prepared for:

Town of Windham

Request for Proposal

21st Century Downtown Master Plan - Preliminary Engineering Services

October 2, 2015

T·Y·LIN INTERNATIONAL

T·Y·LIN INTERNATIONAL
engineers | planners | scientists

October 2, 2015

Ben Smith, Planning Director
Planning Department
8 School Road
Windham, ME 04062

SUBJ: Request for Proposals – 21st Century Downtown Master Plan – Preliminary Engineering Services

Dear Ben:

T.Y. Lin International (TYLI) is pleased to submit the attached proposal to provide preliminary engineering services for the subject project as outlined in your Request for Proposal dated September 4, 2015. We have assembled a premier team to support the Town on the development of this project. The TYLI Team consists of a consummate lineup of experts in engineering of roadways, intersections, streetscape design, and pedestrian improvements, as follows:

TYLI:	Project Management, Roadway Design, Transportation Design including Complete Streets, Traffic Analysis, Pedestrian Facilities, Lighting Design, ROW Mapping, Public Involvement
MRLD Landscape Architecture + Urbanism (MRLD):	Landscape Architecture Design; Street Furniture, Public Involvement
Wright-Pierce (W-P):	Utility Coordination and Design (including Undergrounding); Stormwater Drainage Modernization
Northeast Civil Solutions (NCS):	Survey

Noteworthy similar/related efforts include: Bridgton US Route 302 Improvements, Hampden Route 1A Improvements, Windham Route 202/115 Intersection Improvements, Westbrook US Route 302 Intersection Improvements, Park Avenue/St. John Street Traffic and Pedestrian Improvements, Biddeford Route 9 Traffic Calming, Falmouth US Route 1 Infrastructure, and Veterans Memorial Bridge (TYLI); and Rockland Downtown Revitalization, and Gorham Rd Scarborough Complete Streets (MRLD).

TYLI co-authored the award-winning 21st Century Downtown Master Plan in association with MRLD. In January 2013, the Town Council adopted the Plan. The TYLI Team is excited about this project and is fully invested in ensuring its successful outcome.

We look forward to the opportunity of assisting the Town in bringing the preliminary design of this important project to fruition.

Sincerely,
T.Y. LIN INTERNATIONAL

Thomas Errico, PE
Senior Project Manager

Table of Contents:

Contact Details for T.Y. Lin International

Tom Errico, PE
T.Y. Lin International
12 Northbrook Drive
Building A, Suite One
Falmouth, ME 04105

207-347-4354
thomas.errico@tylin.com
www.tylin.com

T·Y·LIN INTERNATIONAL

1: Introduction & Firm Overviews

T.Y. Lin International (TYLI) is pleased to submit this proposal to the Town of Windham (Town) to provide preliminary engineering servcies that actualize the Town's 21st Century Downtown Master Plan.

The TYLI team is particularly excited about the opportunity to bring the first phase of this important project to life because the same team created the original, award winning Master Plan. We are fully invested in working with the Town to ensure its successful outcome.

The TYLI team will continue to bring the same Complete Streets philosophy and expertise to this phase of the project. We will ensure the Town of Windham realizes it's goal of creating a safe, comfortable place for people of all ages and abilites to work, live and recreate.

With our development of the 21st Century Plan, review of the RFP materials, prior design work in the project area, and recent site walks, we have developed an excellent understanding of the scope and challenges of this project. As such, we have assembled a highly experienced team that has the necessary skills to successfully complete this project. The table below provides a summary of services provided by each team member.

Team Member	Services Provided On This Project
TYLI	Project Management | Roadway Design | Traffic Signal Design | Traffic Analysis | Complete Streets Design | Pedestrian Facilities | Lighting Design | ROW Mapping | Public Involvement Support
MRLD	Landscape Architecture Design and Street Furniture | Public Involvement
Wright-Pierce (W-P)	Stormwater Drainage Modernization | Utility Coordination & Design including Undergrounding
Northeast Civil Solutions (NCS)	Survey

Why Choose the TYLI Team?

Award winning plan

TYLI and MRLD successfully **developed the original Master Plan** for the project.

TYLI provides **nationally recognized Complete Streets expertise.**

The TYLI Team has **extensive experience in public involvement** and will continue to follow a CSS approach on this project.

TYLI has significant **Maintenance of Traffic** experience on projects with similar scopes and challenges.

W-P is one of the few firms in Maine with **considerable expertise in the undergrounding of overhead utilities.**

Firm Overviews

T.Y. Lin International

TYLI is a full-service, professional engineering firm focused on the planning, design, and construction of infrastructure solutions for public and private clients worldwide. Headquartered in San Francisco for over 60 years, TYLI has more than 2,500 professionals in more than 50 offices throughout the Americas and Asia. TYLI is currently ranked #13 in ENR's Top 50 Transportation Firms.

TYLI provides services in the following areas:

- Municipal Engineering
- Site Design
- Transportation Engineering & Planning
- Roadway Systems
- Bicycles and Pedestrian Facilities
- Bridges and Structures
- Hydraulics & Hydrology
- Lighting & Engineering Design
- Design-Build
- Construction Engineering and Inspection

Extensive Local Experience

TYLI is nationally known and acclaimed for its award-winning, iconic bridges such as the Hoover Dam Bridge and the San Francisco-Oakland Bay Bridge; however, the vast majority of our work is on smaller transportation projects such as this one for the Town of Windham.

TYLI's Falmouth, Maine office employs 45 people and has been providing engineering services to municipalities and MaineDOT for over 30 years. We have been serving the people of the Town of Windham for many years working on projects for the Town directly and through MaineDOT and PACTS. These projects include: Study Phase for the 21st Century Master Plan, Intersection Improvements for Rte 115 at US Rte 202/4, and the Mallison Falls Railroad Bridge Replacement. The Falmouth office has worked on over 100 local projects over the years. These include large MaineDOT projects such as the Caribou Connector and the recently opened award-winning Veterans Memorial Bridge, as well as numerous roadway, pedestrian/bicycle, and small transportation projects in cities and smaller communities throughout Maine.

*"T.Y. Lin did an **exemplary** job on delivery of this [LAP] project."*

– Aurele Gorneau, II, MaineDOT Project Manager, Belfast Harbor Walk

"As a Local Project Administrator with no background in civil engineering and working in a small community, I have found **T.Y. Lin engineers not only patient and instructive, but flexible and creative in responding to local needs and concerns.** It has been, and continues to be, a pleasure to work with them."

~ Joe Stone, North Haven Town Administrator Second Bridge Project.

Communication Skills

Communication is one of TYLI's greatest strengths; we pride ourselves in our ability to communicate effectively. We really listen to our clients to develop a comprehensive understanding of your goals, needs, and issues, taking the time to understand your work processes so that we can align ours with yours and increase communication efficiency. A project with smooth communication saves time, money, and aggravation, so we work diligently to establish and maintain optimum lines of communication – written, verbal, and in-person - that mesh optimally for each client.

MRLD Landscape Architecture + Urbanism

87 Main Street, Yarmouth, ME 04096. T: 207.846.4966 F: 866.740.3589
www.mrld.net

MRLD is an award winning landscape architecture and urban design office based in Yarmouth, Maine. Mitchell Rasor, a landscape architect and urban designer, founded MRLD in 2000.

The office has been recognized by such organizations as the Congress for the New Urbanism, AIA New England, AIA Maine, The Maine Association of Planners, The New England Association of Planners, Friends of Midcoast Maine, The Environmental Protection Agency, The Museum of Modern Art, The American Society of Landscape Architects, The National Association of Homebuilders, The Rudy Bruner Foundation, The Environmental Protection Agency, and MaineBiz.

We work closely with clients, architects, and other professionals sharing our appreciation of the collaborative process. This approach encourages trust and transparency throughout the course of a project.

MRLD has developed specific expertise and is recognized in the areas of:

- Site / Landscape Design
- Streetscapes
- Master Planning
- Urban Design
- Public Participation and Stakeholder Engagement
- Interdisciplinary Project Management
- Context Sensitive Solutions
- Complete Streets
- Low Impact / Green Development
- Alternative Zoning and Implementation
- Visualizations
- Graphic and Information Design
- Construction Documents
- Permitting

Our extensive experience with community visioning forums and stakeholder relations engages a cross-section of the entire community, building consensus for a project.

Our select, but broad client base includes institutions, municipalities, the private sector, and non-profit agencies. This range of work gives us a unique understanding of varying project types, market forces, group dynamics, and policy decisions.

The office is currently working on a range of public and private projects involving land use policy, economic development, streetscapes, transportation corridors, civic spaces, location efficient development, master plans, waterfront planning and design, Brownfields, mobility options, urban design, and green infrastructure

Whether working at the scale of a 2,000-acre master plan or an urban plaza, the office emphasizes the quality of good design to create engaging, economically sustainable, and environmentally sensitive places.

Wright-Pierce

75 Washington Avenue, Suite 202, Portland, ME 04101. T: 207.761.2991 F: 207.761.2978 www.wright-pierce.com

Company: Wright-Pierce, founded in 1947, is a full service, New England-based consulting firm providing a Wright-Pierce is a full-service, New England based civil and environmental engineering firm specializing in water, wastewater and infrastructure engineering services. For more than 60 years, we have served public and private clients. Employee-owned and customer focused, Wright Pierce has a staff of approximately 175 engineers and support professionals located in eight offices in New England. While our prime area of operation is New England, we selectively provide services elsewhere in the United States

Transportation Planning and Engineering: Wright-Pierce has been assisting both governmental and private sector clients with their needs relating to transportation planning and implementation of system enhancements. Our client list includes state DOT's throughout New England, as well as industry, municipalities, and operators of ports, rail systems and airports. Through our many years of experience in this arena, Wright-Pierce has developed a keen understanding of the technical and regulatory issues, as well as funding opportunities associated with the full spectrum of transportation system improvements.

Stormwater Design and Utility Engineering: Wright-Pierce has assisted many communities throughout New England with the evaluation, design, permitting, and construction of the utility infrastructure needed to support economic development. Many of these projects have included the installation of water and sewer utilities, the associated rehabilitation of streets and roadways, as well as appurtenant elements such as sidewalks and storm drainage. Through these projects, our staff has become keenly attuned to the many coordination needs associated with engineering both above-ground and buried utilities; associated road reconstruction and integrating street surface improvements with private driveways; walks; ADA compliance issues; and, permitting coordination with (the Maine Department of Transportation (MaineDOT) and other) state and federal regulator agencies. We also have provided

assistance in obtaining project funding from a variety of state and federal funding agencies, and have assisted in developing project financing plans. This experience includes:

- Wastewater systems including gravity sewers, interceptor sewers, pump stations, and package treatment systems
- Water systems including water supply wells and treatment, distribution water quality (disinfection byproducts minimization), distribution piping and storage tanks as needed to meet potable and fire protection demands
- Stormwater systems including stormwater collection systems, culverts and retainage or detention storage systems
- Roadway systems including roads, sidewalks and bridges
- Underground electrical improvements which have included a broad variety of applications and solutions for underground utilities.

Northeast Civil Solutions, Inc.

381 Payne Road, Scarborough, Maine 04074 T: 207.883.1000 F: 207.883.1001 www.northeastcivilsolutions.com

Northeast Civil Solutions, Inc. (NCS) was established in 1992 and has steadily grown to become one of the preeminent engineering and surveying firms in northern New England. Located in Scarborough, NCS specializes in site engineering, stormwater management, local, state and federal permitting as well as land surveying, wetlands delineation, soils science and land planning. NCS is a certified Disadvantaged Business Enterprise (DBE) and has completed projects throughout New England, including work for the federal and state governments, municipalities, communications companies, both land-line and wireless, and various industrial, commercial and private clients.

Projects include: Scarborough Public Pier for Town of Scarborough; York Tower Site for MaineDOT; Portsmouth Naval Shipyard, Portsmouth, NH for Terracon, Inc.; Norway Savings Bank Branch Locations throughout Maine for Norway Savings Bank.

Experienced Team with a Strong Working History

This team has a high degree of efficiency because they have worked together on several projects in the past. The following is a list of the projects on which TYLI has teamed with MRLD and in some cases also with Wright-Pierce:

- 21st Century Downtown Master Plan – North Windham, ME
- New Auburn Village Center Master Plan – Auburn, ME
- Winter Street Shared Space Design - Rockland, ME
- Bath Road Master Plan – Wiscasset, ME
- Falmouth Route One Infrastructure Plan – Falmouth, ME
- Bayside Transportation Master Plan - Portland, ME
- Broadway Corridor Study - Bangor, ME
- Downtown Pedestrian Study, Westbrook, ME
- West Commercial Street Multi-Modal Corridor Study, Portland, ME
- Tukey's Bridge to Martin Point's Bridge Study, Portland, ME
- In process: Biddeford Square Shared Space Street Design, Biddeford, ME

2: Team Qualifications

Team Organization

We are very pleased to be able to offer the Town a comprehensive and effective design team led by our Project Manager, Thomas Errico, PE. Our team members have an average of 25 years of experience in engineering services.

The TYLI Team organization is graphically depicted in Figure 1- Organizational Chart on the following page. Following that are summary paragraphs for each team member. More detailed resumes, arranged by firm, can be found in **Appendix A – Resumes.**

Following are some testimonials from our clients:

"MRLD gave us a gift. The challenge was significant. Balancing Louis Kahn's unique vision with the practical needs of our various ministries was no small feat. MRLD didn't just listen to us, they dialoged with us – bringing genuine excitement and well-researched ideas to the discussion. They also expanded our vision, helping us see that the space itself could be an active contributor to spiritual experience, not just a stage for it. The amphitheater didn't just enhance our garden; it now defines it."

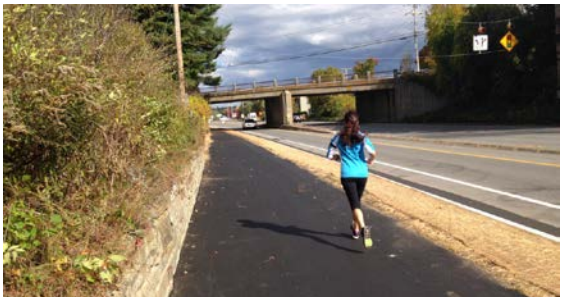
- *Reverend Scott Taylor, Co-Senior Minister First Unitarian Church of* Rochester, NY

"…we were able to leverage TYLin's innovative ideas into an approved Alternative Technical Concept (ATC) that allowed us to improve and re-route traffic flows, shorten the bridge and reduce cost! During the construction phase, TY Lin kept the day to day design activities ahead of construction which is critical to keep the Project on schedule!"

- *John Cooney, Vice President, Reed & Reed, Inc. (Contractor on Veterans Memorial Bridge)*

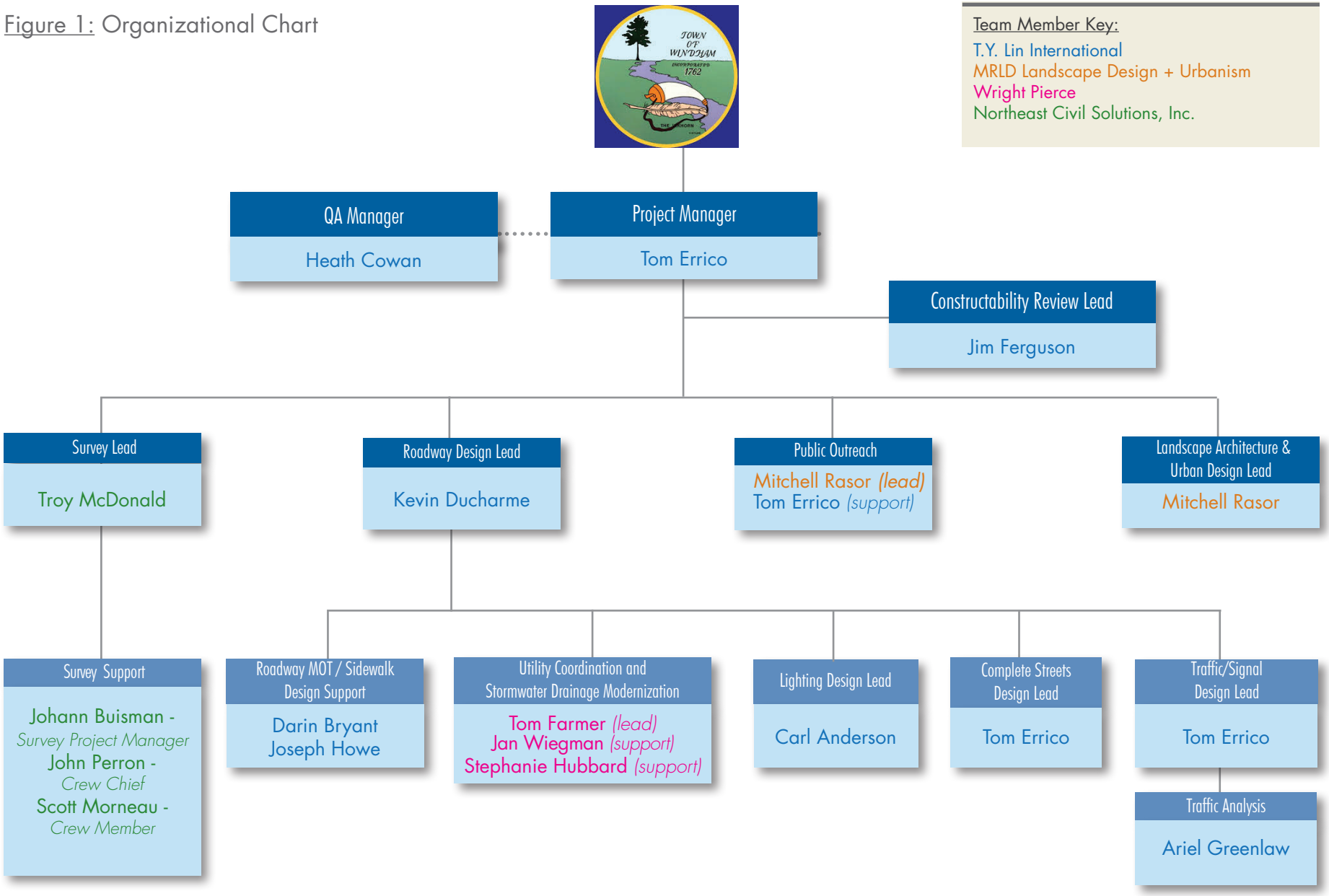
"I was blown away by the quality and detail of the work that John and the TY Lin team provided as part of this project."

- *Steve Johnson, Town of Yarmouth – Yarmouth Route One Path*



| 5. **Team Qualifications**

Figure 1: Organizational Chart



Project Staff – Role/Responsibilities and Experience

This section presents our proposed project staff, their role on the projects, and summary biographies. They are presented in the order in which they appear on the organizational chart. Full resumes of key staff can be found in **Appendix A.**

Thomas Errico, PE | Project Manager / Traffic Design Lead
207.347.4354 | thomas.errico@tylin.com

Tom has over 29 years of experience as Project Manager on a wide variety of transportation and traffic design projects for state agencies, municipalities, and other public and private-sector clients. Most recently he was Project Manager for US Route 302 Improvements in Bridgton and Park Avenue/St. John Street Traffic and Pedestrian Improvements in Portland. Tom, in association with Mitchell Rasor of MRLD, developed the study phase for the award winning "21st Century Downtown Master Plan". He is fully invested and passionate about assisting the Town to actualize the goals of that plan. Tom's intimate knowledge of the study area and experience with several other projects along Route 302 provides him with unique insight and understanding of the major issues and needs for this project. Tom will support Mitchell Rasor with the Public Outreach aspect of this project. He has been recognized in the past for his ability to easily convey technical ideas to a non-technical audience and has facilitated numerous stakeholder and public meetings for various municipalities across New England. Tom will also bring his Complete Streets expertise to this project. As a speaker and workshop instructor for the National Complete Streets Coalition, he is exposed to current best practices and will bring that national perspective to this project. *Named "2013 Transportation Engineer of the Year" by the New England Section of the Institute of Transportation Engineers.*

Heath Cowan, PE | Quality Assurance Manager
207.210.1430 | heath.cowan@tylin.com

Heath joined T.Y. Lin International in late 2014 after 18 years with the Maine Department of Transportation (MaineDOT) where is most recently served as Assistant Program Manager for the Highway Program. Heath enjoyed a wide variety of design and management duties at MaineDOT. His involvement on projects allowed him to have experience with many different design disciplines. His management duties afforded him the opportunity to work closely with municipal engineers and officials, private consultants, federal officials, and permitting agencies on state/federally funded projects. Heath worked both within the central office of the Department as well as in a management role in a regional office.

Jim Ferguson | Constructability Review Lead
207.347.4375 | jim.ferguson@tylin.com

Jim has over 37 years of construction inspection experience, 34 of which were with the MaineDOT. Jim manages a team of 20 inspectors that range in experience from Class I to Class IV Residents. He has worked on many of MaineDOT's largest projects. As a TYLI team member, he provides valuable input by reviewing all design plans for constructability. His depth of experience provides solutions that often reduce cost and /or improve project quality without increasing cost. Projects Jim has recently provided constructability reviews for include: Route 4 Improvements in Auburn; South Main Street Improvements in Auburn (design by another consultant); Belfast Harbor Walk; Park Avenue / St. John Street Pedestrian and Traffic Improvements in Portland; Route 8 Highway Improvements in Smithfield/Norridgewock, Route 115 in Yarmouth; and the Caribou Connector. Jim was a construction inspector on this section of Route 302 when it was widened in 1990 while with the DOT.

Troy McDonald, PLS | Survey Lead

207.883.1000 x 110 | troy.mcdonald@northeastcivilsolutions.com

Troy has 30 years of experience in the land surveying, civil engineering, telephone engineering and right-of-way / easement acquisition professions. Troy is the former owner of an engineering firm specializing in the needs of the utility industry and has assisted the communications industry with GPS/GIS mapping of facilities, oversight of legal contracts and provided regulatory support. Troy is the co-owner of Northeast Civil Solution, Inc. and oversees the daily operation of the Company, financial and contractual relationships as well as all QA/QC efforts.

Johann Buisman, PLS | Survey Project Manager

207.883.1000 x 103 | johann.buisman@northeastcivilsolutions.com

Mr. Buisman has over 35 years of experience in the fields of surveying and related civil engineering. Mr. Buisman has been with NCS, located in Scarborough, for 23 years and is Vice President of Surveying Operations. In this position, he oversees and participates in all survey activities throughout New England as well as lends his expertise for specific projects managed by other Project Managers. His experience includes quality control on all projects, surveying in the sectionized land system, data collection, mapping and layout of unusual projects at airports, historic sites, and vertical building expansions. He has been relied upon as an expert witness in several boundary dispute cases.

John Perron | Survey Crew Chief

207.883.1000 x116 | john.perron@northeastcivilsolutions.com

John has over 20 years of experience in the fields of land surveying and civil drafting. His experience includes boundary and topographic surveys, ALTA/ACSM Land Title Surveys, construction layout and elevation surveys, and preparation of boundary plans and survey support for civil engineers.

Kevin Ducharme, PE | Roadway Design Lead

207.347.4328 | kevin.ducharme@tylin.com

Kevin has been responsible for design of many roadway projects throughout Maine and the Northeast. Kevin is Unit Manager for the Falmouth office and his 27 years in consulting includes a broad range of experience including project management, roadway geometrics and drainage design, stormwater management, utility coordination, parking and grading design and layout, construction phasing and maintenance of traffic design, pedestrian facilities, hydraulic and scour evaluation/mitigation, and environmental mitigation. Additionally, Kevin performs quality reviews on many of the Falmouth office design projects. Recent relevant projects include being roadway Design Lead for: Route 202 and Route 115 Intersection Improvements in Windham and Gray; Mallison Falls in Windham; Route 1A Rehabilitation in Hampden; Veterans Memorial Bridge in Portland/South Portland; and, QC Reviewer for the roadway designs for: Route 302/Hardy Road/Duck Pond Road Intersection Improvements in Westbrook; Route 302 Center Turn Lane in Bridgton, and Western Avenue Widening Project in South Portland.

