routinely prepare permit application packages, narratives, and exhibits, and provide presentations of projects at commission/board meetings and public meetings. Relevant to this project, in support of the Concord River Greenway in Lowell, MA, BSC environmental scientists and regulatory specialists worked with the project team throughout the duration of the project to identify a permitting strategy in support of such issues as riverfront development and river crossings.

Leading a Responsive and Productive Public Engagement Process

BSC regularly supports municipalities in their public engagement efforts to encourage diverse and productive participation. An important component of any project involves collaboration with all parties involved and public perception. Throughout the duration of the project, we envision working closely with the Town of Southbridge and other key stakeholders as directed. This approach results in plans that are widely accepted, permitted, constructed, and maintained to become a lasting resource for the community. BSC is well-versed in conducting these meetings with key stakeholders.

We work closely with our clients and communicate technical data and analyses clearly, simply, and effectively for all to understand. We have used varying levels of graphics, from computer-generated 3-dimensional images to color-rendered plans, to communicate a project's scope. In addition to the experience of our staff, BSC has the in-house capability to produce fact sheets, project updates and other project-related information, graphically-enhanced public meeting presentation materials, and project informational packets. Key services provided by BSC include the creation of websites and social media presence, including sites such as Facebook, Instagram, Twitter, and CoUrbanize; coordination of fun and innovative programs to encourage participation; and development of project-specific branding, including logos to build recognition.

BSC regularly facilitates public meetings and visioning workshops to involve community and municipal groups. We understand the vital importance of realizing the goals of stakeholders in the design of recreation areas.

BSC places critical emphasis on building community support for projects, and assuring that planned improvements can be funded and built.



The BSC Team prepares simulations, colored renderings and graphic plans for the public meeting process to demonstrate proposed designs. Pictured above are JCLA's renderings for a bikepath the East Haven, CT.

**MAIN STREET ROTARY
HUDSON, MA**

ICE CREAM SOCIAL

JOIN THE CONVERSATION ABOUT THE REDESIGN OF THE MAIN STREET ROTARY!

**SUNDAY
AUGUST 7TH**

at NEW CITY MICROCREAMERY
28 Main Street, Hudson MA
from 2:30 - 4:30 PM

ACTIVITIES FOR ALL!!!

LOOKING TO BE IN THE LOOP?

Here's how you can stay current about the Main Street Rotary Project:

- Follow the Hudson Planning Department on Facebook
- Check the Town of Hudson's website
- sign up for the Rotary Project e-mail list by contacting kjohnson@townofhudson.org

As part of the planning process for the Main Street Rotary project in Hudson, MA, BSC helped to expand the circle of residents who were frequent participants in Town activities, by hosting a photo booth and ice cream social. This drew residents who typically aren't involved in civic planning.



Hudson Riverwalk, Hudson, MA

Knowledge of Grant Funding Programs

BSC's approach to park planning process places critical emphasis on assuring that planned improvements can be funded and built. To that end, we regularly assist our clients in the identification and application for grant funds from public and private sources.

The BSC Group staff regularly work with municipalities to implement projects that have been funded by state and quasi-state agencies, such as regional planning authorities. Representative programs we have worked with include:

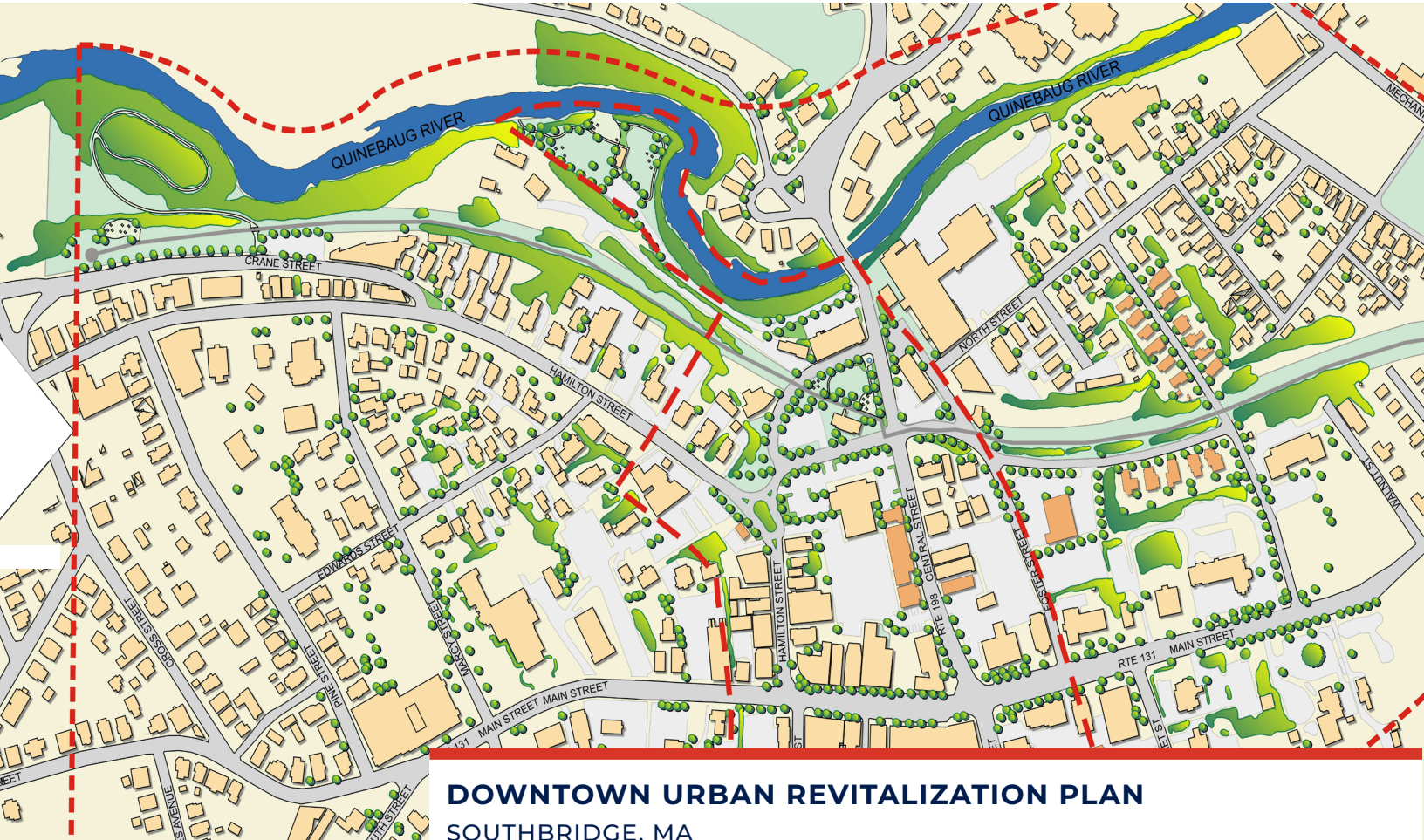
- Community Development Block Grants
- State PARC Grants
- MassWorks Grants
- Land and Water Conservation Fund
- MAP 21 Moving Ahead for Progress in the 21st Century
- Commonwealth Places
- Mass Wildlife Habitat Management Grant Program (MHMGP)
- Urban and Community Forestry Projects
- MA Preservation Project Funds (MPPFF)
- Local Acquisitions for Natural Diversity (LAND) Grant

If desired by the Town, BSC can recommend additional fundraising techniques, including the solicitation of pro bono services from local companies and the sponsorship of signs, bricks,

benches, etc. BSC has successfully employed this technique in several communities. In these times of limited public funds, these options can be explored to assure that planned improvements can be funded and implemented.

EXPERIENCE

Demonstrating our successful past performance in more detail, on the following pages we have provided summary descriptions and references, including price and cost data for our most relevant projects. We encourage you to contact our client references, as they can attest to our quality of work, ability to meet schedules, cost control and contract administration.



DOWNTOWN URBAN REVITALIZATION PLAN SOUTHBRIDGE, MA

CLIENT

Town of Southbridge

SERVICES

Master Planning
Urban Renewal
Planning
Public Participation
Funding Assistance

REFERENCE

Peg Dean, MPA
Economic
Development
Coordinator
508-764-5402
mdean@
southbridgemass.org

BSC worked with the Southbridge Redevelopment Authority to help them prepare an urban revitalization plan to redevelop their downtown area. Over the years, the town has been able to preserve much of its historic building stock, resulting in a well-defined downtown area with rich and unique character. For the most part, historic buildings line Main Street with parking behind or beside the buildings. However, some of these buildings are underutilized due to accessibility issues. Furthermore, parking lots dominate a portion of downtown that abuts a proposed rail trail and the Quinebaug River, an untapped natural asset for the community.

BSC first worked with the town to prepare a vision for the future of the entire downtown area. From that vision evolved a definable urban renewal area and resulting urban renewal plan according to the requirement of M.G.L. Chapter 121B. Elements of the plan will include housing, a new trailhead park for the bike trail, roadway improvements, a parking structure that will also provide access to the underutilized floors of abutting buildings, a new fire station, a riverfront park, preservation of historic buildings, and streetscape improvements. BSC also helped the town identify potential funding sources for the recommended actions.

Some improvements have been completed, such as upgraded parking with a new civic gathering space. Other project are in design such as upgraded downtown roadways. Recently, BSC was hired by the SRA to re-evaluate their Urban Revitalize Plan, propose new actions. expand the project area and help secure funding for



DESIGN AND PERMITTING SERVICES FOR THE SOUTHERN NEW ENGLAND TRUNKLINE TRAIL FRANKLIN, MA

CLIENT

Department of Conservation and Recreation (DCR)

SERVICES

Boundary/Topographic Survey

Environmental Permitting

Wetland Delineations

Cost Estimating

Construction Administration

Civil Engineering

Structural Engineering

Transportation Engineering

REFERENCE

Stella Lensing, PLA

Trails & Greenways Planner

617 680 2466

stella.lensing@mass.gov

BSC provided permitting and design services to construct a concrete culvert to serve as a tunnel to provide a connection under Prospect Street in Franklin for the Southern New England Trunkline Trail. The trail system is a 10-mile facility that includes a 10-foot wide, shared-use path along an abandoned railroad right-of-way.

Design. BSC prepared conceptual design scenarios and recommended a four-sided box culvert as the preferred option. Large wingwalls were designed at the entrance and exit of the tunnel, and helped to minimize the length of the tunnel and avoided the need for lighting. Two challenges occurred during the design phase: the need to accommodate the Pan Mass Challenge that routes over a thousand bicyclists along this section of Prospect Street on the first weekend of August, and overhead utility lines. BSC developed construction staging plans to construct the tunnel in phases to accommodate the bicycle event, and also to move the overhead utilities in phases that were closely coordinated with the utility companies.

A historic wall located along the side of the former rail bed has been retained and blends seamlessly into the new retaining walls. BSC worked closely with DCR to develop a “telltale”, a device used on railroads to alert the brakeman (standing on top of the train) of approaching bridges. A telltale will be erected along the path to replicate this ancient device, and a wayfinding sign will describe the history.

Environmental Permitting and Wetland Delineation. BSC’s wetland scientists delineated the jurisdictional wetland resource areas directly adjacent to the project area. These resource areas were delineated in accordance with the Wetlands Protection Act and associated regulations and the Franklin Conservation Commission Wetlands Protection Bylaw. Once the design was sufficiently advanced to understand the impacts to the resource areas, a Notice of Intent (NOI) application package was submitted to the Town of Franklin Conservation Commission and an Order of Conditions obtained.



HUDSON RIVERWALK

HUDSON, MA

CLIENT

Town of Hudson

SERVICES

Planning

Permitting
and Approvals

Landscape
Architecture

Community
Engagement

REFERENCE

Kristina Johnson, AICP

Director of Planning
& Community
Development

978-562-2989

kjohnson@
townofhudson.org

The Town of Hudson is effectively using infrastructure improvements to bolster economic development for its downtown area. One element of this program is the rejuvenation of the riverwalk to create new connections between the downtown and the Assabet River. BSC Group, a long-term partner with the Town of Hudson for the planning and design of transportation, streetscape, and infrastructure improvements, is working with the Town to plan and design improvements to the riverwalk.

The Town's purpose for the riverwalk project is to improve accessibility, complement the downtown, and create an inviting community amenity. Honoring the Town's history as a former shoe manufacturing hub, the design will feature artifacts of the Town's industrial past, such as abutments from a former bridge, adjacent mill buildings, and historic stone walls. These features will be complemented by modern amenities, including seating, accessible walkways, and parking improvements at the trailhead. Connections to the downtown and the Assabet River Rail Trail will invite users to the riverfront and create a lively amenity for the community.

Restoring the Riverfront. In addition to aesthetic improvements, the riverwalk project presents the opportunity to restore the river's ecology. Removal and management of invasive species will restore river views and allow for the reestablishment of native species as well as stabilization of the riverbank through low impact stormwater management. Restoration will also improve habitat for a variety of local species including painted turtles, heron, and fish.

Dynamic Community Engagement. Working with a group of invested and activated residents, BSC developed a dynamic community engagement program that helped residents to develop clear objectives and priorities for the riverwalk project as well as a preferred design palette. BSC guided these discussions and offered visual graphics that helped residents to understand the project's opportunities and constraints. An ArcGIS Story Map provided an interactive, georeferenced to acquaint themselves with the site's history and potential.



NEPONSET RIVER GREENWAY TENEAN BEACH TO MORRISSEY BLVD

BOSTON, MA

CLIENT

Massachusetts
Department of
Conservation
and Recreation

SERVICES

Trail Design
Traffic Engineering
Utilities/Stormwater
Design
Survey
Permitting/Resiliency
Planning
CSS/Landscape
Architecture
Lin/Structural
Engineering
GZA/Geotechnical
Engineering

REFERENCE

Stella Lensing, PLA
Trails & Greenways
Planner
617 680 2466
stella.lensing@mass.gov

The BSC design team is in the process of finalizing plans, specifications and the cost estimate for the last link of the Neponset River Greenway. This crucial link will provide access from Boston's southern neighborhoods to Morrissey Boulevard leading to downtown Boston. Members of BSC's design team include CSS (landscape architecture), Lin Associates (structural engineering) and GZA (geotechnical engineering).

The project includes construction of a shared-use path, a total distance of approximately 3,600 feet (0.7 miles). A 670-foot long boardwalk, including scenic overlooks, will be constructed to convey the path over a salt marsh and tidal habitat of the Dorchester Bay. Drainage system improvements, improved habitat value of the corridor, wayfinding signage and pedestrian and bicycleroadway crossings have been provided in accordance with applicable design guides.

The project is being funded and constructed by MassDOT. The bid package is being developed in accordance with all DCR and MassDOT requirements. Additionally the BSC design team has coordinated with the City of Boston to ensure that the design provides the city with a great resource for the neighborhood and the area in general.



**GRAND TRUNK TRAIL RIVER ROAD
TO CALCUTT PEDESTRIAN BRIDGE**
STURBRIDGE, MA

CLIENT

Town of Sturbridge

SERVICES

Transportation
Engineering
Bidding
Construction
Administration

REFERENCE

Jean M. Bubon, AICP
Town Planner
301 Main Street
Sturbridge, MA 01566
508-347-2508
jbubon@strubridge.gov

BSC assisted the Town with preparing bid documents for advertisement for public bidding that included plans prepared by the Federal Highway Administration, Eastern Federal Lands Highway Division, to hire a general contractor to construct a new multi-use trail from River Road to the existing trailhead at the Calcutt Pedestrian Bridge. The construction included roadway box widening, pavement mill and overlay, minor drainage improvements, signage and pavement markings along River Road, clearing and grubbing, new cross culverts, entrance gates, split rail fence and a new pervious surface trail.

BSC played a major role with assisting the Town to develop and execute a contract between the General Contractor and Town, coordination with the Natural Heritage & Endangered Species Program (NHESP) to develop and implement a turtle protection plan and manage the construction from the Notice to Proceed to Project Closeout. Construction Administration included a pre-construction meeting with the Town, General Contractor and BSC, shop drawing review/approval, full-time resident engineering inspection including turtle monitoring, field changes, review/approval of monthly pay requisitions, overall budget tracking and project closeout. The project was completed in 3 months and under budget.



INDEPENDENCE GREENWAY OVER ROUTE 1 STUDY

PEABODY, MA

CLIENT

City of Peabody

SERVICES

Transportation
engineering

Public presentation

Structural engineering

Geotechnical
engineering

REFERENCE

Brendan Callahan
Assistant Director of
Planning

978-538-5780

brendan.callahan@
peabody-ma.gov

BSC is developing a feasibility study to evaluate bike trail alternatives across Route 1, I-95, and local streets in Peabody to connect the existing Independence Greenway with the Border to Boston Trail network. As part of the planning effort, BSC is conducting an inventory of environmental and cultural resources, compiling existing data and carrying out field visits in order to fully assess existing conditions and using GIS to create an existing conditions plan. An important component of the study is an analysis of existing plans and soil data to determine the feasibility of potential future sub-surface, surface level or elevated path connections.

Following analysis of existing conditions, BSC will be prepared to provide structural engineering services to develop alternatives for the crossings of Lowell Street, Route 1 and I-95. This information will be used by members of our transportation engineering team to consider connections within the study area that are implementable.

