

# QUALIFICATIONS



January 6, 2017



**Two-Tier (State-Local) Qualifications-Based  
Selection for At-The-Ready Consultant  
Engineering Services for Municipalities**

**Hoyle, Tanner  
& Associates, Inc.**  
[www.hoyletanner.com](http://www.hoyletanner.com)



## *About the Cover Photo:*

### **Cohas Brook Sewer**

Hoyle, Tanner provided roadway, structural, and sanitary sewer design services to the City of Manchester for improvements on Wellington Road. Our design (part of the larger Cohas Brook Sewer project which provided sewer service to 800 homes and protect the drinking water reservoir at Lake Massabesic) included construction of one of the first sets of bike lanes in the City. Roadway reconstruction efforts also included replacement of the deteriorated culvert over Spring Valley Brook, minor profile adjustments, and replacement of 3,400 linear feet of storm drainage.

January 6, 2016

Ms. Nydia Lugo  
Technical Development Engineer  
Vermont Agency of Transportation, Municipal Assistance Bureau  
1 National Life Drive  
Montpelier, Vermont 05633-5001

**RE: Request for Qualifications (RFQ)  
Two-Tier (State-Local) Qualifications-Based Selection for  
At-The-Ready Consultant Engineering Services for Municipalities**

In response to the recent RFQ for the above referenced project, Hoyle, Tanner & Associates, Inc. (Hoyle, Tanner) is pleased to submit this copy of our qualifications for your consideration. We appreciate the LEAN principles that the At-The-Ready (ATR) consultant services implements. We recognize the benefits ATR offers to municipalities by ensuring highly-qualified firms are available for a particular project while meeting Brooks Act and selection requirements for consultant engineering services.

We are very excited for the opportunity to participate in this program. We are a local firm with a diverse range of transportation engineering expertise. We have significant VTrans and Vermont permitting experience to successfully steer projects to completion, and we specialize in completing locally managed projects with federal and state funding sources. In fact, over the past 20 years, we have provided engineering services to over 120 Vermont municipalities across the state. **Mr. Jon A. Olin, P.E.** will serve as the Contract Manager for project requests through this program. Jon will ensure that the right team is formed for each project, that consistency in deliverables is maintained; and that adherence to the Municipal Assistance Bureau Local Project Guidebook and other Vermont specific resources are project priorities. Additionally, Mr. Olin will serve as the primary Project Manager for projects requested by municipalities. We have selected **five capable Project Managers** from various disciplines and expertise to lead assigned projects: **Jon Olin, P.E.; Sean James, P.E.; Josif Bicja, P.E.; Stephen Haas, P.E.; and Audrey Beaulac, P.E.**

We have elected to only submit under the **Design Services** category of this RFQ. Although we have experience and depth of capabilities in Municipal Project Management and Construction Inspection, we feel we are best suited and able to provide the greatest availability and diversity of services to municipalities under the design category.

We trust you will find our technical proposal responsive to your request, and in an effort to assist the reader we have strategically combined and organized certain aspects of the response (indicated by the icons below) to aid in locating key locations for scoring criteria.



Qualifications and Experience of Staff



Demonstrated Experience in Design and Project Management for federally funded projects



Commitment of Resources and Staff



Demonstrated and Documented Commitment to Quality



Experience with Municipalities, VTrans Procedures, and Federal and State Requirements

Please do not hesitate to contact us if you desire additional information or have any questions concerning our submittal. We look forward to working with Vermont municipalities under this contract to improve their infrastructure facilities.

Very Truly Yours,

**HOYLE, TANNER & ASSOCIATES, INC.**

Jon A. Olin, P.E.

Associate, Vermont Transportation Services Group Manager

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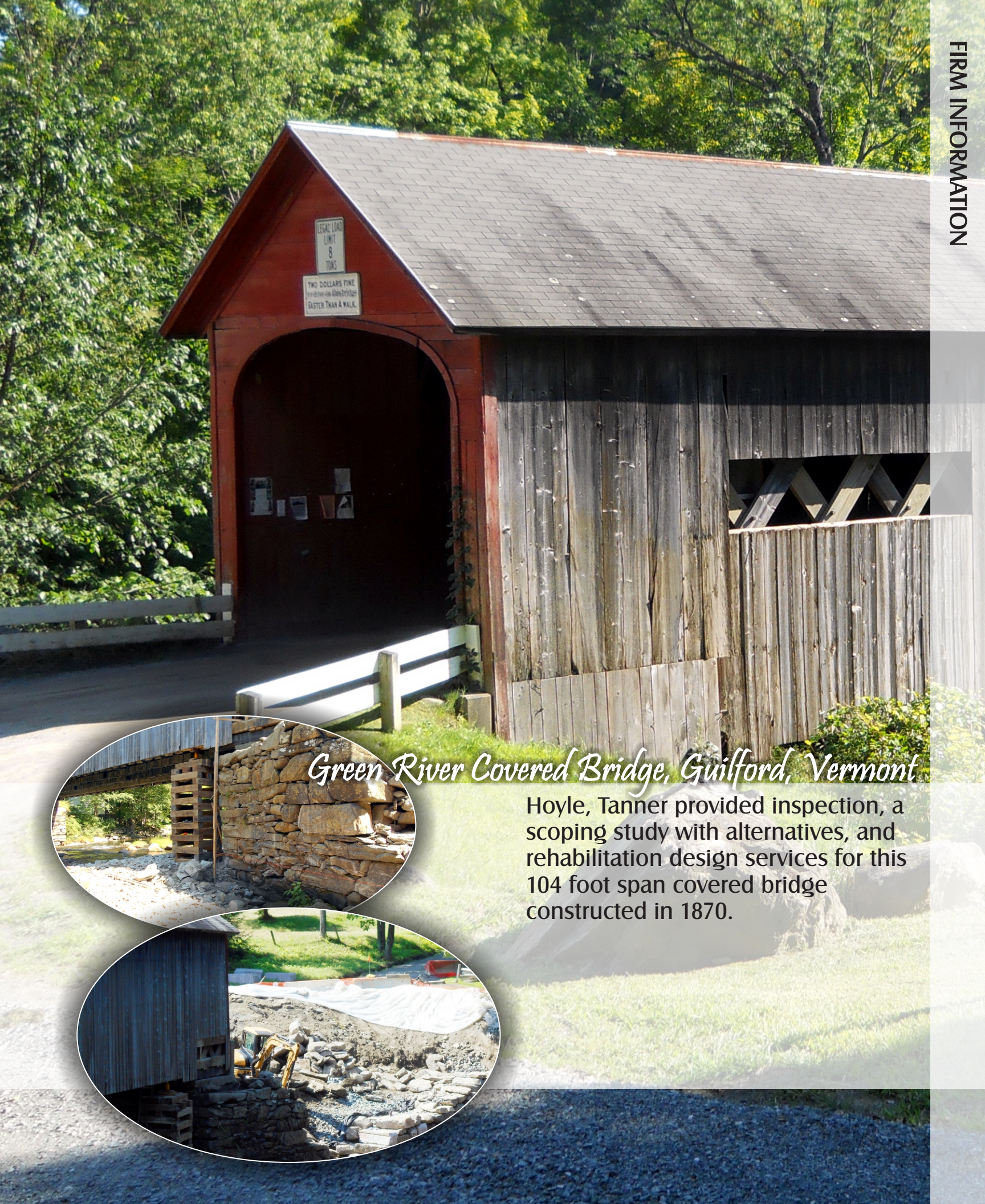
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*Green River Covered Bridge, Guilford, Vermont*

Hoyle, Tanner provided inspection, a scoping study with alternatives, and rehabilitation design services for this 104 foot span covered bridge constructed in 1870.



## FIRM INFORMATION



Since 1973, the professionals at Hoyle, Tanner have successfully collaborated with municipal and state clients on hundreds of important projects. With a staff of nearly 100 engineers, planners, technicians, inspectors and support personnel, Hoyle, Tanner has evolved and adapted to meet

the constantly-changing needs of our clients, funding programs and the increasing complexity of design and permitting.

We provide services in the fields of transportation (bridges, roadways, and aviation), water resources (water, wastewater and stormwater), site development (civil, traffic, and parking), structures (buildings) as well as environmental permitting related to all of these disciplines. Our team of professionals includes noted experts in their fields who are routinely invited to share their knowledge in journals and during conference presentations. We strive to improve continuously and are committed to providing value to our clients' projects.

We specialize in working with municipalities to maximize their efficiency with projects receiving state and federal funding; including Transportation Alternatives (TA), Bicycle and Pedestrian Facilities, Multi-Modal Facilities, SRTS, FEMA, FHWA ER, FAST Act, CMAQ, TIGER Grant, Vermont Clean Water, and/or Town Highway and Structure Grants. To do this, our management team makes it a point to stay well-informed of state and federal initiatives, and program guidelines and requirements. Our project managers have first-hand experience delivering projects using state specific guidebooks and specifications, including the VTrans Municipal Assistance Bureau (MAB) Local Projects Guidebook and its appendices, as well as receiving training through programs such as New Hampshire and Maine's Local Public Agency and Local Project Administration respectively (LPA) training and certification. Through this training and experience, our team ensures the municipality a highly-qualified design team, both in engineering and the delivery of the project meeting reporting, schedule, budget, and technical goals.

# 40+

## YEARS OF NEW ENGLAND ENGINEERING EXPERIENCE



### Primary Contact Information

**Hoyle, Tanner & Associates, Inc.**

125 College Street, 4<sup>th</sup> Floor  
Burlington, VT 05401

Jon A. Olin, P.E., Associate  
(802) 860-1331 ext. 314

[jolin@hoyletanner.com](mailto:jolin@hoyletanner.com)

Since 1988, we have proudly maintained a Burlington, Vermont office. With over 28 years of providing engineering services to Vermont municipalities, we know how to provide effective public participation, can meet funding and permitting requirements, and have experience with various local contractors to successfully bring projects through completion.

With our office in Burlington, Vermont, we are well situated to meet the municipality's needs. Our Vermont Office, managed by Jon Olin, P.E., has a reputation of providing clear communication and project updates, being available and responding quickly to calls and emails, managing projects within

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## FIRM INFORMATION

budget and schedule, demonstrating technical expertise, and bringing enthusiasm and care to every project to see it through its successful completion.

We will provide all transportation engineering services for At-the-Ready projects using our in-house staff located in our Burlington, Vermont and Manchester, New Hampshire offices.

### PROFESSIONAL DISCIPLINES

Hoyle, Tanner offers our clients a full complement of transportation engineering services. Specific areas of expertise with relevance of MAB administered projects include:

- ✓ Roadway Reconstruction & Rehabilitation
- ✓ Complete Streets & Traffic Calming Streetscapes
- ✓ Bicycle & Pedestrian – Shared-use, Multi-Use Shoulders, Paths & Sidewalk Design
- ✓ Traffic Signal Design
- ✓ Traffic & Safety Analysis
- ✓ Construction Staging/Traffic Control Plans
- ✓ Intersection Analysis & Design
- ✓ Intersection Control Warrants
- ✓ Regulatory, Guidance & Warning Signage
- ✓ Erosion Control, Stormwater Quality & Management
- ✓ Pedestrian Bridge Design
- ✓ Bridge & Culvert Rehabilitation, Replacement & Preservation Design
- ✓ Park & Ride Facilities
- ✓ Stormwater Utilities
- ✓ Hydrologic & Hydraulic Analysis
- ✓ ROW Coordination & Acquisition
- ✓ Utility Avoidance, Coordination & Relocation Design Incorporation
- ✓ Permitting, Including NEPA Documentation Preparation
- ✓ Multi-Discipline Team Management
- ✓ Bid Phase Services
- ✓ Construction Administration, Observation & Documentation
- ✓ Asset Management & Capital Planning



*Manchester, NH – Piscataquog River Trail – Pedestrian Bridge*



# FIRM INFORMATION

## HOYLE, TANNER ADVANTAGES

### Personal Service and Responsiveness

We are a mid-sized firm with the regionally known capabilities of a larger firm but with the culture of providing the personal service of a small firm. Repeat business is the primary source of our project portfolio which is achieved by being competent, reliable, and responsive. We strongly believe in building mutually-beneficial, long-term partnerships which create value and improved success. We urge municipalities to contact some of our client references to hear first-hand of how Hoyle, Tanner not only has excelled from a technical standpoint but also as a trusted and responsive advisor to ensure our clients meet all of their challenges. For example, we are currently working with the **City of Winooski to develop an excel-based Capital Planning tool** that allows for more transparent and accurate representation of projects and equipment, and presents information in a clear, well formatted manner allowing for ease of review with City Council. Working side-by-side with City staff, Hoyle, Tanner has developed this tailored tool and has trained Department Heads in its purpose and use, both for this year and years to come.



### Budget and Schedule Awareness

Hoyle, Tanner employs a progressive and comprehensive scheduling and budget tracking system company-wide to ensure that we accommodate all project schedules while meeting budgets. By paying close attention to these important project aspects, Hoyle, Tanner managers can make real-time adjustments to staff priorities.

We understand that our clients have schedule and budget commitments which they are bound to. Our in-depth knowledge of state, local and federal funding programs allows us to guide our clients to successful projects which maximize available funding.



### Technical Excellence You Can Trust

We specialize in the assessment, prioritization, capital planning, and design of preservation, rehabilitation and reconstruction of transportation infrastructure. With New England state transportation agencies, our team of highway, traffic, and structural engineers are engaged in or have completed dozens of scoping and design projects where our designs have maximized the service life of pavements, culverts, bridges, slopes, and associated structures.

By identifying the existing issues and causes of distress and deterioration, we are able to provide practical solutions with strategic long-term planning in mind as well as the coordination with asset management programs. A great example of this type of service is our work along 1.1 miles of Dorset Street in South Burlington, where we collaborated with the Department of Public Works to propose a range of pavement reconstruction/rehabilitation treatments to maximize

cost/benefit. By identifying locations of differing existing materials, pavement surface conditions, varying subsurface composition – all the while understanding the project purpose for preservation –

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the design team determined a less-costly rehabilitation solution for the roadway, and provided accurate cost estimating with a proposed multi-year sequencing meeting the City's budgetary and surrounding stakeholder needs for this high-traffic section of road.

### Innovative Ideas for Better Projects

At Hoyle, Tanner, we are always looking to add value to our clients' projects. We do this on every project by considering initial and long-term costs, sustainability, innovative materials, accelerated construction methods, schedules, traffic management, environmental permitting, and effects on abutting properties. There are no "cookie-cutter" solutions for our projects; however, the experience we have gained enables our team to partner with municipalities to make prudent decisions together.



*South Burlington – Dorset Street – Pavement Evaluation*

### Specializing in Municipal Client Service

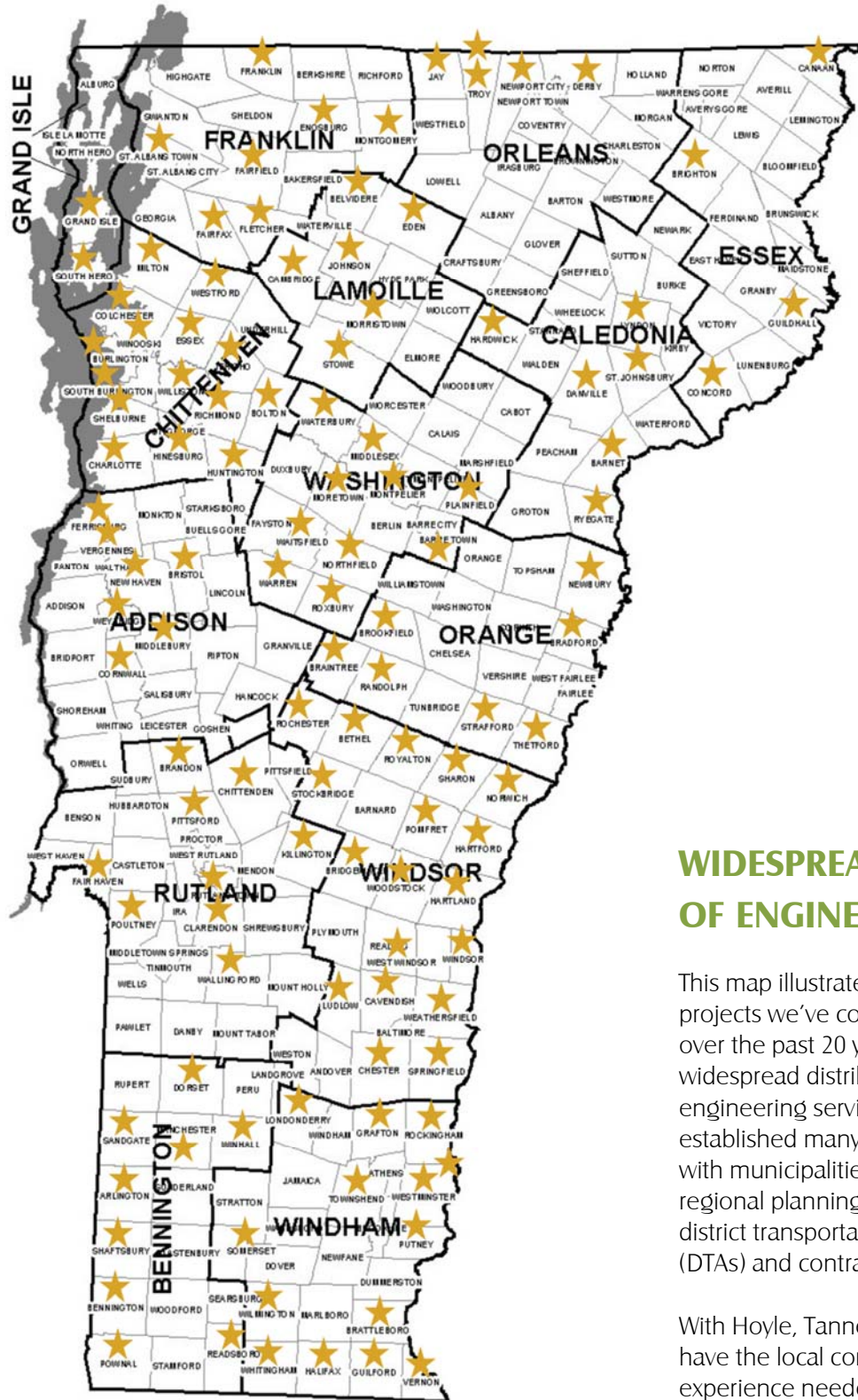
Approximately 60% of the services we provide our clients are completed for municipal clients, with a large portion utilizing State and Federal Funding. In 2015 alone, Hoyle, Tanner provided services for over 280 municipally-managed projects. As illustrated on the next page, Hoyle, Tanner has provided engineering services to over 120 Vermont municipalities statewide. It is our business to understand how to best deliver projects meeting the scheduling, reporting, permitting, design, and contractual requirements of particular funding programs.



*Peterborough, NH – Union Street  
Roadway Reconstruction, Pedestrian Facilities,  
Stormwater, Sewer Replacement, Lighting*

### OUR COMMITMENT

Hoyle, Tanner is committed to establishing long-term relationships with our clients. Our interest is to exceed your expectations in every way so that we will be your first phone call whenever the need arises. We pride ourselves in providing exceptional, memorable experience. The design of infrastructure projects is much more than solely the technical aspects, which is why you have our commitment that we will support municipalities with our expertise from start to finish – from concept development to the ribbon cutting.



## WIDESPREAD DISTRIBUTION OF ENGINEERING SERVICES

This map illustrates the locations of projects we've completed in Vermont over the past 20 years. With this widespread distribution of engineering services, we have established many key relationships with municipalities, resource agencies, regional planning commissions (RPCs), district transportation administrators (DTAs) and contractors.

With Hoyle, Tanner, municipalities have the local commitment and experience needed to steer projects to their successful completion.

## FIRM INFORMATION

### PROJECT SPECIFIC SUBCONSULTANTS

Hoyle, Tanner maintains relationships with many local specialty subconsultants including **geotechnical engineers, surveyors, environmental scientists, historical and archeological consultants, landscape architects, and railroad design engineers**. Should a particular assignment require a service that is not offered by our firm, we will work with VTrans and the municipality to provide the right subconsultant for the type of service based on their proficiency in the specific discipline, local knowledge and experience, availability to complete the project, and VTrans documentation and prequalification.