Mitchell Rasor RLA, CLARB | Landscape Architecture Lead / Public Outreach Lead

207.846.4966 | mrasor@mrld.net

Mitchell teamed with TYLI to produce the award-winning 21st Century Downtown Master Plan for North Windham. He founded MRLD in 2000 and has over 20 years of experience with landscape architecture and urban design, with a particular focus on integrating land use policy, mobility options, and the built environment. MRLD is recognized for its work in the areas of downtown / waterfront revitalization, context sensitive solutions, complete streets, streetscapes, public parks alternative zoning, visualizations, and public participation. Recent relevant projects include: 3 Lincoln Street Market and Urban Design Study (MERC site),

Biddeford, ME; Bath Road / Route 1 Master Plan, Wiscasset, ME; and Bayside Transportation Master Plan and Urban Design, Portland, ME.

Mitchell has extensive and award winning experience with public outreach on behalf of municipalities. Large public projects require thorough and thoughtful engagement in order to develop consensus across a broad spectrum of stakeholders. Mitchell is able to communicate effectively with these different constituent groups. A thoughtful design must be matched by equally strategic and transparent communications with the community. Mitchell and Tom have worked in numerous projects together and their rapport is evident when interacting with the public. MRLD incorporates leading technologies and strategies into streetscape and mobility design. Mitchell is able to convey this information in a low key manner, building enthusiasm for a project.

Darin Bryant, PE | Roadway / MOT / Sidewalk Design Engineer

207.347.4324 | darin.bryant@tylin.com

Darin has been involved in both roadway/shared-use path design and traffic planning/analysis fields since joining TYLI over 29 years ago. His roles and responsibilities include project management, planning and design of roadways, major intersections, and bicycle-pedestrian trail facilities from Maine to Florida. Darin was the project manager and lead trail designer for the Beth Condon Memorial Pathway Project in Yarmouth, as well as for the Androscoggin River Trail in Topsham with Tom Farmer of W-P providing landscape architecture services and NCS performing base survey mapping. His experience includes a variety of projects ranging from the planning and environmental analysis phase through permitting to the final P.S. & E. stage of development. Darin also oversees TYLI's On-Call highway design contract work with the Vermont Agency of Transportation.

Joseph Howe, PE | Roadway / MOT / Sidewalk Design Support

207.347.4335 | joseph.howe@tylin.com

Joe brings over 15 years of roadway design experience on projects for state agencies and municipalities. His highway design experience includes geometrics, drainage design, utility coordination, roadside design, pedestrian and bicycle facilities, and construction services. He has had significant involvement in projects ranging from small municipal pedestrian facilities to complex urban arterials in Maine. Recent projects include: Route 302/Hardy Road/Duck Pond Road Intersection Improvements in Westbrook; Route 302 Center Turn Lane in Bridgton; Route 202 and Route 115 Intersection Improvements in Windham and Gray; Route 1 Shared Use Path in Yarmouth; Route 9 Sidewalk and Traffic Calming Improvements in Biddeford; Route 1A Rehabilitation in Hampden; the roadway approaches and shared use paths to the Veterans Memorial Bridge in Portland/South Portland; and Western Avenue Widening Project in South Portland.

Thomas Farmer, ASLA | Senior Civil Engineer

207.761.2991 | tom.farmer@wright-pierce.com

Tom, a licensed landscape architect, will assist with the lighting and stormwater drainage modernizations on the project. With over 20 years of professional experience, his work has included corridor planning and design, complete street design, streetscapes, bicycle and pedestrian improvements, computer aided photosimulations, and development of preliminary and final design plans and cost estimates for transportation-related projects. Tom was project manager for the Route 100 Vision Plan and the lead landscape architect on the Falmouth Route 1 Streetscape Plan (while with TJD&A). Other multimodal transportation and bicycle-pedestrian projects he has had a lead role in are Portland's Spring Street re-design study; Portland's Libbytown circulation and streetscape plan; and Portland's Bayside Trail design, construction plans, and construction administration.

Jan Wiegman, PE | Civil Engineer
207.761.2991 | jan.wiegman@wright-pierce.com

Jan has over 30 years of engineering design, permitting and project management experience on a wide variety of civil, structural and transportation projects. He will bring to the project his expertise in planning and design as it relates to community visioning and economic development projects. He has experience in the myriad of related issues including coordination with transportation and utility engineering, permitting and funding assistance, and facilitation of the public process involving all stakeholders. His responsibilities have included design, permitting, budget, schedule and construction monitoring on both public and private sector development projects. Jan is recently worked on a three-mile roadway rehabilitation project in Bath, ME, a six-mile roadway reconstruction project in Oakfield, ME, an intersection improvement in Bethel, CT, and two improvement projects on US Route 1 in Kittery, ME.

Stephanie Hubbard, PE, LEED AP | Civil Engineer
207.761.2991| stephanie.hubbard@wright-pierce.com

Stephanie has experience in many aspects of site development and design, including site planning, stormwater management design, permitting, utility infrastructure design, and contamination assessment and remediation for commercial, retail and industrial sites.

Carl Anderson, PE | Lighting Engineer
781.933.2419 | carl.anderson@tylin.com

Carl has more than 20 years of experience as a professional electrical engineer and project manager. Carl has provided pedestrian scale lighting design for many municipalities in Maine. He was the Project Electrical Engineer for the Main Street Relighting project for the City of Auburn and the Libbytown Streetscape Improvements Project for the City of Portland. He designed all lighting for the Veterans Bridge Replacement project in South Portland/Portland. Additionally, Carl has prepared lighting, NAVAID, and power design for several airports and has designed building services and electrical infrastructure systems, including studies and design of electrical systems for new and existing facilities. He has also managed and designed numerous municipal and State Department of Transportation roadway power and lighting design projects.

Ariel Greenlaw, EIT | Traffic Engineer
207.347.4356 | ariel.greenlaw@tylin.com

Ariel has 9 years of experience providing traffic and highway engineering design services on municipal and MaineDOT projects. She has worked on many corridor and signal improvement projects including locations in Portland, York, Wells, Auburn, and more. Ariel has also worked on several master planning studies in New Auburn, Bangor, Portland, Wiscasset, and Windham including the North Windham 21st Century Master Plan. She is trained in drafting, data collection, roadway and traffic design, and safety and capacity analysis. Ariel is also well-versed with many traffic analysis software packages including Synchro/SimTraffic.

3: Relevant Project Experience

INSTITUTE FOR SUSTAINABLE INFRASTRUCTURE
I S I

TYLI specializes in Corridor Design Improvements: The TYLI team is intimately familiar with the project having served the Town on the study phase of the award winning 21st Century Downtown Master Plan. The services required for the design phase of this project are the core services that TYLI currently provides to several municipalities in Maine as well as to the transportation departments in many states, specifically in Maine. Tom Errico and TYLI have specialized in corridor design improvements including intersection improvements, lighting, pedestrian and bicycle facilities, and complete streets.

Complete Streets/PACTS Application Expertise: Tom has experience with filing PACTS applications, and as part of the Complete Streets Design Training Initiative for UMass, he was responsible for the development and delivery of approximately 80 training workshops throughout the state of Massachusetts. He has also made Complete Streets Technical Presentations at several conferences and transportation society meetings.

Signal Design: Also directly applicable to this project is Tom's significant experience in designing traffic signals and in the determination of intersection and roadway design requirements for highway projects. TYLI has worked very closely with in-house staff at various municipalities to provide expert opinions related to traffic engineering design as well as input on developing maintenance of traffic (MOT) plans during construction.

Minimizing Maintenance of Traffic: Due to the challenges of constructing roadway projects in Maine at a time when weather permits, this often conflicts with the timing of the tourist season. Our in-house experts understand the importance of keeping impacts to a minimum for the traveling public in this important stretch of Route 302. We have office and field staff with decades of experience in MOT and constructability of projects. We will use their experience and expertise to ensure that our designs can be easily constructed while maintaining access to local businesses and the movement of all modes of transportation throughout the project. A focus on these important issues will please the locals and the tourists alike, and allow this project to be successful in the eyes of the public.

Public Outreach: Gathering information from the local businesses owners and other stakeholders will be extremely important for a successful project. Relaying information to these entities during the development of the design as the project progresses and implementing a strategy for minimizing and mitigating impacts during construction will help ease the public's concerns and improve the perceptions of how well the Town is delivering this project.

Sustainability: As funding resources continue to deplete, it becomes ever more important to be certain that monies are well spent. The sustainability of new projects and the impacts they have on the Town will be important for years to come. The Falmouth office of TYLI has five certified Envision Sustainability Professionals (ENV SP). Of the twelve people listed in the ENV SP directory in the State of Maine, TYLI has five of them. Two of those five (Kevin Ducharme and Heath Cowan) are slated for primary roles in this project.

The following show examples of the team's relevant preliminary engineering services project experience.

21st Century Downtown Master Plan

North Windham, Maine

Owner:
PACTS
970 Baxter Boulevard, Suite 201Portland, ME 04103

Contact:
John Duncan
PACTS
(207) 774-9891

Brooks More,AICP
Planning Director
Town of Windham
(207) 894-5960

Design Dates:
Feb 2011 – May 2012

Construction Cost:
N/A

T.Y. Lin International and MRLD provided PACTS and the Town of Windham with planning and engineering services and developed an award winning plan with the following purpose:

"2014 Plan of the Year" -
Maine Association of Planners

- Develop a comprehensive vision for transportation improvements in North Windham
- Create a transportation system that provides for multiple modes of transportation
- Further economic development opportunities through improved transportation
- Focus on implementation by identifying specific projects and funding mechanisms
- Furthering the "sense of place" in Windham's commercial center

"This plan truly is more than a corridor study and is a visionary approach to addressing not only the transportation issues but also the quality of place of North Windham…"

- *Ben Smith, Town of North Windham*

Route 9 Sidewalk and Traffic Calming Improvements
Maine Department of Transportation

Owner:
MaineDOT
State House Station 16
Augusta, ME 04333-0016

Contact:
Mr. Jim Mansir
Project Manager
207.624.3612

Notice to Proceed:
November 2009

Design Completion:
April 2010

Construction Completion:
October 2010 (estimated)

Construction Cost:
$835,600

To fully integrate the new complex with the rest of the campus, the University of New England (UNE) has initiated a series of infrastructure improvements along Route 9 in Biddeford.

Working with the Maine Department of Transportation (MaineDOT), UNE is constructing a new ground-level gateway under Pool Street to provide a safe walkway for the University community. Sidewalks were constructed on both sides of the street from the entrance of the campus to the new complex with three well-designed crosswalks. In addition, state officials are lowering the speed limit on the street to 35 mph. New lights have been added along the street, sidewalks, and throughout the new complex.

T.Y. Lin International (TYLI) provided preliminary and final design services for the above-noted traffic calming enhancements on Route 9 in the vicinity of the UNE campus. The design scope involved provision of curb, sidewalks, crosswalks, gateway islands, intersection lighting, landscaping, drainage, pavement markings, signage, and traffic calming measures along Route 9 from Hills Beach Road to just beyond the new entrance for the westerly campus improvements. Additionally, right-of-way mapping services were also provided. The project was on a fast-track design and construction schedule to accommodate the opening of the new residence halls in September 2010.

Route One Infrastructure Plan
Falmouth, Maine

Owner:
Town of Falmouth, Maine

Contact:
Theo H.B.M. Holtwijk
Director of Long-Range Planning
Town of Falmouth
271 Falmouth Road
Falmouth, Maine 04105
Tel: 207-699- 5340
Fax: 207-781-8677

The T.Y. Lin International (TYLI) Team, comprised of TYLI, MRLD Landscape Architecture + Urbanism, and Woodard & Curran was selected by the Town of Falmouth to develop an Infrastructure Plan for Route One between Route 88 to the south and the Maine Turnpike spur to the north. The purpose of the Plan is a coordinated investment in, and improvement of, the public right-of-way (ROW) infrastructure of Route One to make it a more attractive, cohesive, functional, and pedestrian-friendly street that strengthens its economic viability and implements the Town's vision which includes:

- A denser pattern of development of the Route One area with activities day and night;
- A variety of uses including residential;
- An emphasis on pedestrians and sidewalks; and
- Attractive landscaping that appeals to both businesses and shoppers

Windham/Gray Routes 202 & 115 Intersection Improvements
Windham/Gray, Maine

Owner:
Maine Department of Transportation
State House Station 16
Augusta, Maine

Design Completion:
December 2009

Completion:
June 2010

Construction Cost:
$0.6 Million

Background: T.Y. Lin International (TYLI) was selected by the Maine Department of Transportation (MDOT) to design safety improvements at the intersection of US Route 202 and State Route 115 at the Windham/Gray town line.

TYLI Role: This $0.6 million intersection improvement project includes new turning lanes, new roadway drainage, a new T-intersection to replace an existing non-traditional intersection, and traffic calming improvements to an existing intersection. The project included new pavement, underground drainage, cost control for ledge removal, and driveway entrance design controls. Additional improvements include adding appropriate intersection turning lanes and roadside safety within the project area. The project also involved replacing an existing non-traditional intersection with a new T-intersection.

"TYLI performed in an excellent professional manner; it was a project that went very smoothly, much to do with their understanding of the needs of the project, Department and construction industry"

Jeff Tweedie, PM, MaineDOT

TYLI was responsible for project management, preliminary and final design, utility coordination and technical assistance at public presentations. The design was developed to minimize impacts to property abutters while widening the roadway to improve traffic flow.

Result: TYLI's recommendations resulted in 30% reduction in construction cost.

Intersection Improvement Project located on Route 302 at Hardy Road and Duck Pond Road

Westbrook, Maine

Owner Reference:
Maine Department of Transportation (MaineDOT)
16 State House Station
Augusta, ME 04333-0016

Contact:
John Rodrigue
(207)624-3420

Start Date:
January 2015

Completion Date:
Estimated Oct 2016 (construction)

Construction Cost:
$1,000,000 (est)

Project Background: This project was initiated by the City of Westbrook to address an ongoing safety problem at this intersection. After many years of City officals working together with MaineDOT staff, this project was created to investigate potential solutions and provide a prefered alternative.

T.Y. Lin International (TYLI) Role: The MaineDOT selected TYLI for the preliminary design of the proposed improvements that will consist of either the construction of left-turn lanes (Route 302) and flashing beacon or a roundabout at the Route 302/Hardy Road/Duck Pond Road intersection in Westbrook. An alternatives analysis will determine the preferred option for consideration. TYLI is responsible for completing the alternative analysis and coordinating with the Department on the environmental permitting, geotechnical investigations, survey, ROW investigations and utility coordination.

Roundabout Details: For the roundabout alternative, we will utilize the software programs RODEL and SIDRA to model conditions and to determine the need for either a single or two-lane roundabout. Future traffic volumes and supporting data to be used for conducting the analyses will be provided by the Department. Traffic analysis at other nearby intersections, such as Methodist Road, is not included in our effort.

Project Challenges: The existing vertical alignment in this location will be a challenge. TYLI staff will propose a roundabout that minimizes grade change, minimizing the impacts to the abutting properties. TYLI anticipates that maintenance of traffic during construction will also be a challenge. We will work with our construction staff and MaineDOT staff to ensure construction activities will have as little impact as possible.

This project is currently on hold while the client considers funding constraints.

Park Avenue and St. John Street Traffic and Pedestrian Improvements

Portland, Maine

Owner:
MaineDOT
16 State House Station
Augusta, ME 04333-0016

(as part of a three-party agreement with PACTS and the City of Portland)

Contact:
Brian Keezer, PE
Project Manager
207.624.3612

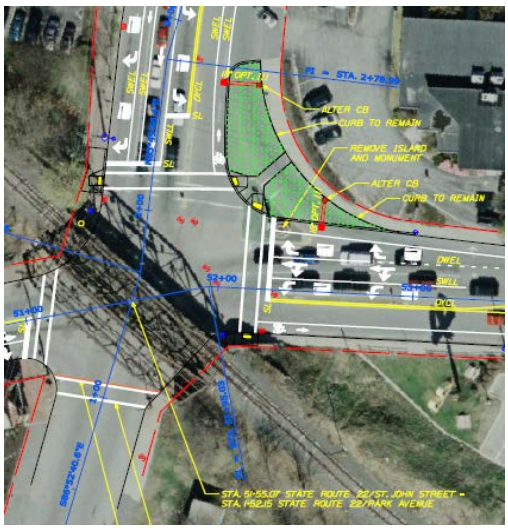
Construction Cost:
$1,065,000 (est.)

Project Start:
2011

Project Completion:
2013

T.Y. Lin International (TYLI) provided preliminary and final design services to MaineDOT for traffic and pedestrian improvements along Park Avenue from Deering Avenue to St. John Street, and along St. John Street from Park Avenue to Congress Street. The scope of these two projects involves a "road diet", which converts the existing 4-lane sections to three lanes – one travel lane in each direction with a center two-way left turn lane.

Existing pavement width along Park Avenue is 66 feet and implementation of this road diet allows for provision bicycle lanes and buffers. The proposed section has two 11-foot travel lanes and a 12-foot center lane, with 6-foot bicycle lanes, 2-foot buffer lanes and 8-foot parking lanes on each side. The buffer has been placed between parked vehicles and the bicycle lane to help prevent "dooring" collisions. Pedestrian improvements include provision of ADA-compliant ramps, pedestrian signals, and curb bump-outs to improve pedestrian safety. Traffic signal improvements within the study area were also included.



This section of St. John Street is a high crash location. At the Public Meeting, a proposed section consisting of two 11-foot travel lanes, a 12-foot center lane, and 6-foot bicycle lanes was presented. In support of concerns raised by MaineDOT at the Congress Street end of the project, a detailed SimTraffic simulation analysis was conducted to compare before and after traffic conditions.

Business owners, including McDonald's and Dunkin Donuts, were adamantly against the new lane configuration, particularly the provision of bicycle lanes. As a result of public concerns, and the soon to be initiated Libbytown Traffic Study, a 4-lane section will be maintained until the findings of that study are completed.

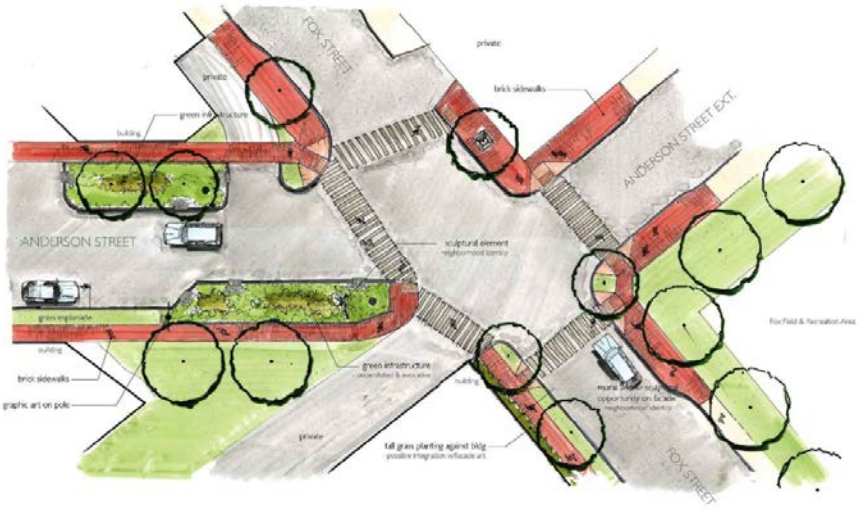
Anderson Street Neighborhood By-Way Design Project
Portland, Maine

Owner:
City of Portland
Department of Public Services
55 Portland Street
Portland, ME 04101

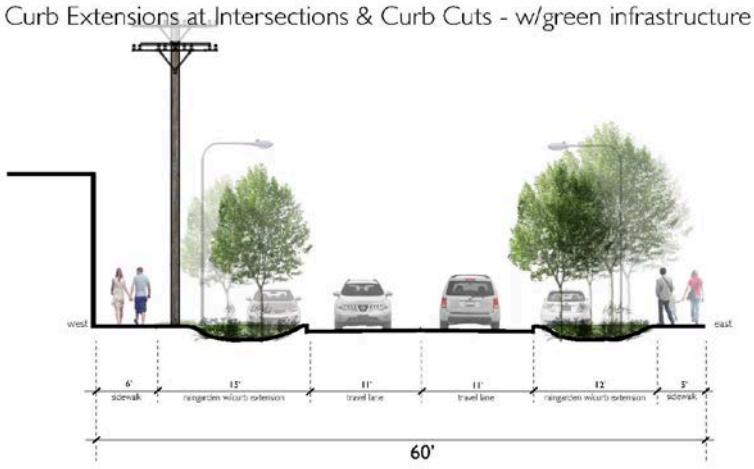
Contact:
Bruce Hyman
Transportation Program Manager
City of Portland
Dept. of Planning and Urban Development
Portland, Maine 04101
(207) 874-8833

Dates:
December 2013 to On-Going

Project Team:
T.Y. Lin International; Richardson & Associates; Woodard & Curran



The Anderson Street Neighborhood Byway project integrates transportation, placemaking and stormwater management best practices within an evolving neighborhood 'main street' in Portland's East Bayside. A neighborhood byway (often called a bicycle boulevard in other communities) is a street that prioritizes bicycling and walking modes while still maintaining vehicular traffic and also includes wayfinding and streetscape enhancements. Anderson Street is in the vicinity of a large stormwater conduit project slated to be built in 2016 so extensive utility, drainage and green stormwater infrastructure are being incorporated. Significant public outreach has been included in the project and has included general public meetings and direct property-owner meetings. Traffic analyses related to access management, roadway design elements, traffic control, signage, pavement markings, and intersection operations were performed.



PACTS Transportation Improvement Program – Application Technical Support

Owner:
City of Portland
55 Portland Street
Portland, ME 04101

PACTS Portland Area Comprehensive Transportation System
970 Baxter Blvd.
2nd Floor
Portland, ME 04103

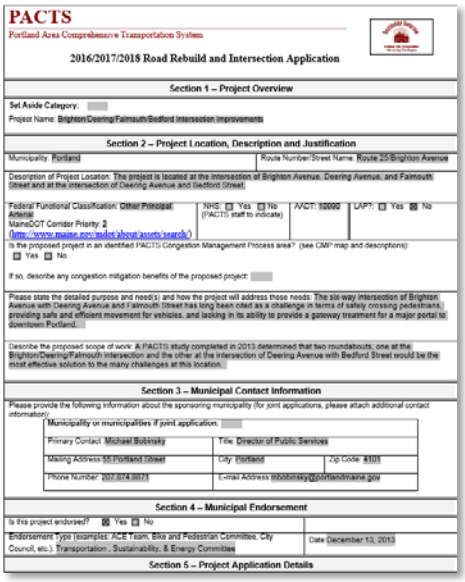
Contact:

Katherine Earley, Engineering Manager, Department of Public Services, City of Portland
207.874.8830

John Duncan
PACTS Director
207-774-9891

PACTS
PORTLAND AREA COMPREHENSIVE TRANSPORTATION SYSTEM

T.Y. Lin International (TYLI) has been providing technical engineering support in the preparation and review of PACTS Transportation Improvement Program applications for both PACTS and the City of Portland for many years. This work has allowed TYLI an in-depth understanding of data needs, analysis, and the general approach to preparing an application for PACTS funding. TYLI also understands the methodologies used by PACTS in taking the application materials and scoring/ranking projects for funding. Tom Errico served on the PACTS Technical Committee that has allowed TYLI a unique internal perspective of how the process works. Specifically work included the following:


PACTS
Portland Area Comprehensive Transportation System
2016/2017/2018 Road Rebuild and Intersection Application
Section 1 – Project Overview
Set Aside Category:
Project Name: Brighton/Deering/Falmouth/Bedford Intersection Improvements
Section 2 – Project Location, Description and Justification
Municipality: Portland
Route Number/Street Name: Route 26/Brighton Avenue
Description of Project Location: The project is located at the intersection of Brighton Avenue, Deering Avenue, and Falmouth Street and at the intersection of Deering Avenue and Bedford Street.
Federal Functional Classification: Other Principal Arterial
MaineDOT Corridor Priority: 2
(http://www.maine.gov/mdot/about/assets/search/)
NHS: ☐ Yes ☐ No (PACTS staff to indicate)
AVDT: 10000
LAP?: ☐ Yes ☒ No
Is the proposed project in an identified PACTS Congestion Management Process area? (see CMP map and descriptions)
☐ Yes ☐ No
If so, describe any congestion mitigation benefits of the proposed project:
Please state the detailed purpose and need(s) and how the project will address those needs: The six-way intersection of Brighton Avenue with Deering Avenue and Falmouth Street has long been cited as a challenge in terms of safely crossing pedestrians, providing safe and efficient movement for vehicles, and lacking in its ability to provide a gateway treatment for a major portal to downtown Portland.
Describe the proposed scope of work: A PACTS study completed in 2013 determined that two roundabouts, one at the Brighton/Deering/Falmouth intersection and the other at the intersection of Deering Avenue with Bedford Street would be the most effective solution to the many challenges at this location.
Section 3 – Municipal Contact Information
Please provide the following information about the sponsoring municipality (for joint applications, please attach additional contact information):
Municipality or municipalities if joint application:
Primary Contact: Michael Bobinsky
Title: Director of Public Services
Mailing Address: 55 Portland Street
City: Portland
Zip Code: 4101
Phone Number: 207.874.8871
E-mail Address: mbobinsky@portlandmaine.gov
Section 4 – Municipal Endorsement
Is this project endorsed? ☒ Yes ☐ No
Endorsement Type (examples: ACE Team, Bike and Pedestrian Committee, City Council, etc.): Transportation , Sustainability, & Energy Committee
Date: December 13, 2013
Section 5 – Project Application Details

- For the City of Portland, TYLI has been leading the preparation of PACTS Transportation Improvement Program (TIP) Applications for Road Re-Build/Intersections and Bicycle/Pedestrian Enhancement Projects. This service has been provided by TYLI staff for about 10 years.