Coordinating with the City, MassDOT and utility companies is a critical element of the project as the study area includes an abandoned railbed. Additionally, the BSC team has been involved in solving challenging right-of-way issues, often meeting with property owners and other key stakeholders.



TROLLEY BROOK TRAIL

ASHLAND, MA

CLIENT

Town of Ashland

SERVICES

Survey

Permitting

Design

Landscape
Architecture

Construction
Administration

REFERENCE

Jennifer Ball
Assistant Town
Manager

508-532-7901

jball@ashlandmass.
com

Funded by a MassTrails grant and Conservation & Preservation Committee, BSC was selected by the Town of Ashland to design the first phase of the Trolley Brook Trail that will eventually connect to the Upper Charles Trail network. This 2500-foot long segment, currently under construction and nearing completion, will connect to an existing walking path at the southern end of the trail (i.e. Memorial Drive) that provides access to a residential development and MBTA commuter rail station and future Upper Charles Trail; establish a new trailhead with information kiosk and Pedestrian Operated Beacon (i.e. RRFB); construction of a new 30-foot long prefabricated steel pedestrian bridge to carry the trail over an existing brook; create open space and wildlife viewing areas along the trail with seating; and establish a new trailhead at the northern end of the trail (i.e. Megunko Road) that will eventually connect to Stone Park, the Downtown and the Upper Charles Trail network.

Topographic Survey: In addition to utilizing MassGIS, BSC performed ground survey at each end of the trail to establish horizontal/vertical control and provide a clean and smooth connection to Memorial Drive to the south and Megunko Road to the north. BSC developed an existing conditions plan in AutoCad that was used to create the construction plans for the project.

Environmental Permitting: BSC delineated jurisdictional wetland resource areas along the abandoned railbed from Memorial Drive to Megunko Road in accordance with the Wetlands Protection Act and the Town of Ashland's Wetland Bylaw. BSC prepared and submitted

the Notice of Intent Application to the Ashland Conservation Commission and obtained an Order of Conditions for the project. In addition, due to the fact the project is adjacent to the Nyanza Plume, BSC coordinated with the EPA and MassDEP to ensure compliance with federal and state guidelines.

Pedestrian Bridge: BSC coordinated with the town to advertise the prefabricated bridge separately from the trail due to the lead time required to obtain approvals, fabricate and deliver the bridge to the site for the GC to install. Although the foundations were the responsibility of the GC, BSC coordinated with the contractor to oversee and facilitate soil test pits, perform soil classification, review design calculations

and shop submittals, prepare and submit a building permit to the town, inspect construction (reinforcing steel, concrete), monitor concrete cylinder testing and ultimately setting the bridge.

Construction Administration: Although BSC was contracted for part-time resident engineering oversight, BSC was in constant contact with the GC, inspecting the work, reviewing shop drawing submittals, reviewing/approving monthly pay requisitions, processing change orders, assisting the town with design revisions and field changes, and ensuring the project came in or under the established budget. The town had a budget of \$440k and the project was constructed for approximately \$435k.





BLACKSTONE GATEWAY PARK WORCESTER, MA

CLIENT

City of Worcester

SERVICES

Master Planning

Landscape Architecture

Public Participation

Habitat Restoration

Multi-use Path and
Bridge Design

Structural Engineering

Civil Engineering

Land Survey

Environmental Planning
and Permitting

Grant Funding
Assistance

REFERENCE

Colin Novak
Executive Director

The Greater Worcester
Land Trust

508-795-3838

colin@gwlt.org

BSC Group worked with the City of Worcester, Greater Worcester Land Trust, and the Quinsigamond Village Association to plan, fund, permit, design, and administer the construction of this arts integrated, ecological river park with trails, overlooks, boardwalks, interpretive features, and ecological habitat amenities to support passive recreation, education activities, and nature observation.

Located on 34 acres of conservation land in the City of Worcester, alongside the Middle River head water of the Blackstone, the park provides access to an urban wild, the first of its kind for the city of Worcester. Elements of the park space include temporal public art, monumental gateways, site furnishings designed by local artists to interpret the history and meaning of the site even solar powered lights and communication. Subtle functional details such as cable rails along the boardwalk reference the area's industrial heritage as a wire and cable producer. Interpretive signage throughout the park are digitally keyed for smart phone users to listen to and reference historic and ecological descriptions and bird calls.

Bridge and Boardwalk Design. BSC permitted, designed and detailed a series of pedestrian bridges, overlooks, and a boardwalk system to establish this first of its kind ecological park in the City of Worcester. The boardwalk guides visitors through the landscape with twists and turns designed to create a variety of views and experiences of the riparian wetlands. The first pedestrian bridge spans the river adjacent to an existing mill dam and active railroad trestle. Detailing of the bridge was done with history and ecology in mind. Cable railings allow for top visibility across the site, and are a nod to the



wire manufacturing industry that once occupied the site. The decks and rails are fully recycled and recyclable plastic lumber. The modular frames are galvanized tube steel supported on helical piles that allowed us to support the system well above flood elevation with no disturbance to potentially contaminated sediment below the former mill pond, and with minimal impact to the wetland or flood storage volumes. The strength of this system allowed us to cut the duration of temporary disturbance as well. The decks were installed from the top down after piles were set and wetland matting was removed. Significant soil analysis and geotechnical engineering were performed prior to construction to verify the feasibility of the selected route for the boardwalk which went in with remarkable ease and speed. Being an elevated deck system allows the wetlands below to function with minimal disruption. Scenic overlooks along the boardwalks allow space for observation and contemplation from a number of unique perspectives. These also include signs providing interpretation of species and natural process, as well as custom furnishings designed by local artists to express the creativity and industrious spirit of the City of Worcester.

Ecological Restoration. A key element of the project was structural detailing and construction methods that minimize ecological impact such as recycled plastic decking, helical piles that support the board walk above flood elevations and have the

smallest possible temporary or permanent impacts within the riparian wetland. Compensatory flood storage and wetland replication are part of the park setting where interpretive signage provides an opportunity for visitors to see and learn about ecological mitigation and habitat enhancement.

In addition to wetland replication, habitat enhancements were provided including snag trees, brush thickets, and cobble cairns. No organic vegetation was removed from the site in the process of construction.

Permitting and Public Outreach. The project went through a series of public meetings and regulatory board hearings, and was vetted through both the MEPA and Waterways License processes at the state level. Both of these state actions include public notice and participation.

Grant Application Assistance. BSC Group assisted in the preparation of an application for Urban Rivers Initiative grant funding, which supported first phase of design development.

Per the Town of Southbridge's Request for proposals, we have provided the following list of similar projects completed by BSC Group for public entities in the last 60 months, with contact names, telephone numbers. We encourage the Town to contact our former clients as they can attest to our record of service.

PROJECT EXPERIENCE AND REFERENCES

<p>PROJECT: Downtown Urban Revitalization Plan / Town of Southbridge, MA</p> <p>REFERENCE: Peg Dean, MPA Economic Development Coordinator 508-764-5402 mdean@southbridgemass.org</p>
<p>PROJECT: Design and Permitting Services for the Southern New England Trunkline Trail / DCR</p> <p>REFERENCE: Stella Lensing, PLA Trails & Greenways Planner 617 680 2466 stella.lensing@mass.gov</p>
<p>PROJECT: Hudson Riverwalk / Hudson, MA</p> <p>REFERENCE: Kristina Johnson, AICP Director of Planning & Community Development 978-562-2989 kjohnson@townofhudson.org</p>
<p>PROJECT: Neponset River Greenway Tenean Beach to Morrissey Blvd / DCR</p> <p>REFERENCE: Stella Lensing, PLA Trails & Greenways Planner 617 680 2466 stella.lensing@mass.gov</p>
<p>PROJECT: Independence Greenway over Route 1 Study / City of Peabody, MA</p> <p>REFERENCE: Brendan Callahan Assistant Director of Planning 978-538-5780 brendan.callahan@peabody-ma.gov</p>
<p>PROJECT: Trolley Brook Trail / Town of Ashland, MA</p> <p>REFERENCE: Jennifer Ball Assistant Town Manager 508-532-7901 jball@ashlandmass.com</p>
<p>PROJECT: Blackstone Gateway Park / City of Worcester, MA</p> <p>REFERENCE: Colin Novak Executive Director The Greater Worcester Land Trust 508-795-3838 colin@gwlt.org</p>

Project Understanding

After many years of visioning, planning, and strategizing, the formalized Quinebaug Valley Rail Trail (QVRT) segment through the Town of Southbridge will become a reality.

This trail will provide many benefits to the community, not only for the experience a multi-use trail offers, but as an economic catalyst to local businesses, connection to adjacent communities, an accessible recreational facility for all, a source of pride, and an impetus of environmental improvements. The QVRT will be a catalytic project to accelerate the economic and civic revitalization of downtown Southbridge.

Experience reveals that Rail Trails have spurred economic activity in many communities that have converted abandoned railbeds into new multi-use trails. Furthermore, both state and federal agencies have committed to providing more funding for trails because of the mental health benefits and the physical activity they provide to all users of all ages and abilities.

The QVRT project is undoubtedly a key component to the economic revitalization of the downtown. The Downtown Urban Renewal plan, LRRP project, stakeholder interviews and public input has reinforced the need for Southbridge to

become a destination, and the QVRT will support that goal. In addition to repurposing the old rail bed starting with its connection to Dudley, the trail will attract residents and non-residents into and through downtown and highlight other assets of Southbridge, including the historic train station, historic buildings, optical heritage museum, multicultural businesses and cuisine, existing as well as new public art installations, and connect to the Westville Recreation Area. The trail will also establish placemaking and create opportunities for future projects, such as new residential housing, views of and better access to the river, and new riverfront park.



Due to our longstanding working relationship with the Town Southbridge, dating back to the initial vision plan and URP development in 2007, as well as JCLA's recent work on the QVRT and downtown improvements, the BSC Team understands the significance of this project as an extension from Dudley to Sturbridge (Grand Trunk Trail) and how it must be designed not only as a durable, attractive, and accessible multi-use trail, but a link to local businesses, community buildings and parks, residential neighborhoods, and community events that occur throughout the year. Our team is attuned to this project and understands the impact it will have on Southbridge and the surrounding community. The following is a summary of the key elements BSC will integrate into the QVRT design project.

Sustainable and Maintainable Materials

When designing trails, the BSC Team understands the need to match materials with the intended use criteria, environmental concerns, installation costs, and long-term maintenance needs. The materials selected for this project must be durable, sustainable, and appropriate for the area. Our Team will coordinate with Town staff to evaluate and select materials that balance needs with maintenance abilities and costs, as well as protect and enhance nearby environmental assets. One specific material item to be addressed includes identifying appropriate locations to use stone dust and hot mix asphalt as the trail surface.

As segments of the trail, in particular along the abandoned railbed, are in close proximity to environmental resource areas, drainage will be a key consideration when designing the trail. Green infrastructure such as rain gardens may be considered as they can mitigate any impacts within the resource areas where impervious surface treatments are proposed. From several site walks and investigations, our team has documented several areas along the trail corridor that are exhibiting drainage problems such as ponding within the track bed, runoff from upland areas prevented from crossing under the track bed due to blocked or broken culverts, drainage ditches that have filled in with debris and eroded fill slopes.

As with many trail projects, long-term maintenance is a primary concern to Municipalities. BSC has extensive experience with a variety of pathway materials that strike a balance between aesthetics, stability, maintenance, cost, and minimizing impacts to the surrounding environment. We will explore these options with Town staff select materials that are appropriate for your budget while minimizing long-term maintenance costs.



Access and Safety for all

BSC understands the importance of creating a safe, accessible, and inviting trail with links to key destinations and use generators. Key destinations adjacent to the trail route include the Big Y shopping plaza, the AO complex with its new housing, the Town Common, the Dresser Park Apartments senior housing, the Mills apartments, the Optical Heritage Museum, West Street Elementary School and athletic fields, the Westville Recreation Area, and the numerous residential neighborhood and housing developments adjacent to the rail bed.

Safety will be a key design factor. Visibility to and from the trail will be paramount. Numerous access locations to get on and off the trail should



provide ease and a sense of comfort to users who may feel uncomfortable at times. But most importantly, a well-used trail provides the best feeling of safety, and numerous access points to encourage trail use are important.

Placemaking

The placemaking potential and elements that this trail will provide to Southbridge are extensive. As part of the trail design, there should be a trail “theme” that can be reinforced with physical features at various locations along the trail, in wayfinding signage, trail promotion, and special events. Elements such as a trail logo, signage, markers, historic ruminants, interpretive signage, and similar features can enhance and create an identity to this unique community resource. Furthermore, the trail will have a major visual presence in the heart of downtown that can be used to further enhance the placemaking of the downtown’s charm, rich architecture, and history. Many people have commented that Southbridge has preserving its downtown character, and the QVRT should be used to further enhance that sentiment.

Downtown Revitalization

Several prior studies have repeatedly emphasized the benefits a multi-use rail trail will bring to downtown. The fact that the QVRT, along with the historic trail station, is in downtown and highly visible will make it a valuable element of the

downtown fabric. The trail will draw more people into downtown, and will become a tourist attraction and activity hub, especially due to its link to Sturbridge to the north and Dudley to the south. There are many vacant and underutilized parcels and buildings along the trail route within downtown that will become key redevelopment and investment opportunities with the proper design and highlighting of the QVRT. Overall, the trail will provide initiative for people to explore the downtown and invest in the community.



Open Space Amenity

As a facility that will promote healthy living, the QVRT will further link together open space amenities and parks, promoting connectivity. Spanning to the Connecticut State line, with scenic destinations along the way such as the Quinebaug River Reservoir and timber railroad bridges. At its current length, beginning on Sandersdale road in Southbridge and ending in Dudley on the state border, the trail is 3.8 miles from point to point. Once completed, the trail will span 5 miles in length. Activities permitted on the rail trail include mountain biking, horse riding, hiking, trail running, snowshoeing, and Nordic skiing.



Ecological Protection and Environmental Improvements

There are several sections along the existing abandoned rail bed that are directly adjacent to the Quinebaug River, traverse over tributaries via single span timber pedestrian bridges (two locations) and a stone arch culvert, and adjacent to protected wetlands and wildlife habitat (i.e. pond). Along the southern portion of the corridor, any proposed landscaping will need to incorporate native species that will be resilient, support wildlife, and help displace invasive species in the area. To that point, the number of invasive species surrounding the pond shall be noted

during our wetland delineation, and BSC will provide recommendations of potential methods and funding sources to address this problem as a future action item.

Community Engagement

The QVRT will be a major community amenity and will greatly benefit from active community engagement in the design process. Public meetings, stakeholder meetings, and outreach to key abutters will all be part of this successful trail design effort. Already, some abutters know about the project and have indicated to work with the town and design team, such as the Heritage optical Museum, housing developer at AO, Hyde Tools, a Cannabis grower, and the West Street Elementary School. Engaging the public including residents, business owners, trail advocates, and bicyclists will be essential to soliciting feedback, understanding needs/desires and building public support for the project and this asset. In addition, it will be imperative to reach out to other stakeholders including the Southbridge Housing Authority, Army Corps of Engineers, Osterman Gas, the Greek Restaurant, and several businesses and residential housing located directly adjacent to the trail. The community engagement and education initiatives will not only improve trail design, but it will also build excitement, knowledge, support, and pride in the trail.

Long-Term Planning Goals

BSC's involvement with this project will not be limited to the trail alone. While planning and designing those improvements, our team will also take into consideration future projects to the area such as a new riverfront park, public art, the Crane/River Street design project, the Larochelle roadway improvements, upgrades to the park on the senior housing campus, and the housing at AO.

It was made clear that Downtown Southbridge should be highlighted as the center of the community. One example to associated improvements is public art and murals which we recommended in the LRRP. Where appropriate, we should plan for public art which may be a current or future consideration. As an example,

for BSC's Blackstone Gateway pathway and boardwalk in Worcester, BSC was able to integrate public art through a call for artists to design site furnishings such as benches, bike racks, etc. We can share that information with you and help identify funding sources should the town want to consider similar public art amenities and furnishings in the Downtown Southbridge area. Furthermore, following are some of the considerations that will be integrated into the design process.



Permitting Strategy

Based on an ecological and resource area assessment by both BSC and JCLA, we understand the project will require a number of environmental permits such as a Notice of Intent (NOI) and Environmental Notification Form (ENF). In addition, coordination, and information requests with the Natural Heritage & Endangered Species Program (NHESP) Priority Habitat as well as US Fish & Wildlife Service staff will inform the information that will need to be filed with each organization.

Financial Considerations

BSC understands that the town has a limited amount of funds available to implement these improvements. Therefore, BSC will recommend design solutions, elements and materials using a budget-conscious approach. For example, a key discussion item will be how to address the trail crossing at Main Street where options have included a new single span pedestrian bridge. Although a bridge at this location would result in a fantastic trail link, provide spectacular views, enhance the riding experience for users and be an iconic downtown feature, it could be cost prohibitive. However, it may be possible to implement a less-expensive option that would include a transition from the railbed to street level as an at-grade crossing for the short-term and a bridge becomes a long-term solution as additional funding becomes available. To that point, where needed, BSC will assist the town to identify additional funding sources so the town can fully realize the current vision for this area as well as help fund other enhancements that are being considered for the future.