### ADDITIONAL HOYLE, TANNER EXPERTISE

In addition to the services highlighted in the RFQ and our Design Services section of this proposal we also provide **park and ride facility design, stormwater engineering, hydrologic and hydraulic, and permitting/NEPA documentation** services.



We understand the ability of the TA program to fund environmental mitigation projects related to stormwater and habitat connectivity. **Our Lead Stormwater Engineer, Mike Schramm, P.E., LEED® AP** has been closely following the Vermont Clean Water Act's progress and its impact on communities. We encourage you to take a closer look at Mike's resume in the *Resumes* section for a sampling of experience he's completed which matches closely with many of the Environmental TAP projects approved for 2016. Whether a community is an MS4, within the Lake Champlain basin, or Connecticut River basin, Mike has the knowledge and tools to work with our highway and environmental engineers to develop solutions that meet the regulatory needs.

**Led by Jeff DeGraff, P.E., our team has extensive hydrologic and hydraulic analysis capabilities.** Jeff and Jon Olin maintain close relationships with the VTrans Hydraulics Department, providing feedback on the recently updated manual and staying ahead of design practices and software. Jeff has helped on our bridge, culvert and bank stabilization projects in Vermont and New Hampshire making sure structures are properly sized, regulatory requirements such as Aquatic Organism Passage (AOP) are met, and material is appropriately sized for bank stabilization and scour control.

With an experienced in-house staff focused on environmental and cultural resources permitting led by **Kimberly Peace**, who has recently completed Stream Alteration and NEPA Programmatic Categorical Exclusion documents for projects in Montgomery and Sharon. Our team has the ability to foresee potential project constraints and effectively communicate and navigate the project through Vermont and federal permitting requirements. We have well established relationships with regulators and years of experience in preparing the State and Army Corp permits associated with transportation projects, as well as preparation of Categorical Exclusion and NEPA documentation.

### RESOURCE PLANNING AND AVAILABILITY

The following pages illustrate our proposed team organization for Municipal Assistance Bureau administered projects showcasing our exceptional depth and range of personnel, as well as our projected availability to perform on projects over the next three years. These are expectations based on our current workload and projections for future work load and commitment to clients. We have the depth and availability to complete a large number of projects for municipalities.



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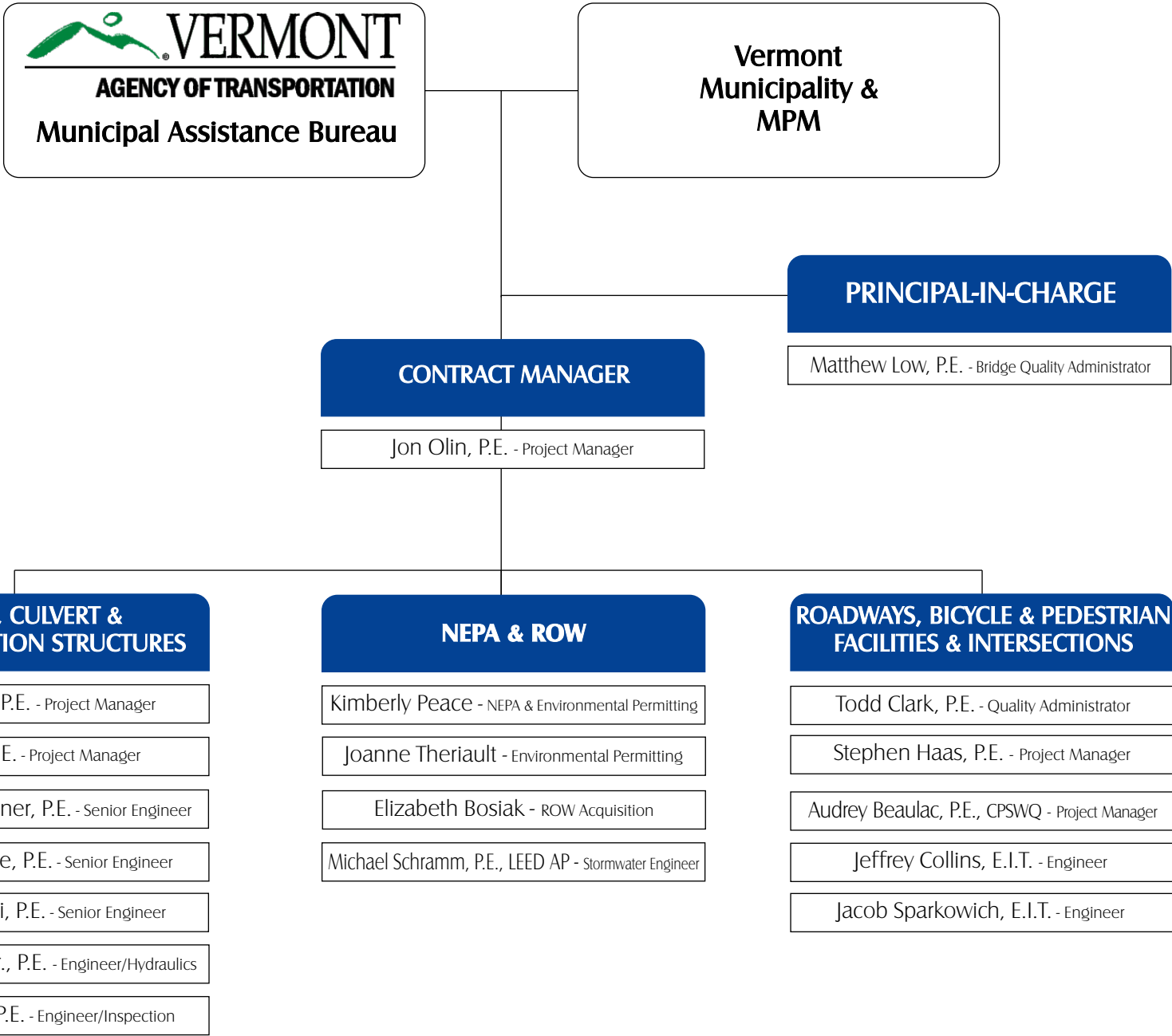
## FIRM INFORMATION

### Availability Chart & Experience Matrix

\* Availability is expressed as a percentage of time each staff member can dedicate to Vermont Municipal Projects

		MUNICIPAL PROJECT EXPERIENCE																
		Roadway Reconstruction	Roadway Rehabilitation	Intersection Analysis & Design	Roadside Clear Zone & Safety Design / Road Safety Audits	Bicycle & Pedestrian Facilities (On & Off Road)	Safe Routes to School	Park and Ride Facilities	Traffic Design	Bridge & Culvert Repair & Replacement	NBIS Certified Bridge Inspector	Hydrology & Hydraulic Analysis	Stormwater Treatment	Transportation Alternatives Projects	NEPA Documentation & Permitting	ROW Acquisition	LPA Certification	Availability
HOYLE, TANNER STAFF EXPERIENCE AND AVAILABILITY	MATTHEW LOW, P.E.	♦	♦							♦				♦	♦	♦	♦	20%
	JON OLIN, P.E.	♦	♦	♦		♦				♦		♦		♦	♦	♦		70%
	SEAN JAMES, P.E.					♦				♦	♦			♦	♦	♦	♦	40%
	EDWARD WEINGARTNER, P.E.									♦	♦			♦			♦	40%
	JOSIF BICJA, P.E.									♦	♦	♦		♦			♦	50%
	AARON LACHANCE, P.E.									♦		♦		♦			♦	40%
	JILLIAN SEMPRINI, P.E.									♦				♦			♦	50%
	JEFFREY DEGRAFF, JR., P.E.									♦		♦						80%
	JOSEPH RIPLEY, P.E.									♦	♦			♦			♦	70%
	TODD CLARK, P.E.	♦	♦	♦	♦	♦	♦	♦	♦	♦				♦	♦	♦	♦	30%
	STEPHEN HAAS, P.E.	♦	♦	♦	♦	♦	♦	♦	♦			♦	♦	♦			♦	50%
	AUDREY BEAULAC, P.E., CPSWQ	♦	♦		♦	♦		♦				♦	♦	♦				50%
	JEFFREY COLLINS, E.I.T.	♦	♦		♦	♦		♦						♦				70%
	JACOB SPARKOWICH, E.I.T.	♦	♦		♦	♦		♦						♦				80%
	KIMBERLY PEACE													♦	♦			40%
	JOANNE THERIAULT														♦			40%
	ELIZABETH BOSIAK													♦		♦	♦	80%
	MICHAEL SCHRAMM, P.E.												♦					60%

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## FIRM INFORMATION

### QUALITY ASSURANCE PROGRAM

A commitment to quality begins with the corporate culture. At Hoyle, Tanner our senior management encourages and challenges all team members to continuously assess and improve service to our clients. Regardless of whether the assignment is a proposal, permit application, inspection report, or set of calculations, we take pride in the presentation, organization and thoroughness of our deliverables.



In addition to maintaining high technical quality of design services, we deliver schedules, estimates, invoices, project status updates and communications in client-specific formats and frequencies that allow their internal departments to easily review and process information. After projects are complete, we discuss the clarity and constructability of our plans and specifications with contractors and resident engineers and implement improvements into our standard details and specifications.

Recently, we completed a company-wide training with our management staff, including Project Managers, in Federal Acquisition Regulation (FAR) to ensure as a company we properly document and charge for professional time and expenses to meet federal funding requirements.

### QUALITY CONTROL PROCEDURES

Each project is completed under the guidelines of our Hoyle, Tanner Master Quality Control Plan (see Appendix B of this proposal). Our Master Quality Control Plan outlines our approach to the completion of projects, ensuring accuracy and the achievement of project goals. Due to the unique nature of individual projects a Project Specific Quality Assurance Plan (PSQAP) is created by the Project Manager and reviewed with the Quality Administrator for approval. This simple, but detailed form establishes the path to success for each project we complete.

Part of the PSQAP is establishing team roles. For each project we identify one of our senior engineers as the Independent Quality Control (QC) reviewer. As the Project Manager and design engineers are heavily involved on the project, the QC reviewer provides valuable perspective at established key milestones for the project (e.g. alternatives investigation, conceptual, preliminary, and contract plans, specifications, and estimate). Scope, roles and project milestones are critical for all members of the project team to be aware of, including design, CADD, permitting, and management – the PSQAP helps ensure this information is effectively communicated and team members provide feedback early in the project helping to mitigate risks in the schedule and developing a clear path to successful project completion. Our Quality Administrator is specific for each Hoyle, Tanner core discipline. This person, often the Department Manager, has significant experience in the respective discipline and is responsible for the following:

- ✓ Establishing overall firm policies for quality and project management specific to that discipline
- ✓ Monitoring quality for the discipline company-wide
- ✓ Identifying required changes in firm policies
- ✓ Performing unannounced quality audits of projects

#### **Quality Administrators for MAB assignments**

*Bridges and Structures*  
Matthew Low, P.E.

*Roadway, Intersection, and Bike and Pedestrian*  
Todd Clark, P.E.

## FIRM INFORMATION

- ✓ Training Project Managers to ensure understanding and usage of Company standard documents including the Quality Control Manual and Project Manager's Manual

### CONCLUSIONS

The Hoyle, Tanner team has a proud history of not only completing transportation-based scoping studies, but seeing the recommended solutions through design and construction. We do this by establishing a comprehensive foundation for the project, including public participation, developing alternatives that can be achieved, providing accurate cost and schedule information, and laying out the road map for funding, permitting, ROW, and design to lead to a successful project completion. We place great value on each project we have the opportunity to work on, and enjoy working with our clients and stakeholders towards solutions that meet the project goals and needs of the community.

Led by our **Vermont Transportation Services Group Manager, Jon Olin, P.E.**, our team has a thorough understanding of completing projects for municipalities through the VTrans Municipal Assistance Bureau, adhering to the Local Projects Guidebook, and the associated federal funding programs these projects rely on.

We understand that the selection committee faces a difficult decision in selecting the most qualified engineering firm for this project. The selected firm must be technically capable in a variety of disciplines, be cognizant of budget limitations, listen to input, and present solutions clearly. We believe we are that firm and have differentiated ourselves from others by demonstrating excellence on all of our work – please contact our references for confirmation. We understand the importance of these projects to the community and would appreciate the opportunity to partner with Vermont municipalities to make each vision a reality.

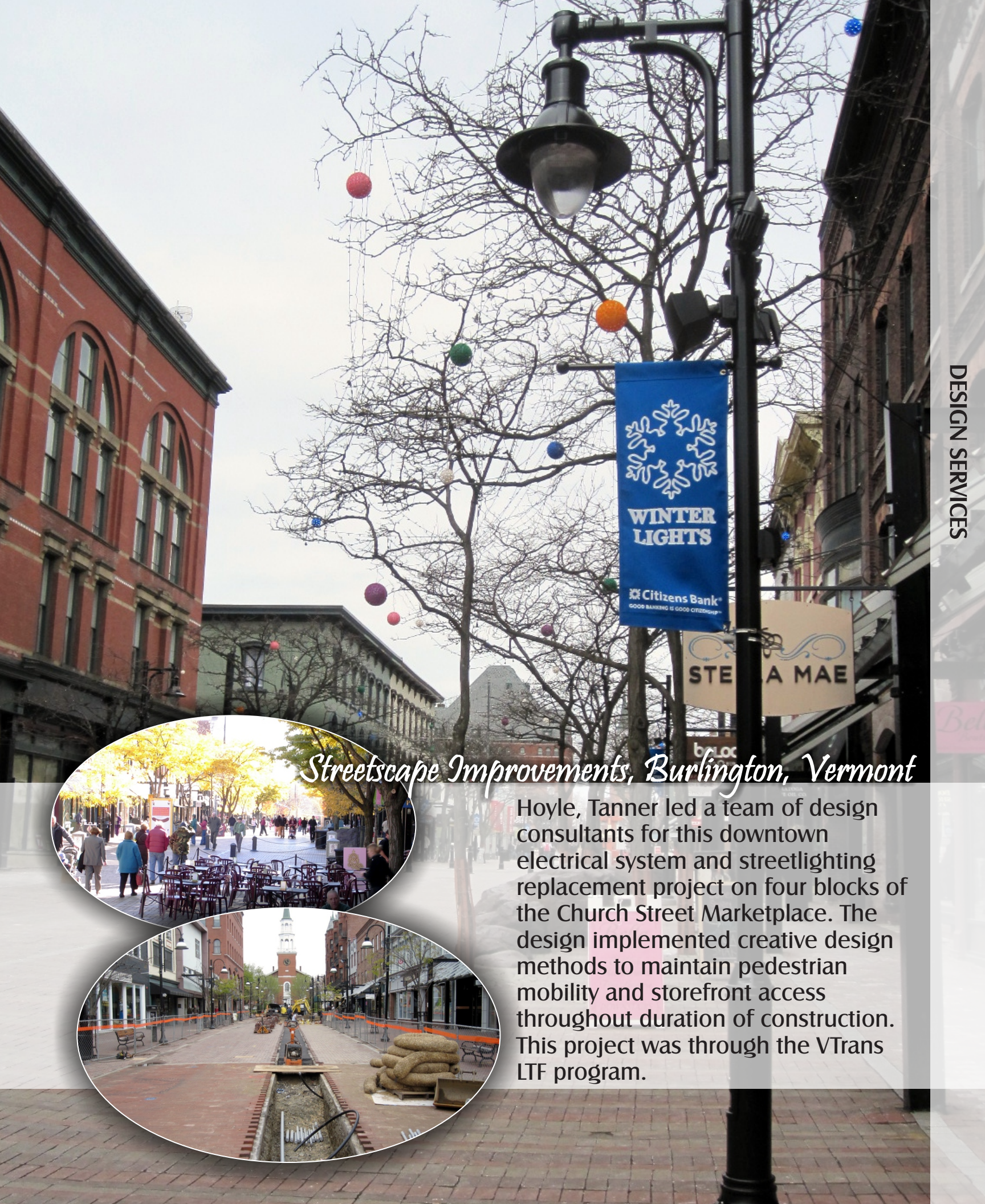
#### The Hoyle, Tanner Advantage:

- ✓ Local presence with local knowledge
- ✓ Working experience with municipalities and RPCs across the state
- ✓ Depth of transportation expertise including hydraulics, permitting, and ROW
- ✓ Thorough understanding of Vermont design manuals and funding programs
- ✓ Specific design experience with recent roadway rehabilitation and reconstruction, stormwater, bicycle and pedestrian, intersection, roadway safety, bridge and culvert rehabilitation and replacement projects, hydraulics, and the TA program
- ✓ Established relationships with regulatory agencies including VT ANR/DEC and US ACE
- ✓ Specific Vermont permitting experience including NEPA documentation
- ✓ Expertise with VTrans specifications and cost estimating procedures



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## *Streetscape Improvements, Burlington, Vermont*

Hoyle, Tanner led a team of design consultants for this downtown electrical system and streetlighting replacement project on four blocks of the Church Street Marketplace. The design implemented creative design methods to maintain pedestrian mobility and storefront access throughout duration of construction. This project was through the VTrans LTF program.



### QUALIFICATION & EXPERIENCE OF FIRM



Hoyle, Tanner is a full-service engineering firm that specializes in delivering design services for municipally-managed projects with State and Federal funding. Our Vermont Transportation Services Group, led by Jon Olin, has many established relationships with municipalities, regional planning commissions, and permitting agencies across the state. Jon will work with the VTrans MAB group, the municipality and their MPM to bring together the right team for the specific project, including our in-house staff and subconsultants.



*Manchester Street/Airport Road Intersection  
Reconfiguration and Signalization – Concord, NH*

### PROJECT DEFINITION

A quality scoping study is the road map for delivering a project to successful completion. We take great pride in being a firm that is capable of leading our clients from inception through completion of a project and almost 100% of our scoping studies are eventually constructed. We do this by providing all of our engineers with experience in existing facilities inspection, maintenance, design, and construction, ensuring that our proposed solutions are capable of being implemented from permitting, ROW, long-term maintenance, and constructability perspectives. Our engineers are well versed with VTrans Specifications and Cost Estimating Guidelines, providing our clients accurate project cost estimates for capital planning and obtaining grant and bond funding.

### ROADWAY RECONSTRUCTION AND REHABILITATION PROJECTS

Our engineers approach each roadway project by asking questions and collecting the data needed to help municipalities make smart choices that consider the full life cycle of the roadway. This includes both visual indicators such as the type of cracking, rutting, and other defects as well as subsurface exploration and surface drainage. As we did on Union Street in Peterborough, New Hampshire, we also aid municipalities in considering other potential needs such as safety improvements including horizontal and vertical geometry, bike and pedestrian and transit considerations, and subsurface and overhead utility needs. Whether the project solution is a full reconstruction, reclaim, mill and fill, or overlay there are opportunities for the municipality to recognize other project benefits and long-term capital planning efficiency. And with all of the services highlighted in this proposal we work with the municipality to consider the best approach for traffic management, and will work to develop detailed phasing plans and associated costs.

### BICYCLE / PEDESTRIAN / TRANSPORTATION ALTERNATIVES

Our team stays current with Vermont State Standards for Complete Streets and Traffic Calming, and looks to implement emerging technologies that are appropriate for the community needs and

## DESIGN SERVICES

regional climate. We observe the pedestrian movements on a street and look for opportunities to provide efficient crossing locations based on these patterns. We look to shorten pedestrian crossings by utilizing curb extensions and median islands; which improves pedestrian visibility and calms traffic. When warranted, we utilize crossing indicators such as raised/stamped crossings (depending on Municipality preferences), and push-button activated rapid flashing beacon signs (RRFB). This experience is highlighted in our Pearl Street Streetscape design recently completed for the City of Burlington (see project sample experience on the following pages).

In addition to coordinating the goals and needs of the vehicular, pedestrian, bicycle, and public transit, we work to incorporate green, complete, and smart street practices that make sense in our northern climate and improve the total user experience; this includes lighting, street trees, stormwater treatment, benches, bike racks, parking & meter / pay station locations, and long-term maintenance.