- PACTS has utilized TYLI staff to provide traffic engineering support in the evaluation of applications submitted by PACTS member communities. This effort has primarily been related to the calculation of intersection and roadway volume-to-capacity calculations for pre and post-improvement projects. This information was used to determine how projects were ranked from a traffic capacity enhancement perspective.

City of Portland On-Call Engineering Services | Traffic | MOT
City of Portland

Owner:
City of Portland
55 Portland Street
Portland, ME 04101

Contact:
Katherine Earley, Engineering Manager
Department of Public Services
207.874.8830

Dates:
2009 - current

T.Y. Lin International (TYLI) is providing the City of Portland with on call transportation engineering-related services. Thomas Errico manages this program and has been providing these services to the City for over 10 years. Our efforts have included a number of traffic feasibility studies and roadway design efforts that has afforded TYLI a unique understanding of Portland design standards, the local political and neighborhood climate, and construction methods. In addition TYLI staff has developed close relationships with DPS and Planning staff. Following are a few select project examples:

Roadway/Traffic Design Projects

- Outer Congress Street Phase I & II Improvements –Assisted the City in implementing Phase I pavement marking changes and is currently preparing design plans for streetscape, pedestrian and bicycle facility improvements.
- Anderson Street Neighborhood Byway Project – Currently preparing design plans for improved streetscape, pedestrian and bicycle facilities.
- Bramhall Square Improvement Project – Prepared design plans for the replacement of the existing traffic signal and improvements to intersection and sidewalk elements.
- Libbytown Streetscape Project - Prepared design plans for sidewalk and lighting improvements along Park Avenue/Congress Street between Fore River Parkway and St. John Street.
- Marginal Way/Chestnut Street Pedestrian Improvement Project – Prepared design plans for the installation of a median island, sidewalk ramps, and a flashing light warning system.

Maintenance of Traffic (MOT) Plans

- Assists the City in the review of MOT plans through the Site Plan Review Process.
- Historically has led the review and coordination of MOT Plans for all construction projects impacting the public ROW.
- Currently providing traffic engineering services for developing MOT Plans for the Back Cove South Storage Facility.

Beth Condon Memorial Pathway Extension Final Design Phase 1 Completion - Route One Bicycle & Pedestrian Path

Yarmouth, Maine

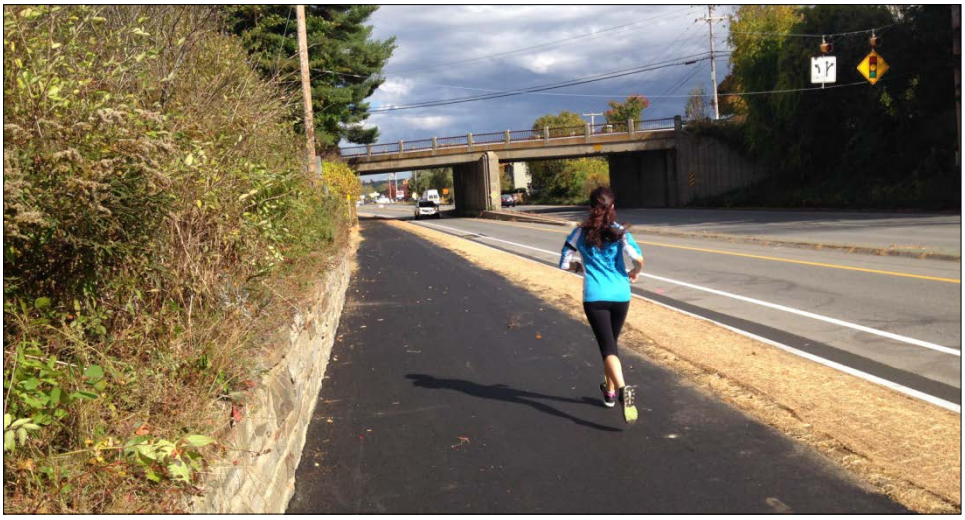
Owner:
Town of Yarmouth
200 Main Street
Yarmouth, Maine 04096

Services Provided:
Path Design
Traffic Studies
Construction Inspection

Design Completion:
2013

Construction Completion:
2014

Construction Cost:
$475,000



Background: The Beth Condon Pathway has played a major role in connecting the southern and central parts of Yarmouth to businesses, Main Street, the schools, town hall, library, Post Office, and parks. It has also provided a safe and attractive transportation alternative to walking or riding along Route One.

In 2003, the Beth Condon Memorial Pathway Extension Feasibility Study was completed (by T.Y. Lin International (TYLI) and others) which studied the extension of the existing pathway to the YMCA in Freeport.

Phase One of this extension was a half-mile segment that previously had no provisions for pedestrians or cyclists. High traffic volumes, narrow shoulders and lack of sidewalks did not allow or promote non-motorized forms of transportation in this area. A portion of Phase One was designed by TYLI and constructed in 2006. After construction there was one missing ¼ mile link of path between Hannaford Plaza and the East Main Street ramp. After additional funding was obtained, TYLI was selected to design the remaining portion of the Phase One project.

TYLI Role: This contract included a feasibility study for use of "road diet" principals to accommodate a pedestrian/bicycle path along the remaining portion of the Phase One corridor. Also included was final path design, drainage design, signing and utility coordination. The proposed typical pathway section consists of a 10' paved path with 2' grass shoulders. As part of the project the Town requested that TYLI analyze the feasibility of reducing southbound Route One from two lanes to one lane in an effort to fall in line with the Town's Route One Master Plan and to provide more room for the path beneath the East Main Street bridge. TYLI completed traffic analyses at the East Main Street Ramp/Route One intersection and developed plans for the proposed lane reduction/striping revisions from the Hannaford Plaza to the I-295 Southbound Off-Ramp. Necessary signing for project safety and traffic signal modifications to provide for appropriate phasing and timing for the one-lane southbound scenario are also included in this project.

Veterans Memorial Bridge
Traffic Analysis and Signal Design
Portland and South Portland, Maine

Owner:
MaineDOT
Jeff Folsom
MaineDOT

Design Start:
2010

Construction Completion:
July 2012

Construction Cost:
$63,000,000

A memorial to Maine's Veterans was part of the overall aesthetic treatment

Bridge features 12ft. wide pedestrian and bicycle path and three, 20ft. wide overlooks along the length of the bridge are framed by "Reed-Poles".

Background: The Design-Build Team of Reed & Reed and T. Y. Lin International (TYLI) was selected to design and build the new bridge. This multiple award-winning bridge is a 1,610 ft. long precast segmental concrete design that forms an iconic gateway into Portland.

TYLI Role: TYLI was responsible for bridge and roadway design, traffic analysis and signal design, utility coordination, right-of-way mapping and negotiation/acquisition, and maintenance of traffic design.

Value Added: The TYLI design ties into the adjacent Fore River Parkway in a manner that eliminated one of the approaches of a congested 4-way intersection on the Portland side of the bridge. In support of this design alignment, detailed traffic simulation models were developed to display traffic performance.

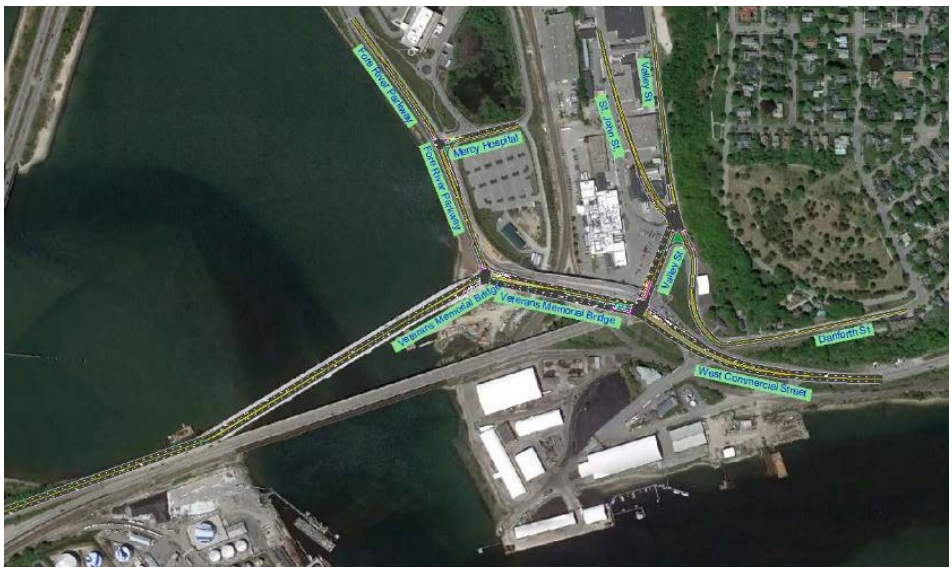


Image from Traffic Simulation Model

Ultimately the SimTraffic model proved that traffic flow would improve with this innovative roadway concept. A Context Sensitive Solutions process was used to finalize elements of the aesthetic treatments and plan the details of the service memorials that are incorporated along the multi-use path on the bridge as a tribute to Maine's veterans.

Signal Design: A key part of the project from a traffic operations perspective was the design of traffic signals at four closely spaced intersections. The intersections included West Commercial Street/Valley Street, Valley Street/St. John Street, Fore River Parkway/Veterans Memorial Bridge and Fore River Parkway/Mercy Hospital. The SimTraffic model was used to develop a coordinated interconnected signal system that minimized vehicle delay and queueing. The design incorporated signal design considerations to accommodate multi-modal users of the Fore River Trail.

Safety Improvement Project located on U.S. Route 302
Bridgton, Maine

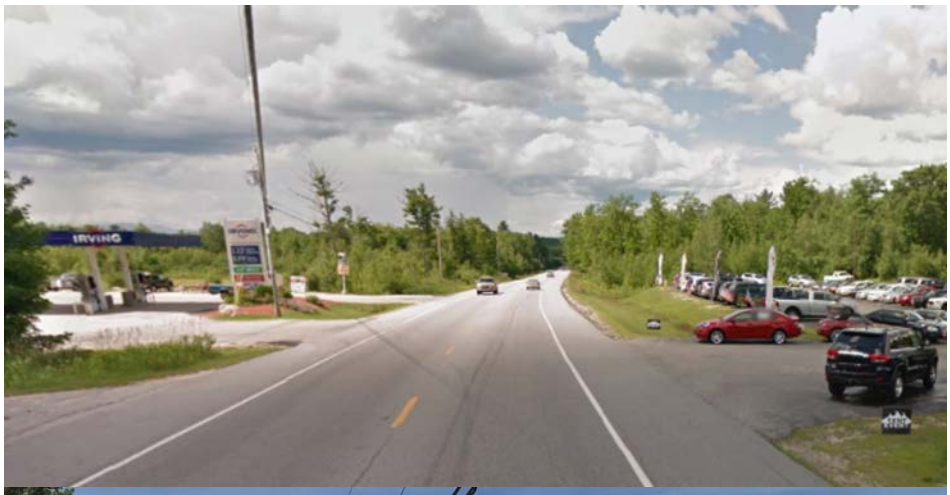
Owner Reference:
Maine Department of Transportation (MaineDOT)
16 State House Station
Augusta, ME 04333-0016

Contact:
Brian Keezer
(207) 624-3612

Start Date:
December 2014

Completion Date:
Estimated - June 2016 (constr.)

Construction Cost:
$460,000 (est.)



Project Background: This project was initiated by the Town of Bridgton to address a high number of crashes at the project site on a busy and high speed section of U.S. Route 302.

T.Y. Lin International (TYLI) Role: The MaineDOT selected TYLI for the preliminary and final design of the proposed improvements that will consist of a continuous two way left turn lane with median islands for traffic calming. This section will also include a pavement overlay.

Project Challenges: All work for this project is to be done within the state right-of way. There were several objects within the clear zone that could not be removed or relocated outside the clear zone but within the right-of-way. To mitigate this, traffic calming features consisting of median islands and delineators in the median and shoulders were utilized. The location of the islands were critical and one island had to be modified to provide a refuge for left turns in to the sports fields on Brag Way at the project limits.

Route 1A Rehabilitation
Hampden, Maine

Owner:
Maine Department of Transportation
State House Station 16
Augusta, Maine

Design Completion:
2011-2016 (Estimated)

Construction Completion:
2017 (Estimated)

Construction Cost:
$3,500,000 (Estimated)

Background: As part of the Maine Department of Transportation's (MDOT) General Services Agreement, T.Y. Lin International (TYLI) is providing design services for a 1.73 mile Route 1A minor arterial improvement project that carries approximately 8000 vehicles per day.

The project is comprised of two 12-foot travel lanes and bicycle friendly 6-foot paved shoulders. A 5' wide paved sidewalk is being added on the west side. This project does not accommodate the addition of the new sidewalk at the bridge across the Souadabscook Stream. This urban roadway project also includes accommodations for 15 side roads and over 130 driveways.

Project Details: This is a pavement rehabilitation project including safety improvements. Much of the existing roadway base contains a Portland cement concrete core under the travel lanes. The rehabilitation involves grinding the entire existing bituminous pavement structure, placing and compacting the salvaged pavement as new base course and providing a few inches of new pavement. Existing variable width gravel or paved shoulders will also be rebased and paved.

The project starts on the south end where it abuts the reconstructed area due to commercial development near the intersection with Route 9 and ends 1.73 mile to the north where it abuts a similar project reconstruction completed a few years earlier. The more urban southern end of the project is a 25 mph speed zone in an historic district where the design carefully considered all impacts to the existing property conditions. The northern section is a 35 mph speed zone.

TYLI's role: TYLI's responsibilities include design of a combined open/ closed drainage system coordinated with buried water and sanitary sewer utilities, addition of a raised sidewalk the entire project length, improved turning movements and safety within the corridor, right-of-way/property impacts, quantity estimates, special provisions, and refining the design to minimize impacts to wetlands and to the historical district.

State St./High St. Two-Way Conversion (Phase 2) Study
Portland, Maine

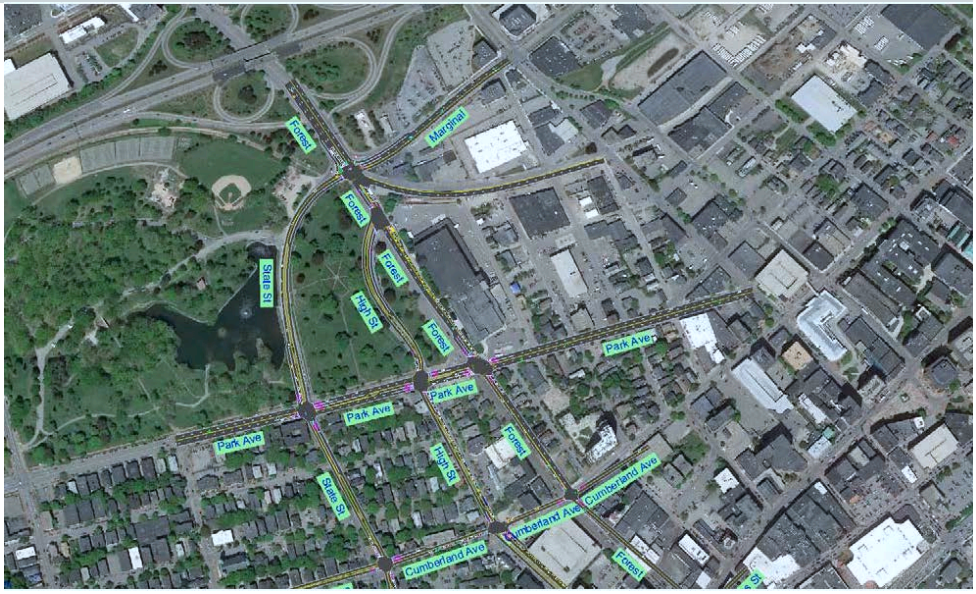
Owner:
City of Portland
Department of Public Services
55 Portland Street
Portland, ME 04101

Contact:

Michael J. Bobinsky
Director of Public Services
City of Portland
55 Portland Street
Portland, Maine 04101
(207) 874-8801

Dates:

Feb 2014 to April 2015



The Purpose of the State and High Streets Two-Way Conversion Study is to study the effects of re-introducing two-way traffic flow on State and High Streets. The study will evaluate whether changes in transportation infrastructure would be compatible with the existing land uses and neighborhoods in the study area. Both streets will need to serve automobiles, trucks, transit, pedestrians and cyclists equally.

From a safety and health perspective, new infrastructure will be designed for lower speeds to accommodate pedestrian and cyclist safety and increase livability. From an urban design perspective, changes will provide a positive gateway experience, and actively connect historic neighborhoods. Changes will also serve the transportation needs of those living off the peninsula by creating convenient access to city amenities and work places. Changes should be compatible with other related City planning projects, including the redesign of Congress Square.

Goals of the Study:

- Improve Safety and Mobility for All Users
- Improve Neighborhood Livability
- Reduce Vehicle Travel Speeds
- Reduce Through Traffic Volumes
- Improve Accessibility for Vehicles, Pedestrians, Transit, and Cyclists

TWENTY FIRST CENTURY DOWNTOWN| NORTH WINDHAM | ME

MRLD collaborated with TY Lin on the revitalization of greying malls and big box development in North Windham as a mixed-use 21st Century Downtown by retrofitting new building forms, green infrastructure, Complete Streets, mobilities, and land uses throughout the 600-acre study area. North Windham is currently comprised of nondescript auto-oriented development along the Route 302 corridor, which impedes connectivity and negatively impacts public perception. This ambitious urban design study identifies clear short-term and long-term strategies increasing greater efficiencies for future infill and (re)development, public investment, vehicular and pedestrian movement, improved visual quality, and the rebranding of North Windham as the gateway to the Lakes Region. Key metrics for the success of the Study include increased FAR's, increased node to segment ratios, an increased tax base, Route 302 corridor improvements, more mixed-use projects, and the creation of new location efficient residential neighborhoods surrounding the commercial core. The Study was adopted by the Council and is being implemented in phases.

2014 Maine Association of Planners Plan of the Year

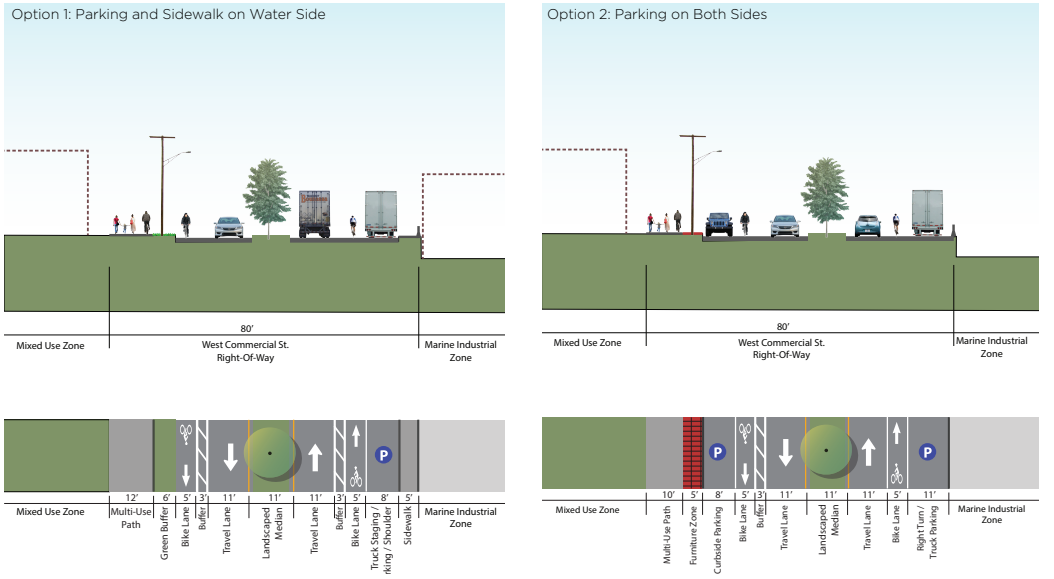
GORHAM ROAD COMPLETE STREET DESIGN| SCARBOROUGH| ME

The Town of Scarborough recently retained the team of Woodard & Curran and MRLD to develop a Complete / Green Street preliminary design for a three-mile stretch of Gorham Road. The design will build off previous studies such as the Transportation Master Plan and the Comprehensive Plan, but will fine tune site specification recommendations for streetscape, mobility, access management, Complete Streets, and green infrastructure – including a new state of the art Nonesuch River stream crossing.

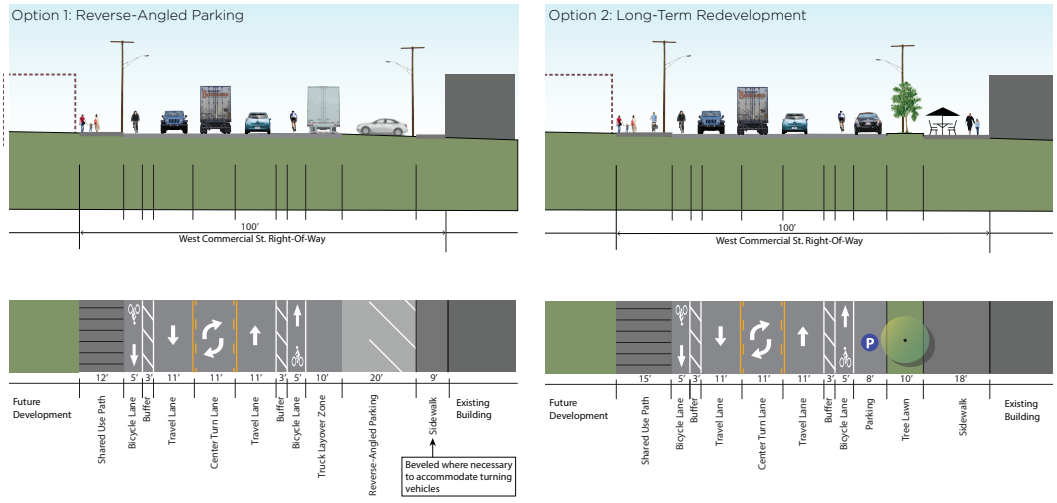
This portion of Gorham Road includes the Oak Hill commercial core, the civic and education campuses, undeveloped lands, as well as established residential neighborhoods. The design that the team will be developing will context sensitive, responding to existing and anticipated growth along the corridor.

In addition to thoughtful design and careful site analysis, the project team will coordinate several public forums.