Scope of Services

Scope of Work

BSC is prepared to provide the scope of work as outline in the RFP. In addition, we are providing the following two-step process to clearly explain the services we will provide for this project:

- **Step 1:** We will begin by finalizing decisions and preferences for various trail elements, Tasks 1 & 2, that will better define the field investigation and design services under Task 3 thru 7. The trail elements to be discussed and decided upon will include alignment, width, surface treatment, edge treatment, trail-head locations and connections, preferred materials, and crossings (i.e. at-grade and/or overhead using pre-fabricated bridges). This first step will enable the site survey, wetland delineation, geotechnical investigation(s) and preliminary design to apply to only those areas where such services are required, resulting in a better and

more efficient use of design funds.

- **Step 2:** The second phase will include Tasks 3-7 to complete field investigations, topographical survey, design, environmental permitting and development of the public bid package for the project. Prior to the commencement of Step 2, BSC will update the Scope of Services for Tasks 3-6 as described below to reflect any changes to the scope included in this proposal. (i.e., survey limits, permitting needs, geotechnical investigation and bridge design, etc.).

BSC's fee proposal includes the cost for all tasks described as follows, and also separates the fee for Tasks 1 & 2, which BSC proposes as a set fee to begin the project, and then a price for Tasks 3-6, which is subject to amendment after decisions are made about the trail as described in Step 1.



STEP ONE

Task 1: Project Initiation

BSC shall schedule, organize, and attend a Project Kick-Off meeting with key town staff and project stakeholders. BSC staff and team members have walked the entire project corridor on several occasions and are very familiar with the existing features and challenges they will present. We also request that key stakeholders attend this meeting, such as staff from Economic Development, Planning, Conservation, DPW, Recreation, and others as identified by the Town.

Some specific discussion items include:

- Project schedule and key milestones for the Town and BSC Team
- Public Outreach – who, when, and where
- Abutter Outreach – who are the key abutters to talk to and coordinate with
- Project Priorities – such as preferred route alignments, treatment at Main Street crossing, on-road segment
- Status of other projects – West Street, the downtown TIP project, others
- Status of Agreement with MassDOT
- Current maintenance and drainage concerns/ issues
- Any opinions about materials for the pathway, bridge, site furnishings, etc
- Collection of any town plans and reports about the corridor in addition to the plans BSC has already assembled
- Status of funding

Task 2: Define Abutter Concerns and Trail Elements

Following Project initiation, BSC will meet with Town staff to: confirm recommendations in the Feasibility Study which are final; make decisions about Feasibility Study recommendations that had options, such as the on-road connection from River Street to West Street, trailhead locations with design elements such as vehicular parking or not; and the location and types of bridges.

BSC will also work with the Town to schedule meetings with key abutting property owners to discuss how the trail will be designed along their abutting property line. Key abutters include but are not limited to: Osterman Propane; Tasse; Optical Heritage Museum; Dexter Russell; Green Meadows; Fraternal Order of Eagles; other property owners along Mill Street as needed; Franklin Realty Advisors; Ashur Realty (land along East Main Street across from Big Y); and others as required. These discussions will involve how the trail may need to be treated in certain areas to provide security to abutting property, protection of trail users, and possible trail access points. These items, and more, will inform elements and connections that will need to be incorporated into the limits of site survey, final design, permitting and associated tasks.

Three (3) stakeholder group meetings and follow-up conference calls are included in the scope: The Mills Street area; the Crane Street area, and the AO and East Main Street area.

Following these discussions, BSC will update the Feasibility Study cost estimate to include any changes in site design and elements to address abutter concerns deemed appropriate by the Town. BSC will review that estimate with the Town to explain all potential project costs. The town will provide BSC with a list of the items and design elements they want to include in the final design process.

BSC will finalize the QVRT Design Program outlining, for Town approval, the design elements to be included in the final design. BSC will also discuss with the Town any contract amendment that may be required to modify Tasks 3-6 and adjust the fee (either increase or decrease) accordingly.

STEP TWO

Task 3: Field Survey & Existing Conditions Plan

A portion of this task can begin concurrent with Step 1 in areas where it is known where the trail will be located, such as the old rail bed now owned by MassDOT from the area of the Golden Greek restaurant to Morris Street.

Furthermore, this survey scope does not include re-surveying those areas surveyed by others for prior projects, such as: the JCLA trail design from the Dudley Town Line to the area of the Golden Greek restaurant; survey from Hook to Foster Street for the TIP project; survey along Crane and River Streets for that roadway project; survey along Mill Street for the bridge upgrades project; and survey along West Street.

Where new survey is required, BSC will perform research and obtain the latest records and property information from the Town and the Registry of Deeds to establish the public right-of-way and ownership information along the project limits as described herein.

BSC will perform retracement of rights-of-way and compilation of abutting property lines as per registry of deeds records and monuments found in the field, ground survey of all visible features, and utility research including compilation and delivery of obtained utility plans.

BSC will perform research as required that may include the Town of Southbridge Assessors and DPW, or the Worcester County Registry of Deeds to recover deed, plan, easement, and other record instruments to retrace the right-of-way lines for the project corridor and to compile the intersecting property lines.

BSC will perform research at the Town of Southbridge and coordinate with public/private utility agencies with utility services within the project corridor to obtain any available documents of record. Note that BSC does not provide any guarantee that all underground utilities will be discovered and/or documented on the Existing Conditions Plans. In the absence of accurate record plans, or visible evidence on the ground

surface, it is not possible to locate underground utilities without additional investigation such as utility designation using specialized detection equipment.

BSC will perform a GPS survey at the site to establish horizontal and vertical control points. Horizontal datum shall be based upon the North American Datum of 1983 (NAD 83) and vertical datum shall be referenced to the North American Vertical Datum of 1988 (NAVD 88).

BSC will perform an instrument survey of the site establishing a survey control framework that will include the location of existing monumentation and other visible evidence of occupation.

BSC will perform a topographical survey of the project corridor including the area within the right of ways and within an appropriate strip in areas which are not within a record right of way. Topography will include visible surface improvements, spot grades, pavement areas, pavement markings, tops and bottoms of curbs, aprons, sidewalks, pedestrian ramps, building faces, walls, fences, signs, surface utility structures including rim elevations and inverts of drainage structures, utility poles, gate valves (water and gas), hydrants, curb stops, utility poles, fences, walls, location and spot elevation of stand-alone trees, shrubs, planting beds, riverfront areas, flagged wetlands, within 100 feet of project corridor and other site features. Sign face descriptions and a sign legend shall be included.

Record pipe sizes and types will be transferred to the plans from information received from the utility companies and the Town of Southbridge.

Vertical benchmarks shall be established approximately every 1000 feet within the project corridor.

BSC will perform office computations of all field-measured data. The field data will be reduced, adjusted, and plotted on the plans. The record boundary will be reconciled with the monumentation found in the field.

BSC will prepare an existing conditions survey plan at a suitable scale. Contours will be shown at a one-foot contour interval. Utility information

received from the utility agencies for the limits of work will be compiled and included on the plans. The survey plan will be prepared according to MassDOT survey specifications. The final survey plan will be signed and stamped by a Professional Land Surveyor licensed in Massachusetts. An AutoCad Civil 3D electronic drawing file shall be provided along with the Civil 3D surface.

Deliverable:

Existing Conditions Plan in electronic (PDF and/or AutoCad) format and hard copy

Task 4: Preliminary Site Design

Preliminary site design will begin after the Town has approved the final Design Program, Task 2.

Preliminary Design will begin with a meeting with the Town.

4.1 Multi-Use Path

Following the completion of the site survey and wetland delineation, BSC will layout a new multi-use path from Dudley to River Street. At River Street the path will change to on-road bicycle accommodation/lane with adjacent sidewalk to West Street. At the West Street School, the trail may be a foot path to the Westville Dam access road with an on-road bike component, or a multi-use path along the river to the Westville Dam access road. BSC's fee includes a multi-purpose path along the River. BSC understands that the path is proposed to be a combination of asphalt or stone dust in certain segments depending on context, and vary between 8 and 12 feet in width, depending upon site conditions. As identified in the Design Program, BSC shall also provide design options for observation areas, access points and site furnishings.

For the purposes of this proposal and fee, BSC has assumed the multi-use trail design will include:

- Typical trail cross section for a stone dust treatment showing width, base materials, and transition(s) to abutting conditions (i.e. edge treatment)
- Typical trail cross section for an asphalt treatment showing width, base materials, and

transition(s) to abutting conditions (i.e. edge treatment)

- Required guardrail or fencing
- Signals and signage at roadway crossings
- On-Road bike lane or sharrows treatment
- Site preparation and protection of abutting features and resource areas
- Flood mitigation storage areas if needed in the trail section from Route 131 south to Dudley
- Design of a prefabricated steel pedestrian bridge including foundations over Morris Street and Main Street based on soil borings and geotechnical report (included as part of our fee).
- Accessible connections from the elevated rail bed to and from both sides Main Street at the rotary area
- DEP's Best Management Practices (BMP)s for Controlling Exposure to Soil During Development of Rail Trails

Additional design consideration will include, but not be limited to:

- Proximity to the river and resource areas
- Views from the path to key features
- Views from the abutting roadways to the path
- Impact to deciduous trees
- Surface drainage/runoff
- Existing topography & informal path systems linking to the rail bed
- "Placemaking" elements
- Trail head locations, access points, parking areas
- Signal upgrades (timing) at the intersection with North Woodstock Road and a new pedestrian operated signal (i.e. HaWK or RRFB) at the Rte 131 crossing (i.e. Golden Greek)
- BSC will also take into consideration future projects and connections such as:
 - Potential future connections to the River
 - Existing topography & informal path systems linking to the rail bed
 - "Placemaking" elements
 - Future trail head locations, access points, parking areas

Scope does not include the design of any vehicular parking areas at any trailheads. Such designs would include site survey, stormwater design, potential curb cuts and potential analysis of traffic impacts at access points.

Scope does not include design of new fully-actuated traffic signals.

BSC shall prepare one set of Preliminary Design drawings to be discussed with the town and for engaging stakeholders and community to confirm an accepted preferred improvement plan before advancing to final design documents. Included in the scope is one public meeting to present the project to the community at no additional cost.

4.2 Pedestrian Bridges

BSC shall provide options to the town for prefabricated pedestrian bridges to cross Main Street and Morris Street respectively. Based on initial site measurements by BSC, the bridges may span from 60 feet to 120 feet with a width of 10 feet to allow for two-way traffic of pedestrians and bicycles and would connect to the proposed multi-use path.

BSC will develop preferred alignment options and critical bridge geometry for the bridge. Consideration will include: views to abutting areas; elevations and layout proposed foundations and wingwalls; and visibility to the bridge(s) as a bridge over Main Street next to the rotary will become an iconic Downtown Southbridge feature. BSC will coordinate with potential bridge fabricators regarding materials and installation requirements. BSC will take into consideration bridge materials, cost, maintenance needs, installation requirements, and aesthetics appropriate to the site.

As part of the bridge design process, BSC will provide the services of a geotechnical engineer to implement a geotechnical program as needed to obtain the necessary subsurface soil data, specify the bridge foundation type and location, establish finish elevations, and all other appurtenances required to bid the project.

Based on our initial evaluation of the sites, BSC

believes it may be most cost-effective to include prefabricated concrete foundations positioned on the rail bed beyond the current wall foundations at Morris Street, so that they will not have to function as a retaining wall or bridge abutment, which will reduce cost to the overall project budget. A similar approach will be evaluated for the Main Street crossing to reduce cost, but customized designed bridge foundations that also serve as retaining walls in order to reduce the bridge length may be required. BSC will evaluate, propose and discuss bridge/foundation options with the Town, and associated costs for initial installation as well as long-term maintenance, and any permitting challenges associated with bridge placement and footing installation.

4.3 Landscaping

As part of the BSC Team, JCLA shall prepare a all landscape architectural design elements for the project. These elements are expected to include planting plans, pedestrian trail heads, site furnishings, any placemaking elements, streetscape doe on-road segments, and wetland mitigation plantings.

Under this task, the BSC Team shall prepare an illustrative rendering of the final preferred site plan showing trail layout, bridge placement and style, landscaping, and other project elements for use in engaging stakeholders and the public.

4.4 Preliminary Design Submittal

BSC will develop the Preliminary Design Plans for the proposed improvements. The plans will be attentive to existing property constraints; access management, existing driveway and pavement infrastructure; pedestrian and bicycle accommodation; intersection, driveway and side street geometry; vehicular and pedestrian access

and circulation; signage and pavement markings; project area drainage; potential future projects; and project area landscaping as may be applicable. Plans are anticipated to include:

- Title & Index Sheet
- General Notes Sheet
- Legend & Abbreviations Sheet
- Typical Sections & Pavement Notes Sheet
- Construction Plans
- Construction Details

BSC will prepare an itemized preliminary design cost estimate for the proposed improvements based upon the Preliminary Design and MassDOT weighted average bid pricing and submit to the Town for review.

Deliverable:

Preliminary design plans (electronic and/or hard copy)

Preliminary design special provisions and cost estimate (electronic and/or hard copy)

Task 5: Permitting

Understanding

The proposed project will impact approximately 20 acres of Riverfront Area along the preferred route, exceeding the Massachusetts Environmental Policy Act (MEPA) threshold for the Wetlands, Waterways and Tidelands section. BSC understands that the Project will receive state funding from the MassTrails program; therefore, the Project will be subject to MEPA Review. An Environmental Notification Form (ENF) and Environmental Impact Report (EIR) will be required based on the location of the rail bed within an Environmental Justice community. As the goal of the Project is to develop an open space asset and enhance connectivity within the community, we anticipate that MEPA Review could proceed under the simplified Expanded ENF and Single EIR process.

The existing rail trail runs along the southern bank of the Quinebaug River and is more directly adjacent to the river east of the East Main Street crossing. As such, the proposed trail is within a

number of jurisdictional wetland resource areas associated with the River, including the 100-foot Buffer Zone of Inland Bank and Bordering Vegetated Wetlands, the 200 foot Riverfront Area, and Bordering Land Subject to Flooding. The southeastern segment of the project occurs within Natural Heritage & Endangered Species Program (NHESP) Priority Habitat and will therefore require the filing of a Massachusetts Endangered Species Act (MESA) Project Review Checklist. A Take of state listed species is not anticipated as a result of the work, so it is anticipated that a Conservation and Management Permit from NHESP would not be required for this project.

The majority of the project area occurs within the jurisdiction of the Massachusetts Wetlands Protection Act (M.G.L. ch. 131 §40) and its implementing regulations (310 CMR 10.00 et seq.) specifically within the 100-year floodplain and Riverfront Area of the Quaboag River. A Notice of Intent (NOI) will be required to be filed with the Town of Southbridge Conservation Commission. The Project will be required to meet the performance standards for floodplain, which include no net loss of flood storage area. BSC will provide the town with options to meet the standards of the Wetlands Protection Act which may include alternative paving options or compensatory storage design. To fulfill requirements for review of projects under the rare species section of the Wetlands Protection Act, the NHESP streamlined review process will be used to complete MassDEP and NHESP review requirements.

5.1 Notice of Intent

The proposed project is located within the limits of jurisdictional wetland resource areas as defined by the Massachusetts Wetlands Protection Act (WPA). Southbridge appears to have a draft Wetlands Protection Bylaw that is not yet promulgated. Jurisdictional wetland resource areas subject to protection under the Wetlands Protection Act that exist within direct proximity of the project area including Bank, Bordering Vegetated Wetland, 100-foot Buffer to Bank and BVW, Bordering Land Subject to Flooding (BLSF),

200-foot Riverfront Area (RFA), and Land Under Water (LUW). Therefore, the proposed project will require an Order of Conditions from the Southbridge Conservation Commission.

Under this task, BSC shall prepare and submit a Notice of Intent to the Southbridge Conservation Commission and MassDEP Central Regional Office. Tasks include the following:

- Delineate all jurisdictional wetland resource areas and prepare plans sufficient for filing in support of a permit application. Based on the extent of resources, we anticipate delineation to take place over the course of three days.
- Note invasive species identified during wetland delineation and provide recommendations of potential methods and funding sources to address this problem as a future action item
- Preparation of WPA Form 3, associated narrative, and discussion of compliance with the WPA, specifically redevelopment of the Riverfront Area and no net loss of flood storage area
- Preparation of the Stormwater Checklist and Report and stamped by a Professional Engineer
- Review and assist with the design of environmental plans
- Coordination during review with Conservation Commission and town
- One site visit by Wetland Scientist with the Conservation Commission
- Attend two (2) in-person public hearings with the Southbridge Conservation Commission
- Town of Southbridge is responsible for recording of the Order of Conditions (if applicable)
- BSC shall obtain certified abutters list, if required, and mail abutter notifications pursuant to requirements of the WPA and/or AWB
- BSC shall coordinate with the Commission to determine the responsibility for providing public notice in the local paper
- Any fees incurred for postage, certified abutters lists, application fees, public notices, will be paid by the Town of Southbridge as relevant

5.2 Natural Heritage & Endangered Species Program

According to MassGIS Natural Heritage and Endangered Species Program (NHESP) data layers (2021), the project area is located within mapped priority habitat (PH 756) for rare wildlife and species habitat. This Project will require review under MESA and can be submitted to NHESP as a streamlined review with the Notice of Intent. At this time, BSC assumes the Project will be able to proceed without a take or subsequent Conservation and Management Permit.