### INTERSECTION AND SAFETY PROJECTS

Hoyle, Tanner is well versed in the design process and the challenges that accompany an intersection design project and has worked on projects ranging from small improvements to existing intersections to large intersection improvement projects on state highways. Utilizing guidance from AASHTO's "Green Book" and VTrans Design Manual, our team will review existing and/or anticipated intersection demands and the project objectives to determine the appropriate intersection design that will accommodate all desired users. A recent example of one of our smaller projects was at the **Spring Street/Main Street Intersection in Winooski, Vermont** where we worked with the City to prepare construction documents for several intersection improvements, including: lane reconfiguration, design of a new pedestrian crossing, specifications for new thermal video vehicle detection system, and new intersection striping and signage.

### REPLACEMENT, REHABILITATION, AND MAINTENANCE OF BRIDGES AND CULVERTS

Hoyle, Tanner's uniquely qualified bridge engineering team has experience with over 50 bridge and culvert projects in the last 5 years alone. Our team is proficient in the inspection and design of simple to complex structures including multi-span structures, curved girders, covered bridges, culverts, and trusses. We work with our clients to assess their existing structure conditions and whether components of the substructure and superstructure are suitable for reuse with moderate repairs or partial replacements. Our experience developing practical solutions, while incorporating traffic control needs and contractor capabilities are essential in developing maintenance programs and ensuring proper execution of work.



*Drew Road Culvert Replacement – Derry, NH*

On the following pages, we have provided a sample of our diverse experience and capabilities. References have been provided for each project, and we welcome you to contact our references for further inquiry regarding our performance.

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## DESIGN SERVICES

*Relevant Experience*

### Bay & Upper Bay Roads Reconstruction

Sanbornton, NH • C.R. Willeke, P.E.,  
NHDOT Project Manager - Bureau of  
Planning and Community Assistance •  
(603) 271-6472 • cwilleke@dot.state.nh.us



Roadway Reconstruction | Culverts | Permitting  
Utility Coordination | Stormwater | Safety Improvements

These scenic roads, adjacent to Winnisquam Lake, have experienced major pavement deterioration due to an insufficient roadway box and lack of subsurface drainage. Roadway conditions had become so poor that Steele Hill, the area's major resort destination, had begun to detour traffic around the project area.

The design included pavement reclamation, unsuitable material removal, box reconstruction, and fabric reinforcement to help stabilize the pavement surface. Cut slopes and a high water table necessitated the design of 14,000 linear feet of underdrain to keep the roadway box dry. To convey surface drainage, roadside ditches were improved and additional driveway culverts were added. Multiple drainage culverts were upsized, as needed, and were given additional cover. Guardrail improvements were also designed to protect steep slopes and other hazards. Durkee Brook winds its way underneath Bay and Upper Bay Roads and two of its crossings were simply dual 36" reinforced concrete pipes in poor condition. Through discussions with NHDES, Hoyle, Tanner designed two natural bottom culverts consistent with the NH Stream Crossing Rules. This project was administered by NHDOT's Bureau of Planning and Community Assistance.

### Union Street Reconstruction

Peterborough, NH • Rodney A. Bartlett,  
Director of Public Works • (603) 924-8000 •  
rbartlett@townofpeterborough.us



Roadway Reconstruction / Rehabilitation | Stormwater  
Traffic Control | Permitting | Utility Coordination  
Right-of-Way | Pedestrian Facilities | Utility Improvements  
Landscaping

This two-lane roadway provides a vital link between Downtown and West Peterborough as it winds along the Nubanusit Brook. Due to the inadequate structural box, poor soils, and utility construction the roadway had deteriorated, cracked and rutted throughout its length. In addition, along segments of this roadway the profile remained extremely flat, promoting ponding and drainage issues.

To address the deficiencies, our design involved the reconstruction of 6,200 linear feet of roadway and associated sidewalk which included profile adjustments, pavement reclamation and geotextile reinforcement. During the roadway reconstruction the failing sanitary sewer system was replaced and the existing asbestos cement pipe removed. The existing drainage system was also replaced and additional catch basins were incorporated to improve runoff capture, while the drainage outfalls were maintained to reduce impacts to the brook and surrounding wetlands. Subsurface drainage was also added to remove groundwater from the roadway box. Context sensitive solutions were also utilized to provide the required improvements while limiting impacts to historic homes, steep slopes, and roadside stone walls.

## DESIGN SERVICES

*Relevant Experience*

Intersection | Roadway Reconstruction | Stormwater  
Bicycle Facilities | Management Permitting | Traffic  
Control | Utility Coordination | Right-of-Way  
Cost Estimating | Construction Administration

Hoyle, Tanner is providing design and permitting services to the City of Concord for the widening and reconstruction of Manchester Street (US 3). The corridor is a mile and half long, two-lane roadway through an urban strip environment which not only services the local commercial establishments but also acts as a commuter route to the airport, I-93 and the City's downtown.

The project is a multiphase effort involving acquisition of Right-of-Way, moving utility lines, realigning Airport Road to create a signalized intersection, replacing the drainage system, replacing waterlines and sewer lines and reconstructing the roadway with new box and pavement materials. The roadway is being widened to one lane in both directions with a dedicated left turn lane (three lane configuration) for part of the corridor and to two lanes in both directions with a dedicated left turn lane (five lane configuration) in the rest of the corridor. The Right-of-Way acquisition, utilities and basic roadway geometry are being designed for the addition of two additional lanes in the proposed three lane area in the future to create a uniform five lane layout as traffic volumes increase. **Dedicated bike lanes and bicycle detection at signals will also be constructed to improve multi-model accommodation through the corridor.**

### Manchester Street Corridor Improvements

Concord, NH • Martha Drukker, Associate  
Engineer – Community Development • (603) 225-  
8570 • [mdrukker@concordnh.gov](mailto:mdrukker@concordnh.gov)

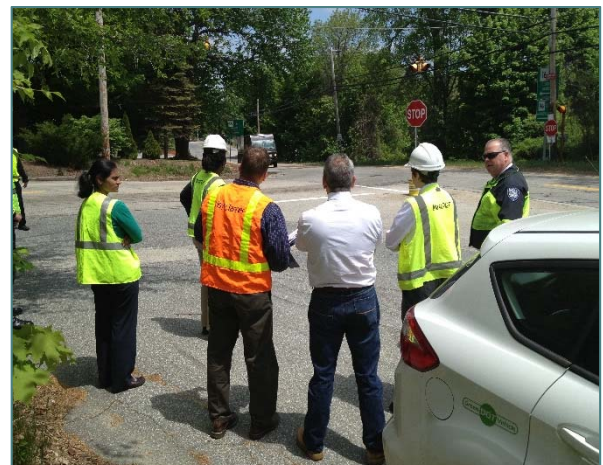


Safety Design | Project Scoping  
Roadway Reconstruction | Permitting Assistance

Engaged under the Department's Engineering Design and Review Services (EDRS) master services agreement, Assignment No. 5 is an aggressive response to provide corridor improvements along this identified high-risk rural roadway. **Webster Street (Route 16) is four miles long and situated in a rural setting. In attempt to alleviate the high fatality rate, MassDOT is advocating a project to make pavement surface, shoulder, marking, and signage improvements.** During project scoping, a practical approach to roadway treatments was adopted to advance the project through environmental permit requirements, the "Healthy DOT" policy, design exceptions, and pavement design, along with a streamlined design process to shorten delivery time. **Utilizing Highway Safety Improvement Program (HSIP) funding, the project began with a collaborative Road Safety Audit (RSA) to help identify concerns to be addressed in the design.**

### MassDOT Webster Street (Route 16)

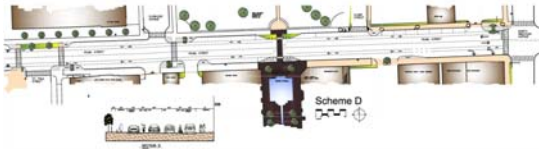
Douglas, MA • Shahpar Negah, P.E., Project  
Manager – Highway Division • (617) 973-7827 •  
[Shahpar.Negah@state.ma.us](mailto:Shahpar.Negah@state.ma.us)



## DESIGN SERVICES

*Relevant Experience*

**Pearl St. Streetscape Improvements**  
Burlington, VT • David K. Allerton, P.E.,  
Public Works Engineer • (802) 865-5830 •  
dallerton@burlingtonvt.gov



Mid-block Crossings | Bicycle & Pedestrian  
Bus Transit & On-Street Parking | Public Outreach  
Roadway Rehabilitation | Stormwater | Landscape Architecture

This section of Pearl Street is the northern gateway to the City of Burlington downtown pedestrian marketplace. The 46' curb-to-curb width of the existing street provided a poor interface for the downtown pedestrian and vehicle traffic, and existing sidewalks had various obstructions including streetlights, traffic lights and parking meters that presented challenges for the pedestrians.

Hoyle, Tanner and TK Landscape Architects developed a solution that: increased the number of on-street parking spaces; improved pedestrian safety with shorter, better-defined crosswalks; added traffic calming features such as bulb-outs and speed tables; provided bike lanes in both east and westbound directions; and improved the aesthetics of the street with plantings, textured pavers, and a featured intersection at Church Street. Key design features: provisions for City transit buses and emergency vehicles; the interaction between vehicles, bicycles, and pedestrians; and regrading for adequate stormwater drainage.

As the prime consultant, Hoyle, Tanner coordinated with the landscape architect, regulatory agencies, and City staff members while performing various tasks to develop the construction documents for the Pearl Street improvements. **This was a VTrans LTF funded project.**

**US Route 202, Main St. Intersection & Retaining Wall Improvements**  
Peterborough, NH • Rodney A. Bartlett,  
Director of Public Works • (603) 924-8000 •  
rbartlett@townofpeterborough.us



Engineering Study | Bridge Replacement | Intersection  
Pedestrian Facilities | Permitting  
Roadway Rehabilitation | Stormwater

Hoyle, Tanner is providing bridge and roadway engineering services for the study, preliminary and final design, and construction phase administration for a project located on Main Street in downtown Peterborough. The goal of the project is to replace the superstructure of the historic Main Street Bridge over the Contoocook River and make improvements to the adjacent intersection and roadway.

The design includes the reconstruction of 850 linear feet of roadway on US Route 202 and 200 linear feet on Main Street. A redesigned closed drainage system will convey stormwater runoff to the existing outfalls. New sidewalks will be constructed on both sides of the roadways and a seating area may be provided adjacent to the river. The project also requires the relocation, stabilization, and design of multiple retaining walls. The project has required close coordination with the NH Department of Historical Resources and the Peterborough Heritage Commission. Due to the historic nature of the existing bridge and retaining walls and the close proximity to multiple historic structures, Hoyle, Tanner has strived to limit impacts and maintain the historic character of the area. **This project is being developed under the NHDOT's Local Public Agency (LPA) Manual for the Development of Projects process.**

## DESIGN SERVICES

*Relevant Experience*

Bicycle & Pedestrian | Intersection | Utility Coordination  
| Stormwater | Roadway Reconstruction

Using municipal funds, the City engaged Hoyle, Tanner to perform a study of the existing utility infrastructure when we discovered that some date back to the 1800s within the downtown area. The City concurred with the findings that water, storm drains, and parts of the sewer lines needed to be replaced. The existing drainage system was not sufficient to capture flows during storm events and was causing flooding in the throughway within the area.

The downtown streetscape project became a **revitalization project to include site improvements and approximately 3,500 feet of roadway reconstruction through downtown with drainage and water line replacement, as well as limited sewer replacement.** Additional improvements included urban tree wells, pedestrian lighting, and landscaping. The project scope also included design of a new traffic signal at the 5-way intersection on the south end of the project. In addition to the traffic design, Hoyle, Tanner coordinated with other firms to incorporate design improvements to the sidewalks within the projects limits.

Hoyle, Tanner redesigned the profile and cross-sections for the roadway to facilitate the improvements to the roadway drainage. We have completed bid ready design plans and technical specifications.

### Downtown Infrastructure & Revitalization

Somersworth, NH • Thomas H. Willis, Jr., P.E.,  
Small Water Systems Regulatory Engineer • (603)  
271-3434 • Thomas.Willis@des.nh.gov



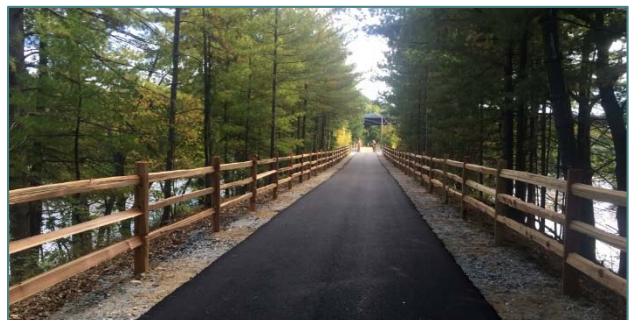
Bicycle & Pedestrian | Permitting | Bridge  
ROW | Landscape Architecture

This 1,800' long section of the trail is built on a former rail bed and the project included a local street crossing, easement acquisitions, pedestrian bridge over the Piscataquog River, trail section upgrade and paving, and landscape and wayfinding enhancements. A full inspection and evaluation of the existing trestle was performed and both rehabilitation and replacement options studied. Replacement of the 1941, 7-span timber trestle with single-span steel truss was selected as the preferred alternative.

The trail improvements include paving the majority of the trail section and installing guardrail and fencing, as appropriate, to guide users along the trail. The intersection with an adjoining trail was improved with signs, landscaping and pavement to better connect the two trails. Improvements were made at each approach to the river crossing as years of unauthorized use have resulted in extensive erosion at the bridge approaches. **This is a Transportation Enhancement (TE) project administered through NHDOT's LPA program.**

### Piscataquog River Trail Phase IV

Manchester, NH • David Winslow, P.E., Engineer •  
(603) 624-6444 • dwinslow@manchesternh.gov



## DESIGN SERVICES

*Relevant Experience*

### Broad Brook Road Bridge Replacement

Sharon, VT • Tim Higgins, Road Foreman • (802) 763-8268 • roadcrew@sharonvt.net



#### Bridge Replacement | Hydraulic Analysis | Permitting

In 2011, Tropical Storm Irene caused severe flooding of Broad Brook, which resulted in the destruction of the Broad Brook Bridge in Sharon, Vermont. Hoyle, Tanner provided a hydraulic analysis of the existing bridge with proposed solutions that met state hydraulic and permitting requirements, as well as the criteria for FEMA funding approval. **We provided the design for the 60' span replacement structure which consisted of prestressed concrete box beams supported on spread footing abutments bearing on bedrock. Abutments were skewed to meet the roadway alignment and clear span requirements.**

We worked closely with the Town throughout the design to ensure the proposed solution met their needs, required limited long-term maintenance, and met a project delivery schedule to reopen the roadway as soon as possible.

### Bull Run Culvert Replacement

Roxbury, VT • Dave McShane, Selectman/Road Commissioner • (802) 485-7840 • townrox@tds.net



#### Culvert Replacement | Hydraulic Analysis | Permitting

Massive damage resulted at the Bull Run crossing of Bull Run Road when waters rose during Tropical Storm Irene causing the complete destruction of a 12' diameter metal culvert and a 22' deep washout over a 100' length of roadway. Hoyle, Tanner was contracted by the Town of Roxbury to **perform emergency response engineering services and determine a replacement solution acceptable for FEMA reimbursement that could be designed and constructed prior to the on-set of winter.** This fast-paced design (completed in four weeks) and construction schedule (totaling three months) was necessary to maintain access for property owners on the south side of the roadway damage. In order to meet this demand, we coordinated with local suppliers to ensure the materials specified were readily available; **an aluminum multi-plate open bottom arch culvert was selected as the preferred replacement solution which proved to be the primary construction factor that led to the project meeting its goal completion date.**

The culvert spans 23', with an 11'-6" rise above the open bottom stream. Flexibility, experience, and effective communication led to the successful and timely completion of this important project.



## DESIGN SERVICES

*Relevant Experience*

### Condition Assessment | Engineering Study Bridge Maintenance | Load Rating Analysis

Hoyle, Tanner provided an inspection and conditions assessment of the Crescent Street Bridge over the East Creek in spring 2013. Performing the inspection per NBIS standards, we identified several repairs necessary for the continued use of the structure. Tests were conducted on the existing wingwall, abutment, and bridge deck concrete to determine the compressive strength, ASR (Alkali Silica Reactivity), and chloride ion penetration. **A load rating analysis and report was prepared for the existing steel stringers and concrete deck considering their as-built and current deteriorated conditions.** With this information, we prepared and presented a report summarizing the condition assessment of the structure and outlining potential alternatives with associated costs for the City Transportation Committee's review.

The committee selected an alternative that provided short-term repairs for the concrete deck and new concrete bridge rail. **We provided a design for the removal of deteriorated bridge deck areas and a new concrete overlay. The overlay and bridge rail were accounted for in the load rating alternative analysis, and a new posting was provided that allowed the City to maintain necessary traffic on this primary connector route while a final solution is developed and funding is obtained.**

### Crescent Street Bridge Rutland, VT • Jeff Wennberg, Commissioner of Public Works • (802) 773-1813 • jeffw@rutlandcity.org



### Condition Assessment | Engineering Study Bridge Rehabilitation | Load Rating Analysis

The Longley Covered Bridge was built in 1863 by the Jewett Brothers. The bridge is a 70' long single span Town Lattice Truss, which spans the Trout River near the northwestern boundary of the Town of Montgomery with the Town of Enosburgh. Several serious structural deficiencies were observed during a routine bridge inspection by VTrans personnel; the bridge was closed to traffic in 2011.

The project consists of **preserving the original design of Town Lattice Truss and retaining the roof framing and upper lateral bracing.** The new trusses and floor framing are currently being designed for a 20 ton live load. **The project also includes application of a fire retardant coating, installation of a timber curb to protect the trusses, installation of new steel backed timber guardrail and approach roadway improvements.** We are currently working on the design phase of this project, which is partially funded through the National Historic Covered Bridge Preservation Program. This project was recently awarded to Alpine Construction; construction will begin in 2017.

### Longley Covered Bridge Rehabilitation Montgomery, VT • Mark D. Sargent, Project Manager • (802) 828-6576 • mark.sargent@state.vt.us



## DESIGN SERVICES

*Key Personnel Profiles*

Our key personnel have proven time and again their invaluable capacity to complete high-quality projects. From our most senior engineers to our most respectful environmental coordinators, we are proud to highlight the expertise of the individuals who will be serving you. Resumes for our team members are provided in Appendix A of this qualifications package.