MRLD is excited to be involved with the project. This is an important addition to our growing list of corridor retrofit projects.



West Commercial Street - Section D



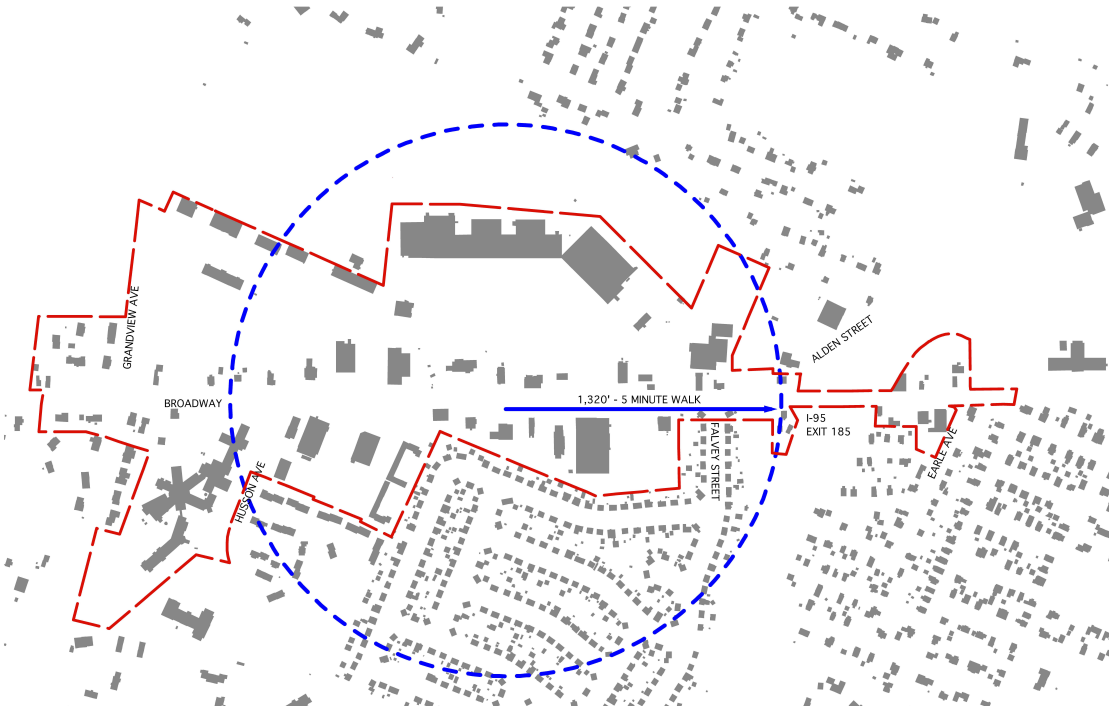
MRLD is collaborating with Alta Planning and TY Lin on the West Commercial Street Multi-Modal Study for the City of Portland. West Commercial Street is evolving into Portland's new working waterfront, but there are a range of other uses and users that must be accommodated. The project area – running from High Street to the Veteran's Memorial Bridge – is seeing extensive redevelopment with the expansion of the International Marine Terminal, new boat yards and mixed-use developments, as well as existing uses. The study area ranges in character from the Old Port to the working waterfront to vacant land.

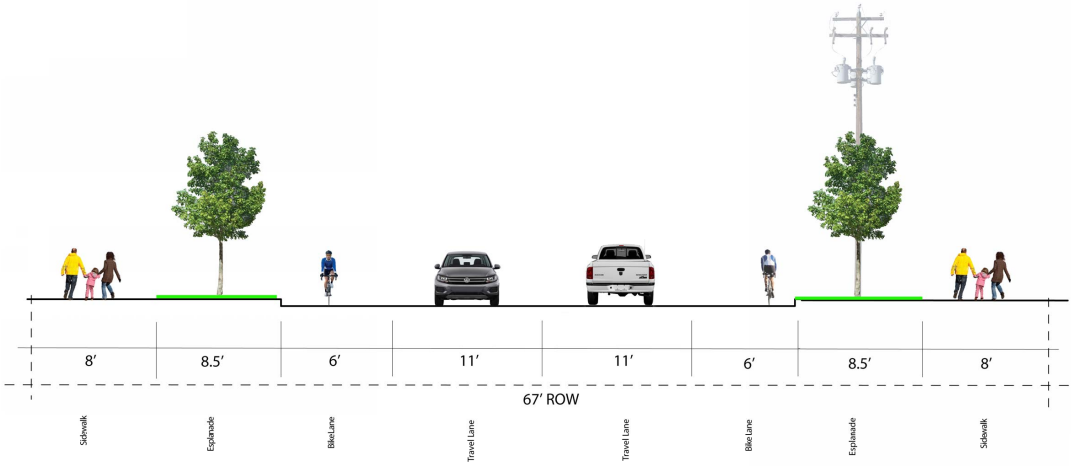
The study team is using a Context Sensitive Approach to identifying existing and future land use patterns. From this analysis, four different distinct areas have been noted along the corridor. Concept Complete Street cross sections are currently being developed. The different street sections support the existing and envisioned land use in order to create a corridor that is functional, safe, and attractive.

MRLD assisted the City of Auburn on specific site and urban design strategies to transform Minot Avenue into a high performance corridor in terms of buildings, sites, streetscapes, complete streets, mobility, and economic development. At the core of the project is the transformation of a historic mill into a modern engine for commerce with anticipated private sector investment in the tens of millions. Additional work includes new infill buildings, additional connectivity by expanding the area street grid and sidewalks, and green infrastructure for stormwater.

MRLD prepared a series of visualizations for the City to illustrate how Minot Avenue will evolve into an attractive and functional multi-modal gateway to the downtown.

BROADWAY CORRIDOR STUDY | BANGOR | ME





MRLD and T.Y. Lin are completing a Context Sensitive based Broadway Corridor Study for the City of Bangor. A wide range of uses and neighborhoods surround the corridor, however the corridor is a limiting factor for economic development and quality of life issues due to congestion, lack of multi-modal facilities, and high crash locations. The Study makes specific short-term and long-term mobility, infrastructure, and streetscape recommendations – along with cost estimates – for improving not only the corridor, but connectivity in the greater area.

UNDERGROUND ELECTRICAL FACILITIES

In the course of assisting our clients throughout New England, we regularly encounter the need for improvements which involve underground electrical facilities. This work can range in scope from a phase in larger site development and facility expansion projects, or our clients will undertake projects where installation of underground electrical systems is the primary focus. Often, a desire for aesthetic improvements, or system reliability and security drives the project.

Wright-Pierce provides an integrated team of experts with extensive experience in the planning, design and construction oversight of underground electrical improvements. Our in-house staff includes the following:

- electrical engineers
- civil engineers
- structural engineers
- mechanical engineers
- landscape architects
- mapping and GIS specialists

Our recent projects have included a broad variety of applications and solutions, and, as a result we are in an excellent position to advise our clients with respect to the selection of appropriate technologies. Specific components of our recent and ongoing projects have included:

- site lighting
- underground electrical service
- electric receptacles for performance areas
- generators / standby power systems
- controls and instrumentation
- communications infrastructure
- site security

STORMWATER BEST MANAGEMENT PRACTICES

As one of New England's oldest and most respected engineering consultants, Wright-Pierce has assisted hundreds of clients in the public and private sectors with the planning and design of stormwater systems. Over the course of the past two decades we have seen an increased focus on the use of creative mechanisms to address stormwater runoff in ways that remove contaminants and promote groundwater recharge.

Through these projects our professional staff has gained experience in a broad range of measures, often described with terms such as low impact development (LID) and best management practices (BMPs). These systems are typically focused on addressing water quality issues from runoff within urbanized areas. In many cases these treatments result in increased biodiversity and reduced heat island effects.

Our team of engineers, landscape architects and scientists are well-versed in the practical benefits and limitations associated with many types of BMPs, including:

- Tree box filters
- Rain gardens
- Wet ponds
- Pervious bituminous pavement and pavers
- Water quality swales
- Bio-retention cells

Typical pollutants treated with these systems include:

- Total suspended solids (TSS)
- Nutrients (nitrogen and phosphorus)
- Chlorides
- Metals
- Thermal impacts
- Turbidity

FILTERRA BIORETENTION SYSTEM

Filterra Bioretention Systems are a patented stormwater management system designed to treat stormwater and remove pollutants and total suspended solids. The systems consist of a concrete structure which includes a filter media and vegetative planting. Stormwater runoff is directed into the Filterra system through a throat opening, and is treated through the specialized filter media prior to discharge through a small underdrain. Filterra units are particularly useful in urban settings and areas with limited availability of space for conventional stormwater treatment BMPs .

WRIGHT-PIERCE EXPERIENCE

As part of a municipal downtown redevelopment master plan, an industrial site along the local river was transformed into a waterfront park. The park provides the crucial master plan link between the downtown and the waterfront and is the site of several community festivals. Treatment of stormwater runoff from existing and proposed parking lots was a design priority of the redevelopment effort. The stormwater design included the installation of three Filterra units to provide treatment to an existing parking lot area.

The Filterra systems were designed to capture the first flush of stormwater runoff from the parking areas, with any overflow discharging to a catch basin system directly adjacent to the structure. The underdrains from the systems connected to a subsurface drainage system and were diverted into a StormTech Chamber Isolator row for subsequent treatment. The compact size of the Filterra unit allowed stormwater treatment to be retrofitted into an existing developed area.

Rain gardens are a low impact development (LID) technique that utilizes shallow impoundments of native vegetation and soil filters to treat stormwater runoff from developed areas. Rain gardens, also referred to as bioretention cells, are typically constructed in close proximity to the area to be treated. Stormwater is collected in the shallow impoundments and filtered through a soil media to remove pollutants. Based on the infiltration capacity of the surrounding soils, these systems can naturally infiltrate or be underdrained.

WRIGHT-PIERCE EXPERIENCE

As part of the site design and engineering for a 200,000 square foot industrial facility, a number of stormwater management techniques were incorporated to take advantage of site conditions and provide protection for receiving waterbodies including a nearby river, associated tributaries and a delineated vernal pool. The installation of bioretention cells at several locations within the facility, including the facility entrance, were incorporated into the design to provide stormwater treatment and add visual interest. The bioretention cells were constructed on a 6-inch ponding area overlying an 18-inch soil filter layer. The systems were underdrained due to native soils in the area. Plantings within the bioretention cells included native perennial species and shrubs. In accordance with permit requirements, Wright-Pierce staff completed construction inspections during excavation, media installation, stabilization and plantings.

4. Project Approach

Project Understanding

The 21st Century Downtown Master Plan illustrates the commitment on the behalf of The Town of Windham to align smart policy with strategic infrastructures improvements in order to create a place that is economically competitive, livable, and efficient. The 21st Century Plan has been recognized as a visionary, yet practical tool for guiding growth in a type of suburban landscape that many would consider beyond repair. However, North Windham is a place full of potential, new opportunities, and new ways of rethinking outside of the box.

The best places – the places that people rank as ideal – are vibrant and congested with activity, vehicular circulation, and foot traffic. The 21st Plan does not call for the recreation of the Old Port in the Middle of North Windham, but for appropriate design measures to integrate mobility, land use, architecture, and streetscapes in a manner to capitalize on the congestion of the area – and harness this energy. It will take time to implement the vision of the 21st Century Plan, but the requested preliminary engineering services, are the critical first steps in the process.

The application of **Complete Streets** principles is central to our approach.

Our team's expertise in this field will guide decisions that will enable the Town to realize its goal of creating a safe, comfortable place for people of all ages and abilites to work, live and recreate.

By investing in the necessary infrastructure improvements following a Complete Streets methodology within the public right of ways, the Town is leading by example. These improvements will interface with the parcels fronting Routes 302, 35, and 115, but of equal importance will improve connectivity between parcels further from the corridors, creating infill sites and maximizing the potential of the area.

We look forward to an opportunity to assist the Town in realizing its goals. Following are the details of our approach to each task outlined in the scope of work. In this section we have also provided our approach to public engagement, constructability, maintenance of traffic and cost control, and a schedule for the timely completion of the project.

TASK 1 – Obtain Survey Information on Right-of-Way

Northeast Civil Solutions will conduct all survey needs associated with this project. The following outlines their approach to this initial task.

1. NCS will contact Maine DOT to obtain ROW mapping information along the project route being from the Route 302 / Route 35 intersection (a.k.a. Boody's Corner) and the Route 302 / Whites Bridge Road intersection. NCS will utilize the MDOT ROW plan information to place the apparent ROW limits of the project. NCS will utilize the MDOT ROW plans, information obtained from the Town of Windham and monumentation found during the field survey to establish the ROW limits of those streets which intersect said Route 302 within the limits of the project.

2. NCS will utilize municipal tax map, the MDOT ROW map and existing monumentation found during the field survey to place the apparent location of the private property lines as they intersect the ROW definition. We believe it is cost prohibitive for preliminary design services to provide exact ROW and property line definitions through title research and other timely measures. If there are any areas of concern once the preliminary design is completed these areas can be reviewed as part of the final design scope to determine to extent of research desired to resolve such concerns.

3. NCS will perform an existing conditions and topographic survey within the project limits as outlined in Item 1 above. NCS will collect existing conditions and topographic survey data from the existing curb line to

the ROW limits of Route 302 and will also obtain topographic data 25' beyond the limits of the Route 302 ROW to allow for accurate surface modeling.

4. Our understanding is that, if required by the Town, any police protection and traffic control will be provided by the Town of Windham. Also, the Town of Windham Public Works Department will be available to pull the CB & MH covers that are within the survey limits for the survey crew. With respect to existing telephone and/or electrical manholes within the survey limits, NCS will provide location and obtain rim elevation. All other underground facilities will be based on observed evidence. If desired, NCS can secure the services of Dig-Smart of Maine to mark underground utility location. The cost for Dig-Smart of Maine services is not included in the project estimate provided.

5. NCS will prepare final existing conditions and topographic survey plans providing detailed information on the ROW limits of the project, existing conditions data, and utility information and will show 2-foot contours throughout the limits of the project in the areas of survey. In addition to paper copies NCS will provide an AutoCAD file of the final deliverable.

TASK 2 – Perform Traffic Analysis

TYLI will conduct a traffic analysis detailing segment capacity and intersection capacity needs to meet the goals of the project. The following intersections on Route 302 from south to north will be included in the analysis:

- River Road and Turning Leaf Drive
- Tandberg Trail with Route 302 (Routes 115 & 35)
- Shaws' Plaza and Windham Shopping Center
- Landing Road and Windham Mall
- Franklin Drive

The following details our specific effort for conducting the traffic analysis and a complete streets evaluation.

Inventory/Data Collection

- **Turning Movements Counts** will be obtained from the Town at the major intersections noted above within the study area. The Town conducted traffic counts in August 2015 for use in this effort.
- **Tube Counts** (24 hour) will be obtained from MaineDOT within the study area.
- **Historical Traffic Data** will be gathered throughout the corridor study area and will be analyzed for trends and for future projections. We will review available data from MaineDOT and PACTS, and the Town and identify traffic growth patterns for use is projecting future traffic volumes.
- **Historical Crash Data** will be compiled and analyzed for the latest available three year period. MaineDOT computer summaries and reports will be obtained for locations that either are characterized as High Crash Locations or have high crash frequency rates.
- **As-Built Roadway Plans** for the corridor will be obtained from MaineDOT and/or the Town of Windham.
- **Signal Phasing and Timing** for the signals throughout the corridor area will be collected from design plan sources and field verified.

Existing Condition Analysis

The analysis of existing conditions will provide a detailed description of the current physical and operating characteristics of the corridor. The evaluation will be a comprehensive inventory of existing conditions regarding traffic volumes and composition, level of service, physical conditions, roadway geometrics, and crash history. The existing conditions analysis will also serve as a benchmark for analyzing future conditions and potential improvements. An important product of the existing conditions analysis is the identification of physical and operational deficiencies in the corridor which adversely affect its ability to serve safely and efficiently.

A. *Traffic Volume (i.e. all modes, where applicable)*

- Daily Traffic Flows
- Hourly Traffic Variation
- Intersection Turning Movement Volumes
- Traffic Composition
- Historical Traffic Growth

B. *A field inventory and analysis of existing characteristics will be performed and will include but not limited to the following:*

- Roadway Geometrics
- Roadway Characteristics (width, pavement markings, etc.)
- Pedestrian facilities (sidewalks, crosswalks, signals)
- Regulatory Signs
- Traffic Control
- Lane Assignment
- ADA Compliance
- Driveway Characteristics
- Bicycle Facilities
- Access Management will be included to determine if there are opportunities for adjusting (radii, width), consolidating, or eliminating driveways.
- Street Lighting
- Safety Analysis of crash data will identify areas that currently have safety problems. High Crash Locations (HCLs) will be identified, and collision diagrams will be drafted and examined to determine safety problems.
- Traffic Calming/Multi-Modal Analysis/ Complete Street Analysis Assessment of roadway cross-section must be considerate of all users (e.g., pedestrians, bicyclists, transit riders, and handicapped people).

C. *Mobility and Operating Conditions*

Level of Service (AM and PM peak) – we will develop a Synchro/SimTraffic model as part of estimating level of service conclusions for the study intersections and roadway segments.

Future Condition Analysis

The future analysis should be based on historical traffic growth trends and projected to twenty years into the future. The future evaluation of operating conditions should be based on the same methodology as existing conditions. In addition to general historic/trends analysis, we will consult with the PACTS model for forecasting future traffic volumes. The Synchro/SimTraffic model developed for the Existing Conditions analysis will be used to estimate future level for service conclusions.

Concept Improvement Development – Traffic Analysis

The following traffic analyses will be conducted in conjunction with development of recommended improvements.

- A multi-modal analysis will be conducted and evaluation of pedestrian and bicycle facility needs will be identified. The traffic analysis will review the need and provision of safe facilities, such as bicycle lanes, sidewalks, crosswalks, etc.
- A level of service analysis will be performed for concept improvement scenarios. This effort will focus on providing information on the implication of corridor improvements on mobility and level of service. For example, what capacity enhancements are required, or can intersection configurations be changed for improved multi-modal users.
- We will make specific recommendations on existing driveways servicing land use and provide suggestions for future build-out conditions.
- Existing traffic signals will be reviewed for suggestions on improving efficiency and safety as well as incorporating pedestrian considerations.

Modernization of Traffic Signals for coordination and managed operations

TYLI will evaluate traffic signals between Boody's Corner and Franklin Drive and conduct the following:

- Develop options and cost estimates for modernizing the operations of these signals, including the Turning Leaf and Anglers Road signals, to meet PACTS Regional Traffic Management System (RTMS) standards.
- Develop cost estimates for upgrading signal infrastructure to mast arm structures. This will be provided independent of estimates for modernization of signal operations.

TASK 3a – Prepare 50% roadway and intersection design plans on core improvements within the study area

Roadway

Once the base mapping and traffic analysis has been completed, TYLI will lay out the required roadway modifications for this 1.2 mile section of Route 302. The roadway revisions will extend from the Boody's Corner (Chadbourne Road, Route 35/Tandberg Trail, Route 115) to Anglers Road/Whites Bridge Road intersection, although the intersection itself is not included. It is anticipated that these modifications will generally not require resetting of the existing curb lines (except for intersection areas) and will be comprised of adding raised medians and revising the pavement marking patterns.

The addition of raised medians will provide improvements in access control for driveways, overall corridor safety, and with roadway capacity. Installation of the islands will require saw-cutting of the existing pavement, excavation in the proposed curb locations, installation of the curbing, then backfilling with subbase material and repaving along the curb face. The top of the medians will be either landscaped (where large enough) or paved. The raised medians will be installed near the crown of the road therefore will not require additional catch basins since the stormwater will sheet flow from the proposed median curb to the existing curb along the edge of roadway.

The updated pavement marking patterns will include modified through and turning lane assignments and crosswalk locations. As part of the analysis TYLI will determine if the lane striping can be adjusted to provide more width for bicyclists. Since the majority of this work will be accomplished within the existing street width, the roadway upgrades are not anticipated to impact right-of-way (ROW). It is anticipated that the existing vertical alignment will remain as-is and that the current crown line will be acceptable for all new lane assignments. An overlay of the entire roadway within the project limits would be preferable since it would provide a clean, unmarked surface for the new striping, and would cover over any sawcut lines required for the installation of curbing. Should the stormwater work discussed under the supplemental scope of work be added to the project, the trench cuts across the roadway to remove old pipes and/or install new pipes would also create saw cut lines in the pavement. This would be another reason to overlay the project. As part of the design process TYLI will assist the Town in determining whether the project budget could incorporate the overlay.

As part of this process, the TYLI team will also work with the Town and abutting business/property owners to modify driveway locations. These modified drive locations would be those that are either unsafe or interfere with traffic operations. The traffic analysis results will be used to determine areas of traffic queueing that might conflict with driveway locations to target those drives that need to be examined. TYLI will also review available accident data, meet with local officials/law enforcement personnel and complete site visits to determine those drive locations that are deemed unsafe.

Depending on available funding, other items/modifications included in the 21st Century Plan may be added to the project.

Intersections

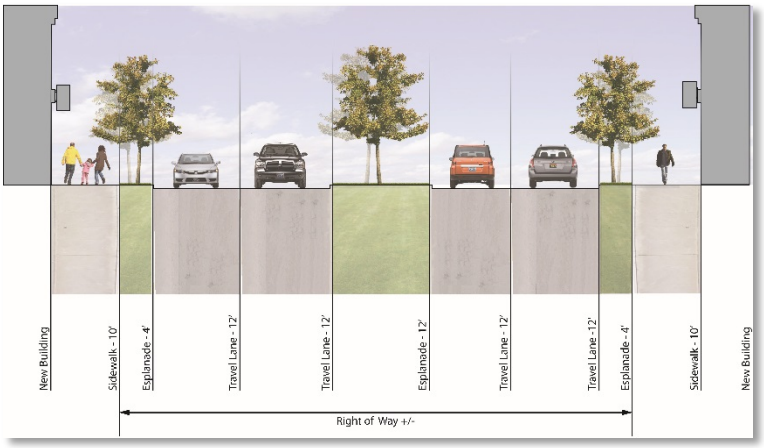
All of the intersections along this corridor will be reviewed as part of this project. In particular, the work required at each intersection is as follows:

- At the Landing Road/Roosevelt Trail (Route 302) intersection the existing channelization island on the northeast side of the intersection will be removed and a standard radius constructed on the corner. This is a traffic calming effort to minimize high-speed turning movements which make it potentially unsafe for bicyclists and

pedestrians.

- At the Turning Leaf Drive/Roosevelt Trail (Route 302) intersection the signal phasing will be adjusted such that a protected phase for the southbound left-turn movements.
- Each intersection will be enhanced to be more pedestrian friendly. These improvements will include upgrading the pedestrian signals to provide countdown signals, adding sidewalks on all four quadrants where they currently do not exist, and adding ADA compliant ramps, curb cuts, and crosswalks. Where curb locations are being revised at the intersection radii, crosswalk lengths will be minimized where possible.
- As part of the traffic analysis, vehicle queue lengths will be determined for each signalized intersection. These lengths will be used to determine turning lane lengths which in turn will provide guidance for revised intersection approach pavement markings.

Sidewalks, Landscaping and Street Furniture



While the 21st Century Downtown Master Plan looked at enhanced connectivity, streetscapes, and complete streets within and outside the two major corridors in the study area, the focus of this scope of work is to maximize a complete streets approach within the primary rights-of-way.

It has already been established that the existing right-of-way in most locations leaves little room for extensive streetscape and landscape treatments, however it is imperative to improve the safety of the corridor – and in turn the appearance – by filling all identified gaps in pedestrian / ADA access. In addition, streetscape improvements, including strategically located medians and site specific access management measures, will calm traffic and minimize the many conflict points between pedestrians and vehicles.