Tasks include:

- One virtual meeting with NHESP for Project Review Checklist submittal
- Preparation and submittal of streamlined MESA submittal (Project Review Checklist submittal) with NOI

As the species and specific habitat requirements are currently unknown, additional efforts such as the development of Conservation and Management Permit or Species Protection Plans are not included in the efforts under this task. If required for construction, these tasks can be coordinated under a separate scope and fee.

5.3 US Fish & Wildlife Service Information for Planning and Consultation

Authorization under the National Pollution Discharge Elimination System – Construction General Permit will be required if Project construction disturbs over an acre of land. In anticipation of this filing, BSC will coordinate with the US Fish and Wildlife Service to fulfill Section 7 Endangered Species Act Consultation. BSC will perform an inquiry through the Information for Planning and Consultation online tool. We assume the Town and its contractors will obtain coverage under the Construction General Permit prior to Construction.

5.4 US MEPA Coordination

Because the Project site is within a mapped Environmental Justice (EJ) population, the Project will require enhanced MEPA Review under an EIR

process. BSC anticipates that MEPA staff will allow review of the project to be expedited through the Expanded ENF and Single EIR process, or “Rollover EIR.” The current Project is not complex in scope, has minimal impact to wetland resource areas, and it is reasonable to assume that all issues of interest can be identified as part of the EENF. Additionally, the overall purpose of the Project, as described above, is to create a multi-use trail that will provide a connection to abutting communities, enhance economic opportunity, and create more open space within the Town.

The EJ Community engagement procedures under MEPA require noticing the project to this community as well as other EJ entities that will be obtained from MEPA after submitting a request for a Reference List. Also, the EJ outreach process includes having information available to respond to any inquiries that result from the Noticing. BSC proposes to undertake the following tasks to meet MEPA requirements for the Project, using the Rollover EIR option:

- Obtain EJ Reference list from MEPA office
- Provide 45-day advance notification to EJ communities, as required by MEPA
- Create information about the Project and methods to share information with any EJ community members who respond to the notification
- Request and conduct a pre-application meeting with the MEPA Office
- Fill out the ENF as an EENF, including the following supporting material that would be required in an EIR:
 - Detailed project description
 - Existing and proposed conditions
 - Alternatives analysis
 - Climate resilience analysis
- Submit EENF to MEPA Office with a request to be a Rollover EIR
- Provide hard copy and electronic access to the EENF to interested community members
- Track the MEPA Office review process to

confirm acceptance of the Rollover process and then final Certification of the Project.

- Upon Review of the EENF, MEPA Staff will prepare a scoping letter for the SEIR. As the full scope of the SEIR will not be known until MEPA staff issue the scope letter, BSC has not provided a full scope for preparation of this filing. We have provided some time to coordinate with MEPA on the final scope for the SEIR.

Task 6: Construction Documents (Final Design)

Following receipt of permits and associated Orders of Conditions, BSC will review the comments and recommendations received from the Town, coordination with project stakeholders and utility owners regarding the Preliminary Design Submission and will incorporate mutually agreed to modifications and changes into a final design submittal to the Town. It is anticipated that the design plans will include an anticipated sheet list as follows:

- - Title & Index Sheet
- General Notes Sheet
- Legend & Abbreviations Sheet
- Typical Sections & Pavement Notes Sheet
- Construction Plans
- Utility Plans (If Required)
- Curb-Tie & Grading Plans (If Required)
- Traffic Signal Plans
- Pavement Marking & Sign Plans (Including Sign Summary)
- Landscape Plans
- Construction Details

Special Provisions, Traffic Management and Cost Estimate

BSC will prepare final special provisions in accordance with the Town's standard specifications or the latest MassDOT Standard Specifications for Highways and Bridges for review by the Town. BSC will provide standard MassDOT temporary traffic management details to be part of the final design to demonstrate the

work can be completed in a safe and efficient manner within the project budget. BSC will prepare an itemized final design estimate of probable construction costs and calculation book for the proposed improvements based upon the final design and latest MassDOT weighted average bid pricing.

Deliverable:

Final design plans

Final design cost estimate

Final special provisions to latest MassDOT Standard Specifications

Task 7: Bidding Assistance

The Town will be responsible for preparing and advertising the project for construction including the following with assistance from BSC:

- Invitation to Bid
- State Wage Rates
- Bid Documents
- Form of Contract
- Performance and Payment Bond
- General Specifications
- Technical Specifications (provided by BSC)
- Final Design Plans (provided by BSC)

Upon advertising the project for construction, the town will coordinate, schedule and host a pre-bid conference with prospective bidders to discuss the project details, any outstanding questions relating to the proposed work, the bidding procedures and the required contract provisions. BSC will assist the Town with responding to bidder questions and analyzing bid results and recommending the lowest qualified bidder.

Additional Services

The following services are not included as a part of this Agreement. These services may become necessary based upon the conclusions derived from the performance of the proposed scope herein. If required, these services will be performed for an additional fee based on a scope

and fee mutually agreed to between the Town and BSC.

- Construction administration services including part/full-time resident engineering inspection
- Sanitary sewer service design
- Hazardous materials consulting services
- Preparation of any right-of-way easement and/or taking plans, or temporary right-of-entry (We do not anticipate any need for takings or easements)
- Underground utility location/designation services (i.e. Ground Penetrating Radar)
- Modeling the existing water supply system, analysis or projection of water demand, layout, quantity calculations or cost estimating any proposed watermain.

Project Team

To effectively provide the Town of Southbridge with engineering and design services, BSC Group has assembled a project team of experienced civil, environmental, and traffic engineers, ecologists, landscape architects, surveyors, and public engagement specialists. Our team solves complex challenges by applying expertise across disciplines and sharing ideas and perspectives to see a project from every side.

Leading BSC Group's team as principal-in-charge will be **Jef Fasser, PE, LEED AP**, BSC's senior landscape architect and planner with over 40 years of experience leading interdisciplinary teams in the design and planning of trails, roadways, and recreational areas. Jef has been a manager of multiple pathway designs with a focus on aesthetics, sensitivity to adjacent conditions, and universal accessibility. He has extensive experience coordinating with various municipal departments, abutters, and advisory committees to reach community goals. Jef is also well versed in state programs and funding to support planning efforts.

As principal-in-charge, Jef will be the Town of Southbridge's primary contact

for the project. He will maintain contractual authority with the Town and track each assignment's progress to ensure that schedules and budgets are fulfilled with deliverables that meet the Town's project goals.

Jef will be supported by project manager **Bill Paille, PE**, a civil and transportation engineer who offers more than 30 years of experience in the transportation planning industry. He is an experienced speaker on shared use path design and brings an expert understanding of municipality needs and the knowledge of available transportation funding options for communities to meet their infrastructure goals successfully. Bill also understands the critical role public outreach plays in today's community projects.

Jef and Bill will be supported by specialists in trail design, traffic and environmental engineering, public planning, and land surveying. This includes support from subconsultants in landscape architecture from Joseph Coan, RLA and geotechnical engineering from O'Reilly, Talbot & Okun Associates.

Meet Your Core, Responsive Team



Jef Fasser, PE, LEED AP

Principal-in-Charge

- More than 40 years of experience in landscape architecture, project management, site design, public engagement, and project permitting
- Accustomed to solving complex site design issues within open space plans for entire communities while incorporating resident and stakeholder feedback
- Experience in Southbridge includes the Downtown Southbridge Urban Renewal Plan and the Globe Village Recreation Area Master Plan



Bill Paille, PE

Project Manager

- Transportation engineer with 30 years of experience in the design of multiuse trail facilities for Massachusetts municipalities, along with Complete Streets roadway design
- Led BSC's efforts on the Independence Greenway/Border to Boston Link Feasibility Study, which examined alternatives to link the existing Independence Greenway (East-West) to the Border to Boston Trail (North-South) at the intersection of Route 1 & I-95; currently leading the project's design phase



Wayne Keefner, PE, PTOE, LEED AP

Civil Engineer

- Transportation engineer with 24 years of experience in traffic planning for municipalities throughout New England
- Extensive knowledge of site and civil engineering, public highway and traffic engineering, all phases of project coordination, strategic planning, engineering design, staff training, bid development, and site layout and design



Frank Vacca, PE

Civil Engineer

- Civil engineer and project manager with expertise in utility design, construction phase services, preparing permit submittals, stormwater management system, and environmental compliance inspections
- Experience includes serving as lead construction inspector for Newington Streetscape Improvements and civil engineer for the reconstruction of Old Cathole Road, Tolland; Bolton's Greenway extension; the redevelopment of Front Street district, Hartford; and the Glenbrook Road streetscape improvements in Storrs.

Meet Your Core, Responsive Team



Matt Burne, PWS

Ecologist

- Senior ecologist with expertise in wildlife biology, conservation science, management, and policy with pervasive skills in conservation planning, land protection and management, facilitation, and communication
- Spent 10 years as an ecologist with the Massachusetts Division of Fisheries and Wildlife's Natural Heritage & Endangered Species Program as a Wetland Environmental Reviewer and Vernal Pool Ecologist



Ken Thompson

Survey Specialist

- Survey group manager with 37 years of extensive experience in every survey component associated with private and public-sector project planning, design, and construction
- Experienced in all aspects of land surveying and in differing environments, includes surveying in various areas within the State



Samuel Offei-Addo, PE, PTOE

Traffic Engineer

- Traffic engineer with nearly 30 years of professional experience in developing and reviewing traffic studies
- Provided traffic review services for the Towns of Amesbury, Arlington, Belmont, Foxborough, Lexington, and Stoneham. Many of these transportation studies involved evaluating potential traffic impacts as a result of current and future land development activity



Micah Morrison, PE, SE

Structural Engineering Designer

- Senior structural engineer with over 20 years of experience in bridge and culvert design for transportation projects throughout New England
- Led the design of a bridge replacement project over the Umpachene River in New Marlborough, a bridge and culvert replacement project in Sheffield, the replacement of the High Street Bridge in Winchendon, MA, as well as a bridge replacement project in Devens, MA



Alessandra Keller, PE

Senior Structural Engineer

- 18 years of experience in bridge design, bridge inspection, construction, and project management
- Extensive highway bridge design experience includes inspection, design, rehabilitation, and construction administration services across the states of Massachusetts and Rhode Island.

Meet Your Core, Responsive Team



Michael Clark, PE, LSP, BCEE, ENV SP, TPI

Licensed Site Professional

- 40 years of extensive experience as a project manager and consulting engineer on environmental, transportation, energy, and land development projects
- Well known for his work on the Green Line Extension and South Coast Rail projects



Olivia Knightly

Public Engagement Specialist

- Research experience in community program evaluation, such as producing local models, conducting informal quantitative and qualitative data collection, and presenting findings to stakeholders, with a focus on the social applications of geospatial analysis.
- Project experience includes providing public engagement services for the Wilson Gateway Park project in Windsor, CT, the zoning recodification in Dracut, MA, and the Urban Revitalization District Plan in Wollaston, MA



Joseph Coan, RLA

Landscape Architect

- Award-winning landscape architect with more than 16 years of experience designing, permitting and providing construction oversight for various site design and landscape projects at the municipal and state levels
- Designed the Quinebaug Valley Rail Trail in Southbridge MA, getting the project up to 75% completion



Ashley E. Sullivan, PE

Principal

- Over 20 years of experience assessing and designing geotechnical systems.
- Manages subsurface explorations, laboratory testing, and geotechnical design including foundations, ground improvement systems, temporary earth support and underpinning design, slope stability analysis, and small to mid-size dam inspections

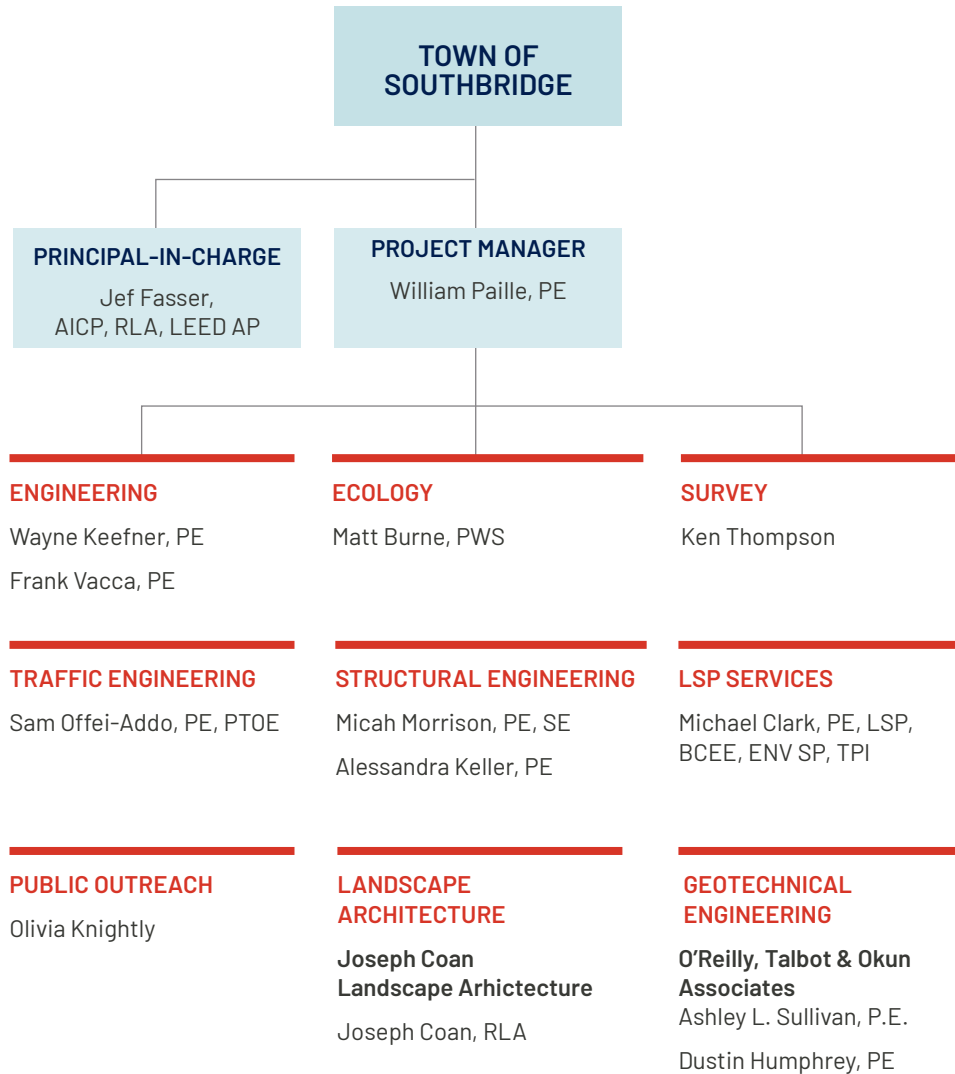


Dustin Humphrey, PE

Project Manager

- Civil engineer with a focus in geotechnical engineering, solid waste management, and industrial compliance
- Experienced in the areas of geotechnical site investigations, slope stability analysis, seismic site analysis, laboratory and field testing, construction and vibration monitoring, solid waste (landfill) monitoring, reporting, and permitting

Project Team





James E. Fasser, RLA, AICP, LEED AP

Vice President & Principal
Planning & Landscape Architecture

YEARS OF EXPERIENCE

43

EDUCATION

BS, Landscape Architecture
University of Virginia

REGISTRATIONS

Registered Landscape
Architect

- MA #814 (1985)
- NY #1081 (1987)

American Institute of Certified
Planners (1994)

CERTIFICATIONS

- LEED Accredited Professional
(2009)

AFFILIATIONS

- American Society of
Landscape Architects
- Boston Society of Landscape
Architects (Treasurer)
- American Planning
Association – MA

MEET JEF

Jef leads BSC in transforming clients' visions into practical designs that can be successfully implemented to serve as valuable, lasting assets. His project experience urban planning and design, site development, urban revitalization plans, feasibility studies, active and passive parks, streetscapes, trails, as well as colleges and university campuses. He also has experience with federal, state, and local project permitting.

Having been at the helm of many of BSC's multidisciplinary teams on a broad spectrum of public and private projects, Jef efficiently balances the needs of diverse stakeholders with maximizing clients' budgets. He also has worked with a full range of federal, state and local programs and funding mechanisms to envision, plan, and implement projects that are funded and built.

PROJECT EXPERIENCE HIGHLIGHTS

Downtown Southbridge Urban Renewal Plan, Southbridge, MA Project Manager

Responsible for working with the Town of Southbridge to prepare and update an Urban Renewal Plan in accordance with M.G.L. Chapter 121B for the downtown area. A public visioning process revealed the community's desire to build upon the adjacent Quinebaug River as an untapped natural resource for the community.