### *Matthew J. Low, P.E. – Senior Vice President - Bridge Quality Administrator*

Matt is a Senior Vice President and Director of Operations for Hoyle, Tanner. He has 24 years of bridge, highway and structural design experience as a Project Manager for hundreds of municipally managed projects. For over 20 years, Matt has been a trusted resource for regional DOTs and has the full understanding of FHWA funding programs, goals and responsibilities of DOTs, and the role of the consultant. As Director of Engineering Operations, Matt has the responsibility to deploy resources and establish project teams that will best meet the needs of the individual projects and the municipalities we serve. **Matt will be responsible for Quality Assurance Monitoring of bridge, culvert, and transportation structure disciplines.**

### *Jon A. Olin, P.E. - Associate / Contract Manager – Project Manager*

Jon is the Group Manager for our Vermont Transportation Services and a technical team leader in civil and structural engineering in rural and urban settings. Jon has over 18 years of experience in delivering results on small-to-large transportation projects and MAB-funded projects (under the former Local Transportation Facilities program), and will ensure well-planned and well-coordinated project deliveries. He has experience in many disciplines of transportation engineering, has established relationships with permitting regulators, RPCs, and municipalities throughout Vermont, and has a collaborative approach that is effective for stakeholder buy-in. He regularly attends the Chittenden County Regional Planning Commission (CCRPC) Transportation Advisory Committee (TAC) meetings to better understand the needs of regional clients, and has recently attend the CCRPC Public Participation Workshop. With Jon, municipalities will have the experience and close attention that their projects need. **Jon will be responsible for Project Management and will serve as the point person for coordinating work completed through this ATR prequalification.**

### *Sean T. James, P.E. - Vice President - Project Manager of Bridge, Culvert & Transportation Structures*

Sean is our Bridge Department Manager and has 20 years of experience on bridge and culvert design projects. He has provided inspection, evaluation, rehabilitative design, construction costs, estimates and resident engineering for over 30 municipal bridge projects and 13 Vermont covered bridges. He is also a skilled public presenter and is a graduate of the Toastmasters Speechcrafters Course as well as a National Bridge Inspection Standards (NBIS) Certified Bridge Inspector. **Sean will be responsible for Project Management of bridge, culvert, and transportation structure disciplines.**

### *Josif Bicja, P.E. - Associate - Project Manager of Bridge, Culvert & Transportation Structures*

Josif has over 13 years of experience in the design and rehabilitation of numerous municipal bridge and miscellaneous structural projects. He has served as a design engineer on over 60 NHDOT Municipal Bridge Aid



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## DESIGN SERVICES

### *Key Personnel Profiles*

Projects. He has extensive experience with design, construction administration, construction engineering, bridge inspection, load ratings and all other aspects of bridge projects. **He is a certified (NBIS) bridge inspector, and has completed multiple covered bridge projects funded through the VTrans. Josif will be responsible for Project Management of bridge, culvert, and transportation structure disciplines.**

**Todd M. Clark, P.E. - Senior Vice President - Quality Administrator of Roadways, Bicycle/Pedestrian Facilities & Intersections**  
Todd is a Senior Vice President and Highway Department Manager with over 24 years of experience in the transportation engineering field, focused on large and small projects. Todd remains current with Federal and State design standards and ensures that the highway group project managers, engineers, technicians, and specialists are equipped with the knowledge, resources, and tools they need to stay current with design practice and deliverables. **Todd will be responsible for Quality Assurance monitoring of roadway and bike/pedestrian disciplines.**

**Stephen B. Haas, P.E. - Associate - Project Manager of Roadways, Bicycle/Pedestrian Facilities & Intersections**  
Steve has over 14 years of experience designing transportation systems for municipal and state clients. His areas of expertise are intersection design, highway design, traffic analysis, and hydraulic/hydrology design. He is also well-versed in the development of Right-of-Way plans, permitting, site/civil engineering, transportation planning, and cost estimating. **Steve will be responsible for Project Management for roadway, intersection, and safety projects.**

**Audrey G. Beaulac, P.E., CPSWQ - Project Manager of Roadways, Bicycle/Pedestrian Facilities & Intersections**  
Audrey possesses practical technical experience in all facets of roadway engineering, including roadway and intersection design, establishing alignments and profiles, creating grading plans, incorporating bicycle and pedestrian facilities, analyzing for guardrail warrants, calculating quantities and creating estimates. She also performs BMP and stormwater modeling and design, analysis of existing and proposed drainage systems and pollutant modeling and analysis. **Audrey will be responsible for Project Management for roadway, bike and pedestrian, and stormwater projects.**

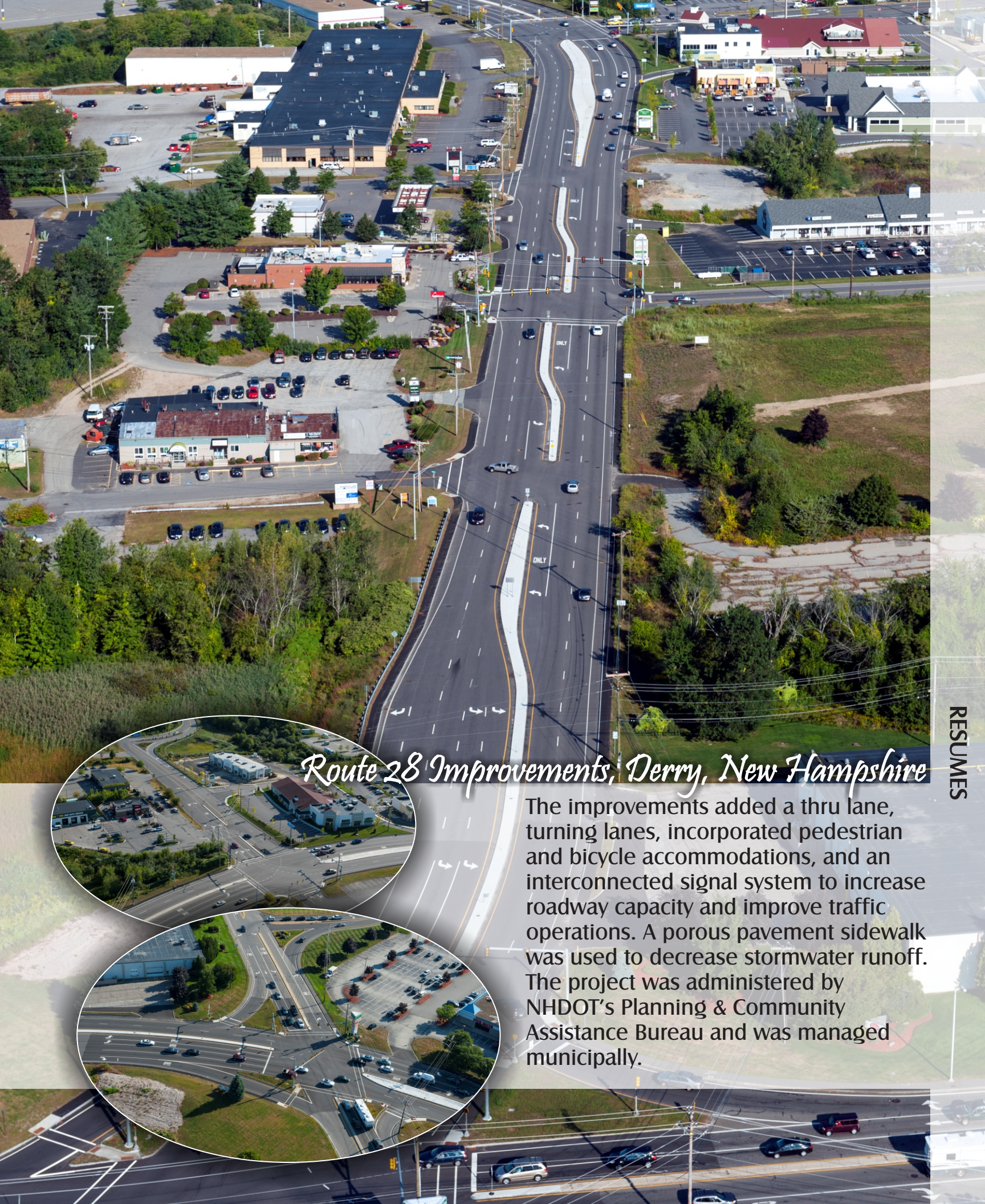
#### **Kimberly R. Peace - NEPA & Environmental Permitting**

Kimberly has over 16 years of experience as a permitting specialist. She has experience with natural resource permit applications and procedures in all six New England states, as well as New York, South Carolina and Florida. She has developed federal permit applications and is familiar with procedures for completion of USACOE 404, FERC licensing, NEPA and EA/EIS documents. **Kimberly will oversee all permitting and NEPA coordination.**

#### **Elizabeth A. Bosiak - Right-of-way Acquisition**

With a career in the Right-of-Way field since 1979, Betsy has experience working with design, construction, and property owners during relocations of businesses and residences. She frequently communicates with property owners, ensuring they have an understanding of what occurs in the area of their property and explaining the easements or required property rights. In addition to her expertise, Betsy has worked closely with the Central New Hampshire Regional Planning Commission as a member of the Transportation Advisory Committee. As a member of the International Right-of-Way Association, she currently serves as New England Chapter 16 Secretary and Membership Chair, in addition to her membership in the International Asset Management Committee. **Betsy will oversee all Right-of-Way acquisition.**

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## *Route 28 Improvements, Derry, New Hampshire*

The improvements added a thru lane, turning lanes, incorporated pedestrian and bicycle accommodations, and an interconnected signal system to increase roadway capacity and improve traffic operations. A porous pavement sidewalk was used to decrease stormwater runoff. The project was administered by NHDOT's Planning & Community Assistance Bureau and was managed municipally.



## MATTHEW J. LOW, P.E.

*Senior Vice President – Bridge Quality Administrator*

Mr. Low is a Project Manager of bridge, highway and structural design projects. He has inspected, designed or rated nearly 200 bridges for the New Hampshire Department of Transportation, Massachusetts Department of Transportation, Maine Department of Transportation, Vermont Agency of Transportation, private entities and municipalities throughout New Hampshire. Experience includes analysis, inspection and design of steel stringers, prestressed stringers, box beams and deck beams, concrete arches, stone masonry arches, trusses and prefabricated structures. Mr. Low has extensive experience managing complex multidisciplinary projects including bridge, roadway, geotechnical, and public involvement components.

### Relevant Experience

**Piscataquog River Trail Phase IV, Manchester, NH:** Principal-in-Charge for the scope of work, QA/QC, design review, schedule adherence, and compliance with funding requirements. Scope: Design and construction-phase services for the 1,800' long section of the trail. The project includes a local street crossing, easement acquisitions, a 160' single-span steel truss pedestrian bridge over the Piscataquog River, trail section upgrade and paving, landscape and wayfinding enhancements.

**MassDOT Webster Street (Route 16), Douglas, MA:** QA / QC for the technical specifications for the project and performed a quality control / quality assurance review of the plans, specifications and estimate. Scope: Project proposes roadway corridor safety improvements in response to being identified as a High Risk Rural Roadway under the FHWA Highway Safety Improvement Program and is located along a 4-mile segment of Webster Street (Route 16) from the Douglas/Webster Town Line to the Main Street intersection in the Town of Douglas, Massachusetts. The project will be completed in two phases. Phase 1 completed a Road Safety Audit (RSA) and Phase 2 prepares plans, specifications, cost estimates, and assists MassDOT with design, permitting, public hearing, and coordination for advertising.

**Main Street Bridge, Peterborough, NH:** Principal-in-Charge for the technical aspects of the project, scheduling, budget and cost control, public presentations, permitting, and client coordination, for the scope of work, QA/QC, design review, schedule adherence, and compliance with funding requirements. Scope: The project involves evaluation of the existing stone-faced concrete rigid frame constructed in 1940. The bridge is eligible for the National Registrar of Historic Places, and as such, an extensive NEPA and environmental permitting process was performed. The bridge will be replaced with a new cast-in-place concrete rigid frame emulating the existing structure, as well as a prefabricated steel truss pedestrian bridge. Roadway design elements included analysis of alternative alignments and profiles, intersection analysis, and evaluation of temporary traffic control alternatives. Services included survey, geotechnical engineering, NEPA, roadway engineering, public presentations, agency coordination and cost estimating. This project was funded through the Municipal Off-System Bridge Rehabilitation and Replace (MOBRR) program.

**Concrete Box Culvert Inspection, Lebanon, NH:** Principal-in-Charge / Project Manager for the scope of work, scheduling all client coordination. Scope: This NHDOT project involved the detailed inspection of an existing cast-in-place box culvert carrying NH Route 10 over an unnamed brook. Due to the size of the culvert, confined space training was required. The inspection included photographic and video documentation of the inside of the culvert to determine if rehabilitation was necessary.

**Green River Covered Bridge, Gullford, VT:** Principal-in-Charge for the development of the scope of services, coordination with the client and monitoring of schedules and budgets. Scope: (Town Lattice Trusses built in 1870, 104' span) Inspected, analyzed and designed a rehabilitation of the bridge. The Town Lattice trusses were built without secondary upper chords and exhibited sweep and racking in the trusses. The project also includes evaluation of the stone abutments.



### *Professional Registrations:*

Professional Engineer: NH, MA, ME, VT, PA, FL

### *Education:*

University of New Hampshire, BS, Structural/Civil Engineering, 1992

*Years in Industry:* 24

*Years with Firm:* 17

## JON A. OLIN, P.E.

*Associate - Senior Structural Engineer / Contract Manager*

Mr. Olin is the Group Manager for our Vermont Transportation Services and brings 18 years of experience as a project manager and lead project engineer on various types of transportation projects including highway, bridge, pedestrian and bicycle facilities, and structures. Mr. Olin brings expertise in managing large projects with multiple team members, public engagement for project buy-in, developing projects for funding acquisition, and overseeing projects from conception through completion. *Mr. Olin will be the primary point-of-contact and serve as the Project Manager, ensuring that all technical, schedule, and budgetary requirements are met.*

### **Relevant Experience**

**Pearl Street Streetscape Improvements, Burlington, VT:** Principal-in-Charge / Project Manager for the downtown streetscape improvements, consisting of two city blocks on Pearl Street. Scope: Improvements to two city blocks on Pearl Street, which included the conceptual planning for alternate bicycle/parking/travel lane alternatives, improvements to pedestrian access, traffic calming and streetscape features (such as curb extensions), and a pedestrian focal point at the Church Street intersection. The project was completed through the VTrans LTF program.

**Bull Run Culvert Replacement, Roxbury, VT:** Principal-in-Charge / Project Manager and Senior Engineer responsible for completing the assessment, design and construction plans, advertising and coordinating bidders, developing construction contracts, and construction administration. Maintained close coordination and provided reporting with the FEMA Project Manager, Bridge Specialist, and Vermont Stream Alteration Engineer throughout the project. Scope: Replacement of a washed out culvert and large section of Bull Run Road, as a result of damage caused by Tropical Storm Irene, with a 28' by 12' open-bottom arch culvert. Design work included surveying, hydraulic analysis, culvert sizing and type selection, permitting, concrete footings and headwalls, backfill/slope stabilization, and roadway reestablishment.

**Crescent Street Bridge, Rutland, VT:** Project Manager responsible for performing the field inspection, load rating calculation review, and oversight of repair plan development. Scope: Provided inspection, load rating, and conditions assessment for this 100' span steel girder bridge over the East Creek in Rutland, Vermont. Hoyle, Tanner prepared a report that aided the City in determining the short and long term plans for the structure. Based on findings presented in the report, Hoyle, Tanner was tasked with the design of deck and bridge barrier repairs necessary to maintain bridge function while more long term replacement options were pursued.

**Broad Brook Road Bridge Replacement, Sharon, VT:** Principal-in-Charge / Project Manager responsible for the scope of work, QA/QC, design review, schedule adherence, compliance with funding requirements, all technical aspects of the project, scheduling, budget and cost control, public presentations, permitting, and client maintenance. Scope: Design, bid, and construction-phase services for the replacement of a Town bridge over Broad Brook damaged during Tropical Storm Irene. The replacement structure consisted of a 60' span concrete box girder superstructure with spread footing abutments bearing on bedrock. Services included hydraulic analysis, soil borings, bridge design, permitting, and funding coordination (FEMA Public Assistance Program).

**Church Street Revitalization – Electrical & Streetscape Improvements, Burlington, VT:** Project Manager responsible for all technical aspects of the project, scheduling, budget and cost control, public presentations, permitting, and client coordination. Scope: Downtown electrical system and streetlighting replacement on four blocks of the Church Street Marketplace. The design implemented creative design methods to maintain pedestrian mobility and storefront access throughout duration of construction. This project was completed through the VTrans LTF program.

**Dorset Street, South Burlington, VT:** Senior Engineer responsible for assisting with pavement conditions assessment and repair recommendations. Scope: Study and design of pavement rehabilitation for approximately 1.1 miles (5800 linear feet) of Dorset Street in South Burlington, Vermont beginning at the intersection of Kennedy Drive and ending at the intersection of Williston Road (US Route 2). This project is currently in the conceptual phase with alternatives being developed for various multi-year phasing and construction traffic control options.



**Professional Registrations:**  
Professional Engineer: VT, CA

**Education:**  
University of Delaware, BS, Civil Engineering, 1998

**Years in Industry:** 18  
**Years with Firm:** 6

## SEAN T. JAMES, P.E.

*Vice President – Project Manager for Bridge, Culvert & Transportation*

Mr. James has performed structural analysis and design of steel, concrete, masonry and wooden covered bridge repair, rehabilitation and replacement projects as well as NBIS bridge inspection. His experience also includes inspection, design or rehabilitation of parking garages, historic buildings, sign structures and environmental containment structures. He has completed projects for NHDOT, MaineDOT, VTrans, MassDOT and NYSDOT and numerous municipal clients. His project experience includes environmental permitting, NEPA and Section 106 review, bidding and construction inspection and administration.

### Relevant Experience

**Piscataquog River Trail Phase IV, Manchester, NH:** Project Manager for the technical aspects of the project, scheduling, budget and cost control, public presentations, and permitting. Scope: Design and construction-phase services for the 1,800' long section of the trail. The project includes a local street crossing, easement acquisitions, a 160' single-span steel truss pedestrian bridge over the Piscataquog River, trail section upgrade and paving, landscape and wayfinding enhancements.

**Longley Covered Bridge Rehabilitation, Montgomery, VT:** QA / QC for structural calculations and drawings. Scope: (Town Lattice Trusses built in 1863, 70' long span) This project includes the final design of the preservation of design alternative for an H20 live load identified in our scoping study completed for the Town of Montgomery. The final design portion of this project was managed by VTrans since federal funding was obtained through the National Historic Covered Bridge Preservation Program.

**Green River Covered Bridge, Guilford, VT:** Project Manager for the technical aspects of the project including review of structural calculations and drawings, scheduling, budget and cost control, public presentations and permitting. Scope: (Town Lattice Trusses built in 1870, 104' span) Inspected, analyzed and designed a rehabilitation of the bridge. The Town Lattice trusses were built without secondary upper chords and exhibited sweep and racking in the trusses. The project also includes evaluation of the stone abutments.

**Brighton (Island Pond) Covered Bridge, Brighton, VT:** Structural Engineer for the technical aspects of the project including all design and construction administration. Scope: (Howe Truss built in 2002, 112' span) Designed a new 150' long timber pedestrian bridge which provides a link between two sections of town and carries pedestrians over active train lines. The bridge is founded on a concrete abutment and timber pier with timber approach stairs. Provided part-time construction administration and inspection.

**Twin Covered Bridge, Rutland, VT:** Structural Engineer for the technical aspects of the project including inspection and analysis. Scope: (Town Lattice Trusses built in 1850, 64' span) Inspection, evaluation and recommendations for repair, assisted Town in successfully applying for VTrans Enhancement funding for reuse of the bridge for pedestrian traffic.

**NH Route 32 Shared-Use Shoulder, Swanzey, NH:** Project Manager for the technical aspects of the project, scheduling, budget and cost control. Scope: Study, design, bid, and construction administration services for 3,200' of paved, shared-use shoulder construction and reconstruction along NH Route 32.

**Concrete Box Culvert Inspection, Lebanon, NH:** Project Engineer inspection of a concrete box culvert. Scope: This NHDOT project involved the detailed inspection of an existing cast-in-place box culvert carrying NH Route 10 over an unnamed brook. Due to the size of the culvert, confined space training was required. The inspection included photographic and video documentation of the inside of the culvert to determine if rehabilitation was necessary.



#### *Professional Registrations:*

Professional Engineer: NH, ME, VT, PA, NY

#### *Education:*

- Southern New Hampshire University, MBA, 2008
- University of Maine, MS, Structural Engineering, 1995
- University of Maine, BS, Structural Engineering, 1993

*Years in Industry:* 20

*Years with Firm:* 20

## JOSIF BICJA, P.E.

*Associate - Project Manager for Bridge, Culvert & Transportation*

Mr. Bicja has experience in design, rehabilitation and inspection of numerous bridges, covered bridges, wastewater treatment facilities and miscellaneous projects. He has served as a project manager, structural design engineer, construction inspector and construction administrator on bridge projects for NHDOT, MassDOT, VTrans and NYSDOT. He has extensive experience and familiarity with the latest load resistance factor design methods. Mr. Bicja has over 12 years of experience working in transportation civil engineering projects.

### Relevant Experience

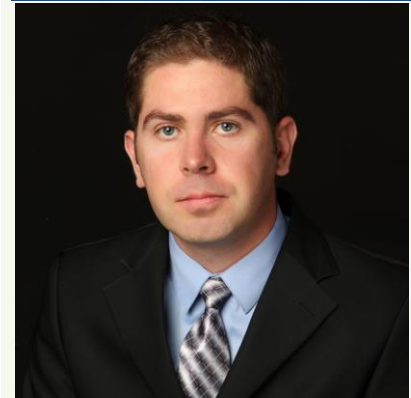
**Crescent Street Bridge, Rutland, VT:** Senior Structural Engineer for the in-depth bridge inspection, structural design, cost estimates, specifications, design, bid and construction phase services. Scope: Provided inspection, load rating, and conditions assessment for this 100' span steel girder bridge over the East Creek in Rutland, Vermont. Hoyle, Tanner prepared a report that aided the City in determining the short and long term plans for the structure. Based on findings presented in the report, Hoyle, Tanner was tasked with the design of deck and bridge barrier repairs necessary to maintain bridge function while more long term replacement options were pursued.