The project team has worked on the retrofit of many corridors. We have a strong understanding of the interrelationship between mobility, connectivity, safety, land use, infrastructure, and economic development. All streetscape design recommendations will carefully balance these factors, creating a cohesive theme while remaining sensitive to the unique opportunities of each frontage. At a minimum, the following items will be included with the scope of work:

- Design for the installation of sidewalks on both sides of Roosevelt Trail, both sides of Tandberg Trail (Route 35) between Roosevelt Trail and Manchester Drive, and on the south side of Tandberg Trail between Roosevelt Trail and Emerson Drive.
- Provide a landscaped esplanade, where right-of-way will allow, so the pedestrian experience will be enhanced by a buffer and space. This should include recommendations on street furniture and other suggested pedestrian amenities.
- Provide landscaped median where width of median allows, which may include pedestrian refuge areas where appropriate.
- Crosswalks should be striped at all intersections and curb cuts.

Streetscape components to be specifically considered include sidewalks, seating, lighting, street trees, bike racks, and other amenities such as trash receptacles.

As noted in the 21st Century Plan, the area includes extensive impervious surfaces, no sewer, and is located over a critical aquifer recharge area. Stormwater is a critical issue in this area. With a recent project, the project team employed a range of green infrastructure systems within a commercial corridor in order to treat approximately twelve acres of previously untreated stormwater that was pushing the area close to urban impaired watershed classification, which would have made the permitting of future projects more complex, expensive, or potentially improbable. By integrating a complete / green streets approach, Windham can leverage infrastructure investments to have the highest possible impact.

In addition to reviewing opportunities for integrating green streets components into the corridor, the project team will analyze the potential for either burying or relocating overhead utilities "one block back." Each approach will be evaluated for cost and benefit as well as complexity of implementation.

The project team will coordinate streetscape design with staff – including Public Works – in order to address such issues as maintenance, snow storage, emergency access, and phasing.

Concept Design Development

For the roadway, intersection and sidewalks/landscape/street furniture outlined above in this section, design plans will be developed at the Concept Design level of detail. Specific tasks to be completed during this phase of work is as follows:

Schematic Plans - The Team will develop one initial conceptual design sketch alternative for the roadway modifications including median locations, proposed pavement markings, and any curb relocations. This concept design will also include typical sections showing proposed pavement structure. The concept plans will also include any intersection improvements, proposed streetscape and sidewalk improvements, and conceptual utility relocations and stormwater management improvement areas. All plans will be generated in AutoCAD.

Visuals/ Graphics - As discussed later in this proposal under Public Outreach and Engagement, we will prepare visuals for use at the first public meeting based on these schematic plans. These may include poster and/or PowerPoint presentations depicting roadway cross-section template, design / material palettes, and conceptual detail illustrations.

Cost Estimate - Schematic-level cost estimate will be developed for the resulting concept plan.

Preliminary Design Development

We will meet with the Town to discuss the public comment feedback, and will incorporate any agreed-upon comments into the concept plan design. We will then prepare preliminary plans for the project as outlined below:

Preliminary Plans – These preliminary plans will include typical sections, details, pavement marking plans and layout plan sheets. Locations of all proposed curb, drive modifications, ADA curb ramps and any other proposed changes will be shown and located. Plans will also show any agreed upon preliminary drainage / stormwater management features, utility relocations, sidewalk additions, proposed landscaping, and streetscape items. The plans will include preliminary details on pavement sections, plantings, and site furnishings. It is assumed that cross sections will not be required. Since there are no proposed retaining walls and no full-depth pavement replacement, it is also assumed that geotechnical studies will not be required. Depending on the results of the studies undertaken during the Concept Design phase, we may or may not have to include details on the overlay pavement. The

Preliminary Plans will be developed to a 50% level of design for this submission. One PDF and one paper copy of the Preliminary Plans will be submitted to the Town.

Design Report - Accompanying the Preliminary Plans will be a Design Report summarizing the existing conditions, current deficiencies, the design criteria and the proposed design components. Any coordination conducted, decisions made by the Town and alternatives studied will be included in the report. Appendices with survey data and traffic analysis output/results will also be included. One PDF and one paper copy of the Preliminary Plans will be submitted to the Town.

Visuals / Graphics – We will prepare colored rendered plans, cross-sections, and details for based on the Preliminary Plans for the second public meeting. These will be presented via either a PowerPoint presentation or posters/wall graphics.

Cost Estimates - Preliminary-level cost estimates will be prepared for the design depicted in the Preliminary plans.

Controlling Project Quality

Our Design Quality Control Plan will use an approach which has proven successful in the past for similar projects. The process will ensure that the Town receives a high quality product and that both design and estimated construction costs are kept in check during the design process. This plan features:

- Defined organizational structure
- Defined design standards and design control
- Separate QC Reviewers
- Constructability reviews
- Regular cost control and schedule evaluations
- Review comment procedure forms
- Detail checking report forms for calculations, plans, and specifications

TASK 3b: Prepare cost estimates for supplemental improvements within the Route 302 Right-of-Way, as called for or consistent with the 21st Century Plan

The scope of services and work plan below reflects the tasks outlined in the Request for Proposals under Task 3b, specifically for services associated with the overhead utilities and stormwater drainage modernization.

Infrastructure Inventory and Condition Assessment

Wright-Pierce (W-P) will visit the project site and take a photographic inventory and field notes of the project area and to document potential issues and opportunities associated with the Overhead Utilities and Stormwater Drainage Modernization tasks. The general study area for Overhead Utilities and Stormwater Drainage Modernization tasks, is Route 302 from the intersection of 35 / 115, north to the intersection of Whites Bridge Road / Anglers Road.

Overhead Utilities & Street Lighting

Wright-Pierce will make contact with the appropriate utility companies, specifically Central Maine Power, for relevant information with regards to relocation of utilities to underground. Proposed locations for underground wire utilities within corridor, and relocation of overhead in the adjacent areas will be established.

As a part of this effort we will coordinate with the other utilities within the roadway, e.g., water and stormdrains, to determine the best location for placement of underground utilities. We will contact the Portland Water District (PWD) and review available mapping relative to the water distribution system within the project area. We will review available mapping and conduct a field review to confirm the nature and location of existing stormwater/drainage facilities within the project area. The cost estimate for underground wire conduit will take into consideration the location (horizontal and vertical) of the existing utilities within the Route 302 right-of-way.

Based on review of existing plan materials and existing infrastructure conditions, we will prepare a minimum of two draft concept plans for initial review with Town Staff. These concepts will consider the entire length of the Route 302 from the Route 35/115 intersection to Angler's Road intersection including the Town identified design alternates:

- Alternate 1 – Underground utilities
- Alternate 2 – Relocated overhead e.g., one block back with relocated service feeds.

W-P will provide cost estimates that would allow the Town to compare the costs of relocating overhead utilities away from Route 302 ("one block back" behind buildings fronting on Route 302, for example) and for the installation of underground utilities along Route 302 in the study area. The cost estimates will be itemized so that the Town may choose to perform the installation of UG utilities in phases.

Regarding the pedestrian scale street lighting, TYLI will provide the following preliminary engineering services:

A. Develop a pedestrian scale lighting plan in accordance with the 21st Century Downtown Master Plan typical for the 1.2 mile section of Roosevelt Trail (US Route 302) to a level adequate to complete a reasonable construction cost estimate for the installation of this lighting.

B. Based on the developed typical lighting plan provide a realistic estimated cost for the installation of the pedestrian scale lighting system.

To complete the above task, TYLI will collaborate with appointed representatives of the town of Windham to ensure that the desired lighting objectives of the 21st Century Downtown Master Plan are accomplished to the maximum extent consistent with overall project objectives.

Modernization of Traffic Signals for Coordination and Managed Operations

TYLI will evaluate traffic signals between Boody's Corner and Franklin Drive and conduct the following:

- Develop options and cost estimates for modernizing the operations of these signals, including the Turning Leaf and Anglers Road signals, to meet PACTS Regional Traffic

Management System (RTMS) standards.

- Develop cost estimates for upgrading signal infrastructure to mast arm structures. This will be provided independent of estimates for modernization of signal operations.

Stormwater Drainage Modernization

As part of the preliminary design efforts W-P will evaluate and provide cost estimates associated with removing the old stormwater drainage structures and culverts, that have been capped and abandoned. We are assuming that these structures and pipes will not be replaced and no volume calculations or sizing will be required as part of this scope. W-P will also prepare recommendation for treating the stormwater that enters the existing municipal stormwater system. Treatment measures will be based upon Maine DEP Chapter 500 requirements for stormwater treatment. We anticipate that the treatment will be for quality only on a linear project. W-P has a significant amount of recent experience with Low Impact Development (LID) stormwater design and Green Infrastructure. Wright-Pierce will work with the Town to identify potential green infrastructure projects to benefit the existing stormwater system.

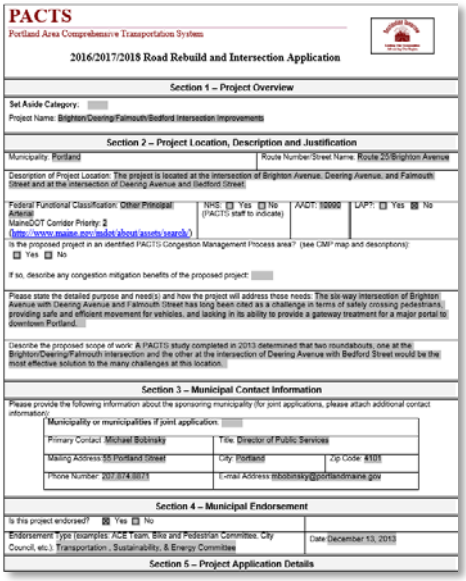
Green infrastructure aims to mimic natural, predevelopment conditions by slowing it down, collecting and treating rainwater as close as possible to the point where it falls. This allows for the natural processes of infiltration and evapotranspiration to occur and minimizes stormwater runoff. There are multiple ways that this can be integrated into the design of the urban fabric. For example, a strategically placed planting bed can function as a pocket storage area for rainwater. This allows rainwater to infiltrate directly into the ground water table and allows for uptake into plants, or it slowly redirects runoff elsewhere. Other alternative we will evaluate for the Route 302 project include:

- Tree box filters
- Curb inlet infiltration swales
- Bio-swales
- Raingardens
- Pervious asphalt

W-P will prepare the necessary documentation, including pictorial and graphic examples of the Green Infrastructure alternatives and where they might be most appropriate.

TASK 4 - Submit a PACTS application for funding project work as a 2019 project.

TYLI will assist the Town in the preparation of application(s) for PACTS funding based on the anticipated application deadline of early March 2016. TYLI will work with the Town on the scope of the funding application, which may be for all of the improvements designed in Tasks 3a & 3b, or for a subset of these improvements.



PACTS

Portland Area Comprehensive Transportation System

2016/2017/2018 Road Rebuild and Intersection Application

Section 1 – Project Overview

Set Aside Category:

Project Name: Brighton/Deering/Falmouth/Bedford Intersection Improvements

Section 2 – Project Location, Description and Justification

Municipality: Portland | Route Number/Street Name: Route 26/Brighton Avenue

Description of Project Location: The project is located at the intersection of Brighton Avenue, Deering Avenue, and Falmouth Street and at the intersection of Deering Avenue and Bedford Street.

Federal Functional Classification: Other Principal Arterial | NHS: ☐ Yes ☒ No (PACTS staff to indicate) | AADT: 10000 | LAP?: ☐ Yes ☒ No

MaineDOT Corridor Priority: 2

(http://www.maine.gov/mdot/about/assets/search/)

Is the proposed project in an identified PACTS Congestion Management Process area? (see CMP map and descriptions)

☒ Yes ☐ No

If so, describe any congestion mitigation benefits of the proposed project:

Please state the detailed purpose and need(s) and how the project will address those needs: The six-way intersection of Brighton Avenue with Deering Avenue and Falmouth Street has long been cited as a challenge in terms of safely crossing pedestrians, providing safe and efficient movement for vehicles, and lacking in its ability to provide a gateway treatment for a major portal to downtown Portland.

Describe the proposed scope of work: A PACTS study completed in 2013 determined that two roundabouts, one at the Brighton/Deering/Falmouth intersection and the other at the intersection of Deering Avenue with Bedford Street would be the most effective solution to the many challenges at this location.

Section 3 – Municipal Contact Information

Please provide the following information about the sponsoring municipality (for joint applications, please attach additional contact information):

Municipality or municipalities if joint application:

Primary Contact: Michael Bobinsky | Title: Director of Public Services

Mailing Address: 55 Portland Street | City: Portland | Zip Code: 04101

Phone Number: 207.874.8871 | E-mail Address: mbobinsky@portlandmaine.gov

Section 4 – Municipal Endorsement

Is this project endorsed? ☒ Yes ☐ No

Endorsement Type (examples: ACE Team, Bike and Pedestrian Committee, City Council, etc.): Transportation , Sustainability, & Energy Committee | Date: December 13, 2013

Section 5 – Project Application Details

TYLI has prepared several PACTS applications for clients in the past. Tom Errico, PE has also served as a member of the Technical Review Committee for PACTS and as such, has experience with the process from both sides of the table. Please see **Appendix B for an example of a recent PACTS application.**

You will note in the sample application that we prepared all information relating to: project location, description and justification; municipal contact information; municipal endorsements; project application details; multimodal components; safety capacity and other improvements; and estimated cost by phase of schedule. One electronic copy of the PACTS application will be submitted.

Public Outreach and Engagement

Corridor and mobility projects must be carefully coordinated with all stakeholders in order to implement the most appropriate, feasible, and cost effective plan. Property and business owners have specific concerns regarding access. Commuters and other through traffic have other concerns. The 21st Century Plan was based in a Complete Streets / Context Sensitive approach to mobility and land use planning and design. An integral aspect to this type of approach is the successful engagement of the public and stakeholders in order to develop solutions that work for the community and the region.

Improving access, safety, and mobility are not mutually exclusive goals. Design excellence, thorough communication, and targeted education efforts are key to developing consensus.

The project team is recommending the following approach to public engagement:

1. Host a series of open houses in mid-November specifically for property and business owners. The project team will be available to meet with property and business owners in three blocks of time in order to accommodate busy schedules. The project team will depend on the Town to individually invite each stakeholder.

   Depending on the discussions with Staff, these up front meetings with property and business owners can occur following the development of preliminary plans or may utilize corridor aerials / designs developed in the 21st Century Plan to allow for a conversation on specific parcel improvements including shared curb cuts, curb cut closures, interparcel connections, the location of medians, streetscapes, signalization, and other measures to improve access and safety.

2. Following the property and business owner meetings, the project team will organize two general public meetings. The first public meeting will include:
    - Summary of the relevant objectives of 21st Plan
    - Hands on review of drawings to gather specific feedback

    The first public hearing will take place in mid to late December
3. A second public meeting will be scheduled to present the plans at approximately 75% completion. The consultants will present the design solutions in multiple graphic formats in order to best convey intent and gather the most incisive feedback as possible. Key input from this meeting will be included in the completion of the plans.

    The second public meeting will take place in mid to late February.

In addition to the stakeholder meetings and two public meetings, there will careful coordination between the project team and the client, including a kick-off meeting and a minimum of six progress meetings.

Team Availability for Meetings

	One Kick-Off Meeting	Two Public Meetings	Approx. Six Team Update Meetings	Stakeholder Meetings
Tom Errico, PE	✓	✓	6/6	✓
Mitchell Rasor, CLARB	✓	✓	4/6	✓
Kevin Ducharme, PE	---	---	2/6	---
Tom Farmer	---	---	1/6	---

Constructability / MOT/ Cost Control Reviews

Constructability reviews are a critical component to the success of any project. Jim Ferguson, our Constructability Reviewer for this project, conducts constructability reviews on most of TYLI Falmouth office projects. Prior to joining TYLI as Construction Services Manager in 2011, Jim had over 34 years of experience with MaineDOT.

Jim provides valuable input by reviewing all design plans for constructability and there impacts on maintaining all modes of transportation. His reviews also examine cost implications as cost control is often critical to maintaining project schedules. His depth of experience provides solutions that often improve project quality without increasing cost. Projects he has recently provided constructability reviews for include: Belfast Harbor Walk; Park Avenue / St. John Street Pedestrian and Traffic Improvements in Portland; Route 8 Highway Improvements in Smithfield/Norridgewock; Yarmouth Route 115; and the Caribou Connector.

(Please see schedule information on the next page)

Schedule

The TYLI Team is known for our ability to meet aggressive design schedules. Management within our Team firms have committed to ensuring that this project is a top priority, and to providing all resources necessary to perform the work as described in this proposal and in the timeframes outlined below.

- **October 15, 2015** – TYLI Team selected
- **October 19, 2015** – **Contract Signed / Notice to Proceed**
- **Late October, 2015** - Data Collection and Analysis / Begin Field Survey
- **Late October, 2015** - Kick-Off Meeting with the Town
- **November, 2015** – Field Survey Work/Base Mapping started / Preliminary Design started
- **Early December, 2015** – Base Mapping Work completed
- **Early December, 2015** - Concept Design presented to the Town for update #1
- **Mid to Late December, 2015** – **Public Stakeholder Meeting #1**
- **Late December, 2015** - Meeting with the Town for update #2
- **Early January, 2016** – Preliminary Design started
- **Mid January, 2016** - Meeting with the Town for update #3
- **Mid to Late January, 2016** – Preliminary Design developed
- **Early February, 2016** - Meeting with the Town for update #4
- **Early February, 2016** – Preliminary Design and Cost Estimates developed
- **Mid February, 2016** – Preliminary Design and Cost Estimates completed
- **Mid February, 2016** - Meeting with the Town for update #5
- **Mid to Late February, 2016** – **Public Stakeholder Meeting #2**
- **March 1, 2016 –** All substantial tasks completed
- **Early March, 2016** - Meeting with the Town for update #6
- **Early March, 2016 – Submit PACTS application**

5: Cost Estimates

The TYLI Team requests a compensation in the amount of **$76,155** for the preliminary engineering services of the project not including the Task 3b Supplemental Improvements. With the Task 3b Supplemental Improvements included, the compensation is **$93,852.** Hourly fees are shown below and can be used to negotiate additional services as needed.

Hourly Fees

TYLI

PM	Project Manager	$140
SrHE	Sr Highway Engineer	$135
SrTE	Sr Traffic Engineer	$135
QA	Quality Assurance Reviewer	$110
LE	Lighting Engineer	$110
CR	Constructability Reviewer	$100
HE	Highway Engineer	$ 95
TE	Traffic Engineer	$ 85
TS	Technical Support	$ 70

MRLD

LA	Landscape Architect	$ 90

W-P

SrCE	Senior Civil Engineer	$133
CE	Civil Engineer	$ 95

NCS

PM	Project Manager/QC	$ 90
SU	Surveyor	$ 60

The tables on the following sheets summarize the level of involvement in hours by task and in compensation by task.

			TYLI									MRLD	W-P		NCS		
Hours	Task	Task Description	PM	SrHE	SrTE	QA	LE	CR	HE	TE	TS	LA	Sr CE	CE	PM	SU	Total Hours
	1	**Obtain Survey Information on Right-of-way**	2						4		2				60	278	346
	2	**Traffic Analysis**		2	6	0.5				24							32.5
	3a	**50% Design Plans**															0
		Roadway	4	8		1		2	80		40						135
		Intersections		2	4	0.5		2	8	16	8						40.5
		Sidewalks, Landscaping, and Street Furniture	4	4		1			80		40	96					225
	3b	**Cost Estimates for Supplemental Improvements**															0
		Overhead Utilities & Street Lighting	1	1		0.5	16	1			8		4	56			87.5
		Modernization of Traffic Signals		1	6	0.5		1		24							32.5
		Stormwater Drainage Modernization	1	1				1	2				4	48.5			57.5
	4	**PACTS Application**		1	4					12							17
	5	**Public Involvement**	12									24					36
	6	**Client Meetings**	16	4								56					76
		TOTAL PROJECT HOURS	**40**	**24**	**20**	**4**	**16**	**7**	**174**	**76**	**98**	**176**	**8**	**104.5**	**60**	**278**	1085.5

	Task	Task Description	TYLI	MRLD	W-P	NCS	Total $
Compensation	1	**Obtain Survey Information on Right-of-way**	$ 800	-	-	$ 22,080	**$ 22,880**
	2	**Traffic Analysis**	$ 3,175	-	-	-	**$ 3,175**
	3a	**50% Design Plans**					
		Roadway	$ 12,350	-	-	-	**$ 12,350**
		Intersections	$ 3,745	-	-	-	**$ 3,745**
		Sidewalks, Landscaping, and Street Furniture	$ 11,610	$ 8,640	-	-	**$ 20,250**
	3b	**Cost Estimates for Supplemental Improvements**					
		Overhead Utilities & Street Lighting	$ 2,750	-	$ 5,852	-	**$ 8,602**
		Modernization of Traffic Signals	$ 3,140	-	-	-	**$ 3,140**
		Stormwater Drainage Modernization	$ 565	-	$ 5,140	-	**$ 5,705**
	4	**PACTS Application**	$ 1,695	-	-	-	**$ 1,695**
	5	**Public Involvement**	$ 1,680	$ 2,160	-	-	**$ 3,840**
	6	**Client Meetings**	$ 2,780	$ 5,040	-	-	**$ 7,820**
		Administrative Costs	$ 400	-	250	-	**$ 650**
		TOTAL COMP. w/o Task 3b	**$ 38,235**	**$ 15,840**	-	**$ 22,080**	**$ 76,155**
		TOTAL COMP. incl. Task 3b	**$ 44,690**	**$ 15,840**	**$ 11,242**	**$ 22,080**	**$ 93,852**

6: References

6. REFERENCES

T.Y Lin International	MRLD	Wright-Pierce
Steve Johnson, Town Engineer **Town of Yarmouth** 207.846.2401 x224 SJohnson@yarmouth.me.us *Projects:* - *Beth Condon Memorial Pathway Phase 1* - *Beth Condo Memorrial Pathway, Final Phase (Design and Construction Inspection)*	Mr. Kevin Beal, City Attorney and Project Manager, **City of Rockland** 207.594.0305 kbeal@ci.rockland.me.us *Projects:* - *Winter Street Shared Space Redesign* - *Harbor Trail and Park* - *Snow Marine Waterfront Park* - *Downtown Revitalization Plan* - *Waterfront Area Redevelopment Plan*	Mike Casserly, PE, City Engineer **City Of Sanford** 207.608.4138 mjcasserly@sanfordmaine.org *Projects:* - *Gateway Park* - *The Lofts* - *Millyard Development* - *MaineDOT-Funded Pedestrian Safety Project* - *Main Street Master Plan* - *Mid-Town mall*
Kathi Earley, City Engineer **City of Portland** - Dept of Public Services, 207.874.8830 KAS@portlandmaine.gov *Projects:* - *Anderson Street, Phases 1 and 2* - *Marginal Way / Chestnut Street Pedestrian Improvements* - *Bramhall Square Intersection Improvements*	Theo Holtwijk, Director of Long-Range Planning **Town of Falmouth** 207-699-5340 www.falmouthme.org - *Route 1 South Infrastructure and Public Realm Plan – Phases 1 and 2 (mobility, land use, urban design, streetscape)* - *Route 1 South Project Canopy Street Tree Plan (streetscape and green infrastructure)*	Sid Hazelton, Superintendent **Auburn Water District** 207.784.6469 shazelton@awsd.org *Projects:* - *CSO Mitigation* - *Taylor Pond Sewer Project* - *Littlefield Bridge Utility* - *Replacement* - *Water Main River Crossing*
Rhobe Moulton, Project Manager **MaineDOT** (207) 624-3391 Rhobe.Moulton@maine.gov *Projects:* - *Hampden Route 1A Rehabilitation* - *Caratunk US Route 201 Rehabilitation* - *Whiting US Route 1 Reconstruction*	Dan Goyette, Dir. of Public Services & City Engineer **City of Auburn** 207 333 6601 ext. 1134 dgoyette@auburnmaine.gov - *Minot Avenue Corridor Study (mobility, land use, urban design, streetscape)* - *New Auburn Village Study (mobility, land use, urban design, streetscape)*	Peter Owen, Director of Public Works **City of Bath** 207.443.8357 powen@cityofbath.com *Projects:* - *MaineDOT LAP Congress Avenue Multi-Use Path* - *Multiple MPI, MITF & CDBG funded street rehab and "Complete Street" projects* - *MaineDOT LAP Washington Avenue Sidewalks* - *MaineDOT Funded Vine*

Northeast Civil Solutions
Wally Shedd, P.E., **Terracon, Inc.** 207.396.5374 wshedd@terracon.com
Theo Holtwijk Director of Long Range Planning / Economic Development **Town of Falmouth** 207-699-5340 tholtwijk@town.falmouth.me.us
Corey Macdonald, PE **FairPoint Communications, Inc.** 207-650-7825 cmacdonald1@fairpoint.com

Appendix A - Resumes

Thomas A. Errico, PE
Project Manager

Total Years' Experience:
TYLI: 16 Total: 29

Registrations:
Registered Professional Engineer in Maine (6618), 1990; Vermont (6321), 1992; New Hampshire (10096), 1999; Massachusetts (37701), 1993;

Certifications:
Certified Maine DOT Locally Administered Project Manager

Academic Achievements:
M.S., Civil Engineering, Northeastern University, Boston, Massachusetts, 1996

B.S., Civil Engineering, Northeastern University, Boston, Massachusetts, 1985

Awards:
Named "2013 Transportation Engineer of the Year" by the New England Section of ITE

Professional Activities:
Workshop Instructor for The National Complete Streets Coalition;

Member of PACTS technical committee and review board

Member, Institute of Transportation Engineers (ITE), 1997-Present;

Director of the New England Section, ITE 2010 - Chair of the NEITE Technical Committee;

Thomas Errico joined T.Y. Lin International as a senior associate and New England Traffic Engineering Director. Tom has served as Project Manager/Lead Traffic Engineer for a variety of design and study projects for municipal and state agency clients throughout New England. Named *"2013 Transportation Engineer of the Year"* by the New England section of the Institute of Transportation Engineers, Tom is passionate about his work and dedicated to increasing the livability and mobility access for all users in cities and towns across New England. Tom's background in traffic engineering includes access management, corridor studies, traffic operations studies, pedestrian studies, parking studies, safety evaluations, and traffic impact studies. He has significant experience in designing traffic signals, developing and maintaining traffic plans, and determining intersection and roadway design requirements for highway projects, including auxiliary lanes, bicycle and pedestrian facilities, signing, and traffic control. Project experience relevant to this proposal includes:

21st Century Downtown Master Plan, North Windham, ME – Town of Windham. Project Manager/Lead Traffic Engineer for the development of the 21st Century Downtown Master Plan. The plan's purpose was to develop a comprehensive vision for transportation improvements in North Windham. *The plan was awarded "2014 Plan of the Year" by the Maine Association of Planners.*

Safety Improvement Project Located on U.S. Route 302, Bridgton, ME – MaineDOT. Project Manager providing oversight of all design work. TYLI provided preliminary and final design of proposed improvements that will consist of a continuous two way left turn lane with median islands for traffic calming. This section will also include a pavement overlay.