Globe Village Recreation Area, Southbridge, MA Landscape Architect

Responsible for the development of a master plan to expand the existing recreation facility located along the Quabaug River by adding four lighted tennis courts, field hockey field, pathways, playground, and upgrading the existing soccer field and drainage system. Jef assisted the Town in submitting a successful grant application to the State for construction funding. Project responsibilities included providing site design and construction inspection services.

Assabet River Rail Trail Planning and Design Services, Marlborough, MA

Project Manager

Responsible for improvements to a recently constructed section of the Assabet River Rail Trail to make the trail more inviting, tie the trail into the surrounding neighborhoods, and assist in stimulating economic development on and within the area of the trail. A series of public forums was held, comprised of six focus groups and two public charrettes, to obtain input from City agencies, abutters, and existing and potential users of the trail. The input received through the public forum process and information gathered through research and analysis became the basis for design suggestions for key study areas and recommendations for other areas that could be incorporated as either short- or long-term improvements to the trail and surrounding areas. Final products for the project were a poster, pamphlet, and report, which included a summary of the process and information collected, design suggestions for key study areas, overall improvement recommendations, an action plan, and identification of potential funding sources.

Blackstone Gateway Park Boardwalk and Trails, City of Worcester, MA

Project Manager

Managed the preparation of a master plan, grant applications, and final construction documents for the installation trails through and around a sensitive open space area within Worcester. Optional trail alignments were explored with associated costs. The final master plan included a system of walking trails, bikeways, a boardwalk, and bridges. Interpretive overlooks were installed along the river. Project required coordination with various City departments, abutters, and an advisory committee.

East Boston Greenway Connection Feasibility Study, Trust for Public Lands, East Boston, MA

Project Manager

Responsible for a feasibility study exploring options for connecting the East Boston Greenway and Bike Trail to the Chelsea Creek waterfront and open space facilities within the neighborhood. The project explored various bikeway and pedestrian routes to connect key features while avoiding major intersections and roadways. Project required in-depth coordination with various City agencies and two public

workshops. Final report included costs, typical cross sections, and an implementation strategy. This was a planning study only.

Bicycle and Pedestrian Trail Study, Pittsfield, MA

Project Manager

Provided planning, public participation, permitting, and design services for a bike/pedestrian pathway to help connect key open space resources in the City of Pittsfield. The proposed bike path segment is an important opportunity to extend the regional Ashuwillticook Rail Trail into the City and provide an attractive recreational opportunity for community residents.

Assabet Riverwalk, Hudson, MA

Principal Landscape Architect

Responsible for the design and permitting of a quarter-mile expansion of the Downtown Hudson Riverwalk. The project included a quarter mile of new universal access trails, riparian corridor restorations, habitat enhancements and educational interpretive signage, as well as integrated arts features for gateways and water access overlooks and decks reconnecting this historically industrial section of the river to the community, bringing it closer to its natural function.

Bedford Riverwalk, New Bedford, MA

Project Manager

Worked with the City of New Bedford to plan and complete initial design plans for a public pathway along a 2.25-mile stretch of the Upper Harbor of the Acushnet River. This new riverwalk is being developed to reconnect the community with the water and provide a recreational amenity for New Bedford. Key project elements include trail design, environmental restoration, aesthetics, sensitivity to adjacent conditions, safety, universal accessibility, and regulatory issues.

Hingham Trails Master Plan, Hingham, MA

Landscape Architect

Responsible for the preparation of a town-wide master plan to improve trails, trail connectivity, and open space preservation in Hingham. The plan evaluated all existing town trails, suggested trail improvements, trails connections, and acquisitions to both preserve valuable open space and better link trails. Project involved working with Steering Committee and extensive public outreach.



William Paille, PE

Complete Streets Manager
Senior Associate

YEARS OF EXPERIENCE

34

EDUCATION

BS, Civil Engineering
University of
Massachusetts Amherst

REGISTRATIONS

Professional Engineer

- MA #39312 (1996)
- CT #26350
- RI #7683
- NH #10979
- VT #9200

AFFILIATIONS

- Boston Society of Civil Engineers Section/ASCE
- American Public Works Association (APWA)
- Institute of Traffic Engineers (ITE)
- American Council of Engineering Companies (ACEC)
- Barnstable County Public Works Association (BCPWA)
- Norfolk Bristol Middlesex Highway Association (NBM)

MEET BILL

Bill serves as the Complete Streets Manager in BSC Group's Boston headquarters, where he provides senior-level guidance for transportation project designs of variable complexity for both private and public sector clients, including municipalities and MassDOT. Bill has a diverse portfolio of transportation projects including roadway, parking lot, and multi-use trail facilities.

As former Director of Transportation for the City of Newton, Bill supervised a staff of 13 personnel with an operating budget of \$2.5 million for the overall maintenance and rehabilitation of the city's transportation network. In this capacity, he managed numerous traffic improvement projects, including the installation and upgrades of signal systems as well as two large-scale roadway improvement projects. An important consideration of these projects was ADA accessibility and pedestrian safety. Another key emphasis of his tenure was the installation of new dedicated bicycle lanes along three city roadways.

PROJECT EXPERIENCE HIGHLIGHTS

Trolley Brook Path, Ashland, MA

Project Manager

Managed the development of a new multi-use path from the MBTA Access Road that will provide a connection to an existing multi-use path, large housing complex and train station, to Megunko Road that will connect to Stone Park and the downtown area. This mile-long connection is part of the overall Ashland Upper Charles Trail network that will eventually connect to neighboring Hopkinton and Holliston. BSC was responsible for the survey, design, permitting, advertisement, and construction oversight for this project that was completed in the fall of 2021.

Grand Trunk Trail, Sturbridge, MA

Project Manager

Managed the advertisement, bidder selection and construction oversight including full-time resident engineering and coordination with MassNHESP related to turtle protection for this federally funded project that was designed by FHWA-EFLHD, to connect and establish a new trailhead at Farquhar Road to the existing trailhead at the Calcutt pedestrian bridge. The project involved the construction of a gravel surface multi-use trail over virgin terrain and along abandoned railbed, adjacent to USACE land downstream of the Westville Recreation Area. Construction began in June and was completed in the fall of 2022.

Independence Greenway Extension, Peabody, MA

Project Manager

Managed the development of a feasibility study for the city to explore trail options to connect the existing trailhead at Peabody Road to Lt. Ross Park and the Border-to-Boston trailhead cut-off by I-95 and Lowell Street. As part of the study, BSC assisted the city to prepare and submit the Project Notification Form (PNF) and Project Initiation Form (PIF) to MassDOT for approval and review by the Metropolitan Planning Organization (MPO) for placement onto the STIP that received one of the highest ratings by the MPO.

The city then selected BSC to prepare the 25% Design for submission, review, and approval to MassDOT that is anticipated to happen the fall of 2022. The project involves construction of a multi-use trail along an abandoned railbed and the toe-of-slope of the I-95 access ramp, a new 180-foot single span pedestrian bridge over the Proctor Brook, a separated path along a portion of Lowell Street and under I-95 and a new 220-foot single span pedestrian bridge over US Route 1. The design is expected to be completed in 2024 for a construction start in 2025.

Southern New England Trunkline (SNET) Trail Feasibility Study, Franklin, MA

Project Manager

Managed the development of a feasibility study for the Town of Franklin to explore the possibility of an extension of the existing SNET trailhead at Grove Street along an abandoned railbed currently owned by the CSX railroad to the intersection with Union Street and eventually connect to West Central Street and the downtown area that includes shops, restaurants, and a Commuter Rail station. Phase 1 will include the development of an existing conditions plan and coordination with CSX and various state agencies including MassDOT, MBTA, and MassDCR to explore the possibility of CSX, either transferring the land or granting a lease for the use of the corridor either as a rail trail or a Rails-with-Trail. If successful, Phase 2 will include the development of route options and evaluation of the corridor with respect to impact to right-of-way, environmental, and connectivity. BSC will also assist the town in exploring funding options.

North Reading Rail Trail Feasibility Study, North Reading, MA

Project Manager

Managed the development of a feasibility study for the Town of North Reading to explore various options for a multi-use trail that will connect the Town of Wilmington to the Town of Lynnfield. The study involved developing GIS-based plans of the corridor, engagement with project abutters including residents, business owners, US Post Office, private utilities, and MassDOT (District and Headquarters); alternative route development; development of order-of-magnitude construction and design cost estimates; reporting; and preparation and submission of the Project Notification Form (PNF) and Project Initiation Form (PIF) to MassDOT for approval and review by the Metropolitan Planning Organization (MPO) for placement onto the STIP that was successful.

Warner Trail Feasibility Study, Canton, MA

Project Manager

Managed the development of a Feasibility Study for the Town of Canton to explore various options to extend the Warner Trail network from the Town of Sharon into the Town of Canton and connect to various points of interest in the Town of Westwood and Norwood including the Blue Hills Recreation Area, Signal Hill Recreation Area, MassAudubon Recreation Area, and the MBTA Commuter Rail station.

Complete Streets Prioritization Plan, Pittsfield, MA

Project Manager

Managed the development of a Complete Streets Prioritization Plan consistent with the Tier 2 municipal requirements for MassDOT's Complete Streets funding program. BSC secured funding and developed a 5-year plan that included 30 projects including ADA upgrades, sidewalk improvements, new traffic signal installation, geometric upgrades at several intersections, and separated bicycle lanes throughout the city. In 2019, BSC assisted the city to apply for Tier 3 construction funding for 10 projects, and the city was awarded \$353,562.

Two Bridges, Riverside Trail, Newton, MA

Project Manager

Responsible for a feasibility study of the portion of the Riverside Trail network connecting the Village of Lower Falls and existing walking trail network west of the I-95 Interstate to the existing walking trail network.



Wayne Keefner, PE, PTOE, LEED AP

Transportation Project Engineer

YEARS OF EXPERIENCE

24

EDUCATION

BS, Civil Engineering, University of Massachusetts Amherst

REGISTRATIONS

Professional Engineer

- MA #41313 (1999)
- NH #12021 (2006)
- RI #8907 (2008)
- NY #089177 (2011)

CERTIFICATIONS

- Professional Traffic Operations Engineer (PTOE)
- Certified Soil Evaluator MA #1189
- LEED AP
- Land Surveyor-in-Training (MA)
- Autodesk Certified Professional
- UAS Remote Pilot 4519472

AFFILIATIONS

- American Society of Engineers member
- Boston Society of Civil Engineers

MEET WAYNE

Wayne is an experienced civil engineer with strong and diverse experience spanning public and private site civil engineering as well as public highway and traffic engineering, combined with strong management and organizational skills. He has over 24 years progressive experience in all phases of project coordination, strategic planning, engineering design, staff training, bid development and site layout and design. Wayne has proven leadership skills with a recognized ability to coach and mentor other employees. Wayne is both confident and poised in interactions with individuals at all levels with a demonstrated ability to work collaboratively with colleagues, contractors, and external business partners. He also possesses extensive knowledge of Civil 3D and HydroCAD. Wayne is a highly effective and dedicated individual with a reputation for consistently going beyond what is required and using high personal standards to achieve results.

AS A CIVIL ENGINEER WITH OVER 24 YEARS OF EXPERIENCE, WAYNE POSSESSES BOTH A STRONG AND DIVERSE BACKGROUND SPANNING PUBLIC AND PRIVATE CIVIL SITE ENGINEERING AND HIGHWAY ENGINEERING.

PROJECT EXPERIENCE HIGHLIGHTS

Route 3 Duxbury (MassDOT)

Senior Highway Engineer

BSC assisted MassDOT in the design for replacing the overpass bridge structures on Route 3 Pilgrim Highway at the Franklin Street crossing (D-14-010 - 48H and 48J) in the Town of Duxbury, MA. This work applied to both the northbound and southbound lanes of the highway and subsequently resulted in realigning and raising the profile of the northbound and southbound travel lanes. The two, independent 3-span structures will be replaced in their entirety (superstructure and substructure) due to their deteriorated condition. The vertical clearance will be increased for both bridges to provide a minimum of 16'6". This necessitated raising the existing roadway and shifting the northbound lane into the median to the west, for a distance exceeding the immediate approaches of the bridges. The bridges, approach work, and realignment effort were required for a total Project distance of 4,440 linear feet along the existing state highway layout.

580 Fort Pond Road, Lancaster, MA

Senior Traffic Engineer

BSC conducted a peer review of the Traffic Impact Evaluation prepared by VHB dated October 13, 2021, for the proposed expansion of the existing UNIFIED Global Packaging Group warehouse located at 580 Fort Pond Road in Lancaster, MA. The study area consists of the intersections of Fort Pond Road/Route 2 westbound ramps at Exit 103, Fort Pond Road/existing site driveway, Fort Pond Road/Route 2 westbound ramps at Exit 105, Fort Pond Road/Shirley Road, and Shirley Road/Route 2 eastbound ramps at Exit 105. BSC's review consisted of evaluating the traffic study methodology, adequacy of study area, data collection and existing traffic counts, crash data and safety within the study area, sight distance, trip generation, design year traffic volumes, operations analysis at the study area intersections, site access and circulation and parking supply and configuration.

Gilboa Street Warehouse, Douglas, MA

Senior Traffic Engineer

BSC provided peer review services related to site design, zoning conformance, and stormwater management design for the proposed 1,102,500 sq warehouse distribution facility at 105 & 123 Gilboa Street in Douglas, Massachusetts. The transportation peer view consisted of review of traffic study methodology, adequacy of study area, data collection and existing traffic counts, crash data and transportation safety within the site area, sight distance, traffic growth, trip generation, future traffic volumes, operations analysis at the study area intersections, site access and circulation and proposed mitigation and improvements.

Needham Gateway, Needham, MA

Senior Traffic Engineer

BSC Group conducted an evaluation of the changes in parking demand related to changes in use of retail spaces located at the commercial plaza at 100 and 120 Highland Avenue (Needham Gateway in Needham, Massachusetts). The parking evaluation consists of 48-hour traffic counts at the driveways that serve the site, parking occupancy observations on the site, parking demand estimates related to the changes in use, and an analysis of the impacts of the changes in use. Several Planning Board meetings were attended prior to the approval of the project.

PRIOR TO BSC, WAYNE CONTRIBUTED TO THE FOLLOWING PROJECTS:

Route 3A, Hingham, MA

Project Manager

Wayne was the project manager for this 1.5-mile roadway safety improvement project located along the Hingham waterfront. The major elements of the project include a new off-street shared use path, conversion of the existing rotary to a modern roundabout and a road diet and reducing the number of travel lanes from 4 to 2 for a portion of the project. The project also includes the redesign and re-signalization of three intersections along the corridor and ADA upgrades along the length of the project and stormwater management improvements. Wayne was responsible for roadway and drainage design, preparation of the plans, specifications, estimates, and was responsible for coordination with the town stakeholders. This project is currently in design with an estimated cost of \$14 million.

Beacon Street Roadway/Streetscape Improvements, Somerville, MA

Project Manager

Wayne was project manager and lead designer for the Beacon Street Roadway and Streetscape Improvement project, which entailed the full-depth reconstruction of Beacon Street from Oxford Street to the Cambridge city line. The design included upgraded pedestrian access and was the first MassDOT project with a cycle track (a dedicated travel lane exclusively for bicycles separated from moving traffic by parked vehicles). His work on the project included detailed comparisons of traffic operations and analysis of development opportunities with alternative signalized intersection improvements.

Route 36 (Center Street), Pembroke, MA

Project Manager

Wayne was project manager and lead designer for the Route 36 project which entails redesign, upgrades, and reconstruction of portions of Route 36 in Pembroke between the town center and Route 27. The scope of the project is the full depth reclamation of approximately two miles of roadway including pedestrian upgrades and drainage improvements. Activities included preparation of plans, specifications and estimates, signal warrants for multiple intersections affected by the project, traffic operations analysis, preliminary/final design of traffic signals, signing, and striping plans as well as environmental permitting.



Francis Vacca, PE

Project Manager
Associate

YEARS OF EXPERIENCE

15

EDUCATION

BS, Civil Engineering
University of Connecticut

REGISTRATIONS

Professional Engineer

- CT #29098

CERTIFICATIONS

- OSHA Construction Safety & Health (2013)

AFFILIATIONS

- American Society of Civil Engineers (ASCE)

MEET FRANK

Frank is a Civil Engineer and Project Manager with expertise in the preparation of permit submittals, hydrologic analysis, stormwater management system design, utility design, construction phase services, erosion and sedimentation control design, preparation of Stormwater Pollution Control Plans, CT Stormwater General Permit compliance, and environmental compliance inspections. He has applied his expertise on a variety of projects including K-12 schools, public infrastructure, electrical transmission lines, municipal facilities, and commercial developments.

PROJECT EXPERIENCE HIGHLIGHTS

Town of Bolton Greenway Extension, Bolton, CT Civil Engineer

Provided civil engineering services for the Town of Bolton's Greenway Extension project along Route 44. This project included a feasibility study and preliminary design of a 1.85-mile extension of the Greenway along the Route 44 corridor from the west side of Quarry Road to the Coventry town line. The project also included a spur trail to the town's Indian Notch Park. The BSC team conducted project area mapping, corridor assessments, layout analysis, conceptual layout/design, coordination with ConnDOT, and presentations.

Greater Springfield Reliability Project, Bloomfield and Suffield, CT Lead Independent Environmental Inspector

Provided Inspection services for the Connecticut Siting Council (CSC) for construction of the Connecticut portion of the Greater Springfield Reliability Project overhead transmission line along the 12 miles of right of way. The work included documenting compliance with environmental requirements, preparing status reports, and acting as a liaison between the CSC and the Eversource's Environmental Field Inspector and consultants. Frank provided biweekly progress reports in writing to the CSC. The inspections occurred on a weekly basis for three and a half years.

Cromwell Landing Park, Cromwell, CT Project Engineer

Responsible for improvements to an existing park, "Cromwell Landing," which is along the Connecticut River. The project improved access to the waterfront with trails, a fishing platform, and floating dock. Frank provided design and permitting for the project to implement resilience strategies to protect the proposed improvements and natural features of the site. Permitting included both the CT DEEP and USACE.

The Hartford Insurance Group, Heartbeat Park, Hartford, CT

Project Engineer

Responsible for planning, civil design, utility design, and traffic/parking for development of a flex space and employee park facility on the campus of the former Massachusetts Mutual Insurance Company in downtown Hartford. The project involved the design of passive recreational spaces, a multiuse outdoor plaza, a half-mile walking trail to provide employees with safe accessibility and opportunities for exercise, six exercise stations, new utility services, low-impact stormwater management features, and security measures (fencing, emergency call stations, and camera infrastructure). The walking trail was designed to traverse the park and to provide several connection points to parking areas and surrounding streets. The design accounts for steep changes in site topography but remains sensitive to walkability and maintenance requirements. A quarter-mile loop of the overall trail was designed to include ADA-compliant accessibility while other areas of the trail provide more challenging terrain.

Reconstruction of Old Cathole Road, Tolland, CT

Civil Engineer

Responsible for civil engineering services for the Town of Tolland's Old Cathole Road. BSC Group provided survey, engineering design and consultation during construction for the 6,500 linear-foot deteriorated corridor, hindered by poor pavement conditions such as cracking and rutting, requiring a partial depth reconstruction and partial realignment, as well as replacement of portions of the stormwater drainage system. Frank provided drainage design and stormwater management and water quality development as well as engineering consultation during construction.

Design Improvements to Waterbury City Green, Waterbury, CT

Civil Engineer

Performed master planning services for all 29 of Waterbury's parks and playgrounds. A key component of this master planning was evaluation of the parks and park features with regards to ADA accessibility and access. Planning specifically included evaluation of accessibility for park features such as stairs, railings, playscapes, courts, benches, and outbuildings.

28 High Street, Hartford, CT

Utility Engineer

Provided engineering services for the conversion of a former three-story manufacturing building in Hartford into new residential housing units. Frank led the design and preparation of the utility plans to secure appropriate approvals from The Metropolitan District (MDC). Other project responsibilities included preparing and submitting the information necessary to secure an MDC Availability and Capacity analysis for the building.

103-121 Allyn Street, Hartford, CT

Utility Engineer

Provided engineering services for the conversion of two former three-story apartment buildings in Hartford into a new mixed used commercial/residential development. Frank led the design and preparation of the utility plans to secure appropriate approvals from The Metropolitan District (MDC). Other project responsibilities included preparing and submitting the information necessary to secure an MDC Availability and Capacity analysis for the building, as well as closed circuit television reviews of the existing sanitary connections to the building.

Newington Streetscape Improvements, Newington, CT

Lead Construction Inspector

Responsible for Inspection services for the implementation of a 1,000-foot streetscape project in the center of downtown Newington, Connecticut. Work included construction oversight to ensure compliance with construction documents, documentation of field changes, and measurement of completed work for contract payment. Oversight included direct coordination with town staff and the contractor responsible for completing the work.

Front Street District Redevelopment, Hartford, CT

Civil Engineer

Responsible for civil engineering and landscape architecture services for the Front Street District, part of Adriaen's Landing in downtown Hartford, CT. The development includes approximately 63,000 square feet of retail/entertainment space, a 325-space parking garage, and 70 spaces of surface parking.



Matt Burne, PWS

Senior Ecologist

YEARS OF EXPERIENCE

29

EDUCATION

MS, Wildlife and Fisheries
Conservation
University of Massachusetts
Amherst

BS, Environmental
Science/Wetland Ecology,
Botany
University of Massachusetts
Amherst

CERTIFICATIONS

- Professional Wetland Scientist
- Invasive Plant Management - Massachusetts

AFFILIATIONS

- Vernal Pool Association
Founder, Vice President
- Society of Wetland Scientists
- Association of Massachusetts
Wetland Scientists

GOVERNMENT SERVICE

- MA Department of
Conservation and Recreation
Forest Futures Visioning
Process Technical Steering
Committee
(2009–2010)
- City of Malden Conservation
Commission
(2020–present)

MEET MATT

Matt has expertise in wildlife biology, conservation science, management, and policy. He has extensive field experience conducting wildlife and rare species surveys, vernal pool evaluations as well as in wetland permitting reviews. Throughout his career, Matt has developed skills in several areas, including conservation planning, land protection, land management, facilitation, and communication. He applies these skills in educating the public, conservation professionals, and natural resource agency personnel on wildlife habitats and protection strategies.

Matt spent 10 years as an ecologist with the Massachusetts Division of Fisheries and Wildlife's Natural Heritage & Endangered Species Program as a Wetland Environmental Reviewer and Vernal Pool Ecologist focused on vernal pools, state-listed reptiles, amphibians, and invertebrates. During that time, he oversaw the state's Vernal Pool Certification Program and created the Massachusetts Potential Vernal Pool Survey, a state-wide aerial photographic interpretation of potential vernal pools. He also spent 15 years as the Conservation Director for a non-profit land trust in Lincoln, MA.

PROJECT EXPERIENCE HIGHLIGHTS

Warner Trail Feasibility Study, Town of Canton, MA

Senior Ecologist

Provided preliminary permitting assessment and ecological risks assessment for Warner Trail routing options. Coordinated wetland delineations along leading preferred alternative routes and coordination with local Conservation Agent to assess likely permitting challenges.

Grand Trunk Trail, Town of Sturbridge, MA

Senior Ecologist

Supported construction phase mitigation measures to assure avoidance of impacts to rare species habitat, including consultation and coordination between local and state permitting agencies, project team, and construction contractor, and construction monitoring.

Goddard Park, Town of Auburn, MA

Senior Ecologist

Provided preliminary permitting assessment for preferred trail alignment on site with significant physical constraints and coordination with project team to review permitting feasibility. Coordinated wetland delineation and integration with Survey for baseline project mapping.

Matt Burne, PWS

Warren Road Pocket Park, Town of Upton, MA

Senior Ecologist

Provided preliminary permitting assessment for compact trail amenities on a challenging site with wetland resources. Coordinated wetland delineations and supported project team in initial meeting process with Conservation Commission.

Conservation and Management Permit, National Grid 315/327/303/3520 Line Refurbishment, Southeast MA

Senior Ecologist

Responsible for preparation of project permit under Massachusetts Endangered Species Act (MESA). Matt conducted extensive negotiation for successfully mitigating project impacts through land transfer to municipal conservation and designed and produced the Rare Species Field Issue to provide contractors with detailed information needed for impact avoidance during construction.

THROUGHOUT HIS CAREER, MATT HAS PROVIDED EDUCATION AND OUTREACH TO THE GENERAL PUBLIC, NATURAL RESOURCE PROFESSIONALS, AND THE SCIENTIFIC COMMUNITY ON THE FUNCTIONS AND VALUES OF VERNAL POOLS THROUGH PRESENTATIONS AT PROFESSIONAL MEETINGS, SYMPOSIA, AND CONFERENCES. MATT HAS ALSO DEVELOPED AND DELIVERED FULL-DAY PROFESSIONAL DEVELOPMENT WORKSHOPS FOR CONSERVATION PROFESSIONALS, REGULATORY AGENCY STAFF, AND FOR TEACHERS AND EDUCATORS.

Vernal Pool Evaluations, Various National Grid Projects, Eastern Massachusetts

Senior Ecologist

Responsible for providing field verification and delineation of vernal pool habitat for improvement and maintenance projects in early stages of permit development.

Wildlife Tracking Survey, Concord, MA

Senior Ecologist

Contributed to long-term wildlife tracking and road mortality survey for Massachusetts Department of Transportation Route 2 Wildlife

Underpass project. Surveys provide data on wildlife species utilizing built mitigation infrastructure.

Bellingham Conservation Commission, Bellingham, MA

Senior Ecologist

Red Mill on the Charles – Matt reviewed Notices of Intent for an 85-acre subdivision proposal in former gravel pit with extensive wetlands resources, including Riverfront Area, Land Subject to Flooding, Bordering Vegetated Wetlands, Buffer Zone and Vernal Pools.

Curtis Apartments 40B – Matt provided peer review of vernal pool habitat determination and documentation of wildlife indicators for subsequent submission for official certification by the Massachusetts Division of Fisheries & Wildlife.

180 Paine Street ANRAD – Matt led the peer review of an Abbreviated Notice of Resource Area Delineation for a 120-acre initial phase of a municipal golf course proposed for residential development.

Bungay Brook Residential Subdivision – Matt provided peer review of a Notice of Intent for residential development on an existing golf course involving Riverfront Area, Bank and Land Under Waterbodies and Waterways and Buffer Zone resources.

Georgetown Conservation Commission, Georgetown, MA

Senior Ecologist

Carlton Way – Matt provided wildlife habitat evaluation support to Senior Ecological Scientist leading peer review of Notice of Intent. Matt's role involved developing requirements for an extensive wildlife survey of the subject site and peer review of the survey work.

Hadley Conservation Commission, Hadley, MA

Senior Ecologist

Russell Street (Route 9) Reconstruction – Matt provided peer review of a Notice of Intent for a MassDOT project involving redevelopment of a 3.2-mile section of highway. The project included temporary and permanent impacts to Riverfront Area, Bordering Vegetated Wetland, Bank and Land Under Waterbodies and Waterways. This challenging project review was complicated by tight timelines and a major shakeup of the Conservation Commission board composition during the review.



Kenneth Thompson, LSIT

Survey Group Manager
Senior Associate

YEARS OF EXPERIENCE

37

EDUCATION

MA, History
University of Massachusetts
Amherst

BA, History
College of the Holy Cross

REGISTRATIONS

Surveyor in Training

- MA #537

CERTIFICATIONS

- MA Bay Commuter Railroad
Safety Certified

AFFILIATIONS

- Massachusetts Association of
Land Surveyors and Civil
Engineers

MEET KEN

Ken's experience in all aspects of land surveying and in differing environments, includes surveying in various areas within the State. He has extensive experience with every survey component associated with private and public-sector project planning, design, and construction.

PROJECT EXPERIENCE HIGHLIGHTS

Massport Chelsea Haul Road, East Boston, MA

Survey Task Manager

Responsible for the preparation of right-of-way and existing conditions survey plans for the Haul Road from Logan Airport to Chelsea Street in Boston. Responsibilities included oversight of field survey, property line and rights-of-way calculations, and integration of existing Massport survey data.

South Bay Harbor Trail, Boston, MA

Project Manager

Responsible for coordinating the research, field survey, and preparation of Existing Conditions Survey Plans for the proposed 3.5-mile multi-use, multimodal trail that would connect Ruggles MBTA station and nearby neighborhoods to the Boston Harbor waterfront at the Fan Pier. The trail and recreation area would connect diverse Boston neighborhoods, Lower Roxbury, the South End, Chinatown, South Boston, and Fort Point Channel to each other and to the expanding amenities of Boston Harbor including the Children's Museum, the future Institute of Contemporary Art, and greenspaces such as Rotch Park and Ramsey Park. A multitude of source materials and data were incorporated into the survey for the project, including the Central Artery Project infrastructure, which was continually under construction. An extensive research phase produced plans related to property ownership, easements and rights of way, rail lines, utilities, and other infrastructure in order to generate comprehensive and accurate base plans. An extensive field survey of the 3.5-mile urban corridor collected the topographical detail necessary to support the development of trail location and design alternatives.

Kenneth Thomsson, LSIT

CambridgePark Drive, Cambridge, MA Survey Task Manager

Provided survey services for the 13-acre redevelopment in the Alewife Triangle District in North Cambridge. Services included the preparation of existing conditions, title insurance, easement, Activity and Use Limitation plans, FEMA flood elevation certificates and construction layout to support the planning, engineering, landscape architectural design, and construction of the modern mid-rise transit-oriented residential development. With convenient access to Alewife Station, neighborhood shopping, and recreational space, the projects included Windsor at Cambridge, Ashton Cambridge, and 88 CambridgePark Drive totaling 872 predominantly studio and one-bedroom units with a mix of surface, subsurface, and above-ground parking structures totaling approximately 1,360 automobile and bicycle spaces.

345 Harrison Ave, Boston, MA Survey Project Manager

Responsible for the construction layout, as-builts, and ALTA Survey preparation over a two-year period for this luxury three building mixed-use development that includes 560 rental units in 515,000 square feet and 30,000 square feet of retail space. The property features 14-story ground-connected towers with rooftop resort-style pool area and restaurant.

Shire Human Genetic Therapies, Lexington, MA Survey Project Manager

Responsible for the construction of a 171,000 square foot laboratory building at 200 Shire Way, the new addition to the pharmaceutical company's world headquarters at the 96-acre Lexington Technology Park. Survey services included establishment of ground control and benchmarks for the life of the project, grid layout, foundation layout and as-built, anchor bolt/base plate layout and as-builts, floor slab grade level checks, glass façade layout, laboratory utilities stub ups, and lighting layout in the building's lecture hall. Post construction services included preparation of a Conservation Restriction and Trail Easement plans dedicating portions of the campus for open space and public walking trails.

Cambridge Discovery Park, Cambridge, MA Survey Project Manager

Responsible for survey management of the final phases of the 27-acre master-planned Life Science campus redevelopment including a hotel,

structured parking garage, and a 286,000 square foot LEED Gold Certified Class A lab, R&D, and office building. Survey services included the preparation of existing conditions plans to support planning, civil design, environmental permitting and resiliency efforts, construction layout, final phase and site-wide as-builts, easement plans, and ALTA surveys for conveyancing and financing.

Northwest Park Development, Burlington, MA Survey Task Manager

Responsible for an array of land surveying services to support the planning, design, and mixed-use redevelopment of Northwest Park including boundary retracement, aerial and ground compilation, ANR and easement plans, and ALTA surveys for the 33-acre site. Construction layout and as-built services were provided for several multi-family housing projects, a hotel, and a 135,000 square foot Wegman's supermarket.

Myles Standish Industrial Park, Taunton, MA Task Manager

Responsible for the surveying efforts of Myles Standish Industrial Park, which involved the development of existing conditions plans, preliminary and definitive subdivision plans, roadway acceptance plans, and approval-not-required plans for approximately 275 acres of the park. Separate roadways were designed for Pioneer Way, Charles Colton Road, and Dever Drive. Construction phase activities included roadway layout and setting of final bounds. BSC recommended a range of appropriate uses and created development alternatives that maximized the use of the land and building area to capture potential new businesses while addressing a host of issues such as environmental, traffic, parking, access, building reuse, abutter concerns, and overall image.

Jackson Road/Route 2 Intersection, Lancaster, MA Task Manager

Responsible for the management of extensive survey services at the intersection of Jackson Road and Route 2 in Lancaster, MA. BSC surveyed approximately 3,700 ft of roadway to support the design which included a bridge replacement and protection of resource areas. The survey spanned from the Nashua River to the active lanes of Route 2, and included 3D laser scanning of the underpass of Route 2 to eliminate the need for traffic control or lane shutdowns.



Samuel Offei-Addo, PE, PTOE

Senior Transportation Engineer
Senior Associate

YEARS OF EXPERIENCE

36

EDUCATION

MS, Transportation Engineering
University of Massachusetts

BS, Civil Engineering
University of Science and
Technology, Ghana

REGISTRATIONS

Professional Engineer

- CT #27864
- MA #41558 (2000)

Professional Traffic Operations
Engineer

AFFILIATIONS

- Institute of Transportation
Engineers

MEET SAM

Sam brings extensive experience in transportation engineering, providing highway/roadway engineering, as well as traffic planning, peer review services and design. His expertise in roadway engineering encompasses maintenance and management programs, design of geometric and drainage improvements, condition inspection, resident engineering, and pavement/subbase design. For traffic projects, he provides intersection, signalization and pavement marking design, as well as transportation systems analysis/planning, travel demand forecasting, and development of plans to maintain traffic during construction.

Sam also has computer application experience for traffic/transportation analyses includes SYNCHRO, CORSIM, SIMTRAFFIC, HCS, TRANSYT-7F. His experience with hardware and software for engineering purposes includes AutoCAD Softdesk programs, optimization modules, and image processing applications.

PROJECT EXPERIENCE HIGHLIGHTS

Boulder Lane Feasibility Study, Beverly and Wenham, MA Senior Transportation Engineer

Performed an evaluation of the Boulder Lane property's capacity to accommodate an economically and environmentally sustainable mixed-use development that is consistent with the community and economic development goals and objectives of the Town of Wenham and the City of Beverly. The study evaluated the characteristics of the site and examined potential development concepts to achieve the community's current vision and economic development objectives. The process involved an assessment of the market conditions and included a development pro forma to evaluate the economic feasibility of development.

DCR Five Parkways Needs Assessment, Greater Boston Project Manager

Responsible for the development of a comprehensive data collection, field inventory, and needs assessment for five DCR parkways around the Boston area (Alewife Brook Parkway, Mystic Valley Parkway, Blue Hills Parkway, Furnace Brook Parkway, and Soldiers Field Road). Specific responsibilities include coordination with DCR; field data collection, evaluation of pedestrian, bicycle and vehicular amenities and operations; and recommendation of short- and long-term measures to improve safety and traffic operations for all users.

Route 156 and Sound View Bike Path and Improvements, Old Lyme, CT

Senior Traffic Engineer

Responsible for planning and design services for improvements to the Sound View Beach area and the design of associated bicycle accommodations linking to other shoreline areas. The BSC project team completed an assessment of existing facilities, creation of a master plan for new facilities, and the preparation of conceptual designs. This included enhanced parking in a dedicated lot, defined on-street parking, kiosk-type parking meters, pedestrian walkways, "green spaces" for picnicking and passive recreation, and bathroom facilities. BSC is currently designing a shoreline bicycle route from the Sound View Beach area to the vicinity of Interstate 95, a route of approximately 4.5 miles on town and state roads.

Hartford 21 (Hartford Civic Center), Hartford, CT

Traffic Engineer

Responsible for traffic analysis in support of the redevelopment of the Hartford Civic Center Mall into the mixed-use Hartford 21 project. Sam prepared a Preliminary and Final Transportation Management Plan as required by the City of Hartford Zoning Ordinance. Sections of the management plan included: parking requirements, identification and analysis of alternative modes of transportation, pedestrian circulation issues, traffic impacts, and conformity with the Hartford Downtown Development Plan. BSC submitted traffic data for the Hartford 21 project to the State Traffic Commission, and received a determination indicating that a certificate of operations would not be required since the project would not significantly impact state highways in the area.

Town-Wide Traffic Study, Belmont, MA

Project Manager

Responsible for the development of a town-wide traffic study to alleviate increased traffic volumes and gridlocking that occurs on the main roads of Belmont during peak commute hours. For this study, Sam is leading BSC's traffic planning and engineering services to identify prevailing town-wide traffic flow patterns that will ultimately provide the town with options for eliminating, reducing, and mitigating cut-through traffic. Also, part of this effort is his participation in public meetings to incorporate stakeholder and resident feedback into the final plan.

Front Street District, Hartford, CT

Senior Transportation Engineer

Responsible for engineering efforts for the redevelopment of Front Street into a seven-acre mixed-use development. Sam's traffic assignments included updating the traffic signal plan and the revision of signal timing for one intersection (Front Street/Columbus Boulevard) to reflect intersection realignment and the conversion of Front Street into a one-way traffic flow.

Route 31/I-84 Interchange Improvements, Vernon, CT

Senior Transportation Engineer

Provided highway and traffic engineering services for W/S Development in connection with traffic mitigation for a proposed retail development. Sam supervised the preparation of a comprehensive traffic impact study in accordance with Connecticut Department of Transportation (ConnDOT) State Traffic Commission (STC) traffic guidelines, following a meeting with STC and ConnDOT officials. To mitigate potential project traffic impacts, BSC prepared and presented conceptual level roadway and traffic signal improvement plans to ConnDOT and the Town of Vernon.

Tremont Crossing, Boston, MA

Senior Transportation Engineer

Responsible for the preparation of a Draft Project Impact Report for the development of a large mixed-use development in the Roxbury neighborhood of Boston. BSC prepared the transportation section of this report, comprised of a comprehensive traffic and parking analysis which examined traffic, parking, public transportation, pedestrian access, and loading activities in the vicinity of the project. Trip generation estimates, transportation impacts, capacity analysis, shared parking analysis, signal warrant analysis, and transportation demand management measures were also included.

Massachusetts Avenue Improvements, Lexington, MA

Senior Transportation Engineer

Provided engineering services for the design of roadway and intersection improvements along the Massachusetts Avenue corridor between Pleasant Street and Marrett Street. This included the design of signal layout and timing plans, in addition to signing and pavement markings for vehicles, bicycles, and pedestrians.



Micah Morrison, PE, SE

Civil Engineer
Senior Associate

YEARS OF EXPERIENCE

22

EDUCATION

MS, Civil Engineering,
University of Massachusetts
Amherst

BS, Civil Engineering,
Worcester Polytechnic Institute

REGISTRATIONS

Professional Engineer

- MA #46726
- CT #30602
- VT #9034
- NH #16431
- HI #14238

MEET MICAH

Micah's comprehensive background in structural design and analysis, combined with his strong project management skills, enables him to provide municipalities and state agencies with practical and thoughtful bridge design, rehabilitation, and replacement services.

Micah works collaboratively with environmental, permitting, and roadway colleagues to approach projects in an integrated fashion, facilitating permitting, environmental mitigation, and efficient construction. Micah is passionate about helping clients secure grant funding for infrastructure improvements and regularly supports municipalities with successful funding applications for both design and construction.

PROJECT EXPERIENCE HIGHLIGHTS

Plummer Spring Road over the Artichoke Reservoir Bridge Replacement, Newburyport and West Newbury, MA

Project Manager

Design eda 45-foot spread box beam stringer bridge on integral abutments to replace the closed stone arch bridge. The project scope also includes hydraulic analysis and environmental permitting. Experience understanding community size and the types of grants available, helped both communities obtain a total of \$1,500,000 in grant funding for the project. Construction anticipated Spring 2021.

Willow Street over South River Bridge Replacement, Marshfield, MA

Project Manager

Worked closely with the town to scope the bridge replacement, including the preliminary design that specifies a single span 40-foot structure to accommodate the natural flow regime and increase hydraulic capacity. Helped town with grant application, which was recently awarded, allowing the next phase of the design to move forward.

High Street Bridge over the Millers River, Winchendon, MA

Project Manager

Designed steel string repairs which allowed the bridge to be reopened to vehicular traffic. Structural repairs replaced the extensive material lost through deterioration; design approved through MassDOT Chapter 85 Structural Review.

County Road over Ironworks Brook Bridge and Culvert Replacement, Sheffield, MA

Project Manager

Comprehensive scope including roadway design, scour protection, and environmental permitting, including an NOI, 401 Water Quality Certificate, and 404 Army Corps Permit to replace the bridge and a 60-inch pipe culvert at a second location. The bridge and culvert were designed in accordance with AASHTO and the MassDOT Bridge Manual and were approved through MassDOT Chapter 85 Structural Review. The replacement bridge is a 16-foot span pre-cast frame and precast footing, with cast-in-place wing walls.

North Royalston Road Bridge over Tarbell Brook Bridge Replacement, MassDOT, Winchendon, MA

Senior Structural Engineer

Under MassDOT master service agreement, completed detailed analyses of structure types to determine the optimum full replacement bridge to be built at this rural, historical, and environmentally sensitive site. The design specified precast/prestressed concrete Northeast Extreme Tee (NEXT) F Beams, for the bridge superstructure to reduce costs and decrease construction time. Used state of the art techniques and specifications to reduce maintenance, conform to hydraulic analysis, and meet federal guidelines.

Steel piles were used to support the abutment, and the bridge deck was cast integrally to eliminate maintenance prone joints with integral abutments for the elimination of leak prone joints. Design included a temporary bridge and an alternating one-way traffic signal to maintain vehicular access. The bridge length was increased from 28 feet to 52 feet and the width from 20 feet to 27'-3" based on the hydraulic analysis and need to meet federal guidelines. The project was completed under BSC's master service agreement with MassDOT. surrounded by land used for flood storage associated with the nearby Birch Hill Dam, provides a crucial access point and safety route for local residents.

Cedar Street Bridge Collision Impact Damage, MassDOT, Sturbridge, MA

Senior Structural Engineer

Designed repair for collision damage from an over-height vehicle striking the Cedar Street Bridge, located above the eastbound lane of Interstate I-90. Conducted a finite element

analysis of the damaged stringer to determine the extent of the repairs and optimum rehabilitation methods. Used past construction experience in the design to limit I-90 lane closures and preserve uninterrupted traffic flow on Cedar Street.

District 3 Structural and Safety Improvements, MassDOT, Fitchburg, MA

Senior Structural Engineer

Worked closely with MassDOT District 3 to develop comprehensive bridge and construction drawings for District 3's on-call construction contracts. Designed the replacement of severely deteriorated concrete tee beams and all necessary contractor submissions, including demolition plans, work platform designs, and unique formwork support systems. Collaborated with environmental, highway, and traffic engineering colleagues to complete this effort.

MassDOT Summit Hill Road Superstructure Replacement, Washington, MA

Project Manager

Modified superstructure design through value engineering. The revised design eliminated the need for a 600-ton crane and avoided utility relocations. The new design allowed for accelerated construction and achieved substantial cost savings to MassDOT and the contractor.

Stafford Street Over I-90 East & West, MassDOT, Charlton, MA

Senior Structural Engineer

Designed replacements for low clearance stringers damaged by multiple truck collisions. Designed the height of the continuous stringer replacements to be substantially less to reduce the potential for future collisions.

Canaan Southfield Road Bridge over the Umpachene River, New Marlborough, MA

Project Manager

Working within the Town's accelerated schedule, completed the design and bid package, along with the necessary environmental permits, in 10 weeks. Designed new retaining walls, bridge superstructure, and traffic safety controls; and tested, evaluated, modified, and reconstructed the existing substructure for reuse and to meet current MassDOT and AASHTO LRFD standards. Built on long-term relationship with the town.



Alessandra Keller, PE

Senior Structural Engineer

YEARS OF EXPERIENCE

18

EDUCATION

BS, Civil & Environmental Engineering

University of Massachusetts Lowell

REGISTRATIONS

Professional Engineer

- MA #52989 (2016)
- RI #12837 (2018)

AFFILIATIONS

- WTS Boston
- WTS RI
- BSCES

MEET ALESSANDRA

Alessandra is experienced in bridge design, inspection, construction, and project management and has held responsible positions in numerous federal, state, and municipal projects. She brings expertise in bridge design with a focus on both simple and complex structures in a wide variety of types and materials. Her extensive highway bridge design experience includes inspection, design, rehabilitation, and construction administration services across the states of Massachusetts and Rhode Island. She is also proficient in MathCAD, AutoCAD, Leap Bridge Concrete, MDX, AASHTOWare, and STAAD

PROJECT EXPERIENCE HIGHLIGHTS

Bridge Replacement Project, East New Lenox Road over the Sackett Brook, Pittsfield, MA

Senior Structural Engineer

for the design and preparation of construction plans, specifications, and construction estimate for the 48-foot-long replacement bridge structure composed of precast prestressed box beams composite with the concrete deck, integral abutments, and wing-walls.

PRIOR TO JOINING BSC GROUP, ALESSANDRA WAS INVOLVED WITH THE FOLLOWING PROJECTS:

Lower County Road, Dennis, MA

Senior Structural Engineer

Responsible for the QA/QC of the concrete repair of the deck superstructure of the four-span structure. Duties included structural engineering services for the evaluation of the as-inspected condition of the Lower Country Road Bridge over Swan Pond River and presentation of conceptual repair options.

Parkers River Bridge Route 28 (Main Street), Yarmouth, MA

Structural Engineer

Involved in the review and approval process with MassDOT of the 34-foot-long bridge structure. The proposed structure is composed of precast concrete deck beams, concrete deck, and integral abutments.

Alessandra Keller, PE

MassDOT, ST 18, New Bedford, MA

Bridge Engineer

Instrumental in the multi-disciplinary bridge replacement/rehabilitation project.

Responsibilities included modification of existing piers to be used as abutments, design of replacement superstructure spans, and conversion of existing spans to fill embankment.

National Grid, Q143 115kV Underground Transmission Line, Power Engineers, Providence, RI

Senior Structural Engineer

Design of temporary support of excavation to accommodate the construction work for the relocation and replacement of the existing transmission line and manhole structures modifications.

MassDOT, Route 2A over Pearl Hill, Lunenburg, MA

Senior Structural Engineer

Responsible for the QA/QC of the superstructure replacement design and substructure modifications to support the new superstructure of the Route 2A bridge (Massachusetts Avenue) over Pearl Hill Brook in Lunenburg, MA. The work included preparation of the design and construction plans for the proposed superstructure while maintaining the horizontal geometry of the approaches and the vertical geometry within the project limits.

RIDOT, Bridge Preservation of I-95 Bridges, Providence, RI

Staff Engineer

Responsible for the development of construction plans for the preservation of multiple bridges including steel, cast-in-place, and prestressed concrete beam superstructures and concrete substructures. The project included steel and concrete repairs, improvement of the joint and backwall orientation, painting, and replacement of the wearing surface.

MaineDOT, Statewide Bridge Ratings, Various Locations, ME

Structural Engineer

Responsible for preparation of load ratings for numerous bridges across the State of Maine.

Muddy Creek Restoration Bridge Project, Route 28, Chatham and Harwich, MA

Design Engineer/Assistant Project Manager/
Resident Engineer

94-foot-long bridge replacement using

accelerated bridge construction techniques. The structure was composed of steel stringers composite with the concrete deck, integral abutments, and precast wing-walls. Precast bridge units (PBU's) with steel stringers and a precast deck were used to accelerate the construction and limit impacts to the surrounding town and allowing the bridge to be fully constructed in 20 weeks.

MassDOT District 6, I-90 Ramp Over Charles River, Newton and Weston, MA

Design Engineer

Involved in the design of the superstructure replacement and substructure rehabilitation for this multi-span precast concrete bridge. The proposed structure consisted of curved steel stringers with precast concrete deck panels. Accelerated bridge construction was applied to the bridge design to maintain existing bridge geometry and accommodate traffic constraints with construction sequencing.

MassDOT, Bridge Load Rating Contract, Statewide, MA

Staff Engineer

Responsible for performing load ratings to determine the safe load capacity of highway bridges in their current conditions, considering deterioration and damage. Bridge types included steel multi-girder bridges and concrete arch bridges. Responsibilities included rating analysis using Virtis and preparation of rating reports.

MassDOT, Route 9 over Stearns Reservoir Outfall, Framingham, MA

Structural Engineer

Responsible for the design of 51-foot-long by 90-foot-wide superstructure replacement using accelerated construction techniques. The existing bridge was replaced by a 90-foot span rolled steel beam bridge with composite deck and integral abutments. The new substructures were installed behind the existing substructures, which were cut and capped to serve as scour protection for the new foundations as well as to limit in-stream work. To reduce construction duration and impact to traffic, the new superstructure was constructed using precast bridge units, and precast concrete abutment elements designed for pile supported stub abutment. Staged construction was designed to maintain the traffic during construction.



Michael Clark, PE, LSP, BCEE, ENV SP, TPI

Vice President

Project Manager & Consulting Engineer

YEARS OF EXPERIENCE

40

EDUCATION

MS, Civil/Geotechnical
Engineering

University of Lowell

BS, Civil Engineering

University of Lowell

REGISTRATIONS

Professional Engineer

- MA, CT, RI, and ME
- MA #34142

Licensed Site Professional

- MA #9055

MassDEP Registered Third
Party Inspector

- SW48-0000010

CERTIFICATIONS

- ENV™ Sustainability
Professional
- Board Certified
Environmental Engineer

AFFILIATIONS

- American Society of Civil
Engineers
- Licensed Site Professionals
Association
- North American
Geosynthetics Society

MEET MIKE

Mike has extensive experience as a project manager and consulting engineer on environmental, transportation, energy, and land development projects throughout the northeastern United States. He has conducted environmental projects under the regulatory frameworks of CERCLA, RCRA Corrective Action, the Massachusetts Contingency Plan, and various state solid waste and contaminated site remediation programs. He has provided environmental and geotechnical due diligence services for a variety of land acquisition and development projects, including commercial scale solar PV on closed landfills and Brownfield sites. He has provided geotechnical engineering services for corporate office parks and mixed-use developments, transportation projects including roadways and railroad facilities, geotechnical design and construction support for wastewater treatment plants and water supply systems, and closure design and construction administration for numerous municipal and industrial landfills.

Mike has served as outside expert on several cases providing litigation support services. Mike is past corporate environmental manager for the Boston & Maine Corporation/Pan Am Railways and is a past member of the Licensed Site Professionals Association (LSPA) Technical Practices Committee.

PROJECT EXPERIENCE HIGHLIGHTS

Remediation of Georgia-Pacific's Parcel A, Fitchburg, MA

LSP-of-Record

Responsible for providing strategic direction to the consulting team working to comply with the Massachusetts Contingency Plan to remediate Parcel A. Four Release Tracking Numbers (RTNs) have been issued by MassDEP for releases of a variety of hazardous materials into the environment from the long history of waste disposal practices on Parcel A. A total of 20,000 cubic yards of short paper fiber waste was beneficially reused at the Fitchburg - Westminster Landfill as Alternative Daily Cover Material.

Remediation of Dominion Energy's Ash Settling Basins, Salem, MA

LSP-of-Record

Served as LSP-of-Record for the cleanup of the former ash settling basins at the Dominion Energy power station in Salem, MA. Approximately 2,500 cubic yards of ash sediment were removed from the basins, dewatered on site using a filter press, then transported for disposal to the Waste Management landfill in Rochester, NH.

Cost Recovery and Litigation Support, Somerville, MA Outside Expert

Providing expertise to MBTA in their efforts to recovery response costs incurred to manage contaminated soil and groundwater during construction of the Green Line Extension project. The contamination originated from the historic release of chlorinated volatile organic compounds (CVOCs) at 50 Tufts Street in Somerville, owned by UniFirst Corporation. Mike works at the direction of MBTA's outside counsel Sugarman, Rogers, Barshak & Cohen, P.C., providing a variety of services to assist in cost recovery and potential litigation.

BlueWave Capital Landfill Solar Project, Eastern MA Engineer-of-Record

Responsible for the development of solar photovoltaic power generation systems on the closed Beverly, Chelmsford, and Newburyport landfills. Mike was responsible for development of civil drawings and applications to MassDEP for Post-Closure Use Permits to develop the solar systems on the closed landfills.

Conservation Law Foundation v. ExxonMobil, Eastern MA Outside Expert

Served as an outside expert to the law firm Holland & Knight in the lawsuit between CLF and ExxonMobil. Mike performed a site visit to the Everett terminal, reviewed technical documents, and prepared an affidavit with his professional opinion on whether the terminal's SPCC Plan meets the standard of care in the professional engineering community. Mike was prepared to testify in the court proceedings; the judge continued the case without testimony.

21 – 29 Broadway Lead Release, Wakefield, MA LSP-of-Record

Provided LSP-of-Record services for the assessment and Phase I report preparation under the MCP for the strip mall at 21 – 29 Broadway in Wakefield. The work was performed for the property owners through their attorney. After the Phase I report was submitted in compliance with the MCP, the property owners sold the property.

PRIOR TO JOINING BSC, MIKE CONTRIBUTED TO THE FOLLOWING PROJECTS:

Assessment of the Effect of Vapor Intrusion on Indoor Air, Town of Wrentham, MA

Lead Engineer

Led engineering services for a phased assessment of chlorinated VOC vapor intrusion into structures located above groundwater that had been contaminated by chlorinated VOCs associated with past releases from an abutting property. Negotiations are ongoing with the owner of the abutting property regarding mitigation.

Assessment of Blasting-Related Impacts on Groundwater, Town of Merrimack, NH

Lead Engineer

Assessed groundwater quality before and after blasting in response to reported effects on private drinking water wells from adjacent rock-blasting activities associated with a commercial development. Assessment documented the impacts on the groundwater from blasting activities and led to a redesign of site roadways to minimize the amount of rock removal required.

Municipal Solid Waste Landfill Closure, Town of Framingham, MA

Project Manager & Engineer-of-Record

Provided environmental due diligence consulting services to the private developers related to property acquisitions, geotechnical engineering for the buildings and roads, and post-closure use planning for the remaining portion of the landfill for the 9/90 Corporate Center Development. The Framingham landfill lies in the center of the 140-acre 9/90 Corporate Center development. Commercial office buildings have been constructed around the landfill, which was capped by the developers in exchange for tax increment financing. Phase II closure was completed in late 1996 and includes a parking lot over the capped landfill. Phase III closure was completed in 1998. The Phase III portion of the landfill also contains a parking lot for a commercial building.

Municipal Solid Waste Landfill Closure, Town of Buckland, MA

Engineer-of-Record

Designed and permitted a municipal waste transfer station following the landfill closure at the six-acre Buckland municipal landfill, which was closed in 1998.



Olivia Knightly

Planner

YEARS OF EXPERIENCE

1

EDUCATION

MA, Community Development and Planning
Concentration in Health Equity
Clark University

BA, Geography
Concentration in Urban Development and Social
Magna cum laude
Clark University

MEET OLIVIA

Olivia is a recent graduate of Clark University's graduate degree program, where she studied Community Development and Planning. At BSC, she focuses on helping clients and communities secure grant funding for their projects. Olivia has research experience in community program evaluation, such as producing local models, conducting informal quantitative and qualitative data collection, and presenting findings to stakeholders, with a focus on the social applications of geospatial analysis. Her undergraduate capstone identified the major impacts of the COVID-19 pandemic on cities and discussed practical planning solutions that integrate a public health-oriented perspective.

PROJECT EXPERIENCE HIGHLIGHTS

Wilson Gateway Park, Windsor, CT

Planner – Community Engagement

Produced a story map and held engagement events for community educational purposes. Produced a survey to gain feedback on proposed park plans and identify interest in different features. Attended community events held by the town to make face-to-face connections.

Wollaston URDP, Quincy, MA

Planner

Organized the filing of the Massachusetts Environmental Policy Act (MEPA) Expanded Environmental Notification form (EENF) for the Urban Revitalization District Plan in Wollaston. The URP is a blueprint for action over a 20-year implementation phase.

Zoning Recodification, Dracut, MA

Planner

Assisted in the recodification process for the Town of Dracut. Kept the public engagement process updated on Konveio, a website for community members to follow along in the process. Attended public forums to hear community concerns and provide support for public engagement.

MEPA Filing for Downtown URDP Amendment #9, Fitchburg, MA

Planner

Prepared the MEPA EENF filing for the Urban Revitalization and Development Plan in Fitchburg, MA. Identifying potential impacts on Environmental Justice populations and future climate mitigation needs.

PRIOR TO JOINING BSC, OLIVIA CONTRIBUTED TO THE FOLLOWING PROJECTS:

Southbridge Economic Development and Planning, Southbridge, MA

Community Planning Internship

Utilized Community Development Block Grant Program funding to create and implement a community programming initiative and engage marginalized residents downtown. Hired entertainment and formulated a community survey to identify social service needs and resident concerns during future urban redevelopment initiatives. Analyzed survey data and presented findings to city council at culmination of internship.

Central Massachusetts Regional Planning Commission, Worcester, MA

Transportation Planning Intern

Collected, managed, and organized Worcester Regional Transit Authority (WRTA) ridership and demographic data in Excel. Field work included completing sidewalk assessments throughout Central Massachusetts to meet ADA compliance. Produced a new fixed route and paratransit customer satisfaction survey to better inform WRTA of their effectiveness and discover changes in ridership trends.

Poplar HARCA, Tower Hamlets, London UK

Development Internship

Assisted in researching local history for a planning application of shared ownership and mixed income units for submission to local council. Contacted consultants for their assistance on site and coordinated to ensure deadlines were met and internalized the values needed to complete positive

Joseph Coan, RLA President and Owner, JCLA



Joseph Coan is an award-winning landscape architect with more than 16 years of experience designing, permitting and providing construction oversight for various site design and landscape projects at the municipal and state levels.

Joe specializes in park design, ecological restoration, and streetscapes. His design approach, with an emphasis on functionality and sustainability, has led to many long-term relationships with clients throughout New England. Prior to founding JCLA, Mr. Coan worked as a landscape architect at CDM Smith, a large multi-disciplinary firm in Cambridge MA where he was responsible for the design of numerous large scale parks and recreation projects throughout New England and the United States.

Professional Affiliations:

State of Massachusetts
Registered Landscape
Architect (MA#3006)

State of Connecticut
Licensed Landscape
Architect (CT#1544)

ASLA – American Society
of Landscape Architects,
member since 2003

BSLA – Boston Society
of Landscape Architects,
associate member

Education:
University of Massachusetts
Amherst, B.S. Landscape
Architecture

Selected Professional Works

Quinebaug Valley Rail Trail, Southbridge MA.

JCLA was hired to design the 1.45-mile section of the rail trail along an abandoned railroad bed adjacent to the Quinebaug river from Route 131 in the Sandersdale neighborhood to the Dudley town line. The design consisted of resurfacing the railbed, and creating a trail to provide bicycle and pedestrian access while also addressing erosion issues where parts of the trail and riverbank had been washed away. The trail was designed to MassDOT standards and the requirements for the Transportation Improvement Program (TIP) of the Federal Highway Administration.

Natsue Way Recreational Complex, Middleton MA.

JCLA worked with solid waste engineers to regrade and recap an existing landfill to develop recreational space for the town of Middleton. The 38-acre parcel will give the town almost twice the amount of recreational space as what is currently available. Mr. Coan first created a rendered site plan for the public meeting process. He then developed the construction documents for the park and landfill grading. The new park will consist of multiple sports fields, playgrounds, parking areas, walking paths, trails, and picnic areas. The project is currently awaiting town meeting approval for construction costs.

Lebel’s Grove, Danvers MA.

Mr. Coan was hired by the town of Danvers to work with Massachusetts Department of Environmental Protection to develop the property recently purchased by the town within the constraints of the Drinking Water Supply Protection (DWSP) Grant Program. Mr. Coan designed and successfully negotiated for the approval of the park’s master plan over the course of two years. The park will consist of multiple elements geared toward environmental education and interaction with nature. The park was designed to meet the standards of the All People’s Trails initiative.

Preliminary Design of Traffic Improvements, City of Meriden, Connecticut.

Mr. Coan served as the landscape architect helping to design streetscape improvements for the City of Meriden's transit-oriented development (TOD) District. The project will utilize Smart Growth and Complete Streets principles to facilitate access to the Meriden Intermodal Center Station, create a more attractive, vibrant and walkable downtown and attract transit-oriented development. The project also incorporates state-of-the-art green infrastructure and sustainable low impact development (LID) strategies principals to deal with stormwater runoff in an environmentally responsible and sustainable way.

Landscape Designer, ESPN "Rise UP" Dorchester Education Complex, Dorchester, Massachusetts.

Prior to founding JCLA, Mr. Coan participated in ESPN's television series "Rise UP" where designers and construction crews rehabilitated the Dorchester Education Complex athletic field to give students in an underprivileged inner-city community a chance to play sports. Mr. Coan designed the field, new accessible park entrances, walking paths, a sprint track, and site security. He also developed construction drawings and coordinated fieldwork to ensure the rigorous design-build schedule was met. Because the entire project had to be designed and constructed in 6 weeks, Mr. Coan had to develop the design and work with surveyors simultaneously to lay it out in the field for construction. The design process and construction was filmed and aired on ESPN on September 27th, 2011.

Community Service

Mr. Coan has always made it a priority to give back to the community where he lives and works. He is the founder and president of the Community Food Collaborative (CFC), a non-profit volunteer organization located in Sturbridge MA. The CFC is comprised of over 80 volunteers that work in a community garden to grow organic produce for the John Paul II Food Pantry in Southbridge. The CFC has actively engaged the students, local businesses, town and state officials, and other local groups to provide access to healthy organic vegetables for all of the clients of the food pantry. The CFC grows and donates over 2,500 LBS of produce annually.

REGISTRATIONS & AFFILIATIONS

Registered Professional Engineer (P.E.)
Massachusetts,
Connecticut,
Rhode Island,
New Hampshire

Adjunct Instructor
Western New England
University, Dept. of Civil
Engineering

Member
American Society of Civil
Engineers

Honors Societies:
Golden Key National,
Tau Beta Pi, Chi Epsilon

EDUCATION & TRAINING

M.S., Environmental Engineering
UMASS – Amherst, 2001

B.S., Civil Engineering
Commonwealth Scholar,
UMASS – Amherst, 1998

40-Hour Hazardous Waste Site Operations Health and Safety OSHA 10-Hour Construction Safety Health & Asbestos Awareness Certification

Papers Presented

“CMA Induced Organic Enrichment and Oxygen Depletion from Highway Runoff”
ASABE Conference, 2002

Awards

Woman of Achievement
PWC CT, 2022



sullivan@oto-env.com

c: 413.348.6986

d: 413.276.4253



Ashley L. Sullivan, P.E.
Principal

Ashley Sullivan is a civil engineer with over twenty years of experience assessing and designing geotechnical systems. Ashley manages subsurface explorations, laboratory testing, and geotechnical design including foundations, ground improvement systems, temporary earth support and underpinning design, slope stability analysis, and small to mid-size dam inspections and construction monitoring, such as vibration monitoring and other geotechnical instrumentation systems. In addition, Ashley has experience with assessing impacted soil and groundwater and designing environmental systems such as sub slab venting to control vapor and radon intrusion and landfill final covers, as well as preparing and recommending various soil management programs.

Ms. Sullivan is a Registered Professional Engineer in Massachusetts, Connecticut, Rhode Island, and New Hampshire. She holds an adjunct faculty position and participates on the advisory board for the Civil Engineering Department at Western New England University in Springfield, Massachusetts. As a graduate student, Ashley studied groundwater behavior and subsurface contamination and treatment.

- Geotechnical Engineering
- Temporary Earth Support
- Construction Support Services
- Environmental Assessment & Remediation Services
- Impacted Soil Management

Academic Building, Amherst, Massachusetts

Designed 18-foot-high temporary earth support for new academic building. The earth support system consisted of braced soldier pile and lagging using various components such as tie rods, dead men, and rakers. Soil conditions significantly varied and included loose fill, soft fine-grained soil, and dense glacial till.

Wastewater Treatment Facility Upgrades, Deerfield, Massachusetts

Managed subsurface exploration, recommended foundation type and permanent groundwater and surface water control for proposed improvements to existing Wastewater Treatment Facility. The project included new headworks building and associated tank, need secondary clarifier and new pump station. Significant considerations included consolidation of the clay layer under imposed loads and potential settlement and mat foundation design.

Casino, Springfield, Massachusetts

Managed construction monitoring program for 14-acre casino project. Prepared pipe protection plan in association with demolition and construction activities for compliance with local water and sewer companies. Coordinated pre-construction surveys of abutting buildings. On-going monitoring program included: 24-hour remote and daily on-site vibration monitoring; ground, utility, and building point movement monitoring; and preparation of daily, weekly, and monthly reports for review and discussion with the construction team and permitting agencies.

Various Culvert Replacement and Street Upgrade Projects, Massachusetts

Managed subsurface exploration and provided geotechnical recommendations and construction oversight on numerous culvert replacement, mast arm and utility upgrade, and pavement repair projects throughout Massachusetts.

293 BRIDGE STREET, SUITE 500

SPRINGFIELD, MA 01103

413.788.6222

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REGISTRATIONS & AFFILIATIONS

Registered Professional Engineer (PE)
Massachusetts

Member

American Society of Civil Engineers (ASCE)

Member

International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)

EDUCATION & TRAINING

M.S. Civil Engineering
UMass Amherst, 2018
Focus in Geotechnical

B.S. Civil & Environmental Engineering
UMass Dartmouth, 2011

Third Party Waste Ban Inspector Training
June 23, 2020

40-Hour HAZWOPER

10-Hour OSHA
Construction Safety

VOLUNTEER WORK

WNEU Liaison
Western New England University Student Chapter Liaison to Boston Society of Civil Engineers Section (BSCES)



humphrey@oto-env.com

d: 413.276.4263

c: 413.386.3068



Dustin Humphrey, PE
Project Manager

Dustin Humphrey is a civil engineer, with a focus in geotechnical engineering, solid waste management, and industrial compliance. He has been with O'Reilly, Talbot & Okun Associates, Inc. since 2014. Dustin has experience in the following:

- Geotechnical site investigations
- Slope stability analysis
- Seismic site analysis
- Laboratory and field testing
- Construction and vibration monitoring
- Solid waste (landfill) monitoring, reporting, and permitting
- PCB building material remediation
- Spill prevention control and countermeasure (SPCC) plans
- Air quality reporting and permitting – source registration, greenhouse gas
- Toxics use reduction (TUR) and inventory reporting

Holyoke Landfill, 2019-Current
Holyoke, Massachusetts

Oversee routine sampling of groundwater monitoring wells for laboratory analysis, screening of soil gas sampling points and ambient air locations, and monitoring of the landfill gas (LFG) extraction system. Complete minor repairs as needed. Review tabulated results of field screening and laboratory analysis. Prepare narratives documenting the results of monitoring and condition the LFG extraction system and groundwater sampling/testing events for submittal to MassDEP.

Baltazar RCC Permit Application, 2021
Ludlow, Massachusetts

Prepared the RCC permit application and supporting documentation to process ABC materials and soil into engineered fill. Ensured that the client understood the limitations of the permit and reporting requirements. Prepared template tracking/reporting documents for client use.

Northfield Mount Hermon School, 2017-2019
North and South Landfills (Gill, Massachusetts)
Former Old Laundry Landfill (Northfield, Massachusetts)

Performed routine sampling of groundwater monitoring wells for laboratory analysis and screening of soil gas sampling points. Accompanied the third-party inspector on semi-annual site visits and assisted with documentation of site conditions and required maintenance. Completed minor repairs to comply with the applicable permits and to keep monitoring points in good working condition. Tabulated and reviewed results of field screening and laboratory analysis. Prepared narratives, backup documentation, and MassDEP forms for monitoring and inspection reports.

Monson Developmental Center Landfill Closure, 2015-2018
Monson, Massachusetts

Assisted in preparing the Expanded Initial Site Assessment (EISA) and Corrective Actions Alternative Analysis (CAAA) reports for the landfill closure project. Conducted landfill gas screening, observed test pits, and performed ground/surface water sampling in support of the EISA and CAAA. Performed calculations and prepared figures in support of preliminary closure design.

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413.788.6222

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Appendix A: Forms



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