**Longley Covered Bridge Rehabilitation, Montgomery, VT:** Project Manager for all aspects of the project. Scope: (Town Lattice Trusses built in 1863, 70' long span) This project includes the final design of the preservation of design alternative for an H20 live load identified in our scoping study completed for the Town of Montgomery. The final design portion of this project was managed by VTrans since federal funding was obtained through the National Historic Covered Bridge Preservation Program.

**Green River Covered Bridge - New River Crossing, Guilford, VT:** Senior Structural Engineer for evaluation of all bridge crossings. Scope: Prepared a study of new alternative crossings to the Green River Covered Bridge, which has limited live load capacity. The study included options to strengthen the Covered Bridge and extensive environmental assessment.

**Piscataquog River Trail Phase IV, Manchester, NH:** Structural Engineer for the in-depth existing trestle inspection and preparation of the Engineering Study. Scope: Design and construction-phase services for the 1,800' long section of the trail. The project includes a local street crossing, easement acquisitions, a 160' single-span steel truss pedestrian bridge over the Piscataquog River, trail section upgrade and paving, landscape and wayfinding enhancements.

**Main Street Bridge, Peterborough, NH:** Structural Engineer for review of bridge design calculations. Scope: The project involves evaluation of the existing stone-faced concrete rigid frame constructed in 1940. The bridge is eligible for the National Registrar of Historic Places, and as such, an extensive NEPA and environmental permitting process was performed. The bridge will be replaced with a new cast-in-place concrete rigid frame emulating the existing structure, as well as a prefabricated steel truss pedestrian bridge. Roadway design elements included analysis of alternative alignments and profiles, intersection analysis, and evaluation of temporary traffic control alternatives. Services included survey, geotechnical engineering, NEPA, roadway engineering, public presentations, agency coordination and cost estimating. This project was funded through the Municipal Off-System Bridge Rehabilitation and Replace (MOBRR) program.



### *Professional Registrations:*

Professional Engineer: NH, VT

### *Education:*

- University of New Hampshire, BS, Civil/Structural Engineering, 2003
- University of New Hampshire, MS, Civil/Structural Engineering, 2006

### *Certifications & Specialized Training:*

- FHWA - Fracture Critical Inspection Techniques for Steel Bridges
- FHWA - Safety Inspection of In-Service Bridges
- NH LPA Certification for Labor Compliance
- NH LPA Certification Training
- OSHA - 10 Hour
- Shop Drawings & Contract Clauses Risk Control
- SPRAT - Level 1 Rope Access Technician

### *Professional Associations:*

- National Society for the Preservation of Covered Bridges (NSPCB)
- Structural Engineers of New Hampshire (SENH)
- Vermont Covered Bridge Society

*Years in Industry:* 12

*Years with Firm:* 12



## EDWARD G. WEINGARTNER, P.E.

*Associate - Senior Structural Engineer*

Mr. Weingartner has years of structural engineering experience that includes the design of transportation related projects. His expertise is in the inspection and design of bridges and bridge rehabilitations for state transportation agencies and municipalities throughout New Hampshire, Massachusetts, Vermont, Connecticut and California.

### Relevant Experience

**Rogers Rangers Bridge Part B Services, Guildhall, VT - Lancaster, NH:** Project Manager for the technical aspects of the project, scheduling, budget and cost control, public presentations, permitting, and client coordination. Scope: Replacement of Bridge No. 111/129 over the Connecticut River between the Towns of Lancaster, NH and Guildhall, VT. The project consists of replacing the existing two-span truss bridge with a new two-span steel girder bridge 400' long adjacent to the existing bridge. Traffic was maintained on the existing bridge during construction. The project included 3,000 linear feet of roadway construction with a modified T-intersection.

**NHDOT Piermont, NH - Bradford, VT NBIS Bridge Inspection and Rating, Piermont, NH - Bradford, VT:** Program Manager /Structural Engineer for the inspection and load ratings. Scope: This project involved the detailed, hands-on NBIS inspection and load rating of the bridge carrying NH Route 25 over the Connecticut River between the towns of Piermont, NH and Bradford, VT. The historic 352'-0" long Pratt through steel truss bridge was constructed in 1929 and rehabilitated in 1993.

**Dewey Street Pedestrian Bridge, Rochester, NH:** Senior Structural Engineer responsible for performing the bridge inspection, load rating calculation check and developing rehabilitation/replacement recommendations. Scope: This project involved field inspection, load rating and condition evaluation of the Dewey Street Pedestrian Bridge over the Cocheco River in Rochester, New Hampshire. The 172' long, 5-span steel through-girder bridge was constructed in 1957 using repurposed girders salvaged from another project. Replacement of the structure was recommended in a Letter Report to the City which included the design concept for a replacement structure and associated engineer's opinion of probable construction cost.

**Walker Bridge Deck Repair, Ludlow, VT:** Senior Structural Engineer responsible for QA/QC. Scope: Hoyle, Tanner performed a conditions assessment, design of emergency repairs, and construction oversight for the Walker Bridge (Route 103) over the Black River with the purposes of identifying necessary repairs to maintain service until the bridge replacement, scheduled two years from the assessment. Hoyle, Tanner maintained close coordination with the Town, VTrans Bridge Inspection Unit, VTrans Structures Group, and the VTrans District Transportation Administrator during this project ensuring the appropriate sharing of information for short and long term planning.

**Union Street Bridge over Nubanusit Brook, Peterborough, NH:** Project Manager / Senior Project Engineer for the structural design, cost estimates, specifications, oversight and management of study, design, bid and construction-phase services. Scope: Study, load rating, concrete coring and testing, cultural resources coordination and rehabilitative design services of the existing historic concrete, rigid-frame structure. The rehabilitated structure included the top slab replacement of the rigid frame, supplemental reinforcing steel in the negative moment regions of the structure and mapping and replacing of the decorative stone fascias. Roadway improvements include temporary traffic signals and utilization of one lane of alternating two-way traffic during construction.



### *Professional Registrations:*

Professional Engineer: NH, MA, VT, CT, FL

### *Education:*

- University of Lowell, MS, Civil Engineering, 1991
- University of Lowell, BS, Civil Engineering - Magna Cum Laude, 1990

### *Certifications & Specialized Training:*

- FHWA - Fracture Critical Inspection Techniques for Steel Bridges
- FHWA - LRFD for Highway Bridge Superstructures
- FHWA - Safety Inspection of In-Service Bridges
- NH LPA Certification for Labor Compliance
- NH LPA Certification Training
- NHDOT - Load and Resistance Factor Rating, February 2009

### *Professional Associations:*

- American Consulting Engineers Council (ACEC-NH) - NHDOT Bridge Design Sub-Committee (2009-Present)
- American Society of Civil Engineers (ASCE)
- Precast/Prestressed Concrete Institute (PCI)

*Years in Industry:* 25

*Years with Firm:* 10

## AARON M. LACHANCE, P.E.

### Senior Structural Engineer

Mr. Lachance is a project manager with 12 years of design and construction experience related to state, municipal, and private development projects. Mr. Lachance's engineering experience includes the preparation of bridge, roadway, utility, and stormwater and erosion control design plans and contract bid documents; bridge inspection and evaluation; roadway evaluation; management of roadway and utility reconstruction projects; and resident engineering associated with road and site construction. He has provided structural engineering services for numerous bridge design, analysis, inspection, and load rating projects in New Hampshire, Maine, Vermont and Massachusetts. Mr. Lachance also has experience in building renovation, inspection, and foundation design projects.

#### Relevant Experience

**West Hill Road Slope Repair, Rochester, VT:** Senior Engineer for hydraulic analysis. Scope: The Town of Rochester Vermont contracted with Hoyle, Tanner to design repairs to stabilize a slope failure affecting 100 vertical feet adjacent to Brandon Brook and West Hill Road. Intense rainfall events had undermined the toe and triggered the roadway and slope to fail and slide into the brook. Design plans and geotechnical calculations were prepared using a blast rock toe detail and Type II stone facing to restore the slope, toe and brook channel. Permits included a Categorical Exclusion Environmental Assessment, ACOE Category 2 and VT Stream Alteration Permit. The project is on United States Forest Service lands and was funded through VTTrans.

**Dewey Street Pedestrian Bridge, Rochester, NH:** Project Manager responsible for the development of the scope of services, management of project schedule and costs, coordination of subconsultant services, and client coordination. Scope: This project involved field inspection, load rating and condition evaluation of the Dewey Street Pedestrian Bridge over the Cocheco River in Rochester, New Hampshire. The 172' long, 5-span steel through-girder bridge was constructed in 1957 using repurposed girders salvaged from another project. Replacement of the structure was recommended in a Letter Report to the City which included the design concept for a replacement structure and associated engineer's opinion of probable construction cost.

**Barnet Road Bridge Inspection, Barnet, VT:** Senior Engineer for the inspection phase of the project. Scope: Perform an in-depth inspection and load rating of the bridge carrying NH Route 25 over the Connecticut River (Bridge. No. 032/103). The spans are comprised of one 120' and one 264' steel Pratt through trusses.

**Multi-Use Path, Litchfield, NH:** Design Engineer responsible for preparation of plans and contract documents for the design phase of the project, and managing construction administration and monitoring efforts during the construction phase of the project. Scope: The 8' wide paved multi-use path serves pedestrians and bicyclists, and connects to several existing paths. The project was funded by both the Transportation Enhancement (TE) program administered by the NHDOT and by the American Recovery and Reinvestment Act (ARRA).

**Page Road Culvert Replacement, Londonderry, NH:** Project Engineer for the design of this 76' long, 3' rise by 5' span, three-sided natural bottom box culvert. Responsibilities included the hydraulic analysis for culvert sizing, geometric design of the culvert and mortar rubble masonry headwalls, and site grading. Also provided assistance and oversight during construction to resolve issues related to the casting of footings on the natural bedrock stream bottom. Scope: Replacement of a 76' long, 3' by 5' three-sided natural bottom box culvert.

**Clipper City Rail Trail Pedestrian Bridge, Newburyport, MA:** Project Engineer for civil and structural design tasks for two pedestrian bridges and for the evaluation and design of several retaining wall structures. Scope: One bridge consists of an 80' steel prefabricated truss bridge on concrete footings; the other bridge consists of designing a new, pedestrian-friendly deck system for an existing railroad bridge.



#### Professional Registrations:

Professional Engineer: NH, MA, ME

#### Education:

- University of New Hampshire, BS, Civil Engineering, 2002
- University of New Hampshire, MS, Civil Engineering, 2006

#### Certifications & Specialized Training:

- MaineDOT - Local Project Administration Certification
- NH LPA Certification for Labor Compliance
- NH LPA Certification Training

Years in Industry: 12

Years with Firm: 2

## JILLIAN A. SEMPRINI, P.E.

*Senior Structural Engineer*

Ms. Semprini's experience includes the inspection, design and construction observation of simple to complex bridge structures, including precast concrete box culverts, precast concrete rigid frames, steel girders, prestressed concrete girders, metal trusses and timber covered bridges – she is fluent in the use of many types of software packages including STAAD, LEAP Bridge, Merlin-Dash and Virtis, among others.

### Relevant Experience

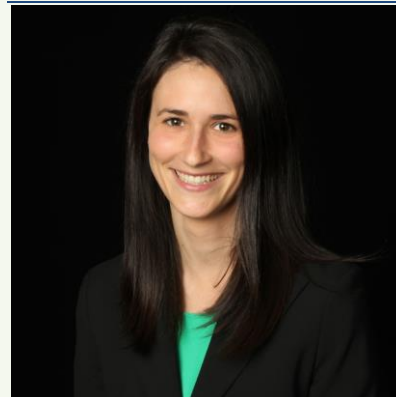
**Dewey Street Pedestrian Bridge, Rochester, NH:** Structural Engineer for the bridge inspection and load rating of the pedestrian bridge to determine its existing condition and capability to safely carry pedestrian traffic as well as prepare a letter report summarizing the inspection finding and recommendations. Scope: This project involved field inspection, load rating and condition evaluation of the Dewey Street Pedestrian Bridge over the Cocheco River in Rochester, New Hampshire. The 172' long, 5-span steel through-girder bridge was constructed in 1957 using repurposed girders salvaged from another project. Replacement of the structure was recommended in a Letter Report to the City which included the design concept for a replacement structure and associated engineer's opinion of probable construction cost.

**Scott Covered Bridge, Townshend, VT:** Project Engineer responsible for select structural calculation review. Scope: (Kingpost and Town Lattice Trusses built in 1870, four spans, 276' total length) Inspected, analyzed and designed a rehabilitation of the bridge, which was closed due to its poor condition. The bridge originally carried vehicular traffic but has been limited to pedestrians since the 1950s. This unique bridge includes two different truss types and has undergone multiple repairs including installation of a new pier and nail-laminated wood arches. Designed temporary repair to address major deficiencies discovered during our initial inspection.

**Town-Wide Bridge Review Program, Milford, NH:** Structural Engineer for the bridge inspection, evaluation and preparation of review services summary. Scope: Hoyle, Tanner was retained to inspect all 17 municipally-owned bridge structures and developed a prioritization plan for repairs, rehabilitations, and replacement of the structures.

**Main Street Bridge, Peterborough, NH:** Structural Engineer responsible for the civil/site layout, structural design of the vehicular bridge and administration of preliminary plan preparation. Scope: The project involves evaluation of the existing stone-faced concrete rigid frame constructed in 1940. The bridge is eligible for the National Registrar of Historic Places, and as such, an extensive NEPA and environmental permitting process was performed. The bridge will be replaced with a new cast-in-place concrete rigid frame emulating the existing structure, as well as a prefabricated steel truss pedestrian bridge. Roadway design elements included analysis of alternative alignments and profiles, intersection analysis, and evaluation of temporary traffic control alternatives. Services included survey, geotechnical engineering, NEPA, roadway engineering, public presentations, agency coordination and cost estimating. This project was funded through the Municipal Off-System Bridge Rehabilitation and Replace (MOBRR) program.

**Broad Brook Road over Broad Brook, Winchester, NH:** Structural Engineer for all structural design, civil/site layout, and administration of plan preparation. Scope: The project involved bridge superstructure replacement and rehabilitation of the existing substructure. The new superstructure consists of skewed 27' span prestressed butted deck beams with a cast-in-place composite concrete overlay. The bridge utilized accelerated construction techniques including precast concrete abutment caps to limit the roadway closure to three weeks. Roadway reconstruction limits included 550 linear feet of minor approach roadway improvements. Also included in the project were the necessary environmental, permitting services, hydraulic and cultural resource coordination services.



#### *Professional Registrations:*

Professional Engineer: NH, MA

#### *Education:*

- University of New Hampshire, MS, Structural Engineering, 2008
- University of New Hampshire, BS, Civil Engineering, 2007

#### *Certifications & Specialized Training:*

- NH LPA Certification for Labor Compliance
- NH LPA Certification Training

#### *Professional Associations:*

Structural Engineers of New Hampshire (SENH)

*Years in Industry:* 8

*Years with Firm:* 4

## JEFFREY A. DEGRAFF, JR., P.E.

*Structural Engineer/Hydraulics*

Mr. DeGraff's experience in civil/structural engineering includes bridge, stormwater management, municipal water and wastewater, site and surveying projects. His involvement with bridge projects includes design of steel, concrete and timber elements, and design and construction observation of prestressed concrete superstructures. Mr. DeGraff's civil engineering experience includes inspection, design and observation of potable water distribution and wastewater collection systems. Mr. DeGraff is also proficient in performing hydrologic and hydraulic studies to determine bridge and culvert openings at stream crossings, as well as designing open and closed stormwater collection systems for private, state and municipal routes/properties. Mr. DeGraff has working knowledge of Survey Total Station and Level, LEAP CONSPAN, STAAD Pro, HEC-RAS, HydroCAD, WaterCAD, Arcmap GIS, Microstation, AutoCAD and Microsoft Office Suite Programs.

### Relevant Experience

**NHDOT Monroe Bridge Inspection and Rating- Barnet Road, Barnet, VT, Monroe, NH:** Structural Engineer for the inspection portion of the project. Scope: Perform an in-depth inspection and load rating of the bridge carrying NH Route 25 over the Connecticut River (Bridge. No. 032/103). The spans are comprised of one 120' and one 264' steel Pratt through trusses.

**Walker Bridge Assessment, Ludlow, VT:** Project Engineer responsible for design and developing a steel plate repair and anchor details to span potential full depth spall failures found on the Walker Bridge's concrete deck with the aid of STAAD-Pro's Finite Element Analysis procedures. Other responsibilities included construction observation of the installation of the steel plate. Scope: Hoyle, Tanner performed an emergency assessment of the bridge following a full-depth spall in the concrete bridge deck. Design provided for a steel plate installation over the full-depth spall and two other partial-depth spalls identified during the bridge inspection.

**US Route 7 over the Neshobe River, Brandon Bridge No. 114, Brandon, VT:** Project Engineer for river hydrologic and hydraulic analyses for US Route 7, crossing over Brand Bridge NO. 114 and sizing an overflow pipe. Scope: The existing 42' twin stone arch structure (Bridge No. 114) located on US Route 7 (Center St.) over the Neshobe River in Brandon, VT was believed to cause backwater effects during Tropical Storm Irene. Subsequently, Bridge No. 114 and upstream structures were requested to be analyzed utilizing HEC-RAS. Design included hydrologic and hydraulic calculations, comparison of peak flows to USGS gauge stations and FIS report, comparison of hydraulic model water surface elevations to FIS profile and Tropical Storm Irene videos, size a 12' by 6' open-bottom box culvert to bypass flows upstream of Bridge No. 114.

**Main Street/Spring Street Intersection, Winooski, VT:** Project Engineer responsible for construction oversight services. Scope: Final plan and specification development for the Main Street and Spring Street Intersection improvements, including lane reconfiguration for westbound traffic on Spring Street, design of a new pedestrian crossing on the south side of the intersection, specifications for new thermal video vehicle detection system, and new intersection striping and signage. Hoyle, Tanner remained closely involved through construction to ensure the system's retiming was completed accurately and zones for the video detection system performed adequately with actual traffic behaviors.

**Westville Road Bridge, Plaistow, NH:** Project Engineer responsible for river hydrologic and hydraulic analyses for Westville Road over Little River crossing. Responsibilities included data collection, report preparation, calculating peak discharge values, developing existing and proposed hydraulic models using HEC-RAS in conjunction with AutoCAD Civil3D and classifying the stream type to size the proposed bridge opening to be in accordance with NH Stream Crossing Guidelines. Scope: Designed a replacement of the existing 14' span cast-in-place concrete arch bridge, originally constructed in 1940, to improve the roadway geometry, safety and hydraulic capacity of the crossing. This project is in the engineering-study phase, and the proposed replacement structure is likely to be a 28' span precast rigid frame.



### *Professional Registrations:*

Professional Engineer: VT  
Surveyor In Training: NH

### *Education:*

- Clarkson University, MS, Civil Engineering, 2011
- Clarkson University, BS, Civil Engineering, 2010

### *Certifications & Specialized Training:*

- Certified in the Operation of Nuclear / Density Moisture Equipment
- FHWA - LRFD for Highway Bridge Superstructures
- NHI - Bridge Construction Inspection: Inspector Safety
- OSHA - 10 Hour

### *Professional Associations:*

Vermont Society of Engineers (VSE)

*Years In Industry:* 4

*Years with Firm:* 1

## JOSEPH C. RIPLEY, P.E.

*Structural Engineer/Inspection*

Mr. Ripley's experience includes bridge design, inspection, rating, shop drawing review, and construction observation for municipal and state agency bridge projects. Mr. Ripley has working knowledge of Merlin-Dash, LEAP Bridge, STAAD, Microstation, AutoCAD, GT Strudl, SolidWorks, ArcMap GIS, and the Surveying Total Station and is proficient in Microsoft Office Suite programs.

### Relevant Experience

**Piscataquog River Trail Phase IV, Manchester, NH:** Project Engineer for structural design, plan preparation, and shop drawing review. Scope: Design and construction-phase services for the 1,800' long section of the trail. The project includes a local street crossing, easement acquisitions, a 160' single-span steel truss pedestrian bridge over the Piscataquog River, trail section upgrade and paving, landscape and wayfinding enhancements.