Route 302 Improvements, Westbrook, ME – MaineDOT. Project oversight for proposed roadway improvements will consist of either the construction of left-turn lanes (Route 302) with flashing beacon or a roundabout at the Route 302/Hardy Road/Duck Pond Road intersection in Westbrook. TYLI's Alternatives Analysis will determine the preferred option for consideration. The project design is on hold as the local municipality is considering funding constraints.

Anderson Street Neighborhood By-Way Project, Portland, ME – City of Portland. Project Manager designing improvements that incorporate improved bicycle, pedestrian and streetscape enhancements between Fox Street and Plowman Street.

Complete Streets Design Training Initiative, Statewide, MA – University of Massachusetts. Project Manager responsible for the development and delivery of approximately 80 training workshops throughout the state of Massachusetts. The workshops attendees will include MassDOT engineers, consultants, and municipal staff.

Member, Institute of Transportation Engineers (ITE), 1997-Present;

Director of the New England Section, ITE 2010;

Institute of Transportation Engineers (ITE),

National Committee Member on publishing a Report on Current Practices on Pavement Markings and Signing at Crosswalks, 2010;

Member of the National Pedestrian and Bicycle Committee

Member of the Speakers Bureau for the National Complete Streets Coalition

Member of the Association of Pedestrian and Bicycle Professionals

Route 1/Route 27 Intersection Improvement Project, Wiscasset, ME – MaineDOT. Project Manager currently designing improvements that will install Wiscasset's first traffic signal and construct new sidewalks and crossing provisions in the downtown village.

Route 1 Multi-Use Path / Road Diet Project, Yarmouth, ME – Town of Yarmouth. Traffic Engineer designing roadway and intersection improvements following the extension of the Beth Condon Path, including removing of a Route 1 southbound travel lane. Conducted traffic analysis in support of a lane reduction on Route 1 to accommodate the design and construction of a multi-use path. Close coordination and approval by MaineDOT was required.

Park Avenue / St. John Street Road Diet Projects, Portland, ME – MaineDOT. Project Manager responsible for design improvements which implemented bicycle lanes and other bicycle facility enhancements on these two urban streets. Work included preparing design plans and specifications that met City of Portland standards and accepted by MaineDOT.

Route 9 Traffic Calming Improvements, Biddeford, ME – MaineDOT. Project Manager for the preliminary and final design of traffic calming measures along Route 9 associated with the University of New England's (UNE's) expansion. Scope included provision of sidewalks, gateway islands, drainage, lighting, landscaping, and flashing pedestrian-actuated warning signs at proposed crosswalks.

State Street/High Street Two-Way Feasibility Study, Portland, ME – City of Portland. Project Manager for the feasibility study of converting State and High Streets to two-way between the Casco Bay Bridge and I-295. Work includes conducting traffic counts, developing a simulation model and assessing traffic mobility on both roads following the change. In addition, a review of on-street parking impacts and intersection geometry conditions following the conversion will be evaluated.

Veterans Memorial Bridge Design Build Project, Portland-South Portland, ME – MaineDOT. Lead Traffic Engineer responsible for traffic analysis supporting the replacement of the Veterans Memorial Bridge. Work included the development of a Synchro/SimTraffic model for assessing traffic operations and development of traffic signal plans for four intersections. The SimTraffic model was an important part of advocating for a new roadway network and an enhanced multi-modal environment.

New Auburn Village Center Study, Auburn, Maine – ATRC and the City of Auburn. Project Manager and Lead Traffic Engineer responsible for traffic analysis supporting the transportation and urban design improvements. A key component of the study was the evaluation of roundabout intersection designs at key village locations.

Route One Infrastructure Plan, Falmouth, ME - Town of Falmouth. Project Manager and Lead Traffic Engineer in the development of a Plan that is a coordinated investment in, and improvement of, the public right-of-way infrastructure of Route One to make it a more attractive, cohesive, functional, and pedestrian-friendly street that strengthens its economic viability and implements the Town's vision.

Heath Cowan, PE
QC Manager

Total Years' Experience
TYLI: 1 Others: 18

Registrations:
Professional Engineer, Maine (9701)

Certifications:
Envision™ Sustainability Professional

Locally Administered Project (LAP) Certification, 2015

Academic Achievements:
BS, Civil Engineering, University of Maine, Orono, 1995

Mr. Cowan joined T.Y. Lin International after 18 years with the Maine Department of Transportation (MaineDOT) where he most recently served as Assistant Program Manager for the Highway Program.

Heath enjoyed a wide variety of design and management duties at MaineDOT. His involvement on projects allowed him to have experience with many different design disciplines. His management duties afforded him the opportunity to work closely with municipal engineers and officials, private consultants, federal officials, and permitting agencies on state/federally funded projects. Heath worked both within the central office of the Department as well as in a management role in a regional office.

Heath's current/recent assignments as Project Manager/Lead Highway Designer are as follows:

Haverhill Bridge, Runford, ME – MaineDOT. This project is a feasibility study to explore the alternatives of removing this bridge. The investigation will involve multiple stakeholders and include identifying all known constraints, prepare a matrix of solutions with planning level costs, prepare conceptual plans for the chosen alternative and prepare a feasibility report for the Department. Heath is assigned as the Project Manager and Lead Highway designer for the study. The feasibility Study will be completed in November of 2015.

Goodwin Bridge, Mariaville, ME – MaineDOT. This project is a bridge replacement project and will be a 3 span continuous structural steel beam bridge with a concrete deck and integral concrete wearing surface. The bridge will include 170 feet of approach work and traffic will be maintained on a temporary bridge and temporary detour. Heath is assigned as the lead highway designer for the approach work and temporary detour. The project is under design and has a delivery of the contract plans expected in December , 2015

Rte 109, Acton, ME – MaineDOT. This project is a highway rehabilitation project for approximalatly 2.19 miles of Route 109. The design involves improvements to the roadway section and a combination of open and closed drainage, utilizing both practical design and CHIP design approaches. Key to this approach will be early identification of design exceptions (DEs) where possible, while holding safety of the traveling public as a first priority. Heath is assigned as the Project Manager and Engineer of Record. The project is under design with an expected Preliminary Design Report delivery date of December, 2015.

Rte 302, Westbrook, ME – MaineDOT. The proposed improvements will consist of either the construction of left-turn lanes (Route 302) with flashing beacon or a roundabout at the Route 302/Hardy Road/Duck Pond Road intersection in Westbrook. The Alternatives Analysis will determine the preferred option for consideration. Heath is assigned as the Project Manager and Engineer of Record. The project design is on hold as the local municipality is considering funding constraints.

Frank J. Wood Bridge, Brunswick-Topsham, ME – MaineDOT. This project is the preliminary engineering for improvements to an existing 3 span steel through truss bridge. The investigation will include rehabilitation needs for this 84 year old bridge and comparison analyses of replacement structures to determine the most cost effective improvement. This bridge is a high profile bridge between 2 community-focused Maine Towns with a very healthy bicycle and pedestrian contingency. Acceptance of any improvement will need the communities' support as well as review from the Federal Energy Regulatory Commission (FERC) because of its close proximity to a power generating dam. Heath was assigned as the Lead Highway Designer for the approach work. A preliminary design report recommending an improvement is expected to be completed in December, 2015.

Sunkhaze Bridge and Lower Trestle Bridge, Milford, ME – MaineDOT. This project is the replacement of a single span T-Beam bridge and an eight span concrete slab bridge with two multi-span, precast voided slab bridges on integral abutments and pile bent piers. Heath was assigned as the Lead Highway Designer for the approach work and temporary detour. The project is under design with delivery of the contract plans expected in December, 2015.

The following outlines Heath's progressive roles of responsibility at MaineDOT:

2010-October 2014	Assistant Program Manager, Highway Program. Supervise design teams and project managers in the development of Highway reconstruction projects. Duties include providing engineering design guidance, quality control and engineering instruction. Other duties include supervision on Right of Way staff in the execution of eminent domain acquisitions.
2001-2010	Project Manager, Highway Program. Supervise the development of plans and construction of major highway improvement projects in a team environment. Duties include presenting projects to the public and working with a wide range of disciplines and personalities to see projects from planning to construction complete while maintaining schedule, budget and quality.
1996-2001	Structural Bridge Engineer, Bridge Program. Bridge Program, Maine Department of Transportation, Augusta ME. Responsible for the design of all bridge components and highway plans. Duties include directing drafters for accurate representation of design, presenting design elements to public and working with team members to ensure all requirements are met.

James Ferguson
Constructability Review Lead

Total Years' Experience:

TYLI: 4 Total: 33

Certifications:

NETTCP Paving Inspector Certification #449 Exp. 04/2016

NETTCP QA Technologist Certification #464 Exp. 06/2016

ACI Concrete Field Testing Certification Certification # 00971437 Exp. 4/28/17

LAP Certified

Mr. Ferguson joined T.Y. Lin International as Construction Services Manager in 2011. Jim has over 33 years of experience with the MaineDOT, 27 years directly related to bridge and highway related construction. His experience ranges from on the ground inspection of all construction activities to managing projects at the project resident and project manager level. Jim has worked on many of the largest projects that have been constructed under MaineDOT management over the years.

Jim manages the construction inspection services department and is responsible for all staff assignments. He emphasizes quality service with staff and ensures they provide thorough inspections that meet our client's high standards. Jim provides valuable input by reviewing all design plans for constructability. His depth of experience provides solutions that often improve project quality without increasing cost.

Relevant TYLI project experience includes:

Riverside Drive, Auburn, ME - City of Auburn. Resident Project Inspector and provided general project oversight on this roadway reconstruction project.

South Maine Street, Auburn, ME - City of Auburn. Resident Project Inspector and provided general project oversight on this roadway reconstruction project.

Park Avenue and Mt. Auburn Avenue Paving Project, Auburn, ME – City of Auburn. Paving Inspector.

Route 4 Highway Resurfacing & Striping Project, Auburn, ME – City of Auburn. Resident Project Inspector and provided general project oversight.

Construction Inspection Services, Helm Bridge, Auburn, ME – City of Auburn. Provided oversight of Resident Project Inspector.

Paving Project Mile Marker 57 – 59.5, Cumberland, ME - MaineDOT
Project Manager overseeing design and contract development to ensure conformance with MTA standards.

Route 115 Overlay Project, Yarmouth, ME - MaineDOT
Resident Project, ensured conformance with MaineDOT standards.

The following outlines Jim's progressive roles of responsibility at MaineDOT in reverse chronological order:

- **Interstate Project Manager/Construction Support Manager-Statewide**
- **Project Manager (PMII)**
- **Assistant Project Manager (PMI)**
- **Project Resident**
- **Chief Inspector**

Kevin S. Ducharme, PE
Roadway / MOT Design Lead

Total Years' Experience:
TYLI: 27 Total: 27

Registrations:

Professional Engineer in Maine (7405), Massachusetts (38590), West Virginia (16782), Oregon (79545PE) Virginia (0402 043581)

Certifications:

Certified Maine DOT Locally Administered Project Coordinator

Academic Achievements:

B.S., Civil Engineering,

Purdue University, 1988

Continuing Education:

AASHTO Traffic Engr. & Traffic Highway Safety Conference June 2013

NHDOT/ACEC Technical Transfer Conf April 2013

AASHTO Highway Subcommittee on Design – June 2012

DBIA 2012 Transportation Conf. – April 2012

2011 Northeast Transportation Safety Conf. – November 2011

Univ. of Maine – Maine Engineering Leadership Institute – Nov 2010

Design-Build Institute of America: Design Build – Transforming Project Delivery, Feb 2010

Introduction to Crash Analysis, Feb 2009

Kevin joined T.Y. Lin International (TYLI) 1988 with Falmouth, Maine office, and performs project management and roadway design services. Since joining the firm, he has worked closely with staff members of various agencies including; Maine DOT, Maine Turnpike Authority and Massachusetts DOT. He has also been involved with numerous projects for other public agencies across New England and in Mid-Atlantic states. Kevin has worked closely with municipal engineers and officials both on municipal and state/federally funded projects. His broad range of experience includes project management, roadway geometrics and drainage design, stormwater management, utility coordination, parking and grading design and layout, construction phasing and maintenance of traffic design, pedestrian facilities, hydraulic and scour evaluation/mitigation, and environmental mitigation.

Kevin provided **project management** and/or **roadway management** on the following projects:

Intersection Improvements at US 202 / SR 115 / SR 4
Windham/Gray, ME - MaineDOT
Project Manager for design services for improvements and realignment of an existing intersection. As part of our on-call consultant services contract with Maine Department of Transportation (MaineDOT), TYLI has provided preliminary and final engineering design services and construction phase services for efforts to improve safety at this high accident location. Improvements include widening existing shoulders, adding a left turn lane for southbound traffic, providing continuous through lanes for north and westbound traffic, and using stamped pavement applications for traffic calming. Kevin was also responsible for the QA/QC of the design.

Route 1A Improvements, Hampden, ME - MaineDOT
Project Manager and Design Engineer for the preliminary design of 1.73 miles of roadway reconstruction including 15 side roads and over 130 driveways. Design comprised a combined open/ closed drainage system coordinated with buried water and sanitary sewer utilities, addition of a raised sidewalk the entire project length, improved turning movements and safety within the corridor, historical elements, and right-of-way/property impacts.

Route 8 Rehabilitation, Smithfield-Norridgewock, ME - MaineDOT
Project Manager for the final design of 7.82 miles of roadway rehabilitation including several intersections and nearly 300 driveways. Design comprised a combined open/ closed drainage system coordinated with buried water and sanitary sewer utilities, addition of a raised sidewalk along sections project length, improved turning movements and safety within the corridor, historical elements, and right-of-way/property impacts. This project contains both rural and urban sections.

FHWA-Maine DOT-AASHTO-CRREL 2008 National Hydraulic Engineering Conf. – August 2008

Safe Routes to School, August 2007

Oregon DOT Traffic Control Plans Design, May 2007

ACEC/WVDOH Drainage III Workshop, April, 2005

National Highway Institute Safety and Operational Effects of Highway Design Features on Two-Lane Rural Highways, July, 2004

Skill Path Seminars Managing Multiple Projects, Objectives and Deadlines, February 2002

ASCE Roadside Design Course, February 2002

PSMJ Resources, Inc. Project Manager's Bootcamp, July 2001

American Society of Civil Engineers, HEC-RAS, February, 2001

Mallison Falls RR Bridge in Windham, ME - MaineDOT
Type study considering replacement of an existing steel girder bridge carrying the railway to increase vertical clearance over a local road. Kevin was the lead railway alignment engineer reviewing both vertical and horizontal revisions.

Route 15 Improvements, Orrington, ME – MaineDOT
Project Manager and Design Engineer for the PS&E documents of 4.2 miles of roadway improvements. Design comprised a combined open/ closed drainage system for the multiple roadways involved, erosion and sedimentation control, multiple utility design issues including a railroad crossing, historical elements, maintenance-of-traffic and right-of-way/property owner reports. As manager, Kevin coordinated with the Owner, the Town, utilities, and subconsultants.

Route 27 / 244 Interchange Improvements, Arlington County, VA - Virginia Department of Transportation
Project Manager responsible for the redesign of the Route 27 / 244 Interchange. The design includes roadway widening and revising the vertical alignment of both Route 27 and Route 244, bridge replacement, realignment of interchange ramps, replacement of major culvert, detailed maintenance-of-traffic plans, storm drainage, stormwater management, and erosion and sediment control. Kevin is also involved with the public meetings and coordination meetings between Arlington County and VDOT.

U.S. Route 201 Rehabilitation Improvements Caratunk, ME - MaineDOT
Project Manager and Lead Design Engineer for the preliminary and final design of 2.75 miles of roadway rehabilitation along the Kennebec River. Design comprised of improving the roadway with improved open drainage and widened shoulders on a scenic byway nestled between steep hills on one side and steep embankments to the river below. Design considerations included ledge, overhead utilities, historical elements, and right-of-way/property impacts.

Veterans Memorial Bridge Design-Build, Portland/South Portland, ME – MaineDOT
TYLI was responsible for bridge and roadway design, traffic analysis, utility coordination, right-of-way (R/W) mapping and negotiation/acquisition, and maintenance of traffic design. Kevin served as overall Roadway Manager including Lead Design Engineer or Quality Control Reviewer and Engineer-of-Record for the civil design work including maintenance of traffic. As Roadway manager on this Design-Build project, Kevin coordinated roadway approach designs with the Owner (MaineDOT), the Contractor, municipal officials, and subconsultants.

U.S. Route 2 Reconstruction/Rehabilitation, Bethel and Gilead, ME - MaineDOT
Project Manager and Engineer responsible for quality control of alignment studies, and preliminary and final design for this 11.8 mile, $20 million roadway corridor improvement project. The project involves significant areas of new alignment, high ledge cuts and full depth construction. The project was constructed in five separate construction contracts over a 7-year period.

Darin W. Bryant, PE
Roadway Design Lead

Total Years' Experience:
TYLI: 29 Total: 29

Academic Achievements:
-B.S. Civil Engineering, University of Maine, 1986

Continuing Education:
-ASCE; Complying with the MUTCD: Traffic Signing for Horizontal Curves Seminar April 2014

-Northeast Transportation Safety Conference; Creating a Safety Culture, April 2013

-ASCE; Work Zone Temporary Traffic Control Seminar March 2013

-National Maine Transportation Safety Coalition; Northeast Transportation Safety Conference November 2011

-ASCE; Designing Bicycle Facilities Seminar April 2007

-Department of Environmental Protection Low Impact Development Training, April 2005

Darin joined T.Y. Lin International in 1986 and has been involved in the roadway design and traffic planning/analysis fields since joining the firm for municipalities and state agencies throughout New England. Relevant projects include:

Town Landing Road Improvements, Falmouth, ME - Town of Falmouth Project Manager and Project Engineer responsible for the conceptual and final design of this ¼ mile long urban roadway project. Included replacement of roadway pavement and the existing stormdrain system and the addition of curbing, a retaining wall and water/sanitary lines. Work tasks performed included project coordination, public participation, utility coordination and the completion of contract plans and documents.

Beth Condon Memorial Pathway Extension Final Design, Phase 1 - Route One Bicycle and Pedestrian Path, Yarmouth ME - Town of Yarmouth. Project Manager responsible for final design, contract document preparation and engineering services during construction phases for this 0.5-mile path along Route One. This is the first section being constructed from the phases recommended in the Beth Condon Memorial Pathway Extension Feasibility Study previously conducted by the TYLI. Design includes subbase and pavement, drainage and fencing. Required coordination with permitting, geotechnical, landscape and survey subconsultants, the Town of Yarmouth, the Maine Department of Transportation, and utility companies and included the development of a public participation process.

U.S. Route 2 Reconstruction/Rehabilitation, Bethel and Gilead, ME - MaineDOT. Senior Project Engineer responsible for quality control reviews of preliminary and final design for this 11.8 mile, $20 million roadway corridor improvement project. The project involves significant areas of new alignment, high ledge cuts and full depth construction. The project was constructed in five separate construction contracts over a 7-year period.

Bicycle and Pedestrian Way Improvements, Falmouth, ME - Town of Falmouth. Project Engineer responsible for preparation of construction plans for over 3700 feet of sidewalk, 600 feet of widening along Depot Road and 1000 feet of widening along Route 1 in support of creating safe bicycle and pedestrian facilities.

Route 7 Intersection Improvements, Colchester, VT - Vermont Agency of Transportation. Project Manager and Lead Highway Engineer for the preparation of conceptual, preliminary and semi-final design plans for this ½ mile urban roadway project. Included overlay and widening for the majority of the project, with complete pavement structure replacement in areas of vertical curve revisions to improve sight distance. Also included the addition of a bicycle/pedestrian path, two traffic signals, turning lanes, curbing and an enclosed drainage system. Responsibilities included client interface and public coordination during the design of these three, closely spaced intersections.

Joseph R. Howe, PE
Roadway Design Engineer

Total Years' Experience:
TYLI: 15 Total: 15

Registrations:
Professional Engineer in Maine (10420), 2003

Academic Achievements:
B.S. Civil Engineering, University of Maine, 1998

Certifications:
MDOT Local Project Administration Certification, April, 2010

Continuing Education:
MaineDOT Erosion and Sedimentation Control, April, 2010

FHWA-Maine DOT-AASHTO-CRREL 2008 National Hydraulic Engineering Conference: Partnering for Progress in a Changing Environment, August, 2008

PSMJ Project Management Program March, 2007;

MDOT/FHWA Roundabout workshop May, 2004;

ASCE Roadside Design Course March, 2002;

NaBRO Design of Steel Bridges using AASHTO LRFD Bridge Design Specifications November, 2000

Mr. Howe joined T.Y. Lin International in April of 2000 as a structural design engineer and began working on highway design projects in 2002 to develop a broader perspective of the entire transportation system. His highway design experience includes geometrics, drainage design, utility coordination, roadside design, pedestrian and bicycle facilities, and construction services. He has had significant involvement in projects ranging from small municipal pedestrian facilities to complex urban arterials in Maine, Vermont, Massachusetts, the District of Columbia, Virginia, West Virginia, North Carolina, California, Oregon, and Florida.