**Crescent Street Bridge, Rutland, VT:** Structural Engineer for the load rating, structural design and plan preparation. Scope: Provided inspection, load rating, and conditions assessment for this 100' span steel girder bridge over the East Creek in Rutland, Vermont. Hoyle, Tanner prepared a report that aided the City in determining the short and long term plans for the structure. Based on findings presented in the report, Hoyle, Tanner was tasked with the design of deck and bridge barrier repairs necessary to maintain bridge function while more long term replacement options were pursued.

**Longley Covered Bridge Rehabilitation, Montgomery, VT:** Project Engineer for structural design and plan preparation. Scope: (Town Lattice Trusses built in 1863, 70' long span) This project includes the final design of the preservation of design alternative for an H20 live load identified in our scoping study completed for the Town of Montgomery. The final design portion of this project was managed by VTrans since federal funding was obtained through the National Historic Covered Bridge Preservation Program.

**Rogers Rangers Bridge - US Route 2 over the Connecticut River Bridge Inspection, Lancaster, NH- Guildhall, VT:** Structural Engineer for the in-depth inspection and bridge ratings. Scope: This project involved the detailed, hands-on NBIS inspection and load rating of the US Route 2 "Rogers Rangers" bridge over the Connecticut River between the Towns of Lancaster, NH and Guildhall, VT. The bridge is a historic 400' long two-span Parker Truss constructed in 1958.

**Green River Covered Bridge, Guilford, VT:** Structural Engineer responsible for the layout and design of the new truss bottom chords. Scope: (Town Lattice Trusses built in 1870, 104' span) Inspected, analyzed and designed a rehabilitation of the bridge. The Town Lattice trusses were built without secondary upper chords and exhibited sweep and racking in the trusses. The project also includes evaluation of the stone abutments.

**Crescent Street Bridge, Rutland, VT:** Structural Engineer for the load rating, structural design and plan preparation. Scope: Provided inspection, load rating, and conditions assessment for this 100' span steel girder bridge over the East Creek in Rutland, Vermont. Hoyle, Tanner prepared a report that aided the City in determining the short and long term plans for the structure. Based on findings presented in the report, Hoyle, Tanner was tasked with the design of deck and bridge barrier repairs necessary to maintain bridge function while more long term replacement options were pursued.

**Church Street over the Tioga River, Belmont, NH:** Project Engineer for the structural design, civil/site layout, administration of plan preparation, shop drawing review and part-time construction observation. Scope: Design and permitting of emergency repairs to a corrugated metal pipe that was constructed in 1975 and was closed as a result of its poor condition. The emergency repairs consisted of constructing a cast-in-place reinforced concrete invert which allowed the bridge to reopen to all traffic.



**Professional Registrations:**  
Professional Engineer: NH

### **Education:**

- University of Massachusetts - Lowell, BS, Civil Engineering, 2011
- University of Massachusetts - Lowell, MS, Structural Engineering, 2013

### **Certifications & Specialized Training:**

- FHWA - Safety Inspection of In-Service Bridges
- NH LPA Certification Training

### **Professional Associations:**

- American Society of Civil Engineers (ASCE) - Student Member
- International Concrete Repair Institute (ICRI)
- Structural Engineers of New Hampshire (SENH)

**Years in Industry:** 5

**Years with Firm:** 5

## **TODD M. CLARK, P.E.**

*Senior Vice President – Quality Administrator*

Todd maintains his role as an energetic and dedicated project manager capable of leading multi-discipline teams to incorporate the associated aspects of roadway projects that include structures, drainage, stormwater management, environmental document and permit application preparation, access management, traffic management, construction phasing, Right-of-Way, utilities, and pedestrian and bicycle accommodations. As our Transportation Services Group Director, he oversees the technical and quality aspects of roadway projects from scoping through various design stages to construction close-out utilizing different federal, state, municipal and private funding source combinations.

### **Relevant Experience**

**Manchester Street Corridor Improvements, Concord, NH:** Senior Transportation Engineer for project scoping and QA/QC design review; assisted with compliance with funding requirements. Scope: Design of improvement roadway plans to this 1.4 mile road segment to increase corridor capacity, improve safety at intersections, and implement innovative stormwater management and treatment design along with underground utility conflict avoidance and resolution, and bicycle accommodations.

**Union Street Reconstruction, Peterborough, NH:** Principal-in-Charge for project scoping, QA/QC, design reviews, schedule adherence, and compliance with funding requirements. Scope: Design, bid, and construction-phase services for a 6,200 +/- linear foot section of Union Street, including roadway reconstruction, a new roadway drainage system, sidewalk reconstruction, replacement in-kind sanitary sewer improvements, traffic calming measures, and a new streetscape. The project required close coordination with multiple departments both internally within Hoyle, Tanner and externally with the client.

**MassDOT Webster Street (Route 16), Douglas, MA:** Principal-in-Charge for QA reviews, and technical and project management. Scope: Project proposes roadway corridor safety improvements in response to being identified as a High Risk Rural Roadway under the FHWA Highway Safety Improvement Program and is located along a 4-mile segment of Webster Street (Route 16) from the Douglas/Webster Town Line to the Main Street intersection in the Town of Douglas, Massachusetts. The project will be completed in two phases. Phase 1 completed a Road Safety Audit (RSA) and Phase 2 prepares plans, specifications, cost estimates, and assists MassDOT with design, permitting, public hearing, and coordination for advertising.

**Bay & Upper Bay Roads Reconstruction, Sanbornton, NH:** Principal-in-Charge for the NHDOT SAH project, permitting strategy, QA/QC design reviews, schedule adherence, and compliance with funding requirements. Scope: Three miles of roadway reconstruction, drainage and improvements, three-sided culvert design, signage and guardrail upgrades along Bay and Upper Bay Roads. The project required context-sensitive solutions due to the narrow roadway and adjacent historic homes and stone walls.

**Campbell Street Intersection, Manchester, NH:** Project Manager responsible for project coordination, schedule adherence, CMAQ funding application preparation, presentations, environmental documentation, design QA/QC and cost estimates. Scope: Study and preliminary design-phase services to evaluate options and advance the preferred alternative to reconfigure the Campbell Street intersection that encompasses three intersections in very close proximity to one another. The design includes combining two intersections into a single-lane roundabout, adding two thru lanes and traffic signal alterations.

**Dorset Street, South Burlington, VT:** Principal-in-Charge for project scoping, QA/QC, design reviews, schedule adherence, and compliance with funding requirements. Scope: Study and design of pavement rehabilitation for approximately 1.1 miles (5800 linear feet) of Dorset Street in South Burlington, Vermont beginning at the intersection of Kennedy Drive and ending at the intersection of Williston Road (US Route 2). This project is currently in the conceptual phase with alternatives being developed for various multi-year phasing and construction traffic control options.



#### ***Professional Registrations:***

Professional Engineer: NH, MA, ME, VT, FL

#### ***Education:***

University of Massachusetts Dartmouth, BS, Civil/Structural Engineering-Water Resources, 1991

***Years In Industry:*** 25

***Years with Firm:*** 14

## STEPHEN B. HAAS, P.E.

*Associate – Project Manager for Roadways, Bicycle & Pedestrian Facilities & Intersections*

Mr. Haas has assisted clients in identifying infrastructure problems as well as the associated transportation engineering solutions. For over 14 years, Mr. Haas has accumulated experience in transportation planning, final design principles, general/civil site engineering, and construction inspection to efficiently identify cost-effective designs. He specializes in roadway and traffic engineering, traffic analysis, intersection and traffic signal layouts that are incorporated into efficient and well-planned multi-modal designs. As a result, he is well versed in the AASHTO, FHWA, ITE and TRB transportation design guidelines, and has a thorough understanding of NHDOT and VTrans standards.

### Relevant Experience

**Dorset Street, South Burlington, VT:** Project Manager responsible for all technical aspects of the project including design, report development, phasing considerations, and presentation of findings to the City of South Burlington. Scope: Study and design of pavement rehabilitation for approximately 1.1 miles (5800 linear feet) of Dorset Street in South Burlington, Vermont beginning at the intersection of Kennedy Drive and ending at the intersection of Williston Road (US Route 2). This project is currently in the conceptual phase with alternatives being developed for various multi-year phasing and construction traffic control options.

**Main Street/Spring Street Intersection, Winooski, VT:** Lead Traffic Engineer responsible for intersection analysis, striping design, & traffic signal specifications. Scope: Final plan and specification development for the Main Street and Spring Street Intersection improvements, including lane reconfiguration for westbound traffic on Spring Street, design of a new pedestrian crossing on the south side of the intersection, specifications for new thermal video vehicle detection system, and new intersection striping and signage. Hoyle, Tanner remained closely involved through construction to ensure the system's retiming was completed accurately and zones for the video detection system performed adequately with actual traffic behaviors.

**Bay & Upper Bay Roads Reconstruction, Sanbornton, NH:** Project Engineer / Engineer of Record for the roadway layout, surface and subsurface drainage design, guardrail layout, cost estimating, environmental permitting, and Right of Way plans, and construction plan and specification development. Scope: Three miles of roadway reconstruction, drainage and improvements, three-sided culvert design, signage and guardrail upgrades along Bay and Upper Bay Roads. The project required context-sensitive solutions due to the narrow roadway and adjacent historic homes and stone walls.

**Manchester Street Corridor Improvements, Concord, NH:** Roadway Engineer for technical aspects of the project including roadway layout, drainage design, cost estimating, specifications, scheduling, budget and cost control, public presentations, permitting, and client coordination. Scope: Design of improvement roadway plans to this 1.4 mile road segment to increase corridor capacity, improve safety at intersections, and implement innovative stormwater management and treatment design along with underground utility conflict avoidance and resolution, and bicycle accommodations.

**Downtown Infrastructure & Revitalization, Somersworth, NH:** Traffic Engineer responsible for development and review of traffic signal plans. Scope: Hoyle, Tanner completed design, plans and technical specifications, permitting, bidding, construction administration and construction observation for the improvement of downtown utilities and roadways. This important revitalization project included site improvements, such as a redesign of the roadway profile and cross-sections to better accommodate roadway drainage through approximately 3,500' of roadway through downtown Somersworth. The project also included drainage and water line replacement, some sewer replacement, streetscape improvements, including new decorative lighting and sidewalks, and design of a new traffic signal at the five-way intersection on the south end of the project. The project met an aggressive timeline in order to meet the City's construction goals.



**Professional Registrations:**  
Professional Engineer: NH, MA

**Education:**  
Worcester Polytechnic Institute, BS, Civil Engineering, 2002

**Professional Associations:**  
NHITE – Vice President

**Years in Industry:** 14  
**Years with Firm:** 10

## AUDREY G. BEULAC, P.E., CPSWQ

*Project Manager for Roadways, Bicycle & Pedestrian Facilities & Intersections*

Ms. Beulac possess technical and practical experience in many facets of roadway and water resources engineering applicable on projects that involve stormwater management utilizing Best Management Practices (BMPs). She quickly creates and iterates alignments, profiles, grading plans, analyze guardrail warrants, calculate quantities and cost estimates providing early insights into each projects stormwater treatment opportunities. Her career focus has been on BMPs and Low Impact Development (LID) Designs, stormwater modeling, and as a Certified Professional in Stormwater Quality. Ms. Beulac offers BMP and stormwater modeling, feasibility, type selection and design capabilities drawing upon the ability to perform hydrologic and hydraulic systems with pollutant loading reduction analyses.

### Relevant Experience

**Longley Covered Bridge Rehabilitation, Montgomery, VT:** Lead Roadway Engineer performing horizontal and vertical alignment, drainage, and guardrail design for the bridge preservation. Engineering responsibilities also included roadway quantities and plan preparation. Scope: (Town Lattice Trusses built in 1863, 70' long span) This project includes the final design of the preservation of design alternative for an H20 live load identified in our scoping study completed for the Town of Montgomery. The final design portion of this project was managed by VTTrans since federal funding was obtained through the National Historic Covered Bridge Preservation Program.

**Rogers Rangers Bridge Part B Services, Guildhall, Vermont – Lancaster, NH:** Lead Roadway Engineer responsible for completing the roadway design and drainage improvement analysis and design. Engineering responsibilities included intersection grading and design, drainage analysis and design, plans development, completion of an estimate of probable costs, and plan preparation. Additional responsibilities included coordination with the NHDOT. Scope: Replacement of Bridge No. 111/129 over the Connecticut River between the Towns of Lancaster, NH and Guildhall, VT. The project consists of replacing the existing two-span truss bridge with a new two-span steel girder bridge 400' long adjacent to the existing bridge. Traffic was maintained on the existing bridge during construction. The project included 3,000 linear feet of roadway construction with a modified T-intersection.

**Union Street Reconstruction, Peterborough, NH:** Lead Roadway Engineer and Hydraulics Engineer for the roadway, drainage and utility design, plan preparation and engineer's cost estimate. Responsibilities also included pre and post drainage analysis in order to prepare Alteration of Terrain compliance documentation, Shoreland Protection, and Wetlands permits for submittal, and preparation of documents for bid. Scope: Design, bid, and construction-phase services for a 6,200 +/- linear foot section of Union Street, including roadway reconstruction, a new roadway drainage system, sidewalk reconstruction, replacement in-kind sanitary sewer improvements, traffic calming measures, and a new streetscape. The project required close coordination with multiple departments both internally within Hoyle, Tanner and externally with the client.

**Front Street/MCC Driveway Improvements, Manchester, NH:** Transportation Engineer performing the horizontal and vertical alignment design, pavement layout of the access driveway and left turn lane widening on Front Street, drainage design and analysis, Best Management Practices selection and design, in addition, to preparing and responsible for NHDES Alteration of Terrain Permit preparation and submission. Scope: A Community College System of New Hampshire project that proposes adding a new northbound left turn lane along Front Street and improves the College Drive intersection that includes: roadway widening, new pavement and markings, closed drainage with permanent water quality best management practice, curb and sidewalk, utility relocations, lighting and slope work.

**NHDOT On-Call Highway Contract US Route 302 Rehabilitation, Conway, NH:** Lead Hydraulics Engineer responsible for completing culvert analysis and design, wetland permitting response, and stream crossing requirement review. Additional responsibilities included field engineering and plans development. Scope: Prepare design, plans, permit documents, special provisions and cost estimates to propose rehabilitation of approximately 4.7 miles of US Route 302 by full depth reclamation of the existing pavement and stabilized with aggregate base course beginning at the intersection of US 302 and Route 113 in Conway and ending at the New Hampshire/Maine State line.



**Professional Registrations:**  
Professional Engineer: NH

**Education:**  
University of New Hampshire, BS, Civil Engineering, 2004

**Certifications & Specialized Training:**  
Certified Professional in Storm Water Quality (CPSWQ)

**Years in Industry:** 13  
**Years with Firm:** 11



## **JEFFREY C. COLLINS, E.I.T.**

*Transportation Engineer*

Mr. Collins' began his career at Hoyle, Tanner and has participated in several exciting civil and transportation engineering assignments, ranging from conceptual design to observing construction completion. Through roadway and intersection projects as well as highway and interchange designs, he has acquired a concentrated knowledge of transportation principles from AASHTO, FHWA, and several state standards. His understanding of these regulations assists in roadway, highway, drainage, clear zone, and safety projects. He has quickly excelled in the design and plan production of projects utilizing the Microstation, InRoads, and AutoCAD platforms to develop 3-dimensional (3D) models for plans along with graphics for renderings and visualizations. Working with contractors, Mr. Collins has provided 3D models and files, with the use of Automated Machine Guidance (AMG), to accelerate construction.

### **Relevant Experience**

**Dorset Street, South Burlington, VT:** Project Engineer responsible for pavement marking alternatives analysis, designing ADA compliant sidewalk ramps, multi-year phasing cost estimates, traffic control alternatives and plan preparation. Scope: Study and design of pavement rehabilitation for approximately 1.1 miles (5800 linear feet) of Dorset Street in South Burlington, Vermont beginning at the intersection of Kennedy Drive and ending at the intersection of Williston Road (US Route 2). This project is currently in the conceptual phase with alternatives being developed for various multi-year phasing and construction traffic control options.

### **School/Brook Street Area Utility Improvements Preliminary Design, Final Design and Construction, Randolph, VT:**

Transportation Engineer responsible for roadway and drainage design, civil/site layout, and plan preparation. Scope: Provided preliminary and final design, construction administration and resident project representative services for 4,500 linear feet of utility and roadway infrastructure improvements. Engineering services included water and sewer main design and replacement to improve existing service deficiencies, stormwater collection and conveyance design, coordination with utilities for overhead relocations, pedestrian access improvements including new sidewalks, retaining wall, a 60' pedestrian bridge, and traffic-calming measures for the residential neighborhood.

**Campbell Street Intersection, Manchester, NH:** Transportation Engineer for conceptual roadway design and plan preparation. Scope: Study and preliminary design-phase services to evaluate options and advance the preferred alternative to reconfigure the Campbell Street intersection that encompasses three intersections in very close proximity to one another. The design includes combining two intersections into a single-lane roundabout, adding two thru lanes and traffic signal alterations.

**NH Route 28 Improvements, Derry, NH:** Transportation Engineer for all roadway and drainage design, civil/site layout, administration of plan preparation and shop drawing review. Scope: The proposed improvements added a thru lane, turning lanes, and interconnected signal system was constructed in order to increase roadway capacity and improve traffic operations, new urban drainage measures were installed to decrease the volume of water exiting the site. Construction phase spanned two seasons with full-time resident inspection.

**Putney Route 5 Park & Ride Facility, Putney, VT:** Project Engineer responsible for alternatives analysis to; maximize parking spaces, maintain separation from Town emergency facilities, retain citizen access to recycling facilities and minimize environmental impacts. Additional responsibilities included design of stormwater treatment and ADA compliant parking and sidewalks, coordination with public utilities, public presentations, permitting, cost estimates and plan preparation. Scope: Hoyle, Tanner provided services to design VAOT CMG Park (26), the first state-owned commuter Park and Ride facility serving residents of Windham County on US Route 5 and adjacent to Exit 4 of I-91. The Park and Ride consists of 83 paved parking spaces (including 4 handicap spaces), EV charging stations, LED lighting, concrete sidewalks, pavement striping, stormwater drainage system, slope stabilization, bus shelter, bicycle racks and low maintenance landscaping.



### ***Professional Registrations:***

Engineer In Training: NH

### ***Education:***

Clarkson University, BS, Civil Engineering, 2000

***Years In Industry:*** 15

***Years with Firm:*** 15

## JACOB F. SPARKOWICH, E.I.T.

### *Transportation Engineer*

Mr. Sparkowich's experience has included progressive opportunities to meet civil/site, roadway and bridge engineering challenges. With over 2 years of experience as a design engineer, he has assisted in the development of roadway geometrics and site grading, hydrologic and hydraulic calculations, stormwater best management practice design, and utility mapping on state and municipal projects. For projects large and small, his proficiency and continued training on our design software platforms, including Microstation, InRoads, Autodesk Civil 3D, SignCAD, and HydroCad, has enabled our team to meet our clients' project goals and visions.

### Relevant Experience

**Piscataquog River Trail Phase IV, Manchester, NH:** Resident Engineer responsible for the oversight of project construction in accordance with contract documents. Scope: Design and construction-phase services for the 1,800' long section of the trail. The project includes a local street crossing, easement acquisitions, a 160' single-span steel truss pedestrian bridge over the Piscataquog River, trail section upgrade and paving, landscape and wayfinding enhancements.

**SRTS Main Street On-Call Feasibility Study, Plaistow, NH:** Roadway Engineer responsible for evaluation of traffic turning movements and design of construction access, pedestrian access, and traffic control measures. Scope: The Town of Plaistow has spent years planning to improve pedestrian walkability & safety in their downtown along Main Street (NH 121A). They selected Hoyle, Tanner to develop enhancements including 650' of sidewalk, raised crosswalks with curb extensions, revised intersection geometry to reduce travel speeds, and associated signing, marking, and streetscaping. Our Team also assisted the Town in applying for alternative funding including the TAP program.

**Main Street Bridge, Peterborough, NH:** Roadway Engineer responsible for evaluation of traffic turning movements and design of construction access, pedestrian access, and traffic control measures. Scope: The project involves evaluation of the existing stone-faced concrete rigid frame constructed in 1940. The bridge is eligible for the National Registrar of Historic Places, and as such, an extensive NEPA and environmental permitting process was performed. The bridge will be replaced with a new cast-in-place concrete rigid frame emulating the existing structure, as well as a prefabricated steel truss pedestrian bridge. Roadway design elements included analysis of alternative alignments and profiles, intersection analysis, and evaluation of temporary traffic control alternatives. Services included survey, geotechnical engineering, NEPA, roadway engineering, public presentations, agency coordination and cost estimating. This project was funded through the Municipal Off-System Bridge Rehabilitation and Replace (MOBRR) program.

**MassDOT Webster Street (Route 16), Douglas, MA:** Project Engineer responsible for the evaluation of guardrail replacement needs, analysis of existing and proposed sight distances, prioritizing stormwater infrastructure replacement needs, documentation of environmental impacts, and assisting with plan development. Scope: Project proposes roadway corridor safety improvements in response to being identified as a High Risk Rural Roadway under the FHWA Highway Safety Improvement Program and is located along a 4-mile segment of Webster Street (Route 16) from the Douglas/Webster Town Line to the Main Street intersection in the Town of Douglas, Massachusetts. The project will be completed in two phases. Phase 1 completed a Road Safety Audit (RSA) and Phase 2 prepares plans, specifications, cost estimates, and assists MassDOT with design, permitting, public hearing, and coordination for advertising.

**NHDOT On-Call Highway Contract US Route 302 Rehabilitation, Conway, NH:** Transportation Engineer responsible for field engineering and drainage inspection, as well as plan development. Scope: Prepare design, plans, permit documents, special provisions and cost estimates to propose rehabilitation of approximately 4.7 miles of US Route 302 by full depth reclamation of the existing pavement and stabilized with aggregate base course beginning at the intersection of US 302 and Route 113 in Conway and ending at the New Hampshire/Maine State line. Additional improvements include drainage repairs, signing, and coordination with concurrent NHDOT and Town projects.



**Professional Registrations:**  
Engineer In Training: NH

**Education:**  
University of New Hampshire, BS, Civil Engineering, 2012

**Years In Industry:** 4  
**Years with Firm:** 3

## KIMBERLY R. PEACE

### Senior Environmental Coordinator

Ms. Peace has a thorough understanding of the intricacies of federal, state and local ordinances and regulations required for successful project completion in a timely manner. She has extensive experience in National Environmental Policy Act (NEPA) compliance and the preparation of Categorical Exclusions (CE's), Environmental Assessments (EA's), and Environmental Impact Statements (EIS's) in accordance with the varying guidelines developed by federal environmental regulatory agencies, including FAA, FHWA, USACOE, USFWS, the US Forest Service, EPA, DOE and FERC. She is also experienced in wetland delineation, permitting, and mitigation design. She has technical experience with the identification and protection of natural resources, including rare, threatened or endangered species, in all six New England states, as well as New York, South Carolina and Florida.

#### Relevant Experience

**Longley Covered Bridge Rehabilitation, Montgomery, VT:** Environmental Coordinator responsible for the preparation of a NEPA Programmatic Categorical Exclusion (PACE). Coordinated with federal, state and local agencies to successfully fulfill permitting requirements – including Stream Alteration Permit – and minimize impacts. Scope: (Town Lattice Trusses built in 1863, 70' long span) This project includes the final design of the preservation of design alternative for an H2O live load identified in our scoping study completed for the Town of Montgomery. The final design portion of this project was managed by VTrans since federal funding was obtained through the National Historic Covered Bridge Preservation Program.

**Main Street Bridge, Peterborough, NH:** Environmental Coordinator for state and local permitting and NEPA Categorical Exclusion and Section 4(f) documentation for a bridge replacement project with impacts to protected wetlands and the protected Shoreland of a NHDES Designated River, the Contoocook. Developed state wetland and shoreland permit applications and Essential Fish Habitat Assessment for Atlantic salmon for submittal to NOAA/NMFS. Coordination with NH SHPO for development of a Memorandum of Agreement to remove the historic structure and impact a historic district. Scope: The project involves evaluation of the existing stone-faced concrete rigid frame constructed in 1940. The bridge is eligible for the National Registrar of Historic Places, and as such, an extensive NEPA and environmental permitting process was performed. The bridge will be replaced with a new cast-in-place concrete rigid frame emulating the existing structure, as well as a prefabricated steel truss pedestrian bridge. This project was funded through the Municipal Off-System Bridge Rehabilitation and Replace (MOBRR) program.

**Rogers Rangers Bridge - US Route 2 over the Connecticut River, Lancaster-Guildhall, NH:** Environmental Coordinator for supervision of preparation of NEPA documentation and permit applications for work within the protected Shoreland of a NHDES Designated River. Scope: Evaluation of bridge rehabilitation/replacement and traffic control alternatives, public input process participation, NEPA process coordination and development of preliminary plans for the preferred alternative. This existing bridge is a 400' long two-span Park Truss constructed in 1950.

**Green River Covered Bridge, Guilford, VT:** Environmental Coordinator for federal and state permitting, including NEPA Programmatic Categorical Exclusion and coordination with VTANR regarding Stream Alteration permit. Scope: (Town Lattice Trusses built in 1870, 104' span) Inspected, analyzed and designed a rehabilitation of the bridge. The Town Lattice trusses were built without secondary upper chords and exhibited sweep and racking in the trusses. The project also includes evaluation of the stone abutments.

**Route 132 & River Road Repairs, Sharon, VT:** Environmental Coordinator for federal, state and local permitting efforts including VT ANR Stream Alteration permit. Scope: Repair designs for 3.5 miles of Route 132 and 0.5 miles of River Road for damage resulting from Tropical Storm Irene. Design includes hydrologic and hydraulic analysis, culvert design, embankment stabilization design, retaining wall design, permitting, and roadway reestablishment. The project also includes design of a 7' by 6' tall concrete box culvert carrying the Quation Brook under Route 132, a 14' tall by 90' long retaining wall anchored to bedrock and designed to support the surcharge load of the roadway above, and several embankment stabilization designs where the brook has caused slope failure. This project was completed through the VTrans administered Federal Highway Administration Emergency Relief Program.



#### Education:

- University of South Carolina, MS, Marine Science, 1994
- Thomas More College, BS, Biology, 1992

*Years in Industry:* 17

*Years with Firm:* 3

## JOANNE E. THERIAULT

*Environmental Coordinator*

Ms. Theriault is a permitting specialist and wildlife biologist with 12 years of experience in the field. She has a thorough understanding of state and federal permitting and agency coordination for wetlands permits, NEPA compliance, and FERC relicensing. She also has technical experience with the identification and protection of natural resources and management of human-wildlife conflict. Her technical specialties include vernal pool ecology, bird identification, and aquatic entomology.

### Relevant Experience

**Deerfield to Hooksett - 118 Line Rebuild, Deerfield - Hooksett, NH:** Project Biologist for the monitoring of permit compliance during the construction phase of a transmission line Right-of-Way rebuild project. Coordinated with construction crews, surveyed for state-listed spotted turtle and Blanding's turtle prior to daily commencement of construction, monitored wetland crossings and erosion control measures to ensure compliance with DES-issued wetlands permit, coordinated with DES to amend permits when access routes needed to change, documented and observed transmission line structure removal in delineated wetlands. Scope: Field surveillance and successful completion of permitting and project implementation for a line rebuild crossing through three towns in southern New Hampshire.

**Derry to Hudson 326 Line Uprate, Derry - Hudson, NH:** Project Biologist for the monitoring of permit compliance during the construction phase of a transmission line Right-of-Way rebuild project. Coordinated with construction crews, surveyed for state-listed spotted turtle and Blanding's turtle prior to daily commencement of construction, monitored wetland crossings and erosion control measures to ensure compliance with DES-issued wetlands permit, coordinated with DES to amend permits when access routes needed to change, documented and observed transmission line structure removal in delineated wetlands. Scope: Field surveillance and successful completion of permitting and project implementation for a line rebuild crossing through three Towns in southern NH.

**Deerfield to Concord G146 Line Uprate, Deerfield - Concord, NH:** Project Biologist for the monitoring of permit compliance during the construction phase of a transmission line Right-of-Way rebuild project. Coordinated with construction crews, surveyed for state-listed spotted turtle and Blanding's turtle prior to daily commencement of construction, monitored wetland crossings and erosion control measures to ensure compliance with DES-issued wetlands permit, coordinated with DES to amend permits when access routes needed to change, documented and observed transmission line structure removal in delineated wetlands. Scope: Field surveillance and successful completion of permitting and project implementation for a line rebuild crossing through three Towns in southern NH.

**Bald Eagle Winter Monitoring, Manchester - Concord, NH:** Project Biologist for six years of biweekly observations of known and potential bald eagle winter habitat to observe potential roost activity. Observations included morning and evening surveillance of potential habitat locations. Reported data included identification of all eagles, raptors and waterfowl species using the area. Developed final project documentation and report to stakeholders and client. Scope: Monitoring of bald eagle nest locations and surrounding project area as a condition of the Federal Energy Regulatory Commission Relicensing of the Amoskeag, Hooksett and Garvins Falls dams on the Merrimack River. Survey data was used to inform decisions about habitat protection in the project area.

**Northern Pass Transmission Line, Franklin, NH:** Permitting Specialist / Project Biologist for delineation and assessment of natural resources on a proposed transmission line Right-of-Way project. Conducted field surveys for State- and Federally-listed wildlife which utilize the powerline corridor. Assisted with the delineation of wetlands along the existing corridor. Lead biologist for identification and classification of vernal pools in proposed and existing Right-of-Way corridors. Completed applications for state permits to allow for widening of existing transmission line, including NH Wetland Dredge and Fill Permit, the NH Shoreland Permit, and the NH Alteration of Terrain Permit. Scope: Field surveillance and development of permit applications for a 192-mile transmission line project extending from Franklin, NH to the Canadian Border.



### *Education:*

- University of New Hampshire, MS, Natural Resources, 2009
- Northeastern University, BS, Biology, 2003

*Years in Industry:* 10

## ELIZABETH A. BOSIAK

### *Land Acquisition Specialist*

Ms. Bosiak started her career in the Right of Way field in 1979 when she joined the staff of the Right of Way Bureau of the New Hampshire Department of Transportation. She has experience communicating with design, construction, and property owners during relocations of businesses and residences, explaining to the property owners what would occur in the area of their property and explaining the easements or required property rights. She also dealt with securing proper documentation regarding the projects. She has been a member of the Epsom Planning Board since 1999 and has also worked closely with the Central New Hampshire Regional Planning Commission as a member of the Transportation Advisory Committee.

### **Relevant Experience**

**Main Street Bridge, Peterborough, NH:** Acquisitions / Relocation for coordination between property owners and design or construction companies to address concerns that the owners may have regarding their property. Scope: The project involves evaluation of the existing stone-faced concrete rigid frame constructed in 1940. The bridge is eligible for the National Registrar of Historic Places, and as such, an extensive NEPA and environmental permitting process was performed. The bridge will be replaced with a new cast-in-place concrete rigid frame emulating the existing structure, as well as a prefabricated steel truss pedestrian bridge. Roadway design elements included analysis of alternative alignments and profiles, intersection analysis, and evaluation of temporary traffic control alternatives. Services included survey, geotechnical engineering, NEPA, roadway engineering, public presentations, agency coordination and cost estimating. This project was funded through the Municipal Off-System Bridge Rehabilitation and Replace (MOBRR) program.

**MassDOT Webster Street (Route 16), Douglas, MA:** Acquisitions / Relocation for coordination between property owners and design or construction companies to address concerns that the owners may have regarding their property. Scope: Project proposes roadway corridor safety improvements in response to being identified as a High Risk Rural Roadway under the FHWA Highway Safety Improvement Program and is located along a 4-mile segment of Webster Street (Route 16) from the Douglas/Webster Town Line to the Main Street intersection in the Town of Douglas, Massachusetts. The project will be completed in two phases. Phase 1 completed a Road Safety Audit (RSA) and Phase 2 prepares plans, specifications, cost estimates, and assists MassDOT with design, permitting, public hearing, and coordination for advertising.

**SRTS Main Street On-Call Feasibility Study, Plaistow, NH:** Acquisitions / Relocation for coordination between property owners and design or construction companies to address concerns that the owners may have regarding their property. Scope: The Town of Plaistow has spent years planning to improve pedestrian walkability & safety in their downtown along Main Street (NH 121A). They selected Hoyle, Tanner to develop enhancements including 650' of sidewalk, raised crosswalks with curb extensions, revised intersection geometry to reduce travel speeds, and associated signing, marking, and streetscaping. Our Team also assisted the Town in applying for alternative funding including the TAP program.



#### **Education:**

New Hampshire College, BA, Business Management, 1968

#### **Certifications & Specialized Training:**

- MaineDOT - Local Project Administration Certification
- NH LPA Certification Training

#### **Professional Associations:**

- Central New Hampshire Regional Planning Commission
- Epsom Planning Board - Secretary
- International Asset Management Committee
- International Right of Way Association - New England Chapter 16 Secretary, Membership Chair

**Years in Industry:** 37

**Years with Firm:** 1

## MICHAEL V. SCHRAMM, P.E., LEED AP

*Vice President – Stormwater Engineer*

Mr. Schramm's background is in environmental engineering. He has worked on multiple wastewater treatment and collection projects in addition to numerous stormwater management projects, energy development and efficiency projects, and site monitoring, assessment and remediation projects.

Mr. Schramm's stormwater experience includes not only traditional drainage design but also the evaluation and design of innovative stormwater treatment facilities, watershed planning efforts and the evaluation and implementation of stormwater funding mechanisms. Mr. Schramm has contributed to the successful completion of the design of various detention ponds, bioretention facilities, grass treatment swales and underground treatment and recharge facilities. In addition, Mr. Schramm has consulted with numerous communities on stormwater planning and funding initiatives and worked on the design and implementation of the first stormwater utility in the state of Vermont. Mr. Schramm has experience working successfully in association with planners, landscape architects, wetland specialists and other specialized consultants. Mr. Schramm is a dedicated professional committed to outstanding customer service and high quality project deliverables. He has a proven track record for successful water quality projects throughout New England.

### Relevant Experience

#### **Bartlett Brook Central Stormwater Improvement Project, South Burlington, VT:**

Project Manager for all technical aspects of the project, scheduling, budget, management of subconsultants, design review, regulatory coordination and client communications. Scope: Final design through the Bartlett Brook Flow Restoration Plan process included capturing collected stormwater runoff and conveying this stormwater to a City-owned parcel to allow for underground infiltration. Upon further investigation during final design, site soil conditions were found to be not favorable for stormwater infiltration. As a result, the design team is now advancing with design and implementation of a gravel wetland to provide for flow detention and phosphorus removal of the collected stormwater runoff from the contributing residential drainage area.

**City Offices Stormwater Improvements, South Burlington, VT:** Project Manager for all technical aspects of the project, scheduling, budget and cost control, management of subconsultants, public presentations, permitting, and client coordination. Scope: Conducted an Engineering Feasibility Analysis for the City's Municipal Office complex which had been identified as a location to evaluate and implement stormwater management improvements. This analysis was completed with a focus on the implementation of Low Impact Development measures. The identified and subsequently designed stormwater management improvements included a bioretention facility, vegetated swale and underground storage system. Hoyle, Tanner provided bid and construction-phase services including an onsite resident project representative, facilitating weekly project meetings, responding to RFIs, change order requests, issuing field orders, and shop drawing review.

**Machia Farm Agricultural Water Quality, St. Albans Bay, VT:** Project Manager for all technical aspects of the project, scheduling, budget and cost control, management of subconsultants, and client coordination. Scope: Preliminary and final design, and construction observation for the structural farm project implementation initiatives to reduce the phosphorus loads delivered to Lake Champlain. Project tasks included of the following agricultural water quality practices: manure storage facilities, heavy-use area management, waste transfer, clean water diversion and milkhouse waste treatment.

**Farrell Street/Potash Brook Stormwater Improvements, South Burlington, VT:** Project Engineer for preliminary design, final design and construction phases, responsible for detailed process and hydraulic design, equipment selection and layout, civil/site layout, administration of plan preparation. Scope: This stormwater management of State Identified Selected Discharges project included the design of extended detention basins, bioretention facilities and underground proprietary technologies at the Farrell Street/Potash Brook project location. Prepared an Engineering Feasibility Analysis (EFA) and an Erosion Prevention Sediment Control (EPSC) Plan in accordance with VTDEC procedures.



#### ***Professional Registrations:***

Professional Engineer: VT

#### ***Education:***

Cornell University, BS, Environmental Engineering, 2000

#### ***Certifications & Specialized Training:***

- Certified Professional in Erosion and Sediment Control
- LEED Accredited Professional
- OSHA Lead Construction Training Course

***Years in Industry:*** 16

***Years with Firm:*** 14



## *Campbell Street Intersection, Manchester, New Hampshire*

Hoyle, Tanner provided study and preliminary design-phase services to evaluate options and advance the preferred alternative to reconfigure Campbell Street, which encompasses three closely spaced intersections. The design includes combining two intersections into a single-lane roundabout, adding two thru lanes and traffic signal alterations. Hoyle, Tanner aided the City in securing CMAQ funding which was administered through the LPA program.



# QUALITY CONTROL PLAN

for



150 Dow Street  
Manchester, New Hampshire 03101  
603-669-5555  
[www.hoyletanner.com](http://www.hoyletanner.com)



## QUALITY CONTROL PLAN

### QUALITY POLICY

Hoyle, Tanner is committed to continuous quality assurance and quality control through involvement of all personnel in a systematic, logical process to continually implement high standard practices and procedures.

Our firm's Quality Control Plan (QCP) has been developed to ensure conformance to specified requirements, procedures and practices. The program includes internal checks and requires the same from external sources, such as subconsultants, thus reducing the risk of errors and omissions in design calculations, plans, and specifications. Project Managers are to reference the following documents as prepared by Hoyle, Tanner for further company standards and procedures:

- ✓ Project Management Manual
- ✓ Base Project Specific Quality Assurance Plan (PSQAP) – Attached to this QCP
- ✓ Base Design Criteria Documents

Project discussion meetings are held weekly and involve project management and staff level personnel. In these meetings, all facets of project management, project execution, project milestones, design methods, field services, etc. are evaluated for potential process improvements. Where identified changes can improve our goal of delivering quality services, the new procedure is approved, documented and distributed to all potentially affected employees.

### ORGANIZATION

To establish consistency in Quality Assurance and Quality Control (QA/QC), Hoyle, Tanner established the positions to be defined for each project:

**Quality Administrator (QA):** This individual is a Senior Engineer of the firm who is responsible for establishing overall firm policies for quality and project management, monitoring quality throughout the organization, and identifying required changes in firm policies. The QA shall have significant experience in the engineering discipline that pertains to the project. The QA may perform unannounced reviews of Hoyle, Tanner projects to ensure that the adopted QA/QC program is being properly implemented by the Project Manager for a project.

*Our firm's Quality Control Plan (QCP) has been developed to ensure conformance to specified requirements, procedures and practices.*

**Project Manager (PM):** The PM is responsible for project conformance to the QC/QA program during the design and plan preparation of a project. The PM is responsible for determining the necessary

technical knowledge and experience of the Designer(s) and Design Reviewer(s) for the specific design elements of the project. The Project Manager will perform quality assurance ensuring that project specific quality control procedures are in-place and implemented.

**Designer:** An individual directly responsible for the development of design calculations, drawings, specifications, and contract documents and review of shop drawings. The Designer shall have the appropriate level of technical skills and experience for the complexity of the project or aspect of the project they are providing design for.

**Design Reviewer:** An individual responsible for performing a full technical review of design reports, calculations, drawings, specifications, and contract documents. Projects involving multiple disciplines will have a Design Reviewer assigned from the respective department within Hoyle, Tanner.

## RESPONSIBILITY AND AUTHORITY

At project inception, the QA will be available to assist the Project Manager in the development of a **Project Specific Quality Assurance Plan (PSQAP)**. For each project, the Project Manager will be responsible for implementing and monitoring the PSQAP. The detail included in the PSQAP will depend upon the project size, complexity and scheduled delivery date.