Mr. Howe's relevant project experience includes:

Intersection Improvements at US 202 / SR 115 / SR 4, Windham/Gray, ME – MaineDOT. Design Engineer responsible for final design of improvements and realignment of an existing high accident intersection. Improvements include widening existing shoulders, adding a left turn lane for southbound traffic, and providing continuous through lanes for north and westbound traffic.

Route 202 and Cambell Shore Rd Intersection, Gray, ME - MaineDOT. Project Engineer for an intersection redesign for this intersection with poor sight distance and safety concerns due to traffic waiting to make a left turn maneuver in a 50 mph section of roadway. Responsibilities included oversight of the design of a left turn lane and associated improvements and plan production, and QC of other staff.

Safety Improvement Project Located on U.S. Route 302, Bridgton, ME – MaineDOT. Engineer of Record for this project overseeing all elements of design and detailing. TYLI provided preliminary and final design of proposed improvements that will consist of a continuous two way left turn lane with median islands for traffic calming. This section will also include a pavement overlay.

Route 1A Improvements, Hampden, ME – MaineDOT. Design Engineer for the preliminary design of 1.73 miles of roadway reconstruction including 15 side roads and over 130 driveways. Design comprised a combined open/ closed drainage system coordinated with buried water and sanitary sewer utilities, addition of a raised sidewalk the entire project length, improved turning movements and safety within the corridor, historical elements, and right-of-way/property impacts.

Route 15 Improvements, Orrington, ME – MaineDOT. Design Engineer responsible for vertical and horizontal alignment checks, roadside design checks, closed drainage system design checks, and side road design. Other responsibilities include overseeing the completion of design plans.

Western Avenue Improvements, South Portland, ME - City of South Portland. Design Engineer responsible for final highway design including designing several closed drainage systems in an urban area with many underground utilities. Responsibilities included utility coordination, intersection grading, supervising construction plan preparation, and preparing the engineer's estimate, specifications, and construction support.

Carl L. Anderson, PE
Senior Electrical Engineer

Total Years' Experience:
TYLI: 6 Total: 21

Registrations:
Registered Professional Engineer in Maine (10104), 2002
Massachusetts (34424), 1989;

Master Electrician in Maine (MS60018005), 2000

Continuing Education:
University of Wisconsin: Fundamentals of Energy Auditing, July 2005;
Fundamentals of Structural Design, April 2004;
Checking Construction drawings for errors and omissions, November 2002;

Southern Maine Technical College, Auto CAD, May, 2002;
National Electrical Code, January, 2002;

EDSA Microsystems, Electrical system engineering software, short circuit and coordination, April 1989;

Ross Seminars, National Electrical Code, May 1999;

Mr. Anderson has more than 20 years of experience as a professional electrical engineer and project manager. He has considerable experience with pedestrian scale street lighting for various municipalities in Maine including, Portland, Biddeford, and Auburn. He has participated in project planning, design, and construction management and has managed engineering departments for other firms. Mr. Anderson has prepared lighting, NAVAID, and power design for airports. He has designed building services and electrical infrastructure systems, including studies and design of electrical systems for new and existing facilities. He has also managed and designed numerous Municipal and State Department of Transportation roadway power and lighting design projects.

A sample of his relevant projects include:

Route 9 Sidewalk and Traffic Calming Improvements – Biddeford, Maine for Maine Department of Transportation
Project Electrical Engineer responsible for completion of design and construction documents for pedestrian-level lighting and pedestrian-actuated flashing beacons along approximately 0.5 miles of Route 9 in support of the University of New England's expansion along the west side of Route 9 that included dormitories and athletic facilities.

Veterans Memorial Bridge Portland, Maine for Maine Department of Transportation
Project Electrical Engineer responsible for completion of design and construction documents for the replacement of lighting systems for bridge replacement and approach roadways. Lighting systems consisting of conventional roadway lighting meeting AASHTO and Maine DOT standards utilizing full cut-off luminaires; pedestrian walkway lighting utilizing decorative LED luminaires on bridge and HPS luminaires off-bridge; internal box girder maintenance lighting and exterior bridge accent lighting.

Libbytown Streetscape Improvements – Portland, Maine for the City of Portland
Project Electrical Engineer responsible for completion of design of pedestrian-level lighting along Park Avenue in Portland from St. John Street to Fore River Parkway. This work included providing a design for bollards to be placed underneath a railroad overpass as a bid option for the project.

Main Street Relighting, Auburn, Maine for Maine Department of Transportation
Project Electrical Engineer responsible for the design of this downtown area relighting project utilizing decorative poles and luminaires to match previously installed units for the extension of an existing lighting system. Project was designed for the Maine DOT to be bid and administered by the City of Auburn as part of an on-going downtown revitalization project.

Ariel R. Greenlaw
Traffic Engineer

Total Years' Experience:

TYLI: 6 Total: 9

Registrations:

Engineer in Training New Hampshire No. 4993, 2008

Academic Achievements:

MS, Civil Engineering University of Maine 2006

BS, Civil Engineering, University of Maine, 2004

Software Used:

MicroStation, Bentley InRoads, Hydraflow, AutoTurn, GuidSign, MathCAD, Microsoft Office, Synchro, SimTraffic, HCS 2010

Professional Activities:

Member - Institute for Transportation Engineers

Continuing Education:

Context Sensitive Solutions, NHDOT; Synchro and SimTraffic Courses; ITE Sponsored Crash Data Analysis Seminar (2012), Synchro and Sim Traffic Advanced Training, ITE New England (2013)

Ms. Greenlaw has 9 years of experience working with multiple local municipalities in Maine and state agencies throughout New England and beyond in both traffic and highway design and analysis. Some examples of her relevant municipal experience are as follows:

New Auburn Village Plan Corridor Improvements, New Auburn, ME – City of Auburn. Traffic Engineer to perform site evaluations, analyze traffic and crash data, perform and analyze traffic counts, calculate future volumes, and make future recommendations. Synchro and Sim Traffic were used to analyze data. Ms. Greenlaw produced report and presentation content and graphics.

Route 4 and Route 11 Traffic Safety Redesigns, Auburn, ME - City of Auburn. Ariel worked with the City of Auburn to redesign the Route 4 and Route 11 areas in an effort to improve traffic safety and mobility in the corridor. The project required the use of context sensitive solutions, site evaluation, the analysis of traffic and accident data, plan production, report content and graphics.

Court Street Intersection Improvements, Auburn, ME - City of Auburn. Project Engineer involved in plan development and cost estimates for the preliminary and final design of a right turn lane from Court Street onto Turner Street. Work included relocation of drainage structures, utilities, lighting, curb, sidewalk, landscaping, signage, etc. associated with the proposed design.

On-Call Traffic Engineering Services – City of Portland, ME. Ariel has worked on a variety of projects for the City of Portland performing and coordinating traffic counts, analyzing existing and future traffic data; analyzing crash history, planning corridor improvements such as traffic calming, pedestrian and bicycle accessibility, safety, and signalization design; producing graphics for reports and public information; as well as estimating improvement costs.

State & High Street 2-Way Conversion Traffic Assessment, Portland, ME – City of Portland, ME. Led efforts in data collection, graphics and plan development and analysis of existing and future scenarios to aid the City of Portland in assessing the conversion of State and High Street from one-way to two-way streets in terms of safety, traffic flow, geometric impacts, and parking in the corridor.

Park and St. John Street Road Diet Projects, Portland, ME– City of Portland, ME. Modeled and analyzed data of existing intersections along Park and St. John Streets in Portland Maine to determine the effects of proposed improvements. These improvements are designed to reduce traffic congestion and increase traffic safety of vehicles and pedestrians through traffic calming measures and improved pedestrian resources throughout the corridor.

Falmouth Route 1, Falmouth, ME – Town of Falmouth. Ms. Greenlaw worked as a design engineer to develop conceptual plans for possible Route 1 improvements along the corridor in Falmouth, ME.

Mitchell Rasor: RLA (ME & MA), CLARB, MaineDOT LAP
Principal

Mitchell Rasor has over 20 years of experience with landscape architecture and urban design, with a particular focus on integrating land use policy, mobility options, and the built environment. He founded MRLD in 2000. The office is recognized for work in the areas of downtown / waterfront revitalization, context sensitive solutions, complete streets, streetscapes, public parks, alternative zoning, visualizations, and public participation.

Select Projects

- 21st Century Downtown Master Plan; Windham, ME
- 3 Lincoln Street Market and Urban Design Study (MERC site); Biddeford, ME
- Bath Road / Route 1 Master Plan; Wiscasset, ME
- Bayside Transportation Master Plan and Urban Design; Portland, ME
- Biddeford Square Shared Space Street Design; Biddeford, ME
- Bug Light Park; South Portland, ME
- Downtown / Waterfront Master Plan; Belfast, ME
- Broadway Corridor Study; Bangor, ME
- Cross Street Master Plan and Design; Belfast, ME
- Downtown Revitalization Master Plan; Rockland, ME
- Erie Canal Corridor Master Plan; Monroe County, NY
- Eastern Waterfront Building Height Study; Portland, ME
- Falmouth Shopping Center TOD Retrofit Master Plan; Falmouth, ME
- Front Street and Harbor Village Master Plan; Belfast, ME
- Gorham Road Complete / Green Street Preliminary Design; Scarborough, ME
- Harbor Trail and Park Design; Rockland, ME
- Highwood Square / Dixwell Ave Corridor Improvements; Hamden, CT
- Infill Development Design Standards; Falmouth, ME
- Lower Village Main Street Revitalization and West Kennebunk Form-Based Scenarios; Kennebunk, ME
- Lower Village Streetscape Design and Master Plan; Topsham, ME
- Main Street Gateway Transit-Oriented Development; Westbrook, ME
- Maine State Pier Urban Design and Multi-Modal Plan; Portland, ME
- Minot Avenue Corridor Study; Auburn, ME
- New Auburn Village Center Study; Auburn, ME
- Portland Public Market / Preble Street Streetscape; Portland, ME
- Portland Public Works Redevelopment Study; Portland, ME
- Preble Street Resource Center / Preble Street Teen Center / Lighthouse Shelter; Portland, ME
- Reclaiming Franklin Street; Portland, ME
- Route 1 Infrastructure / Public Realm Master Plan and Design; Falmouth, ME
- Route 2 Riverwalk Master Plan; Skowhegan, ME
- "ReEnvisioning the Highway Strip" (with GrowSmart): Topsham, Belfast and Augusta
- Shore and Harbor Master Plan; Damariscotta, ME
- South Windham Village / Little Falls Corridor Improvements Plan; Windham / Gorham, ME
- Standish Corner Master Plan and Form-Based Code; Standish, ME
- Sustain Southern Maine Urban Design: Gray Village and Steep Falls
- Thorndike Block Pedestrian and Vehicular Improvements; Rockland, ME
- Topsham Crossing Great American Neighborhood; Topsham, ME
- Waterfront Area Redevelopment Plan and Street Designs, Rockland, ME
- Wayfinding Master Plan and Design, Belfast, ME
- West Commercial Street Multi-Modal Corridor Study; Portland, ME
- Westbrook Downtown Pedestrian Study; Westbrook, ME
- Winter Street Shared Space Redesign; Rockland, ME

Education

- Harvard University Graduate School of Design, Cambridge, MA: Masters in Landscape Architecture
- Oberlin College, Oberlin, OH: BA English/Environmental Art

THOMAS S. FARMER, RLA

CLARB Certified / Maine and New Hampshire Licensed Landscape Architect

PROJECT ASSIGNMENT: Landscape Architect

B.L.A., Kansas State University

Certificate in Community and Regional Planning, Semester abroad - Italy International Studio

A.A.S., Civil Technology, University of New Hampshire

Professional Registration

Maine
New Hampshire

Professional Affiliations

Council of Landscape Architects Registration Board (CLARB). Landscape Architect

Portland Trails, Board of Trustees; Trail Committee

Experience

26 Years

Joined Firm

2014

Presentations

Portland Trails Annual Meeting, Core Mission presentation, 2013

PRO Bike/PRO Walk, Victoria, BC., 2004

PRO Bike/PRO Walk, St. Paul, MN, 2002

Awards

American Society of Landscape Architects, Merit Award for Communications, Chattahoochee River Greenway, Atlanta, GA

American Society of Landscape Architects Merit Award for Communications Los Angeles River Study, Los Angeles, CA

Maine Association of Planners Plan of the Year. Topsham Trails Feasibility Study, Topsham, ME

EXPERIENCE SUMMARY

Mr. Farmer's professional experience in Maine, New Hampshire, and Kansas includes campus planning, recreation planning, trail design, and residential and commercial site design. His expertise includes design, project administration, contract document preparation, permitting, and construction administration. He is well known for his graphics and the use of various visualization tools to help in the public outreach process.

RELEVANT PROJECT EXPERIENCE

Community Planning and Design

- Falmouth Route 100 Vision Plan, Falmouth, ME
- Main Street Master Plan Update, Gorham, ME
- Village Parking Study, Gorham, ME*
- Falmouth Route One Streetscape and Utilities Redesign, Falmouth, ME*
- Spring Street/Free Street Streetscape Plan, Portland, ME*
- Libbytown Traffic Circulation and Streetscape Plan Portland, ME*
- Little Falls Village Streetscape Improvements, South Windham/Gorham, ME *
- Bayside Promenade Trail, Portland, ME*
- Black Bear Way, University of Maine, Orono, ME*
- Beth Condon Memorial Pathway Extension Feasibility Study and Phase 1
- Construction, Yarmouth, ME*
- Riverfront Renaissance, Skowhegan, ME*
- Residential Growth Planning, Falmouth, ME*
- West Falmouth Crossing Conceptual Planning and Visioning, Falmouth, ME*
- Eastern Trail Feasibility Study, MaineDOT*
- Eastern Trail Phase 1 Final Design, Scarborough, ME*
- Topsham Shared-Use Pathway, Topsham, ME*
- Trail Feasibility Study, Lisbon, ME*
- Toddy Brook Golf Course, North Yarmouth, ME*
- Pleasant Hill Recreation Park, Springbrook Recreation Park, Scarborough, ME*
- Five Playground Redesigns, Portland, ME*

Low Impact Development Design and Green Infrastructure

- Back Cove South and Back Cove West CSO Improvement Plan, Portland, ME
- Bayside Promenade Trail, Portland, ME*
- Route One Streetscape and Utilities Redesign, Falmouth, ME*

3-D Modeling and Visualization

- Dam removal and fish passage, southern ME
- Village-wide visioning for Smart-Growth, Standish Village, ME*
- Sustain Southern Maine, Mixed-Use Site Plans and Village Designs, Well, York and Westbrook, ME*
- Residential Growth Planning, Falmouth, ME*

JAN B. S. WIEGMAN, PE
Project Manager

PROJECT ASSIGNMENT: Project Manager

Education
M.S., Civil Engineering
Rice University

B.S. Civil Engineering
University of New Hampshire

Professional Registration
Maine
New York

Experience
28 Years

Joined Firm
2011

Professional Affiliations
American Society of Civil Engineers

EXPERIENCE SUMMARY

Mr. Wiegman has over 28 years of engineering design, permitting and project management experience on a wide variety of civil, structural and transportation projects. Most recently, Mr. Wiegman has been giving technical guidance on a wide variety of projects including pedestrian projects and transportation.

RELEVANT PROJECT EXPERIENCE

Transportation

- Hutchins Street Reconstruction, Berlin, NH
- South Oakfield Road Improvements and Permitting, Oakfield, ME
- Roadway Reconstruction, Fitchburg, MA
- High Street Rehabilitation, Bath, ME
- Hillside Street Reconstruction, Yarmouth, ME
- Intersection Improvements, Bethel, CT
- Roadway Reconstruction, Hartford, CT
- Elm Street Sidewalk, Newport, ME
- Main Street Sidewalk and Street Lighting, Biddeford, ME
- South Oakfield Road Improvements Review, Oakfield, ME
- Old Alfred Road Sidewalk, Waterboro, ME
- Route 25 and 35 Sidewalks, Standish, ME
- Route 1 Weigh Station Improvements, Kittery, ME
- US Route 1/Lewis Road Intersection Improvements, Kittery, ME
- Drainage Design, Route 2/17, Dixfield, ME*
- Route 9/196 Intersection Improvements, Lisbon, ME*
- Franklin Pasture Bike Path, Lewiston, ME*
- Maine Turnpike Exit 86 Interchange, Sabattus, ME*

Sewer

- Sewer Outfall Review, Old Town, ME
- Inflow/Infiltration Removal Contract 1- Brunswick Landing, Brunswick, ME
- Sewer System Evaluation - Brunswick Landing, Brunswick, ME

Stormwater

- Inflow/Infiltration Study - Brunswick Landing, Brunswick, ME
- Storm Drain Improvement, Pepperell Road, Kittery, ME
- Stormwater Management Plan - CLC YMCA, Damariscotta, ME
- Water Quality Treatment Unit O&M Manual, Lebanon, NH
- Stormwater Plan – Bangor Concert Venue, Bangor, ME
- Culvert Analysis - Back Narrows Road, Boothbay, ME
- Phosphorous Treatment Plan - The Lofts at No. 4 Mill, Sanford, ME
- Stormwater Infiltration Plan - Sanford Gateway Center, Sanford, ME*
- Stormwater Treatment Plan - Scarborough Gallery, Scarborough, ME*
- Stormwater Treatment Plan - Nappi Distributors, Gorham, ME*
- Stormwater Infiltration Plan - New Balance Factory Outlet, Oxford, ME*

**experience with previous employer*

- Stormwater Pollution Prevention Plan (SWPPP) Soil Erosion and Water Pollution Control Plans, Various Locations, ME*

Site Development/Permitting

- 25 Building Demolition Plan - Brunswick Landing, Brunswick, ME
- Subdivision Permitting Brunswick Landing, Brunswick, ME
- Hall Project, Bates College, Lewiston, ME
- Greater Androscoggin Humane Society Site Plan, Lewiston, ME
- Wetlands Permitting South Oakfield Road Improvements, Oakfield, ME
- Topsham Commerce Park Subdivision, Topsham, ME
- Onshore Aquaculture Facility, Gouldsboro, ME
- Wetland Permitting Centerline Brook Crossing, Oakfield, ME
- Anaerobic Digester – Brunswick Landing, Brunswick, ME
- Boat Yard Facility Planning, Brunswick, ME
- Hockey Facility Sketch Plans, Brunswick, ME
- Boathouse Land Use Study, Bates College, Greene, ME
- Parking Lot Expansion - CLC YMCA, Damariscotta, ME
- Brunswick Landing Planning Permit, Brunswick, ME
- Brunswick Landing Subdivision, Brunswick, ME
- Onshore Aquaculture Facility, Harpswell, ME
- Pool Addition - CLC YMCA, Damariscotta, ME
- Parking Lot Expansion - CLC YMCA, Damariscotta, ME
- The Lofts at No. 4 Mill, Sanford, ME
- Fed-Ex Distribution Center, Lewiston, ME*
- US Postal Service Center, Great Neck, NY*
- Lufthansa Constellation Hangar, Auburn, ME*
- Sanford Gateway Center, Sanford, ME*
- Whole Foods, Portland, ME*
- The Lofts at No. 4 Mill, Sanford, ME
- Bath Savings Institution, South Portland, ME*
- University Credit Union, Portland, ME*
- Nappi Distributors, Gorham, ME*
- St Mary's Regional Medical Center, Operating Room Addition, Lewiston, ME*
- Advanced Auto, Auburn, ME*
- Apple Valley Estates, Lewiston, ME*
- Birch Hill Apartments, Lewiston, ME*
- Scarborough Gallery, Scarborough, ME*
- CVS Pharmacy, Wells, Kennebunk, Augusta and Lewiston, ME*
- Grocery Store Site Development - ME, NH, VT, MA, NY, VA, NC*

Building Improvements and Funding Approvals

- Metering and Life Safety Improvements - Brunswick Landing, Brunswick, ME
- Paint Booth Project, Kestrel Aviation, Brunswick, ME
- TechPlace Building Improvements - Brunswick Landing, Brunswick, ME
- Building Demolition - Brunswick Landing, Brunswick, ME

STEPHANIE A. HUBBARD, PE, LEED AP
Project Manager

PROJECT ASSIGNMENT: Project Engineer

Education
M.S., Worcester Polytechnic Institute

B.S., Worcester Polytechnic Institute

Professional Registration
Connecticut
Massachusetts
Maine
Rhode Island

Experience
9 Years

Joined Firm
2009

Training/Certifications
OSHA 40-hour Hazardous Waste Training

OSHA 8-Hour Refresher Training for Hazardous Waste Operations

Supervisor Health and Safety Training for Hazardous Waste Operations

Professional Affiliations
American Society of Civil Engineers

Publications
Bergendahl, J., Hubbard, S., Grasso, D., "Pilot-scale Fenton's Oxidation of Organic Contaminants in Groundwater Using Autochthonous Iron" Journal of Hazardous Materials, B99(2003)43-56

EXPERIENCE SUMMARY

Ms. Hubbard is a project engineer in the Civil Practice Group at Wright-Pierce. She has experience in many aspects of site development and design, including site planning, stormwater management design, technical review services and third party inspections, permitting, utility infrastructure design, and contamination assessment and remediation for commercial, retail and industrial sites.

RELEVANT PROJECT EXPERIENCE

Infrastructure

- Mill District Elevated Slab, Biddeford Maine, ME
- Harrison Avenue Infrastructure Improvements, Gardiner, ME
- Infrastructure Management Plan, Brunswick, ME
- Nequasset Fish Way Rehabilitation, Woolwich, ME
- Little School Retaining Wall, North Reading, MA
- Alternative Energy Study, BNAS, Brunswick, ME
- Harbor Infrastructure Make Ready Services, Wells, ME
- Biomass District Heat Feasibility Study, Madison, ME
- Natural Gas Distribution System, Freeport and Pownal, ME
- Toe Drain Replacement, Kittery Water District, ME
- Catherine Street Area Improvements, Rochester, NH
- Wastewater System Improvements, Rockland, ME
- Maverick Street Sewer Design, Rockland, ME
- Auburn CSO, Auburn, ME
- Pump Station 500 Assessment, Old Orchard Beach, ME
- NPDES Phase II Stormwater Management Plans, Various, MA*
- Bristol Town Beach Water Quality Improvements, Bristol, RI
- TFMA Retrofit Reconnaissance Investigation, Topsham, ME
- Lake Andrews Drainage Evaluation, Lewiston, ME
- Southside Drainage Improvement Technical Design – Phase I Pond Brook Circle, Weston, MA
- Southside Drainage Improvement Technical Design – Phase II, Weston, MA
- Route 27 Upgrades, Kingfield, ME
- Pavement Striping Plan, Biddeford, ME
- High Street Rehabilitation, Bath, ME

Site Development and Permitting

- Biddeford Riverwalk Phase I and II, Biddeford, ME
- Mill District Pedestrian Bridge, Biddeford & Saco, Maine
- Yarmouth Water District Building, Yarmouth, ME
- Metering & Regulator Station, Pownal, ME
- FPL Parcel Redevelopment, Biddeford, ME

Environmental

- Soil Management Plan and Remedial Action Work Plan, Pawtucket, RI
- Little River Marsh Dredging, Old Orchard Beach, ME
- Transfer Station Stormwater Pollution Prevention Plan, Old Orchard Beach, ME

Emergency Planning

- Emergency Action Plan Updates, New Milford, CT
- Emergency Notification Plan Updates, Scotland, CT

Development Plan Reviews

- Development Reviews, Old Orchard Beach, ME
- Third Party Inspections, Old Orchard Beach, ME

TROY F. MCDONALD, PLS

EXECUTIVE VICE PRESIDENT

NORTHEAST CIVIL SOLUTIONS, INC.
381 PAYNE ROAD
SCARBOROUGH, MAINE 04074

MR. MCDONALD has 30 years of experience in the land surveying, civil engineering, telephone engineering and right-of-way / easement acquisition professions. Troy is the former owner of an engineering firm specializing in the needs of the utility industry and has assisted the communications industry with GPS/GIS mapping of facilities, oversight of legal contracts and provided regulatory support. Troy is the co-owner of Northeast Civil Solution, Inc. and oversees the daily operation of the Company, financial and contractual relationships as well as all QA/QC efforts.