The Project Manager will be responsible for verification of the QA/QC processes by conducting periodic evaluations. The evaluation includes ensuring proper corrective action is taken when required and that disposition of non-conforming work, services, and products are in accordance with Section "F" of this document, firm procedures, and the Project Specific QA plan. The Project Manager is responsible to ensure corrective actions are taken if required and non-conforming work is handled properly.

## PROCESS CONTROLS

At inception of the project, the Project Manager clearly identifies the objectives, requirements, and operating procedures for the project. Project objectives, requirements, and operating procedures are documented in the PSQAP and shared with the members of the design team. Utilizing the documents identified in Section "A", the Project Manager/Team develops the specific QA/QC procedures to be included in the PSQAP.

These include:

- ✓ peer reviews
- ✓ independent checking
- ✓ scheduled design review meetings
- ✓ plan development review checking
- ✓ CADD documentation
- ✓ coordination with outside agencies
- ✓ procedures for documenting various tasks

*Electronic file transfer is utilized with clients, subconsultants and others whenever possible to provide for timely reviews and approvals.*

- ✓ conformance audits, and
- ✓ various management tools (control sheets, ledgers, comment register, etc.).

The Project Manager may also develop a **Design Criteria** document. This document, which is completed and checked prior to any calculations or plan work, contains relatively detailed design information for each design element. For example, for a roadway design project, this may include roadway classification, design speed, sight distance, superelevation, horizontal and vertical curvature, and lane, shoulder and auxiliary lane widths. This document will be kept in the central job file. Project task designers will be made aware of the content and location of this document.



### Design Software

Hoyle, Tanner is continually reviewing equipment and software that may improve the delivery of the design product and assist us in managing the design process. Electronic file transfer is utilized with clients, subconsultants and others whenever possible to provide for timely reviews and approvals. Hoyle, Tanner also uses GIS/GPS for various engineering, environmental and other applications.

### Hoyle, Tanner Design Resources

Hoyle, Tanner maintains a number of internally developed Excel and Mathcad templates to aide in the consistency and efficiency of designs. These tools are routinely checked to ensure they meet the latest codes and standards, and all have backup hand calculations to verify their function. Base versions of these design tools are stored on the Hoyle, Tanner server. These locked files are to be saved into the project electronic folder so they can be unlocked and have project specific information input.

## SUBCONSULTANTS

Hoyle, Tanner maintains relationships with proven subconsultants. For each project, subconsultants are evaluated and selected on the basis of their ability to meet the projects requirements, experience with the type of work to be performed, staff resources and dedication to schedule and budget.

The selected subconsultants will be required to either accept and implement Hoyle, Tanner's PSQAP, or prepare their own PSQAP to ensure compliance with project requirements. If the subconsultant uses Hoyle, Tanner's PSQAP, they will be required to submit a Quality Assurance Report for each milestone submission to Hoyle, Tanner.



Hoyle, Tanner will perform periodic evaluations to ensure subconsultant compliance with the PSQAP. Work prepared by a subconsultant will be reviewed by Hoyle, Tanner to ensure the work, services, and products meet or exceed the expectations and requirements of our client. Hoyle, Tanner's Project Manager is responsible for these reviews, acceptance or rejection of material, and the preparation of reports documenting these evaluations.

## IDENTIFYING NON-CONFORMING WORK, SERVICES, OR PRODUCTS

### General

Hoyle, Tanner's procedures to monitor and identify non-conformance of work, services or products may include but are not limited to:

- ✓ Independent calculation and plan development checking
- ✓ Scheduled informal review/design meetings
- ✓ Scheduled peer plan review at submission milestones.

The Project Manager will be responsible for enactment of these procedures for both internal and subconsultant work product.

### Review & Disposition of Nonconforming Design Product

Written documentation of non-conformities is retained in the Project QA file. This documentation shall contain relevant discussions, data, findings and resolution of the nonconformity.

In accordance with client criteria, nonconforming products will be reviewed with respect to:

- ✓ Correction to meet client requirements
- ✓ Acceptance by concession
- ✓ Use as alternative scheme
- ✓ Rejection of product or portion thereof.

Documentation of nonconforming product disposition will generally be by meeting minutes, or phone conversation memos. When nonconforming work is corrected to meet requirements, quality is assured by repeating the design process for checking, peer plan review, etc. as discussed above.

### Preventive & Corrective Action

#### **General**

Hoyle, Tanner will sustain a preventive and corrective action process that addresses non-conforming conditions.

### **Preventive**

Critical and detailed reviews/analysis by the assigned Project Manager or delegated senior engineer will be performed to ensure that the project is adhering to the specified criteria. This review/analysis will be made prior to each submission. These reviews will be scheduled prior to the submission date to allow sufficient time to make any required modification to the product prior to the submission to the client.

*Critical and detailed reviews/analysis by the assigned Project Manager or delegated senior engineer will be performed to ensure that the project is adhering to the specified criteria.*

The Project Manager will review the minutes of meetings and periodically attend meetings unannounced. This will include internal meetings and team coordination meetings. Emphasis of these reviews will be on the management of the project. The Project Manager will determine if:

- ✓ Problems raised are being addressed.
- ✓ Appropriate action is being taken in a timely manner.
- ✓ Discipline interfaces have been addressed and are effective.

The Project Manager and appropriate staff will perform a technical review of the drawings and reports selected for submission to the client. Submissions will be checked for compliance with codes, design criteria, and standards.

### **Corrective**

As soon as review comments on a submission are received from the client, the post-submission review process begins. The purpose of the post-submission review is to analyze comments, formulate responses and identify corrective actions to satisfy comments made on the submission by the client. Hoyle, Tanner's response to the comments and proposed corrective action will be reviewed with the client prior to the action being implemented. Written comments from the client, comments marked on documents such as plans and reports, and comments recorded in meeting minutes will be documented by the Project Manager.

## **MONITORING SCHEDULES DELIVERY DATES/BUDGET**

Hoyle, Tanner prepares a detailed schedule and budget for each project at inception. The Project Manager monitors work completed to date against the schedule on a regular basis with bi-weekly increments being the recommended maximum.. At this time, the Project Manager also utilizes a budget report to check expenditures against schedule and budget.

Project Managers also prepare a schedule status report to be submitted to the client with the monthly or milestone invoices.

When slippages in schedule or budget occur, requiring corrective action, the Project Manager will meet with key project staff to determine appropriate corrective actions, develop a corrective plan, implement the plan, and monitor until the project is complete or back on course.

## AGREEMENT ADMINISTRATION

### Original Agreement

Hoyle, Tanner has assigned the responsibility of the Agreement review process, including the technical and price proposals, to the senior employees of the firm, generally vice presidents, associates, or other managers in responsible charge. The manager may distribute the Agreement to the Firm Attorney, and the Project Manager for review of compliance with the project requirements, state law, reasonable standards of the profession, reasonable expectations of the client, and acceptable risk management levels. Recommended changes to the Agreement will be returned to the Principal who will conduct, if necessary, meetings with the client to resolve and amend any discrepancies. A copy of the executed Agreement will be maintained in the corporate office.

### Amendment/Supplement to Agreement

The Project Manager is responsible to monitor the project progress to ensure that the scope of work is completed within the budget and time of completion stipulated in the Agreement.



An amendment/supplement request to revise the scope of services, cost, or time of completion is initiated by the Project Manager. The documentation and justification will be reviewed and approved by the principal prior to submission to the client.

Documentation relative to transfer of funds will be developed by the Project Manager and maintained in the project file. The justification will be reviewed and approved by the principal prior to submission to the client.

### Invoices

Hoyle, Tanner has a centralized billing office that prepares all invoices. The Project Manager is responsible for developing percent completion and related invoice amounts. Documented procedures have been established for processing of invoices. Project Manager prepared Progress Reports are submitted with the invoices, if required by the client.

## PROJECT SPECIFIC QUALITY ASSURANCE PLAN (PSQAP)

Hoyle, Tanner will prepare a PSQAP for all projects. The PSQAP may vary from a standard checklist for small projects to a detailed customized document for a complex project. Initially the Project Manager may prepare a draft PSQAP, which will be limited in detail and address the following at a project overview level:

### a) Key Considerations

- ✓ Key deliverables and their milestones dates
- ✓ Key project personnel and their accountability
- ✓ Communication Plan for stakeholders, public involvement, and team communication
- ✓ Decision making steps and issue resolution

### b) Quality Assurance

- ✓ Identify person or agency responsible for independent assurance
- ✓ Determine the number of project meetings to review schedules, scope, budget, team organization, approvals, and coordination

### c) Quality Control

- ✓ Identify appropriate design criteria and specifications
- ✓ Identify person(s) responsible for checking assumptions, verifying calculations, and reviewing drawings and documentation
- ✓ Indicate process for submission preparation and checking
- ✓ Indicate how design and/or construction costs will be estimated and checked
- ✓ Identify CADD documentation/platform/electronic deliverable requirements

After Hoyle, Tanner is selected by the client, the Project Manager will refine the "Draft PSQAP" to include further project requirements as deemed necessary by the client. Generally the refined plan will include a comprehensive schedule with milestone dates, a communication plan, specific QC/QA procedures for deliverables, and a project team protocol.

## ORGANIZATIONAL AND TECHNICAL INTERFACES

The Project Manager will be responsible for implementation of the Team Communication Plan contained in the PSQAP.

Internal and project meetings will be conducted on a regular basis to ensure a coordinated effort between the various stakeholders, including subconsultants. Hoyle, Tanner will conduct regularly scheduled meetings with the client and other involved parties to meet project needs as agreed. Hoyle, Tanner will prepare and distribute minutes of these meetings to attendees and other affected parties.

## QUALITY CONTROL PROCEDURES

The Project Manager shall define the schedule in the PSQAP for project Quality Control review milestones which shall depend on the clients project submittal process, size of the project, schedule of deliverables, and the applicability of reviews. A sample review schedule is as follows:

- ✓ 30% Conceptual Design Plans
- ✓ 60% Preliminary Design Plans
- ✓ 90% Final Design Plans
- ✓ 100% Final Design Plans and Specification

The following procedures are to be followed for QC checks of design documents:

### Checking Reports

This part of the QC plan applies to reports such as scoping reports and general studies. Once the report writing has progressed to the final draft stage of development, it will be sent to the Design Reviewer. The Design Reviewer will be given a specific and reasonable deadline for completing the check.

Comments/corrections are marked on the review draft in red. Upon completion of the review, the Design Reviewer will sign and date on the cover page of the draft and return the draft to its author (similar practice for reviews performed in electronic format, pdf).

The author then confirms or revises the corrections and comments, adds his/her own corrections/comments, and consults with the appropriate person(s) to resolve any conflicts. The author then makes the corrections to the text. The marked-up draft is placed in the project files after the document is finalized.

### Checking Calculations

Manual calculations will be prepared in pencil. A calculation may also include other forms, charts, graphs, data sheets, computer printouts, etc. The Designer must initial and date each computation sheet.

Assumptions, upon which calculations are based, shall be stated in the calculations. Assumptions with limited application should immediately precede the calculations to which they apply.

No Designer will check his or her own work. The Design Reviewer shall be experienced in the discipline being checked and have a level of knowledge and qualifications sufficient to have





performed the calculation that is being checked. cursory supervisory reviews do not satisfy the intent of this section.

The Designer determines the point at which design work has progressed sufficiently that checking can begin on a completed portion of work. The designer reviews the data and the scope of the work with the assigned Design Reviewer. The Designer provides the Design Reviewer with design criteria, copies of pertinent information, related drawings, and related calculations, if needed.

A design check includes verification of the introductory material on the calculation sheet, as well as the calculation itself. The Design Reviewer verifies that all information is appropriate, correct, complete, consistent, legible, and reproducible. To do this, the Design Reviewer needs to follow a logical method to make sure that he/she has not missed verifying any data. The standard policy is to check the major items of importance first.

The Design Reviewer will mark items to indicate his/her agreement or disagreement. The following is the color code to be used for marking calculations.

- ✓ **YELLOW** or **GREEN**: Use for agreement
- ✓ **RED**: Use for corrections

When satisfied, the Design Reviewer will place his/her initials and date each original calculation sheet.

At the completion of the Contract Plans, the design calculations, check calculations, all design-assumption documentation, other pertinent calculations, and other design-related information shall be retained in a permanent design file.

### Checking Drawings

Drawings are prepared under the direction of the Designer. They are developed progressively by an interactive process using sources of information such as survey data, reports, record data, preliminary sketches, samples, official maps, etc, in conformance with the requirements, design criteria, and standards and guidelines required by the PSQAP. Before a drawing is considered final, it will be independently checked for:

- ✓ Conformance with the design criteria, project requirements including graphic standards (CADD Standards)
- ✓ Completeness and clarity
- ✓ Inter-Discipline coordination with other aspects of the project, i.e., structural, civil, traffic, utilities, environmental, architectural, landscape, electrical, mechanical, HVAC right-of-way, etc., and with other associated project documents



- ✓ Compatibility with client standards and good plans preparation practice
- ✓ Coordination with project elements being developed or planned development on adjacent projects including environmental, utility and ROW constraints, if applicable.

All primary structural components of design drawings will be checked in detail. The Design Reviewer will review a drawing to determine if it meets the objectives of the task and is complete, accurate, and suitable for the intended use. All items must be marked by the Design Reviewer to indicate either his/her agreement or disagreement.

- ✓ **YELLOW** or **GREEN**: Design Reviewer agrees with drawing
- ✓ **RED**: Area requiring correction, with appropriate comments noted by the Design Reviewer adjacent to the area

The Designer then inspects the check print, confirms or revises the corrections and comments, adds his/her own corrections/comments, consolidates and coordinates comments, and consults with the Design Reviewer and others as appropriate to resolve any conflicts.

Once the corrections from the compiled check print are made to the original, the CADD operator will plot a revised check print and initially reviewed for completion. Both the original and revised check prints are then returned to the Designer. The Designer then back checks the revised check print against the original check print.

In cases where the designer is not the drawing Design Reviewer, the designer must at least review the drawings to ensure that they are in conformance with the design.

### Checking Specifications and Special Provisions

Specifications and Special Provisions shall be checked by the Design Reviewer whose discipline is closely related to the project type. The Design Reviewer is to verify that the general specifications are in accordance with Client Standards and the PSQAP, and technical specifications and special provisions are in conformance with the design requirements for the project. In addition, the Design Reviewer should also verify that the Special Provisions are in conformance with the environmental, utility and ROW constraints for the project.

## DISPUTE RESOLUTIONS

During the review and checking process, if the Design Reviewer does not agree with the results of the design task being checked, the Design Reviewer will first discuss the matter with the Designer. If the difference cannot be resolved between the Design Reviewer and the Designer, the PM will be consulted to assist in the resolution of the dispute. As needed the QA may also be consulted to arbitrate questions of design policy and standards.

## STORING QC DOCUMENTS

The Project Manager shall store paper copies of the reviewed/signed document until the completion of the project per contract requirements. The Project Manager will be responsible for presenting this material to the QA at any point during the project in the event of a QA audit.

Once final reviews have been completed the final version of reports, calculations, drawings, and specifications and special provisions shall be saved in paper and electronic file form for the project. The Project Manager and QA shall sign the PSQAP that QC reviews have been completed.

## FEEDBACK

Prior to contractual milestones, the Project Manager will review a draft of the deliverables for comments and discussion with the client. Upon receipt of feedback after submission of the deliverables, this information is logged, reviewed, and appropriate changes are implemented and documented in the file.

In addition, it is Hoyle, Tanner's policy that the Project Manager is to maintain contact with the client on a regular basis to discuss the project and obtain feedback.



## INTERNAL QUALITY AUDITS

Random and unannounced audits of the implementation of the Hoyle, Tanner Quality Control Plan will be performed by senior engineers or planners designated by the Director of Engineering Operations. These audits will be used to verify whether quality activities comply with planned arrangements and to determine effectiveness of the quality process. Exact number and frequency of quality audits will vary with the project and will be established in the PSQAP at commencement of the project.

Where non-conformity is found, the Project Manager will coordinate with the QA and recommend changes to be implemented and notify the organization or technical unit performing the work. A follow-up audit will be conducted to determine if a corrective action plan is undertaken.

The Project Manager may also request information from subconsultants to ensure they are meeting their PSQAP obligations.

## PROJECT SPECIFIC QUALITY ASSURANCE PLAN (PSQAP)

**SAMPLE** – Note to Project Manager – this plan shall be modified as appropriate to meet the needs of the project, client requirements, etc. A draft of the plan shall be submitted to the Quality Administrator for approval.

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

Project Number: \_\_\_\_\_

Project Name: \_\_\_\_\_

Client: \_\_\_\_\_

Client Contact: \_\_\_\_\_

Name	Phone Number	Email
City	State	Zip Code
Title		

Hoyle, Tanner Project Manager: \_\_\_\_\_  
Name

Anticipated Hoyle, Tanner Team & Roles:  
(add additional lines as necessary)

Name	Role

Subconsultants:  
(add as necessary)

Firm	Service(s)	DBE (Y/N)
Contact Person	Phone Number	Email
City	State	Zip Code

Design Codes/Manuals/Etc. to be utilized: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Anticipated Sheet List for Project (Expand as necessary):

- |          |          |
|----------|----------|
| 1. _____ | X. _____ |
| X. _____ | X. _____ |
| X. _____ | X. _____ |
| X. _____ | X. _____ |

Project Submission Milestones:  
 (add additional as necessary)

Name of Submission	Plans (Y/N)	Approximate % Complete
	Specifications (Y/N)	Estimate (Y/N)
	QA/QC Date	Comments Addressed (Y/N)

Are Client review meetings required? \_\_\_\_\_ (Y/N)

Are electronic deliverables required? \_\_\_\_\_ (Y/N)

If so, at which milestones? \_\_\_\_\_

Software Requirements – (circle one): MicroStation or AutoCAD

		<u>Date</u>
Has a project kick-off meeting been held with the entire design team?	____ (Y/N)	_____
If so, were minutes taken?	____ (Y/N)	_____
Has an electronic project schedule been developed?	____ (Y/N)	_____
Has the schedule been provided to the client?	____ (Y/N)	_____
Has a central correspondence file been created?	____ (Y/N)	_____
Has a network project directory been created?	____ (Y/N)	_____
Has an email public folder for email archiving been created?	____ (Y/N)	_____
Has a scope and fee been agreed to with the Client?	____ (Y/N)	_____
Do we have an executed copy?	____ (Y/N)	_____

Will subsequent proposals be required for additional project phases? \_\_\_\_\_ (Y/N)

If Yes, explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Invoicing Format: (check appropriate box) \_\_\_\_\_ Client Specific \_\_\_\_\_ Hoyle, Tanner Deltek

If a client specific invoice is required, do we have an approved format? \_\_\_\_\_ (Y/N) (Attach Sample)

**Quality Control Plan**

(Attach project specific quality control plan and documents as necessary)

Required QC Review Milestones (X each milestone to receive a QC review) (Revise as needed)

	30% Conceptual	60% Preliminary	90% Final
Report			
Calculations			
Drawings			
Specifications and Special Provisions			

Quality Control Review Milestones (Revise as necessary)

Name of Submission \_\_\_\_\_  
Documents to be reviewed (i.e. plans, specs, calcs) \_\_\_\_\_  
Date Completed \_\_\_\_\_  
Items Addressed \_\_\_\_\_ (Y, N) \_\_\_\_\_  
If No, add comment \_\_\_\_\_

Name of Submission \_\_\_\_\_  
Documents to be reviewed (i.e. plans, specifications, calculations) \_\_\_\_\_  
Date Completed \_\_\_\_\_  
Items Addressed \_\_\_\_\_ (Y, N) \_\_\_\_\_  
If No, add comment \_\_\_\_\_

Name of Submission \_\_\_\_\_  
Documents to be reviewed (i.e. plans, specifications, calculations) \_\_\_\_\_  
Date Completed \_\_\_\_\_  
Items Addressed \_\_\_\_\_ (Y, N) \_\_\_\_\_  
If No, add comment \_\_\_\_\_

**Final Project QC Procedures Sign-off**

The Hoyle, Tanner QCP and Project Specific QCP has been fully implemented and adhered to for this project.

**Project Manager**

\_\_\_\_\_  
Printed name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**Quality Administrator**

\_\_\_\_\_  
Printed name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**Hoyle, Tanner**  
& Associates, Inc.

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