EDUCATION:

Central Maine Technical College
Auburn, ME

- *Civil Engineering & Architectural Design*

University of Southern Maine
Gorham, ME

- *Applied Technical Leadership*

PRESENTATIONS:

- "Benefits of a GIS System for an FTTP Network and Outside Plant Engineering" - Presented to Verizon FTTP Program Office
- "Land Surveying, Mapping the Road to Approval" – Presented to the International Right-of-Way Society.

REGISTRATIONS:

Professional Land Surveyor

- ME #2080

MEMBERSHIPS:

- Maine Society of Land Surveyors (MSLS)
- National Society of Professional Surveyors (NSPS)
- American Congress of Survey & Mapping (ACSM)
- International Right-of-Way Association (IRWA)
- American Society of Civil Engineers (ASCE)
- Telephone Association of Maine (TAM)
- Telephone Association of New England (TANE)
- Verizon Telcom Pioneers
- Independent Telephone Pioneers Association (ITPA)

PROJECT EXPERIENCE:

Land Surveying / Civil Engineering:

Projects include the boundary survey of the Brunswick Naval Air Station (NHZ) , Brunswick, Maine. Existing conditions and topographic survey of the Wiscasset Municipal Airport (IWI). Over 250 easement surveys, site plan design and regulatory permitting for New England Telephone & Telegraph Company, NYNEX, Bell Atlantic, Verizon, GTE, Contel, Central Maine Power Company, Maine Yankee. Submarine cable design and layout. Boundary surveys for numerous site plans and subdivision for both commercial and residential projects. Boundary survey for the permitting and approval of cell towers beginning in Marlborough, MA through New Hampshire, northeasterly through Maine to Eastport.

GPS locations and surveys of all 140 Central Offices in Maine for Verizon Communications. GPS surveys were used to develop the first GIS System within Verizon - Maine for use both OSP Engineering and to comply with the Maine PUC Chapter 140 requirement that all service territories be submitted to the Maine PUC in GIS shapefile format.

Right-of-Way / Easement Negotiations:

Negotiated the acquisition of thousands of easements for New England Telephone & Telegraph Company, NYNEX, Bell Atlantic, Verizon Communications and FairPoint Communications associated with PCH Switching Facilities, Remote Terminal Cabinets, submarine cable projects, underground cable projects and utility pole lines.

Provided coordination and oversight on numerous utility relocations associated with the development of new building sites. Acted as the mediator between the utilities and the project developer/owners. Appeared before the Maine PUC, New Hampshire PUC and Vermont PSB and served as the Network Engineering representative for Verizon Communications.

M. JOHANN BUISMAN, PLS

VICE PRESIDENT - SURVEYING

NORTHEAST CIVIL SOLUTIONS, INC.
381 PAYNE ROAD
SCARBOROUGH, MAINE 04074

MR. BUISMAN has over 30 years experience in the land surveying and civil engineering industry. Johann has been with Northeast Civil Solutions (NCS) for 17 years and is the Vice President of the land surveying department. In his position he oversees and participates in all survey activities for northern New England as well as lending his expertise for specific projects managed by NCS Project Managers.

EDUCATION:

Red Rocks College
Redwood, CO

- *B.S. Civil Engineering*

Maine Technical Source
Yarmouth, ME

- *Advanced GPS Methodology & Application*

CERTIFICATIONS:

- AutoCAD
- Stormwater Design

REGISTRATIONS:

Professional Land Surveyor

- ME # 1314
- NH # 862
- CO # 23878

MEMBERSHIPS:

- Maine Society of Land Surveyors (MSLS)
- New Hampshire Society of Land Surveyors (NHSLS)
- American Congress of Surveying & Mapping (ACSM)

PROJECT EXPERIENCE:

Town of Falmouth, US Route 1, ROW / Existing Conditions / Topographic Survey - Falmouth, ME: Project Manager responsible for a 6,000 LF existing conditions and topographic survey. This project included obtaining all existing conditions features, a topographic survey and the location of ROW limits along US Route 1 to assist with the traffic engineering and drainage design for the project. NCS provided base plans to the Town of Falmouth detailing the survey data collected as well as property lines for those properties fronting on US Route 1 within the project limits.

Portsmouth Naval Shipyard Dry Dock No. 2 - Kittery, Maine: Project Manager for Portsmouth Naval Shipyard's expansion of Dry Dock No. 2 to accommodate the repair of larger submarines. Cofferdams were first set to harbor the removal of the granite walls and floor, and repair of the caisson and sill structure. Northeast Civil Solutions, Inc. (NCS) established horizontal and vertical control based on both the shipyard datum and on the centerline of the existing dry dock, then monitored the deviation of multiple control points spaced a maximum of ten feet apart along the top of the wing walls and sill walls.

Robert A. LaFleur Airport (WVL) - Waterville, Maine: Project Manager for land surveying services provided to Airport Solutions Group (ASG) associated with the design of Runway 14-32 reconstruction project at the Robert A. LaFleur Municipal Airport in Waterville, Maine. Survey services included a cross-section survey of the runway, the establishment of the existing centerline of the taxiway and runway, a detailed topographic survey, survey research and a survey control network.

Portland Jetport (PWM) - South Portland, Maine: Project Manager for land surveying services of the Jetport Plaza Drive, a multi-purpose connector road and perimeter access road for the City of South Portland. Survey services included a right-of-way survey, an easement survey and an existing conditions and topographic survey. Construction survey services were also provided and included centerline layout for both vertical and horizontal control.

Town of Scarborough GIS Base Mapping, Scarborough, Maine: Project manager responsible for GPS mapping of roadway network throughout the entire town of Scarborough. Coordinated and supervised all GPS surveying, calculations for tie-in to USGS monumentation and remapping of 155 existing town maps to new GPS overlay.

JOHN PERRON

SENIOR PROJECT SURVEYOR

NORTHEAST CIVIL SOLUTIONS, INC.
381 PAYNE ROAD
SCARBOROUGH, MAINE 04074

MR. PERRON has over 16 years experience in the land surveying industry. John has been with Northeast Civil Solutions (NCS) for the past 10 years and has been involved in the oversight of numerous high profile projects. In his position as Project Surveyor he oversees all aspects of a project from the initial project setup to the execution of the final deliverable.

EDUCATION:

New Hampshire Technical Institute
Concord, NH

- *AET - Architectural & Engineering Technology*

CERTIFICATIONS:

- FEMA Elevation Certificates

PROJECT EXPERIENCE:

Town of Falmouth, US Route 1, ROW / Existing Conditions / Topographic Survey - Falmouth, Maine: Project Surveyor responsible for the plan preparation and oversight of the fieldcrew for a 6,000 LF existing conditions and topographic survey. This project included obtaining all existing conditions features, a topographic survey and the location of ROW limits along US Route 1 to assist with the traffic engineering and drainage design for the project. NCS provided base plans to the Town of Falmouth detailing the survey data collected as well as property lines for those properties fronting on US Route 1 within the project limits.

Portsmouth Naval Shipyard Dry Dock No. 2 - Kittery, Maine: Project Surveyor for Portsmouth Naval Shipyard's expansion of Dry Dock No. 2 to accommodate the repair of larger submarines. Cofferdams were first set to harbor the removal of the granite walls and floor, and repair of the caisson and sill structure. Northeast Civil Solutions, Inc. (NCS) established horizontal and vertical control based on both the shipyard datum and on the centerline of the existing dry dock, then monitored the deviation of multiple control points spaced a maximum of ten feet apart along the top of the wing walls and sill walls.

Portsmouth Naval Shipyard Dry Dock No. 3 - Kittery, Maine: Project Surveyor for Portsmouth Naval Shipyard's expansion of Dry Dock No. 3. Provided survey control networks and layout of bolt locations for installation of work platforms within the walls and floors of the dry dock. Northeast Civil Solutions had to ensure an extremely high accurate 3-plane (x.y,z) control network existed for use during construction.

Auburn / Lewiston Municipal Airport - Auburn, Maine: Project Surveyor for land surveying services provided to Hoyle Tanner Associates (HTA) associated with the design of runway reconstruction projects at the Auburn / Lewiston Municipal Airport in Auburn, Maine. Survey services included a cross-section survey of the runway, the establishment of he existing centerline of the taxiway and runway, a detailed topographic survey, survey research and a survey control network.

Rails-to-Trails Projects, Mountain Trail and Eastern Trail - Windham, Westbrook, Scarborough, Maine: Project Surveyor responsible for the collection of existing conditions & topographic information and centreline layout of two separate Rails-to-Trails project for HNTB. In addition to the miles of existing conditions & topographic information collected both projects required the collection of wetlands flagging to assist in the final alignment of the centreline of the proposed trail way. Survey plan sets were generated and presented to the Client in both AutoCAD format and paper copy.

SCOTT MORNEAU

PROJECT SURVEYOR

NORTHEAST CIVIL SOLUTIONS, INC.
381 PAYNE ROAD
SCARBOROUGH, MAINE 04074

MR. MORNEAU has over 15 years experience in the land surveying industry. Prior to Northeast Civil Solutions (NCS) Scott was the Project Surveyor for a heavy highway construction and bridge company who was contracted by the Maine Turnpike Authority and Maine Department of Transportation. In his position as Project Surveyor, Scott was responsible for the accuracy of complex horizontal and vertical control networks.

EDUCATION:

University of Maine
Orono, ME

- *Construction Management*

CERTIFICATIONS:

- Various GPS Related Classes
- Least Squares Adjustment of Horizon and Vertical Control Networks

PROJECT EXPERIENCE:

Maine Turnpike Authority and Maine Department of Transportation Bridge Rehabilitation and Reconstruction Projects: Project Surveyor for a heavy construction company that performed bridge rehabilitation and reconstruction projects on a per bid basis. Scott provided layout and layout supervision for the duration of the project, including structure layout, baseline layout, roadway layout, network adjustments and differential level loops. In addition, GPS surveying was included as part of the survey control and layout work performed. Scott also completed and provided as-built drawings for the projects. As part of the Project Surveyor role Scott worked closely with the Site Superintendent and Resident Engineer.

Maine Department of Transportation - Various Projects & Locations throughout Maine: Project Surveyor subcontracted to the Maine Department of Transportation under a multi-year General Services Contract for the collection of survey data on numerous state roads and bridges. Survey services included existing conditions route surveys of state controlled roads, bridges and highways, using field to finish methods and establishing horizontal and vertical control networks.

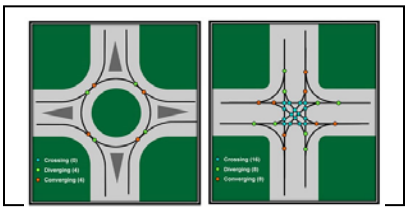
United States Coast Guard, Sector Field Office - Southwest Harbor, Maine: Project Surveyor for land surveying services at the United States Coast Guard Sector Field Office in Southwest Harbor. Survey services were required on the pier, which set on both fill and piles, for the construction of a new Boat Maintenance Facility. An existing conditions, topographic and utility survey was required. In addition, survey services were required to identify and assess concrete slab deterioration and replacement. GPS and traditional survey techniques were utilized to establish the horizontal and vertical control for the project and to ensure accuracy of the final product.

Verizon Dig-Safe Project—Numerous Locations in Maine: Project Surveyor responsible for the GPS mapping of 1,000s of underground facility locations throughout Maine. As part of a Maine Public Utilities Commission order, Verizon Communications was required to have all underground facilities field located and assigned a latitude / longitude position for the placement into a GIS mapping database to facilitate a seamless upload into the state's One-Call system. In addition to the field location of newly placed underground facilities the Order also required the field location of underground facilities already in existence. This required the dispatching of survey crews throughout Maine to meet the compressed time schedule required of the Order.

Appendix B – Example PACTS Application

PACTS Intersection Improvement Application for 2016/2017/2018 Work Program

PACTS Staff and members of both the PACTS Planning Committee and Technical Committee will use the information provided in the attached form to score and rank Proposals for Intersection projects.



Information provided in the first section of the form will be used in the new PACTS Intersection Formula and the information provided in the second section of the form will be used to evaluate the proposal's consistency with ***Destination Tomorrow.*** Please reference the current TIP Process Guideline for more application information.

Examples of eligible **Intersection Improvements** are:

- addition or upgrade of signals,
- addition or widening of shoulders,
- addition of turning or through lanes,
- improves level of service for all modes.

Projects must consider all user groups and may also include new sidewalks and pedestrian accommodations. Although not a requirement it would be beneficial for the project to be on an NHS designated roadway to help in meeting DOT and FHWA requirements. Please note, some of the sections related to Road Rebuild proposals and questions may or may not be applicable to this application. Please indicate N/A for the non-applicable questions.

General Requirements for Proposals:

1. Proposals must be received by PACTS by **4:00 p.m. on February 7, 2014.**
2. Three (3) hard copies **as well as an** electronic submittal of proposals are required. Email (or cd) to ceppich@gpcog.org and pniehoff@gpcog.org. Attach supplementary information as needed.
3. Proposals must be based on a thorough analysis and include a detailed purpose and need statement, scope of work, and cost estimate.
4. Intersection applications must include results of capacity analyses of current and proposed conditions.
5. If applicable under this set aside signal proposals must be supported by a MaineDOT approved warrant analysis. MaineDOT support documents **must** be submitted with this application.
6. Must demonstrate consistency with ***Destination Tomorrow*** with consideration of the ***2009 PACTS Regional Bicycle and Pedestrian Plan Update and PACTS Regional Bicycle and Pedestrian Design Guidance*** where applicable and not conflict with a municipality's comprehensive plan or other policy document.

All questions must be completed – Please use not applicable (N/A) or no, as appropriate and reason why you believe the question is not applicable.

Please contact Paul Niehoff or Carl Eppich with any questions you may have as you prepare your proposal. (207) 774-9891.

PACTS

Portland Area Comprehensive Transportation System

2016/2017/2018 Road Rebuild and Intersection Application

Section 1 – Project Overview

Set Aside Category:

Project Name: Brighton/Deering/Falmouth/Bedford Intersection Improvements

Section 2 – Project Location, Description and Justification

Municipality: Portland	Route Number/Street Name: Route 25/Brighton Avenue

Description of Project Location: The project is located at the intersection of Brighton Avenue, Deering Avenue, and Falmouth Street and at the intersection of Deering Avenue and Bedford Street.

Federal Functional Classification: Other Principal Arterial MaineDOT Corridor Priority: 2 (http://www.maine.gov/mdot/about/assets/search/)	NHS: ☐ Yes ☐ No (PACTS staff to indicate)	AADT: 10990	LAP?: ☐ Yes ☒ No

Is the proposed project in an identified PACTS Congestion Management Process area? (see CMP map and descriptions):
☐ Yes ☐ No

If so, describe any congestion mitigation benefits of the proposed project**:**

Please state the detailed purpose and need(s) and how the project will address those needs: The six-way intersection of Brighton Avenue with Deering Avenue and Falmouth Street has long been cited as a challenge in terms of safely crossing pedestrians, providing safe and efficient movement for vehicles, and lacking in its ability to provide a gateway treatment for a major portal to downtown Portland.

Describe the proposed scope of work: A PACTS study completed in 2013 determined that two roundabouts, one at the Brighton/Deering/Falmouth intersection and the other at the intersection of Deering Avenue with Bedford Street would be the most effective solution to the many challenges at this location.

Section 3 – Municipal Contact Information

Please provide the following information about the sponsoring municipality (for joint applications, please attach additional contact information):

Municipality or municipalities if joint application:		
Primary Contact :Michael Bobinsky	Title: Director of Public Services	
Mailing Address:55 Portland Street	City: Portland	Zip Code: 4101
Phone Number: 207.874.8871	E-mail Address:mbobinsky@portlandmaine.gov	

Section 4 – Municipal Endorsement

Is this project endorsed? ☒ Yes ☐ No	
Endorsement Type (examples: ACE Team, Bike and Pedestrian Committee, City Council, etc.): Transportation , Sustainability, & Energy Committee	Date:December 13, 2013

Section 5 – Project Application Details

Has this project been reviewed and submitted in conjunction with other projects in the area, either under design or construction? ☐ Yes ☒ No ☐ N/A

If yes, please specify the projects:

Is the proposed project part of a public-private partnership or multi-municipal initiative? ☒ Yes ☐ No ☐ N/A

If yes, please explain:Through the expansion of facilities at the University of Southern Maine, the University has contributed money towards the recommended improvements.

Multimodal aspects and safety for all users: Has this project been reviewed with an emphasis on pedestrian/bicycle accommodations, improvements or safety and/or transit use: ☒ Yes ☐ No ☐ N/A

If yes, please explain: A key component of the project is simplifying a confusing intersection and area that has significant pedestrian volumes, particularly as the location is in the middle of the University of Southern Maine campus.

Multimodal Components

Will the project include new (not rebuilt) sidewalks or include aspects that will improve bicycle access or safety? ☒ Yes ☐ No ☐ N/A

If yes, please explain:The project will be including significant enhancements to sidewalks in the area, inlcuding construction of new sidewalks where Brighton Avenue is being eliminated. Additionally, all existing sidewalks will be replaced and upgraded to be ADA compliant.

Will the project include a new or improved sidewalk AND is in a location within 1,000 feet of two of these five land uses: a store, a school, a church, ten or more housing units or a non-retail business? ☒ Yes ☐ No ☐ N/A

If yes, please explain:As noted above the project includes substantial enhancements to sidewalks (both existing and proposed). The project is located in the middle of a university campus and significant housing units are present in the area.

Does the project include pedestrian improvements such as the addition of a new or improved traffic signal with a pedestrian phase or construction of ADA ramps or a pedestrian refuge island? ☒ Yes ☐ No ☐ N/A

If yes, please explain:The project upgrades all existing sidewalks so that they are ADA compliant. Additionally, a confusing traffic signal is being replaced with roundabouts to improve overall safety.

Is the project for a location in a land development zone in which a local ordinance allows mixed-use development and shows promise for reduction in travel demand or is part of a Travel Demand Management (TDM) plan or project?? ☒ Yes ☐ No ☐ N/A

If yes, please explain:The University of Southern Maine is required to maintain a TDM plan and updates the plan on a annual basis.

Is the project on an existing transit route? ☒ Yes ☐ No ☐ N/A

If yes, please explain: METRO Route 2 (Riverton) is located along Deering Street and Brighton Avenue. The project includes enhanced bus pull-out areas.

Is the project on a primary truck route? ☐ Yes ☒ No ☐ N/A

If yes, please explain:

Does the project enhance direct freight access to abutting commercial or industrial properties? ☐ Yes ☒ No ☐ N/A

If yes, please explain:

Safety, Capacity and Other Improvements

Does the project address a high crash location or other safety concerns? ☒ Yes ☐ No ☐ N/A

If yes, please explain:For the most recent three-year period, the intersection experienced 20 crashes and has a CRF of 1.02, thus is a High Crash Location per MaineDOT criteria.

MaineDOT node numbers: 12694

Total Accidents: 20

Critical Rate Factor (CRF): 1.02

Percent of accidents with personal injury: 35.0

(contact Greg Costello at greg.costello@maine.gov or 624-3618) FMI

If applicable, for intersections, what is the current delay, LOS or V/C ratio and and how will the project address this need?

Please provide copies of the results providing volume-to-capacity, level of service, and delay for the intersection, based upon methods contained in the Highway Capacity Manual. **The analysis should be provided for the no-build and improved conditions.** ☐ N/A

Please explain: According to the Final PACTS report for the project the Brighton Avenue/Deering Avenue/Falmouth Street intersection is estimated to operate at level of service F (v/c = 0.93) in 2014 and projected to operate at level of service F (1.12) in 2024 without any improvements. Following the construction of a roundabout the subject intersection will operate at an acceptable level of service of C (v/c=0.82) in 2014 and level of service D (v/c=0.90) in 2024.

For intersection improvements that require new signals where none currently exist, has a warrant analysis been completed and verified by the MaineDOT? Please attach. ☐ Yes ☐ No ☒ N/A

For intersections, please provide turning movement volumes that are no older than two years. Please attach. ☒ Yes ☐ No ☐ N/A

For Road Rebuilds, what is the current Pavement Condition Rating (PCR) value?
Value(s):

Will the project change the road's horizontal or vertical alignment? ☒ Yes ☐ No ☐ N/A

If yes, please describe: The project includes the construction of two roundabouts and the elimination of a section of Brighton Avenue between Falmouth Street and Bedford Street. Other than intersection configuration changes, no other chnages are proposed.

Are there any right-of-way impacts? ☒ Yes ☐ No ☐ N/A

If yes, please identify them and explain the impacts: In conjunction with the project there will be a need to acquire some property. The PACTS study estimates 2,600 sf of private property impacts, 8,300 sf of university property impacts and 3,900 sf of City property impacts.

Has this project been reviewed for potential environmental impacts? ☐ Yes ☒ No ☐ N/A

If yes, please explain:

Will the project meet clear zone requirements? ☒ Yes ☐ No ☐ N/A

If no, please explain:

Will the project require or result in, **design exceptions** (vertical and horizontal alignment, shoulder/lane widths, clear zones and/or others)? ☐ Yes ☒ No ☐ N/A

If yes, please explain:

Will the project require historical and/or environmental review? ☐ Yes ☒ No ☐ N/A

If yes, please explain:

For a Road Rebuild is a licensed and registered PE stamped document attached? ☐ Yes ☐ No

If no, please explain:

For roadway segments, please provide directional traffic volumes. ☒ N/A

For roadway segments, please provide proposed roadway cross-section(s). ☒ N/A

Section 6 – Estimated Costs by Phase and Scheduling

Phase		Estimate	Requested Delivery Year
☐	Preliminary Engineering	$ 0	
☒	Right-of-Way	$ 100000	
☒	Construction	$ 1527000	
☒	Construction Engineering	$ 153000	
	Total Estimated Cost	**$ 1780000**	

Source of the estimate and contact information: Tom Errico, T.Y. Lin International 207.347.4354

Multi-year Project: Is the request for only PE and RW in the first year (2016) of the Three Year Work Plan with construction in subsequent years of the Work Plan?

Please Explain:

Section 7 – Destination Tomorrow Section

1. **How is the project important to the region? Please list regional benefits of the project.**

Relevant Policy: Policy 1: Regional Focus
– Prioritize a regional approach to transportation and land use planning and decision making founded on effective communication and management of regional resources in agreement with our other policies.

Answer:

2. **How would the project maintain or improve the existing transportation system? Please list infrastructure improvements and services the project proposes to accommodate all transportation modes.**

Relevant Policy: Policy 2: Maintaining and Transforming the Transportation System
– Maintain and improve Mobility, Safety, and Accessibility of existing infrastructure while improving and completing infrastructure and services to accommodate non-motorized vehicular modes in the appropriate places.

Answer:

3. **How would the project enhance existing businesses, employment and economic development opportunities? Please list benefits to businesses and how the project furthers development opportunities with a mix of uses and connects jobs and housing by walking, biking or transit.**

Relevant Policy: Policy 3: Economic Development
– Enhance regional prosperity through support for the economic vitality of existing business and for economic development opportunities that are efficiently located based on the availability of transportation in mixed use and compactly developed areas.

Answer:

4. **How would the project improve the transportation-land-use connection? Please list benefits to (1) transportation choice (density), (2) accessibility in terms of ease of travel between points (distance), (3) variety of compatible uses and services made available (diversity); and (4) overall design. Design may include geometry, interconnections, access management, streetscape, and preservation of community character.**

Relevant Policy: Policy 4: Transportation-Land Use Connection
– Strengthen the connection between land use, transportation and community livability in the planning process.

Answer:

5. **How does the proposed project promote the use of energy efficient transportation and improve the human and natural environment? Please list benefits in terms of energy use, energy savings; and benefits to natural resources such as air, water, and land; and cultural benefits such as places preserved.**

Relevant Policy: Policy 5: Environmental Quality and Energy Conservation
– Protect and improve the human and natural environments including natural and cultural resources, air and water quality, and prepare and be proactive for the *most likely* impacts of climate change. Make transportation improvements that use more energy efficient transportation options, low and non-polluting modes such as transit, and/or reduce harmful pollutants associated with transportation.

Answer: