

Proposal

ENGINEERING SERVICES FOR THE ROUTE 100 INFRASTRUCTURE PLAN

Town of Falmouth, Maine
July 23, 2015



July 23, 2015

Nathan Poore, Town Manager
Town of Falmouth
271 Falmouth Road
Falmouth, ME 04105



RE: Proposal - Engineering Service for the Route 100 Infrastructure Plan

Dear Mr. Poore:

Fay, Spofford & Thorndike, LLC (FST) is very pleased to submit our proposal detailing our team's approach to implementing the Town's *Vision Plan* for Route 100. FST brings in-depth experience completing designs for regional corridors and interstate highways, as well as years of working successfully with MaineDOT. In addition FST was selected by the Town to design and oversee the revitalization of the Route 1 corridor which is nearing completion. Key members of FST's team for that project will be involved in this project and able to draw on their unique understanding of the Town's vision and what is required to bring a corridor design to completion. The team personnel assigned to key roles have all demonstrated their expertise to define, address, and resolve the diverse issues important to the Route 100 project.

The assignment of **Mark Debowski, P.E.** as **Project Manager** is one of the strongest benefits FST brings to this project. Mark brings years of experience with major roadway improvement projects throughout Maine and New Hampshire involving implementing transportation planning initiatives. Also Mark's previous design work on the MaineDOT Route 100 project makes him the perfect candidate to lead this project. Assisting Mark will be **Steve Babalis, P.E.**, who will serve as the Project Engineer. Steve will bring his recent experience as Project Engineer for FST's Route 302 projects in Bridgeton and Fryeburg Maine, as well as several years as a highway designer for the NHDOT. FST's Project Manager for the Town's Route 1 project, **Joseph Laverriere, P.E.** will be responsible for coordinating utility relocations, the Mill Street Park design and assisting with guiding the design through the Town processes.

We understand that the most important product of Preliminary Design will be to prepare an accurate construction estimate for the project – an estimate that will hold up through final design and ultimately to the bidding process. We appreciate the work the Town and its Team has done to plan for this corridor and know that more decisions will need to be made during the design phases. FST is committed to working with the Town on these decisions while maintaining a running estimate of the project and constant communication about scope creep and schedule. As requested by the Town's RFP, our proposal includes a lump sum fee for completing the Route 100 Infrastructure Plan. Our team is excited about the challenges and opportunities presented by this important project, and looks forward to the prospect of working with you to ensure its successful outcome. In order to demonstrate our commitment to deliver quality, on time products we have delivered this proposal four days early.

Very truly yours,
FAY, SPOFFORD & THORNDIKE, LLC

A handwritten signature in blue ink that reads "William R. Moore".

William R. Moore, P.E.
Senior Vice President

ZB-15T40

Proposal

FAY, SPOFFORD & THORNDIKE

July 23, 2015

ENGINEERING SERVICES FOR ROUTE 100 INFRASTRUCTURE PLAN

Town of Falmouth, Maine

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FIRM DESCRIPTION

Introduction to FST

Fay, Spofford & Thorndike, LLC (FST) has provided comprehensive planning, design, and construction phase services for municipal infrastructure projects for 100 years, including Maine where FST is prequalified with MaineDOT for Highway Design. The great majority of our work is completed for the public sector and New England municipalities, who turn repeatedly to FST to help maintain the viability of their valuable infrastructure assets.



FST is a full-service, multidiscipline consulting engineering and planning firm, founded in 1914. FST is headquartered in Burlington, MA and has offices throughout the Northeast, including offices in Bedford, NH and South Portland, where the majority of the work will be performed. FST has over 270 professionals capable of providing engineering services over a broad spectrum, including:

- Municipal engineering
- Traffic and transportation planning and engineering
- Transportation facility planning
- Shared-use paths, parks, and recreational facilities
- Crosswalks, pedestrian ramps, pavement markings, and traffic signs
- Highways and bridges
- Parking facilities
- Storm drainage
- Environmental impact document and permit preparation
- Municipal, commercial, and industrial buildings
- Waterfront facilities
- Wastewater collection, treatment, and disposal systems
- Water supply, distribution, and treatment facilities
- Airport design

The professional staff at FST includes engineers, planners, and scientists with expertise in planning, design, and construction management. The staff is multidiscipline with civil, traffic, environmental, structural, marine, electrical, and mechanical engineers; landscape architects; and transportation and environmental planners.

Our Team

Terrence J. DeWan & Associates

Terrence J. DeWan & Associates is a professional landscape architecture and planning firm in Yarmouth, Maine, dedicated to approaching land use opportunities with creativity, environmental sensitivity, and an awareness of client needs. They are composed of professionals with backgrounds in land use and community planning, streetscape design, recreation planning and design, bicycle and pedestrian circulation systems, visualization techniques, public participation, permitting, and construction document preparation.

TDJA has been honored with awards from the American Society of Landscape Architects, Maine Association of Planners, the Northern New England Chapter of the American Planning Association, and the Boston Society of Landscape Architects (BSLA) for their work in community planning and design.

Titcomb Associates

Titcomb Associates was founded in 1969 by Robert P. Titcomb to provide surveying services to both the private and public sectors. Titcomb Associates is an established, innovative survey firm committed to providing high quality products to their clients. Titcomb Associates has been engaged in all aspects of land surveying, including boundary location, topography, hydrography, site development, route and corridor surveys and Global Positioning System (GPS) applications. Clients include federal, state, municipal, industrial, commercial and private entities, reflecting the breadth of experience, and diversity and talents that has made Titcomb Associates a leader in the surveying profession. Titcomb Associates offers a wide array of services, including:

- Boundary Surveys
- ALTA/ACSM Land Title Surveys
- Topographic Surveys
- Existing Conditions Surveys
- Hydrographic Surveys
- “As-Built” Surveys
- Utility Surveys
- Construction Surveys
- GIS Data Collection (GPS Sub-Meter)
- Subdivisions and Site Plans
- FEMA Surveys (Elevation Certificates and Letters of Map Amendment)
- Hazardous Waste Site Surveys [OSHA (29 CFR 1910.120)]
- GPS Control Surveys

Titcomb Associates is pre-qualified by MaineDOT in right-of-way and property mapping services.

PROJECT TEAM

FST's staff of full-time engineers and planners offers considerable depth and expertise. We are able to draw upon FST's full resources of over 270 professionals to assist as needed with the work and provide a multidiscipline array of talents. The project team proposed by FST to work with the Town brings outstanding technical skills and a proven record of success on relevant projects, including for the Town of Falmouth. With our staff committed to this project, we are confident that our team has the depth to ensure efficient and satisfactory completion of the work. An overview of key staff members identified for this project is provided below.

William R. Moore, P.E., an FST Senior Vice President, will serve as **Principal-in-Charge**. In this role, Bill will be responsible for all contractual and administrative matters and for top-level review of all technical products. Bill's 30 years with FST have focused on management, planning and design of transportation projects for state agencies and New England municipalities. He brings hands-on expertise both in traffic analysis and design of all elements of roadway improvements. Representative work includes his role as Principal-in-Charge for the development and revitalization of the Route One corridor project in Falmouth, ME. The project includes design improvements to improve lane use and channelization to accommodate all users, upgraded traffic signals and pedestrian accommodations, undergrounding aerial utilities to improve corridor appearance, new aesthetic street lighting, and a new streetscape to improve livability. Bill also served as Project Manager for the design of roadway, traffic signal, sidewalk and drainage improvements for the 1-mile section of Route 100/26 in Falmouth for MaineDOT. He served as Project Manager for the drainage design and pedestrian safety improvements on Main Street in Damariscotta and Newcastle, ME. Bill was the Project Manager for the I-295 Exit 15 interchange project in Yarmouth, which includes a 3,500 foot section of Route 1. Bill is the Engineering Services Manager for all of FST's on-call contracts with MaineDOT.

Mark J. Debowski, P.E., will serve as **Project Manager** for this project. Mark manages and designs highway and local roadway improvements under FST's on-call contracts with MaineDOT. These assignments include studies and designs for roadway improvements in Newcastle, Damariscotta, Bridgton, Fryeburg, Yarmouth, Turner, Greene, Searsport, Waterville, Eliot and Falmouth. Mark managed a recent design for the full reconstruction (the addition of paved shoulders, new travel lane pavement, subbase, alignment changes, surface and subsurface drainage, utility relocation, fish passage, driveways and

entrances, intersections) of 5 miles of arterial highway for MaineDOT that is now under construction. His experience also includes planning and design for municipalities in Maine and New Hampshire. Mark's suitability and enthusiasm for the Route 100 project stems from his extensive previous work as project engineer on the MaineDOT Route 100 project.

As Project Manager, Mark will be the primary point of contact with the Town of Falmouth as well as the individual responsible for leading neighborhood meetings. Mark has completed over forty masters-level credit hours in public communication and has received commendation from two MaineDOT managers for his presentation skills.

Mark will also be responsible for coordinating the engineering efforts of the project, ensuring that assignments are completed on time and within budget. Mark's management has received the highest evaluation ranking in several categories by MaineDOT, and every deliverable in the last three years has been completed on time and under budget. He specializes in proactive client communication, quality control, and quick turnaround times such as will be needed for a high quality product in a short amount of time for the Town of Falmouth.

Also working as the **Project Engineer** for this project is **Steven Babalis, P.E.** Steve is a civil engineer with 8 years of highway design experience. Steve will also lead the **Highway Design**. He excels in developing unique engineering solutions to complicated design problems. Steven has a strong background in highway geometric design, traffic analysis, 3-D modeling with Microstation and InRoads, and cost estimating. Recent work includes developing project plans and designing signage, pavement markings and temporary signals for the Route 302 reconstruction project in Bridgton and Fryeburg, ME. Steve also designed a single lane roundabout concept for the intersection of Mechanic Street, Mascoma Street, and High Street as part of our on-call contract with the City of Lebanon.

Joseph A. Laverriere, P.E. will assist with **Civil/Site and Utility Coordination** for the project. Joe has 28 years of experience and has been responsible for assignments that include review of preliminary and final design as well as permit applications for a variety of civil/site projects. His recent experience includes serving as Project Manager for the development and revitalization of the Route One corridor project in Falmouth, ME. Joe also worked on the Tidewater Farm\Tidewater Village development, which included streetscape infrastructure improvements along Clearwater Drive, a 1,200 foot section of roadway that consisted of improvements to on-street parking, pedestrian amenities and utility infrastructure upgrades. Joe also served as project manager for the design and construction phase services associated with the construction of approximately 1,200 linear feet of streetscape along Main Street in Saco, Maine. Joe was also a former

resident in the Town of Falmouth for more than 20 years and is very familiar with the Route 100 corridor.

Tracey A. Tufts, P.E. will handle **Drainage and Permitting** on this project. Tracey has 21 years of roadway, highway and drainage design experience on a wide range of complex projects. In addition to her highway and drainage design experience, Tracey also has considerable experience with the permitting process as it pertains to municipal projects. Tracey also handled drainage design and permits as part of traffic and pedestrian safety improvements in Tamworth, Bennington, and Dublin, NH.

Bo E. Kennedy, P.E. is assigned to the role of **Drainage and Permitting**. His directly-applicable experience includes the drainage design of roadway widening and traffic signal improvements at the intersection of Portland Road and U.S. Route 202 in Buxton, ME to accommodate a new Hannaford Bros. Supermarket. The 1,900 linear foot roadway improvement included two protected left turn lanes, right turn lane, two new driveway entrances and associated drainage improvements. Other work includes roadway widening and construction phase monitoring along 1,000 linear feet of Route 108 in Peru, ME, and sidewalk and roadway widening along 2,218 linear feet of State Route 105 in Augusta, ME.

Walt Woo, P.E., PTOE will assist with the **Traffic** components of the project. He has 15 years of extensive experience as a transportation engineer, having participated in the analysis and design of dozens of signalized intersections on municipal and state roadways. He also possesses strong skills and experience in other aspects of transportation engineering, including traffic signing, pavement markings, traffic management and highway design, and has also prepared numerous transportation planning studies. Recently, Walt completed the design of traffic improvements to Route 1 in Falmouth, ME including two new traffic signals, signing and pavement markings.

Daniel P. Hallahan, P.E., LC, LEED AP, is assigned to the **Street Lighting** component of the project. He is experienced in the design and construction of medium and low voltage power distribution systems including short circuit and voltage drop studies, variable frequency drive systems, lighting systems, communication systems, fire alarm systems, and emergency power systems, including generator sizing. Relevant work includes designing new LED street lighting for the Route 1 corridor project in Falmouth and the modified highway interchange and new park and ride facility at Exit 15 on I-295 and US-1 in Yarmouth. His work included lighting calculations, fixture selection and design of the lighting power distribution system including coordinating with the electric power utility company. Dan is also working on the ornamental, period lighting design for the Broad Street Parkway project in Nashua, NH.

Assigned to the role of **Pavement Design** is **William P. Scarpati**, Pavement Design/Management Specialist at FST. Bill has considerable technical and practical experience working with public works and engineering departments designing pavement structures for municipal streets and highways. In addition, his experience is strengthened by his extensive work developing data and implementing Pavement Management Systems in over 30 communities.

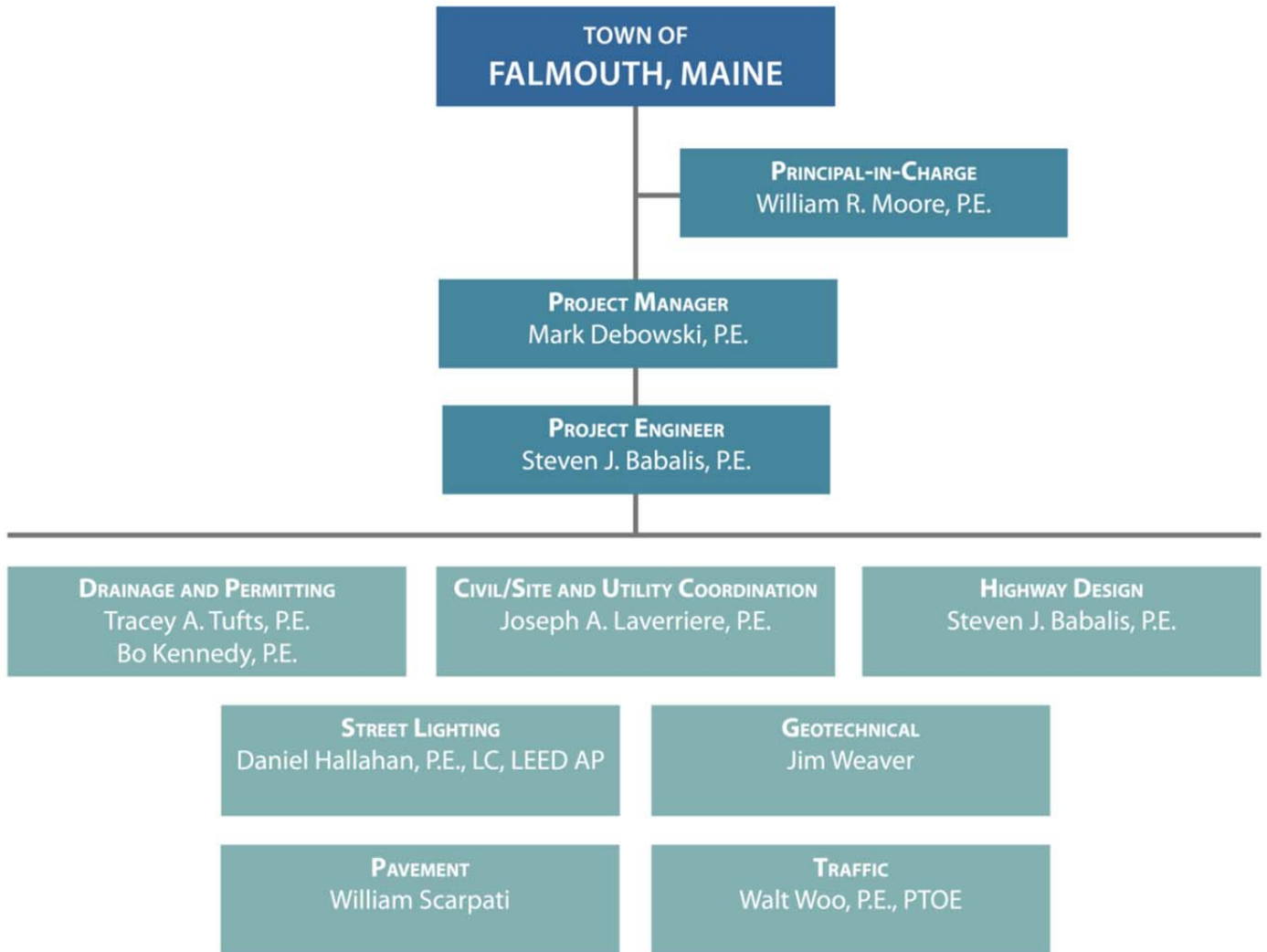
James W. Weaver, P.E. will be responsible for **Geotechnical** challenges of the project. Jim has over 40 years of experience providing geotechnical engineering. For FST's Route 100 MaineDOT project, he was the author of the October 2005 Geotechnical Report. Over his career, his projects have included low to medium-rise office and industrial buildings, fuel oil storage tanks, dams, highways, hospitals, bridges, waterfront ports and facilities, water treatment and wastewater treatment plants, pipelines, landfills, hydroelectric dams, wind turbines and other assorted structures. From 1996 until 2012 was responsible for project management and project execution with a focused effort in transportation and infrastructure projects. Jim is a consulting engineer on-call to FST.

Keith Smith, RLA, LEED AP (Terrence J. DeWan & Associates) will serve as the landscape architect for the project. Keith has over twenty years of professional experience. Keith brings to the project his creativity, knowledge and leadership to guide the project from concept through construction. In addition to experience in streetscape design, planning and project administration Keith is great at communicating ideas, public presentations and making sound aesthetic decisions. Some of Keith's relevant Projects include the Route One Corridor Streetscape in Falmouth, ME, where he provided design assistance and construction administration for the streetscape and pedestrian improvements. As part of the MaineDOT's LPA Program, he produced construction documentation for Phase II of a multi-use pathway and streetscape for North Boyd Street and widening of the Franklin Arterial sidewalk and improved street crossing in Portland. Also, for Scarborough, ME, Keith provided landscape design and Intersection enhancements to improve pedestrian awareness while creating a gateway to Scarborough from Haigis Parkway.

David Titcomb, PLS – Survey has over 35 years of experience in land surveying, starting out as a rodman working summers for his father, Robert P. Titcomb. David's primary responsibilities with the company include supervision of survey projects and management of the firm. He has been involved with a vast array of projects including subdivision and development work, first order control projects, existing conditions surveys, boundary and topographic surveys, construction surveys, and route surveys. He is a hands-on surveyor actively participating in the projects in which he is involved. David led the survey and preparation of right-of-way plans for FST's first design of Route 100/26 for MaineDOT.

We have included an organization chart below.

ORGANIZATION CHART



SUBCONSULTANTS



Past Relevant Projects

Route 26/100 Roadway & Sidewalk Improvements, Falmouth, ME, MaineDOT



FST was asked by MaineDOT to design roadway, intersection, and sidewalk improvements for a 1-mile segment of Route 26/100 in Falmouth.

This stretch of roadway is in need of repair but more importantly, measures are needed to accommodate the changing nature of the area as nearby commercial development expands. The design was completed and included two new traffic signals, wider shoulders for bicycle use and new sidewalks.

During the design process, FST worked closely with the Department of Transportation, the local residents and Town officials to develop the appropriate level of improvements. Unfortunately, due to State budget constraints the project was postponed indefinitely.

Key Personnel: William Moore, Mark Debowski and Jim Weaver

Route One South Infrastructure Plan, Falmouth, ME, MaineDOT



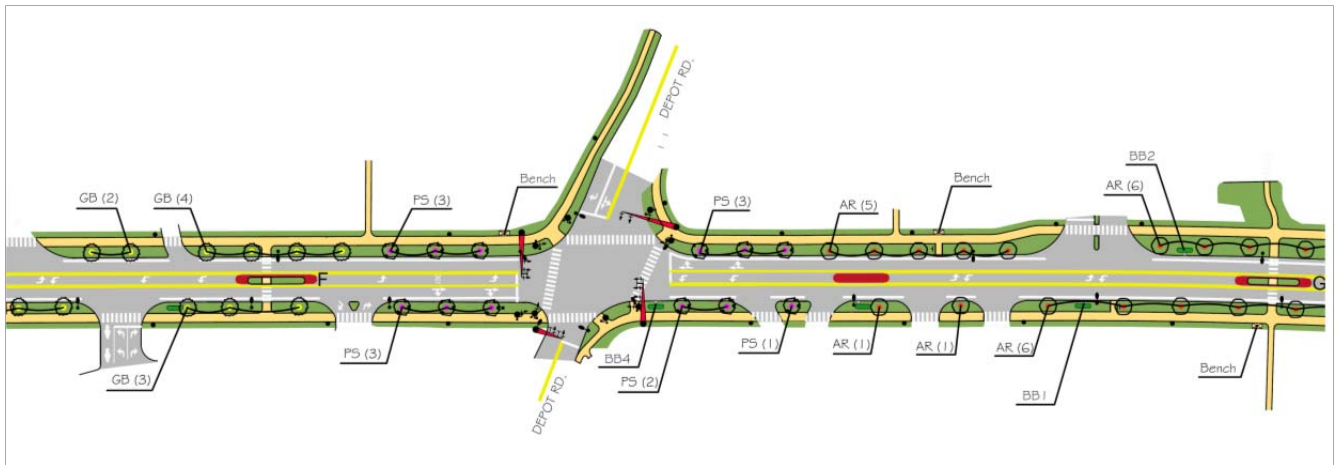
FST was selected by the Town of Falmouth, Maine to assist in the development and revitalization of the Route One corridor. This project is part of the Town's long-term goal to create a corridor that balances the needs of all users. Working with the Town's staff, project steering committee, abutting business owners and utility companies, FST was able to design improvements that balance the needs of all users. FST's design included the following:

- Improved lane use and channelization to accommodate all users
- Upgraded traffic signals and pedestrian accommodations
- Undergrounding aerial utilities to improve corridor appearance
- New aesthetic street lighting
- New streetscape to improve livability



Utilizing a systematic approach, the FST Team determined the needs for the corridor and was able to deliver quality construction contract documents that accommodated the strict budgetary and timing constraints of the project. The project is currently under construction and is nearly complete.

As part the FST team, our team member for this project, TJD&A prepared design development and final construction details for the streetscape improvements for Falmouth’s Route One business district. Improvements included new street trees, sidewalk and street lighting, pedestrian amenities, planted center medians, crosswalk enhancements, stormwater infiltration gardens, and new gateways. TJD&A developed the planting plan, provided graphics and photosimulations of the proposed improvements, and worked with town staff, the committee, and stakeholders to ensure understanding and acceptance of the plan.



Key Personnel: William Moore, Mark Debowski, Walt Woo, Joe Laverriere, Gordon Smith, Dan Hallahan, Bo Kennedy and Keith Smith (TDJA)

US Route 302 Reconstruction, Bridgeton and Fryeburg, ME, MaineDOT



FST is currently providing design services for more than 10 miles of US Route 302 reconstruction under an on-call highway design contract for MaineDOT. The heavily-used roadway (11,370 AADT with 15% heavy trucks) exhibits severe pavement deterioration, surface and subsurface drainage deficiencies, lack of paved shoulders and poor sight distance at intersections.



The goal of the project is to improve safety, functionality, and durability of the roadway within a restricted budget and with sensitivity to adjacent property owners and cultural, natural, and historic resources. After alignment alternatives were considered, design for pavement reconstruction, roadway widening, roadside safety improvements, and stormwater drainage improvements were completed for US 302, including improvements for 25 intersections, hundreds of

driveways and entrances, and on-street parking.

The design process included public coordination through public hearings and communicating with individual property owners regarding their concerns. Design sensitivity was exhibited at two cemeteries and a historic district in order to preserve the historic character of the areas while improving the adjacent roadway.

Environmental issues encountered in the design included limiting pollution to nearby waterways from stormwater runoff, relocating a stream to prevent erosion, and providing fish passage for four streams that cross under the project's roadway. Design for the relocation of hundreds of utility poles is also part of the design.

At the conclusion of preliminary design, the project's design objectives have been met along with sensitivity to adjacent resources, all within an acceptable construction cost budget.

Key Personnel: William Moore, Mark Debowski and Steve Babalis

Exit 15, I-295 and US-1 Interchange and Park and Ride Facility, Yarmouth, ME



As an on-call highway engineer for MaineDOT, FST was selected to provide design for the reconstruction of the I-295 Exit 15 interchange in Yarmouth. The project involved upgrading the existing ramps, adding a new ramp, and providing a park and ride facility. These improvements were necessary because the existing northbound off-ramp utilized a sharp curve immediately after departing from the interstate, the existing southbound on ramp provided substandard merging distance and sight lines with southbound traffic on I-295, and the traveling public desired a northbound on-ramp. The reconfiguration of the interchange also created an opportunity to provide a park and ride facility to assist commuters and improve traffic flow on US-1 (15,000 AADT) through the interchange.



In preliminary and final design, FST created an electronic, 3-D model of the project using Bentley's Microstation and InRoads. Design services included realignment of ramps, site development for a park and ride facility, stormwater drainage including bio-retention ponds (a first for

MaineDOT), highway lighting for the ramps, signing and pavement markings, a soil nail retaining wall underneath an existing bridge to accommodate a safer ramp configuration, 37,000 cubic yards of rock blasting and excavation, bicycle lanes, and

construction staging concepts. Design included coordination with the public and utilities through field meetings, correspondence, and hearings.



Another aspect of the project was the FST design to provide improvements to Route 1. The Route 1 work included new pavement markings, signing and intersection realignments. In addition, the design involved the layout of an alternating merge area to accommodate predicted unbalanced traffic volumes where the majority of traffic is in the outside lane. The configuration in one of only two locations where MaineDOT has used this particular innovative approach.

FST provided construction assistance for MaineDOT. Construction was completed on schedule, and the new interchange was fully open in 2013.

Key Personnel: William Moore, Mark Debowski, Jim Weaver, Tracey Tufts and Dan Hallahan

Mechanic Street Improvements, Lebanon, NH



FST is providing civil and roadway planning and design services to the City of Lebanon for 1.25 miles of Mechanic Street (US Route 4). The City anticipates significant future development in the area, and has asked FST to plan and design for improvements to Mechanic Street. The City's vision is to make Mechanic Street a more attractive gateway into the City center while also providing additional traffic capacity. In the first phase of the project, FST evaluated the existing traffic and infrastructure of the corridor through field observations and record analysis. As information was gathered and analyzed, critical needs were identified, and alternative concepts for improvement were developed.



Input from the public and Town officials was actively sought through four walks along Mechanic Street with property abutters and interested citizens and one public forum. FST led the walks, learning about the needs of possibilities of Mechanic Street from those with whom they walked. The walks also involved knocking on the doors of all property and

business owners along Mechanic Street to gain their input as well.

By the end of the first phase of the study, FST had developed eight roadway concepts, ten intersection concepts, and two highway interchange concepts. Cost estimates of the alternatives were developed and presented to the City.

In the second phase of the study, these conceptual alternatives for intersection, roadway, and streetscape improvements were presented to the Town, DOT, and the public in order to solicit input. Visualization graphics prepared by FST aided in understanding the alternatives. Feedback was collected and integrated into the design. By the end of the second phase of the study FST had finalized a recommended preferred alternative for each roadway segment and intersection. FST is now awaiting notice to proceed into preliminary design, leading to construction documents.

Key Personnel: William Moore, Mark Debowski , Steve Babalis and Tracey Tufts

Waldo Avenue Ramp to US 1 Safety Improvements, Belfast, ME



FST provided the preliminary design for the safety project for the on ramp from Waldo Avenue to US Route 1 in Belfast Maine. US Route 1 functions as a critical arterial for the region and through Belfast operates as a grade separated highway. The on ramp from Waldo Avenue has insufficient room for acceleration and merging that has resulted in a significant crash history. FST understanding the spirit of the project and the design issues and vested interests expressed by Maine Department of Transportation, provided practical design that would achieve a meaningful safety improvement.



FST recognized that the proposed concept would not only have to improve the safety of the on ramp but take into consideration the role US Route 1 plays within City of Belfast and roadway network. The City of Belfast is a critical port on the coast of Maine that experiences high tourism during summer months. The summer tourism results in an influx of roadway users unfamiliar with the area.

FST collaborated with the MaineDOT, studying multiple treatments while balancing construction cost, safety, and impact to the immediate area and roadway network. Design of this project had to fit its physical settings; avoid impacts to existing utilities, minimize changes to stormwater facilities, avoid impacts to private property, and maintain mobility during construction. The proposed design improves the safety of the on-ramp, lengthens the weaving area between the on-ramp and downstream off-ramp, and reduces the conflict between exiting traffic and through traffic.

Key Personnel: William Moore, Mark Debowski, and Steve Babalis

Maine Route 236 Improvements, Eliot, ME



FST provided the preliminary design for the improvements to the Maine Route 236 / Depot Road / Cedar Road intersection and approaches, including 2/3 mile of Route 236. The design of Route 236 included installing median islands and widening from 2 to 5 lanes. Intersection design included developing 2 options – a traffic signal design and a 2-lane roundabout design – to a point where accurate cost estimates, property impacts, and natural resource impacts could accurately be determined. Because of FST’s analysis and preliminary design, the 2-lane roundabout concept with Route 236 widening design is being advanced to final design and construction.

FST incorporated design for pedestrians and bicyclists into the roadway and intersection improvements and negotiated between right-of-way constraints, a river crossing, wetlands constraints, and an abutting elementary school.

FST collaborated with the MaineDOT, understanding the needs of key stakeholders and budgetary constraints, to study multiple solutions before landing on the two preferred concepts.

Key Personnel: William Moore, Mark Debowski, and Steve Babalis

Broad Street Parkway, Nahsua, NH



Under contract to the City of Nashua, FST completed final design of the Broad Street Parkway and is currently providing construction design assistance. This long-awaited roadway has been in development by the City for many years, and will serve as an important link to the City’s downtown area as well as facilitate economic development in the Millyard and other underdeveloped areas of the City.

The new 2-lane parkway will be approximately two miles long. After following a route which begins on Broad Street near Exit 6 of the F. E. Everett Turnpike and running adjacent to an active railroad, the parkway will cross the Nashua River with a new bridge, continue through the historic Millyard area and terminate at the intersection of Ledge and Central Streets. Traffic signalization, retaining walls, stormwater

management, utility relocations, geotechnical investigations, and environmental permitting are key project elements for the FST team, in addition to the roadway design.

Construction of the Parkway is expected to be completed in 2015.

Key Personnel: William Moore, Mark Debowski, Walt Woo, Tracey Tufts and Dan Hallahan

Reconstruction of Main Street, Damariscotta and Newcastle, ME

For the MaineDOT, FST designed the reconstruction of historic Main Street through downtown Newcastle and Damariscotta. Tourism during summer months is an important element of both towns' economies and strains local road and pedestrian facilities. FST's design provided:



- A new signalized intersection
- New sidewalks with pedestrian amenities
- Sidewalk bump out areas for traffic calming
- Parallel parking lanes
- New drainage system



Main Street in both towns is in historic districts, and it was critical that impacts be avoided or minimized. To accomplish this, FST adopted a collaborative approach that would ensure understanding of the design issues, not only from the perspective of design standards, but also from the interest of MaineDOT, local officials, business owners/operators, and Maine Historic Preservation Commission reviewers. Design of this transportation facility had to fit its physical setting; preserve scenic, aesthetic, and historical resources; and maintain safety and mobility. Standards for vehicle sizes at intersections, driveway widths, and the location and number of crosswalks were considered within the context of the historic district.

Since the project is locally considered a downtown revitalization, MaineDOT directed FST to facilitate the Town's decision-making process and include their special requests in the project. Tasks ranged from evaluating sidewalk types and crosswalk needs to providing textured pedestrian ramps and improving access to local businesses. In addition, all project elements, including traffic signal types and locations, retaining walls, and sidewalk surfaces, were designed to meet Historic Commission approval.

Key Personnel: William Moore and Mark Debowski

Route 101A Milford-Merrimack, NH



FST is currently providing the New Hampshire DOT with engineering services related to improvements at three intersections along the NH Route 101A corridor in Merrimack and Milford. FST's scope of services includes preliminary design, traffic analysis and projections, and environmental services. The intersections include:

Craftsman Lane in Merrimack: This intersection involves the implementation of traffic calming by terminating the east end of Craftsman Lane in a cul-de-sac near Hall Avenue, and creating a new connection to Boston Post Road immediately south of the

church parking lot. The existing connection that bisects the church parking lot will be removed, allowing the church to connect the two parking areas.

Milford – NH 101 Interchange: This piece of the project entails the reconstruction of the intersection of NH 101A and NH 101 eastbound ramps to provide an additional right turn lane exiting the off ramp and to signalize the intersection. The need/feasibility for coordination with existing signals at the westbound ramp and NH Route 122 are being examined as a part of the design.

Also in Merrimack, FST is preparing preliminary plans for the reconstruction of NH 101A from Boston Post Road to Continental Boulevard to add a third eastbound through lane to mirror the three westbound through lanes in this segment of NH 101A, add an exclusive westbound right turn lane on NH 101A at Continental Boulevard, and to add a second southbound right turn lane on Continental Boulevard at NH 101A.

Key Personnel: William Moore, Mark Debowski, Tracey Tufts and Walt Woo

Complete Streets, Various Locations, MA, NH, NY

Introduction to Complete Streets & Concepts

Presented to Maine Department of
Transportation
September 16, 2014

FAY, SPOFFORD & THORNDIKE 

Complete Streets is a nationwide program that has been adopted by MaineDOT to ensure that provisions are made to accommodate pedestrians, bicyclists, transit, and all vehicles.

FST has been involved in Complete Streets projects for years. Our projects have always included Complete Streets before the term became a national movement. This policy is presently being adopted by various communities country-wide as well as some state DOTs. FST is presently on a team that is

Title Slide from FST training for MaineDOT

providing Complete Streets training around the state of Massachusetts, New Hampshire and New York. The training is given to a variety of individuals that include statewide DOT personnel; community engineering, planning and administrative staff; state and municipal public health officials; local board members; private consultants; attorneys; architects and various local officials. In September 2014, FST gave complete streets training to the MaineDOT Highway Group.

The key elements of Complete Streets include:

- Providing accommodations on a facility for all users, i.e. pedestrians, vehicles, bicycles, transit and disabled individuals, including improved mobility for children, the elderly, and people with disabilities;
- Providing active living areas for all users by promoting more walking, bike riding and enhanced activity; and
- Creating an impact on the number of overweight and obese Americans and thus reducing health-care costs.

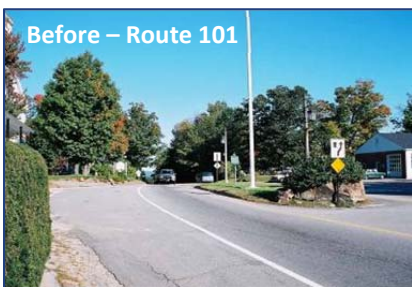
Nonantum Road, Newton-Watertown, MA



- Reduction from 4 lanes to 3 lanes
- Increased shoulder width
- Separate shared-use path
- Addition of exclusive turn lanes at intersections



Route 101, Dublin, NH



- Reduction of edge to edge roadway width
- Addition of sidewalks
- Reduction of travel lane width
- Addition of traffic calming features



Washington Street, Canton, MA



- Reduction of travel lanes
- Provision of sheltered parking
- Addition of landscaped areas
- Provision of improved shoulder areas



Massachusetts Avenue, Arlington, MA



- Reduction of one through travel lane
- Addition of on-street bike lanes
- Addition of "Door Zone" for bicyclist safety
- Reduction of lane widths



North Harvard Street, Cambridge-Boston, MA



- Reduction of one through travel lane
- Addition of bike lanes on-street
- Elimination of "delta" islands
- Reduction of crossing distance for pedestrians



Key Personnel: William Moore (Dublin) and Dan Hallahan (all projects)

Route 3 Corridor Improvements, Concord, NH



FST's work for the Route 3 corridor improvement project in Concord began with a study for improvements to a 5.4 mile stretch of this highway. The study involved preparation of improvement alternatives and their impacts/costs, monthly coordination with a project Steering Committee and neighborhood public meetings. The study culminated with a recommendation to divide the corridor into nine priority areas that could be

scheduled to meet the City's capital improvement plan. The study and its recommendations were approved by the City Council and adopted as the primary planning tool for the implementing construction projects along the corridor.

FST subsequently designed the first three segments recommended by the corridor study. Construction of the segments was completed in the fall of 2011. Each included a new traffic signal, sidewalks, bicycle lanes, new drainage systems and bus stops. The improvements required substantial coordination with utility companies and project abutters throughout design and construction.

Key Personnel: William Moore and Tracey Tufts

Terrence J. DeWan & Associates Representative Projects

Haigis Parkway Intersection, Scarborough, Maine

Streetscape design for the intersection at Haigis Parkway and Route One. TJD&A developed a plan to make a very large intersection more pedestrian friendly. The streetscape design included median plantings, cobble islands, stone corner pedestals and street trees.

Snowberry Ocean View Park at Pine Point Beach, Scarborough, Maine

Snowberry Ocean View Park is a linear park that provides access to Pine Point Beach. TJD&A worked with the Town of Scarborough, abutters and the Pine Point Neighborhood to ensure this new public space would fit and function properly at very busy summer destination. The park features a stamped concrete boardwalk, seating, bike parking, a trellis bench, interpretive panels, a drinking fountain and foot wash.

North Boyd Street Pathway, Portland, Maine

The North Boyd Street Pathway, creates a connection between Cumberland Avenue and Marginal Way, and provides a link in the city's Bayside Trail system. The path is a multi-use recreational trail that safely links housing with schools and businesses, as well as the Kennedy Park recreation field for improved access to recreation and community programs. TJD&A assisted with preliminary alternatives and the completion of phase II construction documentation as part of MaineDOT's LPA process in 2015. TJD&A was responsible for lighting, amenities and landscape design.

Titcomb Associates Representative Projects

Maine Department of Transportation

During the past seventeen years Titcomb Associates has provided a survey crew to MaineDOT on a contractual basis. The field crew has primarily performed road work collecting detailed topographic and planimetric information; the survey information is forwarded to the engineering department at MaineDOT for the development of engineering plans. The crew has also performed construction layout and hydrographic surveys at various locations.

City of Portland, Maine

Titcomb Associates has provided surveying services to the City of Portland since 2006. The projects Titcomb Associates has participated in include road reconstruction projects and CSO (combined sewer overflow) projects requiring intensive survey information for underground and overhead utilities, topography at one foot contour intervals, street right-of way determination, and easement and boundary locations, for over 60,000 linear feet of roadways and cross-country routes. The most recent project was the Baxter Boulevard North Storage Conduit project which required over 8000 feet of comprehensive survey along Baxter Boulevard, adjacent streets, and cross-country routes.

Portland Water District

Titcomb Associates has provided surveying services to Portland Water District beginning in 1988. The projects have included boundary surveys and existing conditions surveys; the most recent project was an existing conditions survey along a portion of Route 100 extending from Falmouth Road to Libby Bridge for a water line reconstruction project.

Maine Turnpike Authority

Over the past fifteen years Titcomb Associates has performed survey work for Maine Turnpike Authority projects working with several engineering consultants. The work has included existing conditions surveys for existing bridges and approaches, and segments of the existing turnpike, including utility information and obtaining topographic information at a one foot contour intervals. Construction layout has also been performed.

City of Bath, Maine

Since 1998, Titcomb Associates has provided existing conditions surveys for several streets and cross-country routes in the City of Bath, totaling over 23,000 linear feet. The focus of the work is to provide existing conditions surveys, topographic surveys, utility surveys, and right of way determination for the preparation of plans for engineering projects.

Town of York, Maine

Titcomb Associates has provided existing conditions surveys for several streets and cross-country routes in the Short Sands region in the Town of York. The focus of the work was to provide existing conditions surveys, topographic surveys, utility surveys, and right of way determination for the preparation of plans relative to several engineering projects.

Portland Pipe Line Corporation

Titcomb Associates has provided survey information to Portland Pipe Line Corporation in Maine, New Hampshire and Vermont since 2000. The projects have included GPS observations at 150 designated positions along the pipeline, existing conditions surveys along roadways, interior and exterior tank surveys at the South Portland tank farm, and hydrographic surveys at pipeline crossings.

STATEMENT OF PROJECT UNDERSTANDING

The preliminary and final engineering described in this proposal is a key step in the process of implementing the recommendations made in the Route 100 Vision Plan. The recommendations enhance the opportunities for the development and interconnection of the second commercial hub in Falmouth while providing greater access to and preservation of the varied land uses and natural features. Building upon the 2009 plans developed for MaineDOT, FST is eager to bring to fruition the recommendations of the Route 100 study. The primary areas and objectives of the design are outlined as follows and are elaborated upon in the next section of the proposal under the detailed scope.

Project Area	General Scope of Work
Section 1: Route 100 from Roberts Road to Leighton Road	Missing sidewalk links; Street trees; Pedestrian-scale lighting
Section 2: Route 100 from Leighton Road to Libby Bridge	MaineDOT planned reconstruction with lane width (11') and shoulder width (5') modifications and other practical design standards; Sidewalk on west side from Leighton Road to Mountain Road; Sidewalk on east side from Mill Street to Falmouth Road; Improvements to Falmouth/Mountain Road intersection as specified in 2009 plans; Improvements to Leighton Road intersection as shown in 2009 plans with additional turn lanes on both sides of Leighton Road as stated in the RFP; Crosswalks as seen in 2009 plans; Curb cuts and access management; Coordination with proposed sanitary sewer; Street trees; Pedestrian scale lighting; Replace cross culverts; Replace closed drainage system
Section 3: Route 100 from Winslow Farm to Hurricane Road	5' wide paved shoulders / bike lanes with possible travel lane pavement repair; Subsurface drainage improvements; Street trees; Replace cross culverts
Section 4: Falmouth Road from Route 100 to Winn Road	Reconstruction according to 2009 plans with MaineDOT "practical design" modifications; sidewalk on south side to Winn Road
Section 5: Leighton Road from Brook Road to Route 100	Missing sidewalk links
Section 6: Route 100 from Portland Line to Cumberland Line, Specific Locations To Be Determined	Traffic calming measures; Sight line improvements; Replace existing street lights with LED fixtures; Public-private partnerships for storm water management; Street trees
Section 7: Town land on Mill Street	Create riverfront pocket park

The primary outcomes of a successful preliminary engineering project will be the following:

Project Objective	FST's Resources
<p>Develop an accurate cost estimate of the proposed improvements so that voters in the June 2016 referendum are confident that they are being given an accurate number and the Town is confident that the actual costs of the project will not exceed the amount approved.</p>	<p>FST regularly develops accurate cost estimates for large MaineDOT highway projects. Under the proposed project manager's leadership, the bids for these jobs have come in close to the estimate: <u>I-295 Exit 15 and Park and Ride, Yarmouth</u> Estimate: \$6.0 million; 6 Bids: \$6.1-6.9 million <u>US Route 302 Reconstruction, Bridgton & Fryeburg</u> Estimate: \$8.8 million; 4 Bids: \$8.9-10.2 million</p>
<p>Provide resources, information, outreach, and practical assistance in helping the Town Council and voters of Falmouth be informed about the benefits and value of the proposed project.</p>	<p>FST regularly provides public information and outreach for municipal and MaineDOT highway projects and receives strong positive feedback. FST provides handouts, presentations, and internet postings that are attractive and easily understood.</p>
<p>The consultant shall provide a good value to the Town in both the design and construction phases.</p>	<p>FST's experience with MaineDOT highway projects has enhanced our foresight in dealing with complex issues as well as made us highly efficient in design. These skills provide cost savings in the design process and lead to more effective construction plans and computer models. These products translate into lower and more competitive bids.</p>
<p>Minimize private property impacts and coordinate the project with the concerns of abutting property owners and other local stakeholders.</p>	<p>FST regularly works with right-of-way negotiators and private property owners on municipal and MaineDOT projects to communicate proposed impacts and minimize or avoid property impacts.</p>
<p>Close coordination with MaineDOT to ensure smooth project progression and on-time project delivery.</p>	<p>FST has a deep familiarity with MaineDOT arterial highway design projects. In the last three years, the proposed project manager has led highway design for seven MaineDOT arterial highway projects totaling \$39.4 million in construction cost. 22 milestone submissions have been made on these projects, and each one has been made on time and under budget. FST staff, including the project manager, are LPA certified by MaineDOT.</p>
<p>Provide innovative thinking and design where practical.</p>	<p>FST is committed to creative storm water quality treatment as is seen in the US Route 1 project. FST's proposal for the Route 100 study illustrates a sampling of other creative solutions that could be implemented in the design of this project.</p>

SCOPE OF SERVICES/APPROACH

The comprehensive scope of services presented has been developed as requested by the Town of Falmouth. In addition, the scope follows the MaineDOT project development process. Presenting our scope in this way demonstrates our knowledge and experience with MaineDOT and shares an itemized list of tasks for the Town to clearly understand the value of our approach. Also, in this way, the Town and FST can work together to develop and adjust the scope of services to progress the project efficiently.

Task 1 – Supplemental Survey and Existing Right-of-Way and Property Information

The areas of supplemental survey are as follows:

- Route 100 (Gray Road) from Leighton Road to Libby Bridge (5800'±). (Note: this area was previously surveyed by the Maine Department of Transportation [MDOT] in 2002.)
- Route 100 from Winslow Farm (291 Gray Road) to Hurricane Road (5800'±); 50 feet on both sides of the road centerline.
- East side of Route 100 from Roberts Road to Liberty Road (500'±); edge of travel lane to 20 feet east of the existing curb.
- East side of Route 100 from 47 Gray Road to northern entrance to West Falmouth Crossing (1100'±); edge of travel lane to 50 feet east of existing curb / edge of pavement.
- East side of Route 100 from the northern entrance to West Falmouth Crossing to Leighton Road (750'±); edge of travel lane to 20 feet east of existing curb / edge of pavement.
- South side of Leighton Road from Brook Road to I-95 overpass (1100'±); roadway centerline to 25 feet south of existing edge of pavement.
- South side of Leighton Road from I-95 overpass to existing sidewalk at Mercy West Falmouth (600'±); roadway centerline to 25 feet south of existing edge of pavement.
- South side of Leighton Road in front of #64 Leighton Road where there is a break in the existing sidewalk (150'±); roadway centerline to 30 feet south of existing edge of pavement.



- South side of Leighton Road, 400 feet east and west of the Route 100 and Leighton Road intersection (800'±); 70 feet north and south of the road centerline.
- Falmouth Road from 419 Falmouth Road to Winn Road (950'±); 25 feet north and south of existing curb / edge of pavement.

Titcomb Associates will provide the following scope of services in support of this project:

Route 100 (Gray Road) from Leighton Road to Libby Bridge

- Compilation of data acquired by MDOT in 2002.
- Conversion of MaineDOT metric data to U.S. Survey Foot units.
- Location and elevations of areas of change since the completion of the 2002 survey.
- Centerline profile of existing Route 100 roadway to account for pavement overlays.
- Location of underground and overhead utilities.
- Rim and invert elevations, and pipe size and material, for drain and sewer structures.
- Location of the limits of the right of way for Route 100 and intersecting roads.
- Abutting property owners and approximate property lines based on title reports received from MDOT, current deed descriptions, recorded plans, and tax maps.



Remaining Areas (limit of survey areas described above)

- Topographic survey at one foot contour intervals.
- Location of significant site features, including but not limited to: edge of pavement/gravel, curbing, striping, walls, drives, signs, poles, fences, mailboxes, buildings, significant vegetation, etc.
- Rim and invert elevations, and pipe size and material, for drain and sewer structures.
- Location of the limits of the right of way for Route 100 and intersecting roads.
- Abutting property owners and approximate property lines based on title reports received from MDOT, current deed descriptions, recorded plans, and tax maps.

The survey work will be based on the Maine State Plane Coordinate System in conformance with the previous horizontal and vertical datums established by the Maine Department of Transportation. Plans will be prepared in accordance with MDOT computer drafting standards in Microstation format.

Task 2 – Preliminary Design Plans

The goal of preliminary design is to determine the construction cost of the project within a 10% accuracy. This accuracy will ensure that the project cost put before the voters will be a reasonable estimate of actual construction cost. Microstation and InRoads configured to MaineDOT CADD standards will be used to design these improvements, resulting in an accurate cost estimate and ease of use by a contractor in constructing the improvements. The preliminary engineering described in this scope goes further than a typical MaineDOT preliminary design project so that the costs and impacts can be defined to a level typical of a plan impacts complete submission or 75% design. Though the design will be advanced to a 75% level, the plan set will be at a PDR or 50% level in accordance with the MaineDOT milestone submission guidelines.

Task 2.1 – Horizontal and Vertical Alignments Complete Milestone

2.1.1 Project Plan



At the beginning of the project, the FST project manager will develop a written project plan and distribute it to the FST team members. The project plan includes a listing of the project team and contact information, project description, project schedule, project deliverables, the QA/QC process, and an electronic file management plan. This project plan ensures that the entire team is operating according to the same expectations and framework. The FST project manager will update and redistribute the plan as it changes.

2.1.2 Highway Design Requirements Forms

FST will complete the required MaineDOT HDR forms and gain approval from MaineDOT in order to verify the required standards with their references and to determine whether these required standards are met in the design. HDR forms will be completed for:

- Route 100 South of I-95 Exit 53ramps – Principal Arterial; Corridor Priority 2
- Route 100 North of I-95 Exit 53 ramps – Minor Arterial; Corridor Priority 3
- Leighton Road – Major Collector; Corridor Priority 5
- Falmouth Road – Major Collector; Corridor Priority 4
- Mountain Road – Local Road; Corridor Priority 6
- Mill Road - Local Road; Corridor Priority 6

2.1.3 Horizontal Alignments

FST will design the following horizontal alignments:

- Route 100 centerline for the entire length of sidewalk, shoulder addition, and roadway reconstruction. The centerline from the Route 100 plans developed for MaineDOT will be utilized between Leighton Road and the Libby Bridge
- Leighton Road centerline between Brook Road and Fox Hall Road
- The Mountain Road centerline will be carried over from the MaineDOT project
- The Falmouth Road centerline will be carried over from the MaineDOT project and lengthened on its eastern end to include the sidewalk extension to Winn Road.
- The Mill Road centerline will be carried over from the MaineDOT project

These horizontal alignment centerlines become the backbone of the remainder of the design and enable FST to complete accurate and efficient three-dimensional modeling of the project.

FST will evaluate the horizontal alignments with the following criteria:

- An evaluation of whether the horizontal curves meet the minimum radius, curve length, and sight line offset requirements
- Design of the superelevation rates and transitions
- Check of the shoulder width and pavement depth for off-tracking trucks
- Evaluation of impacts to ROW, environmental resources, utilities, and entrances based upon proposed horizontal geometry.
- Evaluation of clear zone requirements with alignment location (e.g. evaluating the relationship between the horizontal alignment and large fixed objects such as houses.)



2.1.4 Vertical Alignments

FST will design the following vertical alignments:

- Route 100 for the entire length of sidewalk, shoulder addition, and roadway reconstruction. The vertical alignment from the Route 100 plans developed for MaineDOT will be utilized between Leighton Road and the Libby Bridge. The vertical alignment for the other portions of Route 100 will follow the existing ground unless sight line improvements are needed.

- Leighton Road between Brook Road and Fox Hall Road. The vertical alignment will be designed to match the proposed vertical alignment and cross slope of Route 100 at the Leighton Road / Route 100 intersection and will follow the exiting ground for the remainder of Leighton Road unless sight line improvements are needed.
- The Mountain Road vertical alignment will be carried over from the MaineDOT project
- The Falmouth Road vertical alignment will be carried over from the MaineDOT project and lengthened on its eastern end to include the sidewalk extension to Winn Road.
- The Mill Road vertical alignment will be carried over from the MaineDOT project

These vertical alignments provide a foundation for cross section development and three-dimensional modeling. FST will evaluate the vertical alignments with the following criteria:

- An evaluation of whether the vertical tangents meet the maximum grade and minimum grade requirements
- Check of superelevation transitions versus vertical alignment to avoid poorly drained roadway
- An evaluation of whether the vertical curves meet the minimum length of curve, stopping sight distance, headlight sight distance and comfort criteria
- Balancing of cut and fills to the extent practical
- Evaluation of impacts to right-of-way, environmental resources, utilities, and entrances based upon proposed vertical geometry. Adjustments will be made to vertical geometry to minimize impacts

2.1.5 Typical Sections

FST will develop attractive and illustrative typical sections for use by Town officials and the public to understand before and after conditions in each of the unique project areas. Plan set typical sections will also be developed for submission to MaineDOT. The following will be shown on the typical sections:



- | | |
|--|----------------------------|
| ■ Travel lane and shoulder widths | ■ Loam location and depth |
| ■ Normal roadway cross slopes | ■ Type of curb |
| ■ Typical side slopes | ■ Location of sidewalk |
| ■ Ditch depths and offsets identified | ■ Location of lighting |
| ■ Pavement and gravel layers and thicknesses | ■ Location of street trees |
| | ■ Medians |

2.1.6 Design Exceptions

At the earliest possible point in the design process, design exception requests will be prepared and submitted to MaineDOT for approval. Design exceptions will be sought to minimize impacts to private property and environmental resources.

2.1.7 Driveways and Access Management – Stage 1



Driveways, entrances, and access management will be designed in two steps for preliminary design. In this first stage, critical driveways will be determined so that the roadway and driveway vertical alignments can be set or modified and creative solutions for problematic driveways can be developed. Furthermore, driveways that require a design exception will be identified and the required design exception requests will be submitted to MaineDOT. The following driveways will be reviewed in this step, with the critical driveways being fully designed:

- Review of 51 driveways along Route 100 between Leighton Road and the Libby Bridge, along Mountain, Falmouth, and Mill Roads in the roadway reconstruction area. The driveway designs used in the previous MaineDOT project will be utilized and modified for the narrower roadway template.
- Review of 7 driveways along Route 100 between Roberts Road and Leighton Road in the areas of sidewalk addition. Though the roadway edge will likely not change, driveways need to be checked to ensure ADA compliant slopes because the proposed sidewalk will cross them.
- Review of 12 driveways along Leighton Road in the areas of sidewalk addition. Though the roadway edge will likely not change, driveways need to be checked to ensure ADA compliant slopes because the proposed sidewalk will cross them.
- Review of 38 driveways along Route 100 between Winslow Farm and Hurricane Road. Roadway widening with the shoulder addition will require driveway reconstruction for a portion of each driveway length in order to match the new roadway edge.

2.1.8 Drainage Design – Stage 1

Storm water drainage will be designed in two steps for preliminary design. In the first stage a general concept and scope will be determined. In this stage:

- All proposed cross culverts and cross culvert replacements will be evaluated for cover, alignment, size, and configuration with the overall storm drainage system. Any needed adjustments to the horizontal and vertical alignment will be made. All cross culverts under Route 100 between Leighton Road and Hurricane Road will be replaced.

- A proposed storm water drainage concept will be developed including under-drain, catch basins, pipes, and downspouts.
- Storm water BMP types and locations will be identified.

2.1.9 Intersection Design – Stage 1

FST will provide horizontal and vertical layout of each intersection in the project. Intersection layouts will be checked for turning vehicle accommodation, right-of-way impacts, and intersection sight distance.

2.1.10 Pavement Design

FST will provide pavement design according to the latest MaineDOT methods and will submit this pavement design to MaineDOT for approval.

2.1.11 Traffic Calming Measures

Traffic calming concepts will be developed at this stage and integrated into the horizontal and vertical alignment design. The recommendations presented in the Route 100 Vision Plan will be implemented, and areas for further measures will be investigated and integrated into the design as appropriate.

2.1.12 Sight Line Improvements



The entire length of Route 100, Falmouth Road from Route 100 to Winn Road, and Leighton Road between Brook Road and Route 100 will be investigated for sight line improvements that would require horizontal and vertical alignment changes. Based upon the findings of the Route 100 Vision Plan, no alignment changes for sight line improvements are anticipated. There may be some recommendation for tree or obstacle removal to improve sight lines, and these recommendations will be developed at this stage.

2.1.13 Horizontal and Vertical Alignments Complete Plan Set

FST will develop a plan set for submission to MaineDOT for the horizontal and vertical alignments complete milestone. The plan set will include:

- Title Sheet
- Typical sections
- Superelevation tables
- Plans
- Profiles
- Critical cross sections

2.1.14 Construction Cost Estimate – Stage 1



FST has developed some very rough sketches of how the improvements may be implemented via the SketchUp software application.

An estimate will be provided to the Town at this point in order to refine project scope. FST will provide an estimate in chart format with accompanying narrative. FST will provide recommendations for scope and design changes if needed to have the project cost fit within the desired amount. This first stage of the cost estimate is intended to eliminate surprises, facilitate communication and decision making, and allow the project to progress along an accelerated timeline.

2.1.15 Progress Reports

FST will submit progress reports to the Town of Falmouth every two weeks. These progress reports will follow the MaineDOT standard format and will include:

- Estimated percent complete
- Total contract percent expended
- Effort anticipated to complete the design tasks
- Percentage of contract time elapsed
- Work performed, project meetings, and project deliverables during the last two weeks
- Schedule and upcoming work
- Needs from Town of Falmouth
- Needs from Others

2.1.16 Quality Control

Following FST's standard Quality Assurance Plan used for MaineDOT projects, FST uses an internal QA/QC process based upon the 3D design model and MaineDOT standards and best practices to ensure that each aspect of the design is checked and in compliance with the entire project and applicable standards.

Mark Debowski leads a five level quality assurance approach prior to submitting plans for review:

1. As the deliverable nears completion, Mark reviews it with the design engineer as necessary to ensure it meets the project goals and his expectations.
2. Mark works with the design team throughout the process to ensure that all aspects of the design come together harmoniously. Once each deliverable is complete Mark checks its integration with other deliverables to ensure that the harmony has not been lost.
3. FST's team performs a "triple check" of the estimate calculation book versus the plans and estimate summary sheets / construction notes.
4. Mark then enlists the help of an independent quality control engineer at FST. This person has not been part of the design process and is given adequate time and budget to accomplish a thorough review. The time and budget necessary for this process are built into the scope and fee before the project begins. Mark works with the quality control engineer and the design engineers to correct all problems discovered.
5. Mark then submits the deliverable package to Bill Moore for his review. Even though Bill has been involved in the design process from the beginning and regularly receives updates from Mark and reviews the design as it progresses, this is an opportunity for him to have a final review of the deliverable. Mark leads the process of addressing the necessary changes that result from Bill's review. Following the completion of this step, the contract documents are ready for submittal.

The quality control process also includes time for response to comments from the Town and MaineDOT including clarifications and design changes.

2.1.17 Design Submittal Form and Checklist

The following elements will be evaluated and submitted to the Town of Falmouth and MaineDOT on the standard MaineDOT HVAC Design Submittal Form:

- Project description
- Superelevation design
- Typical section design
- Horizontal alignment elements
- Vertical alignment elements
- Intersection sight distance

Task 2.2 – PDR Milestone

2.2.1 Pedestrian Routes

FST will assess needs for and layout of pedestrian ramps, sidewalks, cross walks, and detectable warning devices for the pedestrian routes within the project limits. These designs will meet the current ADA requirements and will implement best practices. Sidewalk design will include the following:

- The missing sidewalk between Roberts Road and Leighton Road along the east side of Route 100 will be designed. Just north of Roberts Road existing utility poles are located at the back of existing curb. These will likely require relocation to accommodate the proposed sidewalk and also to meet clear zone requirements. The existing curb along the edge of the road will require replacement. The existing drainage system can be retained.
- Along Route 100 at the West Falmouth Crossing the existing guardrail and steep embankment slopes will require extra design consideration as the sidewalk is designed in this area. Additional closed drainage will also be required because the roadway drainage is currently overland flow off of the edge of pavement. Special attention to detail will be required to ensure a safe pedestrian crossing at the West Falmouth Crossing entrances. Modifications to the existing traffic signal will be required to provide a safe pedestrian crossing at the southern West Falmouth Crossing entrance.
- The missing sidewalk on Leighton Road between Brook Road and Route 100 will be designed. The existing drainage system can be utilized, but a few catch basins will require relocation in order to accommodate the proposed sidewalk. New curb will be required, and several large trees and hedges will require removal. Several utility poles may require relocation.
- The missing sidewalk on Falmouth Road between Route 100 and Winn Road will be designed. The plans that FST designed for MaineDOT can be utilized for most of the length with additional sidewalk designed to connect to Winn Road. New curb will be required and likely an additional catch basin. Several bushes and trees will require removal. At least three utility poles will require relocation.
- The proposed sidewalk in the area of the 2009 MaineDOT reconstruction project will be revised with modifications based on revised lane and shoulder widths.



2.2.2 Roadway Improvements



The 2009 MaineDOT construction plans will be modified for revised lane and shoulder widths and current MaineDOT practical design standards. FST has identified several ways that construction costs can be reduced through value engineering.

Bike lanes, 5' wide, will be designed for both sides of Route 100 between Winslow Farm and Hurricane Road. Due to the pavement deterioration, especially at the pavement edges, proper design methods will be utilized to improve pavement structure and subsurface drainage.

Traffic calming measures and sight line improvements as identified in the horizontal and vertical alignments complete stage will be developed.

2.2.3 Intersection Design – Stage 2

FST will continue designing intersection geometry including radii and islands for the intersections in the project area. Furthermore, traffic signal equipment will be sized and located for accurate estimate purposes.

2.2.4 Driveways and Access Management – Stage 2

Having evaluated the critical driveways in Stage 1, this stage consists of a detailed driveway and entrance design for all of the project following MaineDOT and Town of Falmouth standards. This design will allow for accurate cost estimating as well as right-of-way impacts. The design of driveways and entrances in plan view will consist of alignment, width, radii, surface type, and extent of impact. Driveways will also be designed in profile view for an accurate understanding of earthwork, grades, transitions, and tie-ins.

2.2.5 Drainage Design – Stage 2

This stage of drainage design will result in a good understanding of construction costs and right-of-way impacts. The following tasks will be completed:

- Riprap downspouts located
- Cross culverts sized and located with riprap aprons and plunge pools at culvert ends sized and located
- Driveway culverts sized and located
- Underdrain runs and outlets located
- Roadside ditches located with special ditching designed where needed
- Curb type and locations determined
- Closed drainage systems laid out and sized
- Box culvert sizing and alignment for fish passage and stormwater flows
- Preliminary drainage report completed and submitted to MaineDOT
- Field check of drainage scheme

- Storm water quality BMP design – type, size, and location. FST will proactively work with abutting property owners to explore public-private partnerships in development and storm water treatment.

2.2.6 Guardrail



FST will evaluate and provide design documentation for guardrail warrants within the project limits for both slope and fixed hazards. Guardrail limits will be established and end types located and chosen. The 2009 plans will be updated to current MaineDOT guardrail standards.

2.2.7 Clear Zone Design

FST will evaluate all objects (trees, boulders, ledge, poles, walls, drainage structures, fences) and steep slopes in the clear zone.

Guardrail, removal, and design exception requests will be considered for each situation. Clear zone design exception requests will be submitted to MaineDOT as necessary. Personal property removal will be noted in the design so discussions with property owners can take place. Clearing limit lines will be developed.

2.2.8 Retaining Walls and Slope Stabilization

FST will evaluate the need for retaining walls and will provide conceptual design of needed walls including height, length, and location. The impact of each wall upon stopping sight distance and intersection sight distance will be evaluated.

Design will be provided for steep (1.5:1) embankments that will limit environmental and right-of-way impacts. The design will locate the size of the slope, the extent of impact, and the type of treatment for the steep slopes.

The geotechnical information used for the 2009 MaineDOT design project is expected to be sufficient for preliminary and final design. FST's geotechnical team member will evaluate the geotechnical investigations and ensure that appropriate design methods are used.

2.2.9 Lighting

TJD&A and FST will evaluate and recommend lighting options for new pedestrian scale light fixtures, poles and bases for the new sidewalk sections from Roberts Road to Leighton Road and from Leighton Road to Mountain Road. We will also research and suggest the most suitable approach to replacing the existing cobra head lights with new energy efficient LED fixtures along Route 100.

We will take from our experience on the Route One project in outlining the various options, advantages, disadvantages and costs for each lighting possibility. The costs comparisons would include up-front costs, monthly costs (e.g., CMP lease), maintenance



An example of a light pole used on our Route One project in Falmouth

costs, and long-term payback costs. We will provide product options to select a fixture that is appropriate for the Route 100 aesthetic.

The factors involved with producing a lighting plan include fixture height, spacing, distribution patterns, cutoff, light color, minimum and maximum light levels and the desired look. All of these factors will be considered to produce a safe and attractive lighting approach for Route 100.

The preliminary design plan will include the proposed locations and number of the recommended pedestrian and cobra head replacement lighting fixtures along with enough product information to produce sound and accurate cost estimates.

2.2.10 Vegetation

Street Trees – Street trees will be a major component to TJD&A’s streetscape design with an emphasis along the proposed sidewalk sections. The recommendations for street tree plantings will emphasize cold hardy, roadway tolerant, low maintenance species and the appropriate tree forms for the locations selected. New deciduous street tree locations will be selected with safety as a primary factor in coordination with the location of light poles, underground utilities, underground drainage, driveway entrances/exits, roadway sight distance, and views to business signs and facades. Wherever feasible, existing healthy trees will be recommended to be preserved. In addition to the sidewalk sections, we anticipate as part of our scope locating a percentage of additional street trees outside of the sidewalk areas as requested.

Coordination – Many of the existing trees and plantings within the corridor have been planted by adjacent property owners and consideration should be given to their preservation, relocation, or replacement. The evaluation of existing fences, gates, signs, etc. that fall within the Route 100 right-of-way will also be completed to help determine the best treatment for property owners’ satisfaction and to achieve the appropriate Route 100 aesthetic.

Landscape Opportunities – Even though plantings outside of “street trees” were not discussed in the RFP we propose to identify opportunity areas where special plantings at appropriate locations would add interest to Route 100 corridor. Plantings could also play a large role in stormwater treatment areas where first flush rain events can be collected and treated locally.

Amenities – Amenities can increase visual and cultural interest, and give a personality that is unique to a location. Amenities, though not requested as part of RFP, could include seating areas, interpretive signage, trail markers, directional signs (especially at

intersections), artwork, and detailed surface treatments. During the preliminary design process we will maintain an awareness toward ideal amenity opportunities and identify potential prospect locations for consideration.

Work Product – As part of the preliminary design process, TJD&A will prepare landscape palette recommendations with photographic examples for trees and shrubs. The preliminary design landscape plan will include a proposed plant list, proposed tree locations and additional plantings or landscape treatments as determined through the design process.

2.2.11 Open Space Development



FST has investigated and developed ideas to transform the Town property on Mill Street in order to provide Falmouth citizens with a riverfront pocket park.

As part of the Preliminary design, TJD&A will produce a design for a riverfront pocket park at the Community Programs Facilities location on Mill Street. The vision plan calls for a modest public park with some benches and pathways. We have designed many parks and stream access points and are huge proponents for the development of public open space. We also recognize that the Piscataqua River is stocked annually with trout and access would provide residents with a new a public fishing location. We would work with town staff and the community as applicable to determine the program and amount of infrastructure that would be appropriate for the space. The preliminary plan would provide enough information to realistically estimate the cost of the park.

2.2.12 PDR Plan Set

FST will develop a plan set for submission to the Town of Falmouth and MaineDOT for the PDR milestone. The plan set will contain the sheets submitted in the horizontal and vertical alignments complete milestone with the additional detail as specified in MaineDOT's expectations for a PDR plan set. In addition, cross sections cut every 50 feet and intersection signal equipment sheets will be included in the plan set.

2.2.13 Design Submittal Form and Checklist

The following elements will be evaluated and submitted to the Town of Falmouth and MaineDOT on the standard MaineDOT PDR Design Submittal Form:

- Typical section design
- Intersection turning movements
- Intersection lane layout
- ADA accommodations
- Clear zone analysis
- Guardrail analysis
- Drainage design
- Drives and entrances
- Retaining walls

2.2.14 Preliminary Design Report



SketchUp software renderings allow FST to quickly understand how conditions may be affected by the design as well as produce visualizations for greater public understanding.

Following the MaineDOT PDR report format, the document will be completed and submitted to the Town of Falmouth and MaineDOT.

2.2.15 Voter Referendum Graphics

FST will prepare easy-to-understand and attractive typical sections for each portion of the project, colored plan sheets, and up to three photo-simulations showing conditions before and after construction.

2.2.16 Preliminary Proposed Right-of-Way Mapping

Titcomb will plot proposed permanent and temporary takings for easements and/or right of way, including dimensions and areas for every affected parcel within the project limits. These right-of-way impacts will be used to develop schedule and budget, and the associated plans will be used as a discussion aid with abutting property owners.

2.2.17 Construction Cost Estimate – Stage 2

An opinion of probable construction cost will be prepared with quantity calculation backup and estimated unit prices. The cost estimate will include a contingency of 10%, appropriate to the level of detail complete at this stage. Understanding the importance of the accuracy of this number, FST will invest extra resources in quality control and detailed estimating procedures. To ensure accuracy, a three-dimensional computer model of the entire project will be developed, lessons learned from similar MaineDOT arterial projects will be incorporated, and unit prices derived from recent MaineDOT projects will be utilized.

FST will provide an estimate in chart format with accompanying narrative. FST will provide recommendations for scope and design changes if needed to have the project cost fit within the desired amount.

2.2.18 Public Hearing

FST will prepare public hearing plans and typical sections to illustrate the design to the public. FST's project manager will present an oral explanation of the design and will be available to answer questions and provide explanations before, during, and after the meeting. FST will review the meeting transcript as well as associated meeting notes and will provide a written response to the comments and questions made during the meeting in the PDR report.

2.2.19 Meetings

FST will attend the required meetings as stated in the RFP with no cap on the total of number of meetings included in the scope for preliminary design. FST will prepare and submit to the town staff a summary of action items for each of the meetings. FST's scope includes the project manager's availability to meet personally with each abutting property owner and discuss property impacts. FST will document outreach efforts to each property owner and their receptivity to the proposed right-of-way impacts. FST will also make design revisions as needed to reduce property owner impacts and concerns.

2.2.20 Utilities



FST will coordinate proposed utility pole changes and underground utility modifications with the MaineDOT Utility Coordinator, involved utilities, and other parties including Wright-Pierce for sanitary sewer, the Portland Water District for public water, Summit Natural Gas for the proposed natural gas main, and broadband service providers for high speed internet. The existing utilities and proposed alternations will be incorporated into the general plans and cross sections.

2.2.20 Environmental

FST will coordinate with MaineDOT Environmental for wetlands, vernal pools, fish passage, soil contamination, historic resources, and archeological resources. Design of the improvements will be modified to minimize impacts to these resources, and a documentation of the avoidance and minimization effort will be provided in the PDR report.

Because FST possesses the wetlands flagging for the original MaineDOT Route 100 project and the vast majority of wetlands impacts are anticipated in this portion of the project, no additional wetlands flagging is proposed for preliminary design. FST believes that the information we currently possess plus additional field inspections by FST personnel are sufficient for an accurate cost, appropriate avoidance and minimization of impacts, and environmental impact estimates for the entire project. Additional wetlands flagging will be obtained in final design in order to finalize impacts and complete the permitting process.

2.2.21 Bridge

FST will coordinate design with the MaineDOT rehabilitation of the Libby Bridge within the project limits.

2.2.22 Progress Reports

Progress reports will be created every other week. They will be submitted to the Town of Falmouth and the MaineDOT and will include the information as detailed above in the horizontal and vertical alignments complete progress reports.

2.2.23 Quality Control

Following the same quality control process as described above under the horizontal and vertical alignments complete submission, FST will ensure accuracy and correctness in the design.

Task 3 – Final Design Plans and Specifications (To Be Contracted after Preliminary Design and Positive Voter Referendum Decision)

Final design will consist of detail design development, development of specifications, environmental permitting, and right-of-way mapping and negotiation. MaineDOT Local Project Administration Guidelines will be followed for this portion of the project since it is anticipated that this project will become an LPA project.

Task 3.1 – Plan Impacts Complete Milestone

3.1.1 Special Details

FST will develop special details not found in the MaineDOT standard details as needed to construct the project. These details will be included in the plan set and will include:

- ADA requirements for pedestrian routes
- Box culverts and fish passage treatments
- Drainage outlet and inlet treatments
- Retaining walls and slope stabilization for steep slopes
- Libby Bridge tie-in
- Cross culverts in frost susceptible soils
- Undercut of frost susceptible soils over ledge
- Cellar drain connections
- Storm water quality BMPs
- Intersection grading
- Geometric curb layout

3.1.2 General Notes

FST will complete the needed general notes for the construction plan set. Standard MaineDOT notes will be included along with town-specific and project-specific notes.

3.1.3 Construction Notes

Construction notes will be provided on the plans and cross sections or a construction note sheet if needed for the following items and any other specialty items in the project that require a note:

- Clearing
- Removing single tree
- Building removal
- Drives and entrances
- Roadway culverts
- Driveway culverts
- Under drain pipes
- Catch basins and manholes
- Removing catch basins
- Benching
- Muck excavation
- Guardrail
- Fencing – Removal
- Curbing
- Riprap
- Stone ditch protection
- Erosion Control Blanket
- Downspouts
- Landscaping items
- Grubbing in fill

3.1.4 Signing and Pavement Marking Plans



FST will design signs and pavement markings for the project and present these on separate plan sheets.

3.1.5 Construction Staging Plans

FST will design construction staging plans for the installation of large drainage culverts, the construction of the retaining wall construction, and the construction of steep embankments. The 2009 MaineDOT plans will be updated and modified as needed.

3.1.6 Traffic Signal Design

FST will develop signal timing, phasing, and equipment plans for the Leighton Road / Route 100 intersection and the Falmouth / Mountain / Route 100 intersection. The 2009 MaineDOT plans and design will be updated and modified as needed.

3.1.7 Lighting

TJD&A and FST will coordinate the final layout of the lights based on the photometric plans and final sidewalk design. Pole configuration for flags, outlets, or banners will be confirmed and documented. FST will provide the electric plans, details and specifications.

3.1.8 Vegetation

TJD&A will complete the landscape plans and specifications for the construction package. They will take from the experiences learned from the Route One process and further improve the landscape details and specification to ensure to the extent possible that quality contractors are selected and superior workmanship is achieved.

3.1.9 Open Space Development

TJD&A, in coordination with FST, will document the final plans for the open space development or pocket park. Details and specifications may include but not be limited to:

- Benches
- Pathways
- Steps
- Shade structures
- Parking
- Bike racks
- Drinking fountains
- Hand rails
- Plantings
- Play features
- Signage



The potential pocket park along Mill Street provides an opportunity to access the river and enjoy a beautiful location

3.1.10 Construction Plan Set

FST will develop a plan set for submission to MaineDOT for the plan impacts complete milestone. The plan set will be complete at this stage and will delineate all impacts to private property and environmental resources as will identify all drainage outlets. Slope limit and clearing limit lines will be final. Cross section details, including grubbing, will be complete.

3.1.11 Final Proposed Right-of-Way Mapping

Titcomb will plot the final locations of proposed permanent and temporary takings for easements and/or right of way. Titcomb will also perform deed research for affected landowners. These right-of-way plans will follow the specifications outlined in the Maine LPA manual.

3.1.12 Final Drainage Design and Drainage Summary Sheet

While most of the storm water drainage will have been designed in preliminary design, FST will finalize drainage details and calculations, producing a final copy of the drainage report for the Town of Falmouth and MaineDOT. FST will complete the MaineDOT drainage summary sheet for inclusion in the construction plan set.

3.1.13 Meetings

FST will attend the required meetings as stated in the RFP with no cap on the total of number of meetings included in the scope for final design. FST will prepare and submit to the town staff a summary of action items for each of the meetings. FST's scope includes the project manager's availability to meet personally with each property owner and discuss property impacts. FST will document outreach efforts to each property owner and their receptivity to the proposed right-of-way impacts. FST will also make design revisions as needed to reduce property owner impacts and concerns.

3.1.14 Construction Cost Estimate and Estimated Quantities Sheet and Earthwork Summary Sheet

FST will further refine the opinion of probable construction cost with quantity calculation backup and estimated unit prices. The cost estimate will include a contingency of 5%, appropriate to the stage of design. FST will provide an estimate in chart format with accompanying narrative. FST will provide recommendations for scope and design changes if needed to have the project cost fit within the desired amount.

3.1.15 Quality Control

Following the same quality control process as described above for previous design stages, FST will ensure accuracy and correctness in the design.

Task 3.2 – Plans, Specifications, and Estimate Milestone

3.2.1 Final Construction Plan Set

FST will complete the plan set, stamped with the FST project manager's professional engineer stamp in the State of Maine, and submit it to MaineDOT for final review and approval.

3.2.2 Final Specifications and Bid Documents

FST will develop the specifications package including standard specifications and special provisions. The typical documents for a contracts package as specified in the Maine LPA process will be developed.

3.2.3 Standard Details

FST will compile the applicable standard details for inclusion in the contract package.

3.2.4 Final Construction Cost Estimate

FST will complete the construction cost estimate and submit it to MaineDOT for final review and approval.

3.2.5 Final Quality Control

According to the Maine LPA required design checks, FST will perform the following:

- Summarize the design checking process
- Document all checks performed
- Check all documents and calculations
- Ensure compliance with all legal, regulatory, and contractual requirements
- Assure the design conforms to all MaineDOT standards, policies, and practices
- Carefully check the cost estimate quantities and unit prices
- Analyze constructability and maintainability
- Risk assessment

Task 4 – Permitting and Coordination

4.1 Environmental Permitting

FST will complete the environmental permitting process as specified in the Maine LPA Manual for a project without federal money. FST will prepare all necessary permit applications and attend regulatory meetings as necessary. The Town will be responsible for permit fees. FST will complete wetlands flagging and survey of the wetlands flagging for incorporation into the construction and permit documents. As specified in the LPA Manual, MaineDOT is responsible for hazardous material reviews. FST is responsible for:

- Completing the Section 106 – Historic property process. Please note that this scope does not include the fees required for a qualified subconsultant for conducting an architectural survey. Due to the large possible variation in this scope, FST feels that this scope and fee is best negotiated separately at the beginning of the final design process.
- Coordination with the Army Corp of Engineers for endangered species
- Obtaining all environmental permits
- Obtaining storm water permits
- Obtaining beneficial use permits

4.2 Utility Coordination



FST will complete the required utility coordination and the development of the utility special provision as specified in the Maine LPA Manual and will work closely with the assigned MaineDOT utility coordinator.

4.3 Right-of-Way

Development of the right-of-way mapping is included in the items above. This item of the scope pertains to FST's involvement in the right-of-way acquisition process. MaineDOT will provide the following services:

- Title work
- Appraisals
- Negotiations
- Acquisition
- Right-of-way certification

FST will provide coordination and support services to MaineDOT including design changes and plan reissuing requested during the negotiation process.

4.4 Amendments to Traffic Movement Permits and Site Plans

FST will provide information for the amendments of traffic movement permits and site plans as requested by the Town resulting from planned improvements as specified above.

Task 5 – Bid Process

Following the guidelines of the Maine LPA Manual, FST will put the project out to bid including advertising, conducting a pre-bid conference, and responding to questions. FST will review the construction bids submitted and will assist the Town with bid selection.

Task 6 – Construction Phase Services (To Be Contracted after Final Design)

FST is available and interested in providing construction phase services as we are currently doing for the Town's Route 1 project.

Schedule

As requested during the pre-bid meeting, FST is following the typical MaineDOT milestone and submission format. Due to the tight schedule, FST will work concurrently with the review periods for MaineDOT and the Town, assumed to be 2 weeks each, typical of a MaineDOT highway project. Each milestone submission will be made to both the Town and MaineDOT.

Milestone	Date
Notice to Proceed	August 24, 2015
Progress Reports	Every other Friday to Town of Falmouth
Draft Horizontal and Vertical Alignments Complete Plans and Cost Estimate	October 2, 2015
Final Horizontal and Vertical Alignments Complete Plans and Cost Estimate	October 23, 2015
Draft PDR Plans and Cost Estimate	November 19, 2015
Final PDR Plans and Cost Estimate	December 31, 2015
Preparation of Amendment of West Falmouth Crossing TIF District (Staff)	January 2016
TIF Public Hearing (Council)	February 2016
Draft Referendum Question (Staff)	March 2016
Authorize Referendum Question (Council)	April 2016
DECD Approval of TIF Amendment	April 2016
Referendum Vote	June 2016

The following tentative schedule pertains to final design if the referendum is approved:

Milestone	Date
Notice to Proceed	August 2016
Project Kickoff Meeting with Maine DOT	August 2016
Draft Plan Impacts Complete Submission	Early September 2016
Final Plan Impacts Complete Submission	Late September 2016
Utility, Right-of-Way, and Environmental Process and Certification	October 2016 – March 2017
Plans, Specifications, and Estimate Draft Submission	December 2016
Plans, Specifications, and Estimate Final	March 2017
Project Advertising	April 2017
Project Award	May 2017
Project Completion	Summer-Fall 2018

PROJECT BUDGET

Base Scope

The total project cost for Tasks 1 and 2 is \$245,000. This amount is an all-inclusive, fixed fee.

Additional Scope

The total project cost for Tasks 3 through 5 is \$215,000. This amount is an all-inclusive, fixed fee.

Hourly Rates

The labor rates for project staff are as follows:

Employee Classification	Hourly Rate
Senior Vice President (FST)	\$175
Principal (TJDA)	\$160
Associate (FST)	\$146
Associate (TJDA)	\$108
Senior Principal Engineer	\$144
Principal Engineer	\$129
Project Manager for Project Development	\$125
Senior Engineer	\$100
Landscape Architect	\$90
Engineer	\$95
Project Manager – Construction	\$90
Assistant Engineer I/II	\$74
Landscape Designer	\$50-72
Senior CAD Technician	\$90
CAD Technician	\$70
Technical Assistant	\$75
Engineering Technician II	\$55
Intern (FST)	\$48
Intern (TJDA)	\$40
Administrative (TJDA)	\$48

The labor rates and expenses for survey tasks completed by Titcomb Associates are as provided on the following page.



Titcomb Associates

Land Surveying Land Planning

133 Gray Road
Falmouth, Maine 04105-2029
(207) 797-9199
Fax: (207) 878-3142
www.titcombsurvey.com

39 Court Street
Bath, Maine 04530-2017
(207) 443-9199
Fax: (207) 386-5077
www.titcombsurvey.com

RATE SCHEDULE

Effective January 1, 2015

Survey Professionals

Principals	\$ 85.00/hour
Professional Land Surveyors	75.00/hour
Project Supervisors	70.00/hour
Researcher	60.00/hour
Survey Technician	60.00/hour
CAD Technician	60.00/hour

Crew Charges

One Person	\$ 80.00/hour
Two Person	120.00/hour
Three Person	160.00/hour

Equipment Charges

Robotic Instrument	\$ 100.00/day
Single Frequency GPS Units	100.00/day
Dual Frequency GPS Units	150.00/day

Court Appearance

Professional Land Surveyor	\$ 150.00/hour
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Transportation

\$ 0.50/mile

Materials

Granite Monuments 4" x 3' +/-	\$ 50.00/each
Granite Monuments 4" x 4' +/-	65.00/each
Granite Monuments 6" x 5' +/-	120.00/each
Iron Pins	10.00/each

All additional expenses incurred will be charged at cost plus 10%.

All hourly rates will be charged portal to portal.

Rate Schedule subject to change with seven days prior written notice.

REFERENCES

Robert Carrell, Project Manager
MaineDOT
16 State House Station
Augusta Maine 04333
207.624.3370

Ernest Martin, Project Manager
Maine Department of Transportation
16 State House Station
Augusta, ME 04333
207.624.3381

Aurele Gourneau, MaineDOT Project Manager
Maine Department of Transportation
16 State House Station
Augusta, ME 04333
207.624.3553

Bob Hamblen, City Planner
Planning & Economic Development
City of Saco
300 Main Street
Saco, ME 04074
207.282.3487

Resumes



WILLIAM R. MOORE, P.E.

PROJECT ROLE: Principal-in-Charge

Senior Vice President & Director



Bill Moore specializes in design of highways, roadways, and other civil engineering assignments. His work has concentrated on the design of major highway projects and includes extensive experience in highway geometrics, utility coordination, specifications, cost estimates and traffic studies.

EDUCATION

B.S., 1985, Civil Engineering,
Washington State
University

PROFESSIONAL AFFILIATIONS

Member:

Board of Directors, New
Hampshire, American
Council of Engineering
Companies (ACEC)

PE REGISTRATION

NH, Civil, 1995, #8750
ME, Civil, 2014, #13547

Route 1 South Infrastructure Improvements, Falmouth, ME

Principal-in-Charge for the development and revitalization of the Route One corridor. Design improvements include improved lane use and channelization to accommodate all users, upgraded traffic signals and pedestrian accommodations, undergrounding aerial utilities to improve corridor appearance, new decorative street lighting, and a new streetscape to improve livability.

Route 101A Milford-Merrimack, NH, NHDOT.

Project Manager for preliminary design for capacity and traffic calming improvements to a busy stretch of Route 101A. Design also includes upgraded traffic signals, new sidewalks and stormwater management. Project is currently being studied and designed in preparation for an upcoming Public Hearing.

Route 1B Main Street, Damariscotta and Newcastle ME, Maine DOT.

Project Manager for intersection sidewalk and drainage improvements for the historic section of Main Street in Damariscotta and Newcastle. The project required substantial public outreach, coordination with local and State agencies and advance utility relocation to establish a buildable design. Bill led this project from its inception through construction.

Route 3 Corridor Improvements, Concord, NH.

Project Manager for design, permitting, and construction services to implementation of the improvements recommended by the corridor study prepared by FST. Construction of the first two of nine segments was completed in 2010 and included two new traffic signals, sidewalks, bicycle lanes, a new drainage system and bus stops. Project involved removal and re-use of underlying concrete pavement. Improvements required substantial coordination with utility companies and project abutters throughout design and construction.

Route 100/26, Falmouth, ME, Maine DOT.

Project Manager. Design of reconstruction and safety improvements for 1 mile of urban connector road, including traffic signals, sidewalks, drainage, removal of concrete pavement and shoulder widening.

Broad Street Parkway, City of Nashua, NH.

Project Manager for design of new two mile long parkway involving two bridges over the Pan Am railroad and a bridge over the Nashua River. The municipally managed project is being completed under full FHWA oversight and involves traffic signalization, high retaining walls, bio retention stormwater treatment, lighting, utility relocations, geotechnical investigations, and environmental permitting.

MARK DEBOWSKI, P.E.

PROJECT ROLE: Project Manager

Principal Engineer



Mark Debowski is a licensed professional civil engineer experienced in management, design, and modeling for all aspects of roadway and highway design. His enthusiasm for roads and all things related to them began in his childhood backyard, and today he brings his lifelong interest to others with skills in communication, planning, and quality control.

EDUCATION

BS, Civil Engineering, 2000,
Illinois Institute of
Technology, Chicago, IL
BA, Liberal Arts / Engineering,
2000, Wheaton College,
Wheaton, IL
M.Div. and Th.M., 2005,
Gordon-Conwell
Theological Seminary,
South Hamilton, MA

PE REGISTRATIONS

ME, Civil, 2005, #10940
PA, Civil, 2006, #073762
NH, Civil, 2012, #13899

Maine DOT LAP Certification,
2013
NH DOT LPA Certification,
2014

PROFESSIONAL AFFILIATIONS

American Society of Civil
Engineers – Maine Section

Route 1 South Infrastructure Plan, Falmouth, ME

Highway design engineer for the development and revitalization of the Route One corridor. Design improvements include improved lane use and channelization to accommodate all users, upgraded traffic signals and pedestrian accommodations, undergrounding aerial utilities to improve corridor appearance, new aesthetic street lighting, and a new streetscape to improve livability.

Maine Route 100/26 Highway Improvements, Falmouth, ME, Maine DOT

Project engineer for preliminary design for full-depth reconstruction of 1.25 miles of roadway. Design work included alignment improvements, roadway widening, driveway and intersection improvements and realignment, storm sewer and culverts, the addition of sidewalk, and other safety improvements. The design process included the design and evaluation of four roadway widening alternatives.

Mechanic Street Improvements, Lebanon, NH

Project engineer for corridor study involving traffic and infrastructure analysis, future needs planning, and gathering public input leading to eight roadway, ten intersection, and two highway interchange concepts. Alternatives were analyzed and refined, leading to a recommended concept.

Route 302 Reconstruction, Bridgton and Fryeburg, ME

Project manager for ten miles of highway reconstruction to improve alignment, pavement structure, subsurface and surface drainage, intersections, and safety. Two hundred driveway and entrance reconfigurations and additional sidewalk are included in the project. Several alignment, widening, and drainage alternatives have been evaluated as part of the design process.

NH Route 101A Corridor Study, Milford to Nashua, NH

Studying improvements to three locations along the corridor to provide the basis for determining whether one or more of these study locations may become construction projects. Designed three intersection alternatives to alleviate traffic congestion, including an 8-lane and 10-lane configuration as well as a two lane roundabout alternative.

Route 1B Highway Improvements, Newcastle and Damariscotta, ME, MaineDOT

Project engineer for preliminary design of 3 ½ miles of roadway reconstruction and final design for ½ mile of roadway reconstruction in a historic, urban location in order to improve drainage, parking, and pedestrian safety. Using 3-D modeling, designed alignments, sidewalk, driveways, parking, drainage, fostered utility coordination, and provided design for two intersection studies which evaluated seven options including a roundabout.

STEVEN J. BABALIS, P.E.**PROJECT ROLE:** Project Engineer & Highway Design

Engineer

Steven Babalis is a civil engineer with eight years of highway design experience with seven focusing on preliminary design on a wide range of state projects in New Hampshire. He excels in developing unique engineering solutions to complicated design problems. Steven has a strong background in highway geometric design and traffic analysis.

EDUCATION

B.S., 2006, Civil Engineering,
University of New
Hampshire

US Rte 4 (Mechanic/Mascoma St) & High Street Roundabout, Lebanon NH

Designed a single lane roundabout concept for the intersection of Mechanic Street, Mascoma Street, and High Street. This is part of an engineering study for reconstructing 1.3 miles of Mechanic Street from I-89 Exit 19 interchange to the intersection with NH Route 120. Particular challenges with designing a roundabout at that location included accommodating steep topography, limiting impacts to structures and private property, and accommodating drives and an adjacent side street.

PE REGISTRATION

New Hampshire
P.E. License # 13310

Route 302 Reconstruction, Bridgton and Fryeburg, ME.

Developed project plans and designed signage, pavement markings and temporary signals. The project involves 5.14 miles of highway reconstruction to improve subsurface and surface drainage, increase road safety and ride quality, and correct deficiencies in pavement structure.

US Rte 3 & NH 11B Roundabout, Laconia, NH

Performed the preliminary design which included; designing the roundabout, performing the traffic analysis, preliminary cost estimate, coordinating with various agencies, and partook in the public participation process. The project involved improving the safety and capacity of US Rte 3 and NH 11B intersection. Particular challenges included limiting impacts to a historic bridge, limiting property impacts, underground utilities, and maintaining access to abutters which included installing a drive in the roundabout.

US Rte 4 and NH Rte 125 Multilane Roundabout, Lee, NH.

Performed the preliminary design which included; designing the multilane roundabout, performing the traffic analysis, preliminary cost estimate, coordinating with various agencies, and partook in the public participation process. The project involved replacing the Lee traffic circle with a modern multilane roundabout to improve safety and capacity of the US Rte 4 and NH 125 intersection. Particular challenges included constrained footprint due to abutting businesses and right-of-way, underground utilities, maintaining access to abutters, and complicated construction traffic control.

JOSEPH A. LAVERRIERE, P.E.

PROJECT ROLE: Civil/Site and Utility Coordination

Senior Principal Engineer



Joseph Laverriere is responsible for assignment of engineering projects within the firm and directs the preparation and review of preliminary and final design as well as permit applications for a variety of civil/site projects. Joe's expertise includes concept planning, infrastructure analysis, civil/site design, hydraulic and hydrologic analysis.

EDUCATION

BSCE – University of Maine
Orono, ME

REGISTRATIONS

Licensed Professional
Engineer, Maine #7417

Active In Private Practice
Since 1986

MDOT Certified LAP
Coordinator

Route 1 South Infrastructure Plan, Falmouth, ME, MaineDOT

Project Manager to assist in the development and revitalization of the Route One corridor. The project is part of the Town's long term goal to create a corridor that balances the needs of all users. Design improvements include improved lane use and channelization to accommodate all users, upgraded traffic signals and pedestrian accommodations, undergrounding aerial utilities to improve corridor appearance, new aesthetic street lighting, and a new streetscape to improve livability. Utilizing a systematic approach, Joe led the FST team to determine the needs for the corridor and was able to deliver quality construction contract documents that accommodated the strict budgetary and timing constraints of the project.

Lower Route 1 Infrastructure Improvements, Falmouth, ME.

Design and construction phase services for the replacement of sanitary sewer main and service leads along eight residential streets in Falmouth. The project also included the installation of a new storm drain system designed with service leads to receive illicit inflows from residential home foundation drains and sump pumps. The primary purpose of the project was to reduce the amount of infiltration and groundwater inflow into the sanitary sewer system.

Clearwater Drive Reconstruction, Falmouth, ME.

Design and permitting services associated with the reconstruction of approximately 1,200 linear feet of Clearwater Drive in conjunction with the mixed-use Tidewater Village Development. The project also included development of an urban streetscape setting with on-street parking, curb and sidewalk including pedestrian amenities. Utility infrastructure improvements (sewer, water, stormdrain and underground electric, etc.) were also completed to support the future development needs of Tidewater Village.

Pleasant, Temple and Green Roadway Reconstruction, Saco, ME.

Design and construction administration of a 1.6 million dollar municipal roadway and infrastructure improvement project that included approximately 4,000 linear feet of urban roadway reconstruction, curb and sidewalks. Infrastructure improvements included sanitary sewer replacement/rehabilitation and storm drain replacement to facilitate separation of combined sewer areas.

Mill Brook Business Park, Saco, ME.

Design and permitting for the development of a 70-acre business park located on Route 1 in Saco, Maine. The business park consists of the creation of 10 lots with the construction of 2,650 linear feet of access road, two water quality retention ponds, and utility infrastructure improvements.

TRACEY A. TUFTS, P.E.

PROJECT ROLE: Stormwater/Permitting

Principal Engineer



Tracey Tufts' assignments at FST have focused on drainage and highway design, and as well as on the preparation of environmental permit applications.

EDUCATION

B.S., 1991, Civil Engineering,
University of
Massachusetts at Lowell

PE REGISTRATION

NH, Civil, 2000, #10266

US 4 Bridge over the Connecticut River, Lebanon, NH- Hartford, VT, NHDOT.

Responsible for horizontal/vertical alignment, grading, superelevation, estimate and drainage design for improvements along US 4 and side roads. Drainage design involves coordination with the City of Lebanon to provide stormwater facilities to accept runoff from anticipated future City CSO projects.

Nashua- Milford, NH, NHDOT.

Responsible for environmental coordination and preparation of a Non-Programmatic Categorical Exclusion Checklist. Also responsible for preliminary highway design at three locations along the corridor.

NH25 & NH118 over Baker River, Wentworth, NHDOT.

Responsible for the preparation of environmental permits (NH Dredge and Fill and Shoreland) for the on-going bridge rehabilitation project, as well as for the development of the roadway approach work, which includes roadway reconstruction, guardrail replacement, drainage structures and the in-kind replacement of riprap along the southern abutment for bank stabilization.

Cross Street over Pemigewasset River, Thornton, NHDOT.

Responsible for preparation of a Shoreland permit application and design of roadway approach work (roadway reconstruction, guardrail replacement, drainage structures) for bridge rehabilitation project.

Pedestrian Safety Improvements, Dublin, NH, NHDOT.

Responsible for drainage design, grading and preparation of CE checklist for traffic calming project located along NH Route 101.

Peer Review Services, Farmington, NH Planning Board.

Performed peer reviews of commercial site development and residential subdivision to ensure compliance with all applicable State, Town and accepted industry standards, and provided recommendations and comments on the proposed design to the Planning Board.

Statewide Public Boat Access Program, Various Projects, NH Fish & Game.

Responsible for the drainage design and preparation of NH Dredge and Fill and Shoreland permit applications for numerous on-going public boat access facilities across the State including Newfound Lake in Bristol, Hot Hole Pond in Concord, Meetinghouse Pond in Marlborough, Eagle Pond in Wilmot and along the Connecticut River in Orford, Haverhill and Claremont. Also prepared an amendment to an expired permit for Lambert Park on the Merrimack River in Hooksett, NH, which was recently approved.

WALT WOO, P.E., PTOE

PROJECT ROLE: Traffic Engineer

Principal Engineer



Walt Woo has extensive practical experience as a transportation engineer, having participated in the analysis and design of dozens of signalized intersections on municipal and state roadways. He also possesses strong skills and experience in other aspects of transportation engineering, including traffic signing, pavement markings, traffic management and highway design and has also prepared numerous transportation planning studies.

EDUCATION

M.Eng., 2001, Civil Engineering, McGill University

B.Eng, 1996, Civil Engineering, McGill University

PROFESSIONAL REGISTRATIONS

MA, Civil, 2004, #46083

ME, Civil, 2014, #13572

Professional Traffic Operations Engineer, 2009

PROFESSIONAL AFFILIATIONS

Member:
Institute of Transportation Engineers

Route 1 South Infrastructure Project, Falmouth, ME

Responsible for traffic engineering design on a mile-long segment of U.S. Route 1 in Falmouth, Maine. The project consists of streetscape improvements to enhance the road and pedestrian environment and includes landscaping, lighting, and sidewalk improvements, in addition to utility relocation. The project includes the reconstruction of the traffic signal system at three intersections. FST assisted the Town in the selection and specification of decorative ornamental traffic signal hardware, compatible with the style of other street furniture to be installed along the corridor. The reconstruction of the traffic signals includes the replacement of all traffic signal poles, signal heads and vehicle and pedestrian detection. The new traffic signal system will include detection for bicycles and will also allow for emergency vehicle pre-emption, including direct activation of the pre-emption system at a nearby fire station. FST's design also includes the design and placement of new traffic signs and new pavement markings to complement the new roadway design. The design of the pavement markings included enhancements to an existing center turn lane. Improvements to the center turn lane included the addition of intermediate raised islands within the lane to provide refuge for crossing pedestrians.

NH Route 101A Improvements, Milford-Merrimack, NH, NHDOT.

Responsible for traffic engineering design for improvements to heavily travelled Route 101A corridor between Merrimack and Milford, NH. Improvements include the addition of travel lanes along Route 101A and the reconstruction of three signalized intersections. Reconstructed signals will have to be integrated into existing coordinated signal subsystems. Traffic signal timing improvements will also be made in order to account for future traffic demand on the busy Route 101A commuter and commercial corridor.

Broad Street Parkway, Nashua, NH

Project Traffic Engineer, responsible for traffic engineering design of the proposed one and one quarter mile Broad Street Parkway, which is expected to improve traffic flow into Downtown Nashua and the Millyard. Traffic design elements include traffic signal design, pavement marking, traffic signs and guide signs. The project includes two closely spaced intersections which require coordinated signal timing and phasing to accommodate large traffic flows between the two locations.

Years of Experience: 13

Years with FST: 13

BO E. KENNEDY, P.E.

PROJECT ROLE: Drainage and Permitting

Engineer



Bo Kennedy is a Civil Engineer with Fay, Spofford & Thorndike. He performs the preparation of preliminary and final design as well as permit applications for a variety of civil/site engineering and environmental projects. Bo's expertise includes civil/site design, hydrologic and hydraulic analysis.

EDUCATION

BSCE – University of Maine
Orono, Maine

State Route 94 and Fern Road, Dexter, ME

Design of roadway reconstruction and realignment along 2,000 linear feet of Fern Road and shoulder widening along 900 linear feet of State Route 94 to accommodate a new SAD #46 K-8 School. Intersection improvements were designed to increase sight distances for larger vehicles. New storm drainage, sanitary sewer and 3 phase power services were extended the length of the Fern Road reconstruction corridor. The project was designed with the MDOT Standards and will be constructed in 2009 under a Developer/State Agreement.

PROFESSIONAL REGISTRATION

Certified Professional in
Erosion & Sediment Control
#5842

Licensed Professional
Engineer, Maine #11994, New
York #08442

MaineDOT LPA Certified

State Route 108 Improvements, Peru, ME

Design of roadway widening and construction phase monitoring along 1,000 linear feet of Route 108 to accommodate additional turn lanes at the driveway entrance to the Dirigo Elementary School. The project was designed with the MDOT Standards and constructed under a Developer/State Agreement.

Portland Road and U.S. Route 202 Improvements, Buxton, ME

Design of roadway widening and traffic signal improvements at the intersection of Portland Road and U.S. Route 202 to accommodate a new Hannaford Bros. Supermarket. The 1,900 linear foot roadway improvement included two protected left turn lanes, right turn lane, two new driveway entrances and attendant drainage improvements. The project was designed with the MDOT Standards and constructed under a Developer/State Agreement.

State Route 105 Improvements, Augusta, ME

Design of the sidewalk and roadway widening along 2,218 linear feet of State Route 105 to accommodate a right turn lane at the driveway entrance to the CATC/Cony High School. The project was designed with the MDOT Standards and constructed under a Developer/State Agreement.

Mixed-Use Development (Fueling Station with Convenience Store & Restaurant), Scarborough, Maine

Performed site design, state and local permitting for a 3,850 s.f. convenience store, fueling station, and car wash with an ATM drive-thru. The parcel was subdivided and designed to include a future 4,000 s.f. restaurant complete with drive-thru. The project required offsite roadway improvements on Payne Road and Ginn Road to mitigate the increase in site traffic generation.

DANIEL HALLAHAN, P.E., LC, LEED AP

PROJECT ROLE: Street Lighting

Senior Engineer



Daniel Hallahan has experience in electrical engineering, including lighting design, power distribution, fire alarm and hazardous location electrical systems. He has extensive experience with Computer Aided Design, Lighting Calculation software and engineering systems software. Dan has design experience with lighting, wastewater and water treatment facilities, pumping stations, schools, roadways and airports.

EDUCATION

B.S., 2000, Electrical Engineering, University of Massachusetts

Exit 15, I-295 and US-1 Interchange and Park and Ride Facility, Yarmouth, ME, MaineDOT.

Lighting Engineer for the lighting component of the final design of highway interchange and new park and ride facility. Work includes lighting calculations, fixture selection and design of the lighting power distribution system including coordinating with the electric power utility company. FST, conducted and supervised highway design including highway and ramp designs, intersections, grading, storm water management, traffic, plan set development, cost estimate, utility coordination, and construction details.

PROFESSIONAL AFFILIATIONS

Member:
Illuminating Engineering Society of North America (IESNA)

Hampton Beach Infrastructure Improvements, Town of Hampton, NH.

Electrical designer of street lighting infrastructure on Ashworth Ave and adjacent side streets.

Route 101 Traffic Calming, Dublin, NH.

Designed street lighting for historic Dublin Village area. Project involved period lighting fixtures and special considerations to preserve rural night sky.

REGISTRATIONS

P.E., MA, 2012, Electrical, #49860

Lighting Certified from the National Council on Qualifications for the Lighting Professions (NCQLP)

A LEED Accredited Professional (LEED AP) from the Green Building Certification Institute (GBCI)

Runway 6/24 Safety Area Improvements, Manchester-Boston Regional Airport, NH.

Electrical designer of lighting on Perimeter Road as part of runway safety area improvements project.

Highway Lighting, I-93 – Medford to Woburn, MassDOT.

Electrical engineer on project involving inspection and replacement of high mast and standard pole lights along approximately six miles of highway. Work includes inspection of existing systems, photometric calculations and development of new electrical distribution systems.

Cambridge Street, Boston, MA, MassDOT- Transit Division.

Provided lighting layout and electrical design for streetscape improvements at Scollay Square.

Sagamore Rotary Reconstruction, Bourne, MA, MassDOT.

Electrical designer of lighting for highway interchange, parking lots, and underpass.

WILLIAM P. SCARPATI

PROJECT ROLE: Pavement Specialist

Senior Asset Management Specialist

Bill Scarpati manages FST's Asset Management Team. He handles pavement evaluations, roadway data analysis, GIS integration, report writing, and roadway program presentation. He has a strong background in inspection of Hot Mix Asphalt (HMA), pavement density testing, and soils structure analyzes. He is a licensed inspector for pavement quality assurance testing of HMA plants and paving operations. He has supervised field personnel for roadway evaluation and inspection through New England. Bill has evaluated over 1,000 miles of roadways.

EDUCATION

B.S., Civil Engineering,
Rochester Institute of
Technology, Rochester, NY,
1993

Pavement Evaluation, Long Island Expressway, Huntington & Oyster Bay, NY.

Led pavement evaluation tasks to identify and design improvements to work pavement surfaces under contract with NYS DOT Region 10.

Asset Management System, Westford, MA.

Project Manager for implementation of a town-wide Pavement Management System (PMS) using Cartêgraph Software. Use of mobile data collection to gather pavement condition data.

Asset Management System, Bedford, MA.

Project Manager for the current implementation of a town-wide Roadway Management System (RMS) using Cartêgraph Software. Use of mobile data collection and video methods to gather pavement, sidewalk, curb, and ramp condition data.

Asset Management Services, Boston, MA.

Project Engineer assisting BPDW with implementation of pavement management computer technologies for ease of data management and analysis. Managing street opening permit conversion project to geo-link street opening permits to City of Boston's GIS.

Pioneer Valley Planning Commission (PVPC) Pavement Management Services.

The PVPC selected FST to custom tailor and configure CartêGraph's PAVEMENTview®Plus database and migrate historical pavement management data from RoadManager2000™. Provided software training, specifically developing import/export routines and field training covering pavement distresses and why deficiencies occur.

West Springfield Pavement Management Service.

Provided pavement management software configuration, data migration, and software training. Configured CarteGraph's PAVEMENTviewPlus® decision matrix and repair alternatives to reflect West Springfield's repair policies and conducted on-site training/coaching sessions on field data collection methodology, budget analyzes, and report generation including presentation graphics.

Pavement Management for Pease International Tradeport Airport, Portsmouth, NH.

Engineer, conducted network-level pavement surface evaluation in accordance to PASER. Distress data was used to categorize treatments for annual pavement preservation program.

PROFESSIONAL AFFILIATIONS

Member:
American Society of Civil
Engineers

REGISTRATIONS

Massachusetts Construction
Supervisors License –
Unrestricted #069328
Nuclear Regulatory
Commission in Radiation
Safety and Use of Nuclear
Gauges CPN #23812 June
19, 1994

CERTIFICATIONS

New England Transportation
Technician Certification
Program (NETTCP) –
Certification in Hot Mix
Asphalt Plant Testing and
HMA
Paving Inspection, #474, #964
Nuclear Regulatory
Commission

JAMES W. WEAVER, P.E.**PROJECT ROLE:** Geotechnical Design**Consultant**

Recently retired and on-call to FST, Jim is a Consulting engineer for geotechnical engineering aspects of civil engineering projects including site development, parking lots, access roads and building foundations. Previously he was a Vice President and Senior Associate at Haley & Aldrich responsible for opening their Maine office. Projects included low to medium-rise office and industrial buildings, fuel oil storage tanks, dams, highways, hospitals, bridges, waterfront ports and facilities, water treatment and wastewater treatment plants, pipelines, landfills, hydroelectric dams, wind turbines and other assorted structures. Jim was responsible for project management and project execution with a focused effort in transportation and infrastructure projects.

EDUCATION

M.S., Civil Engineering, 1971,
University of Maine, Orono
B.S., Civil Engineering, 1969,
University of Maine, Orono

PE REGISTRATION

Civil, NH, #5612, 1983
Civil, MA, #30266, 1980
Civil, ME, #3289, 1975

PROFESSIONAL**AFFILIATIONS:**

American Society of Civil
Engineers, Maine:
President 1990-1991
University of Maine – Civil
Engineering Association –
Director 1989-1993 and
2002-2010
Society of Marketing
Professional Services –
Maine Section – Director
1992-1998, Vice President
1998-1999
University of Maine, College
of Engineering, Francis
Crowe Society –
Distinguished Maine
Engineer, 2002

Exit 15, I-295 and US-1 Interchange and Park and Ride Facility, Yarmouth, ME, MaineDOT.

Geotechnical Engineer for the geotechnical component of the final design of highway interchange and new park and ride facility. Work included boring program and the subsequent analysis. FST, conducted and supervised highway design including highway and ramp designs, intersections, grading, storm water management, traffic, plan set development, cost estimate, utility coordination, and construction details.

Elementary and Primary School, Raymond and Windham, ME.

FST was asked to assist on two school projects by preparing the civil-site drawings and providing assistance in preparing permit applications. As a team member, Jim, while with Haley & Aldrich, performed geotechnical engineering services, soil borings and analysis for the projects. His efforts assisted the project team selecting the most suitable locations for the schools' expansions and additions.

Publications, Presentation and Papers

"High-Capacity Rock Anchors Provide Uplift Resistance for Concrete-Filled Steel Pipe Piles – A Case Study", Proceedings of the 36th Annual Conference on Deep Foundations, Boston, MA, October 2011.

"Steel H-Section Piles Support 2,120-Foot Long Cable Stayed Bridge, Verona Island and Prospect, Maine", Proceedings of the 36th Annual Conference on Deep Foundations, Boston, MA, October 2011.

"Lightweight Fill Accelerates Critical Bridge Replacement Schedule," International Bridge Conference Proceedings, Pittsburgh, PA, June 2008.

"Changing Some History – Penobscot Narrows Bridge" *PILEDRIVER (PDCA)*, Q2 2007, Vol. 4, No. 2.

"Tire Shreds for Highway Construction," *TR News*, Transportation Research Board, National Research Council, 2000.

KEITH B. SMITH, LEED AP
Associate, Landscape Architect

Keith is an experienced project manager and is involved with all aspects of projects including production, contract administration, design, client interface, construction documentation, cost estimating, and construction administration. His project experience includes work in sustainable design, parks planning, commercial development, residential design, trails, permitting, subdivisions, feasibility, visual impact, and downtown redevelopment.

Maine Licensed Landscape Architect #2594

EDUCATION

Utah State University,
 Bachelor of Landscape Architecture

SPECIAL TRAINING

ADA and Beyond: Introducing Universal Design,
 AlphaOne, South Portland, ME

LEED Training Workshop
 U.S. Green Building Council

Low Impact Development Stormwater BMP's and
 Chapter 500 Stormwater Management Rules,
 Maine DEP

Current Issues in Stormwater Regulation
 Lorman Educational Services

Maine Department of Transportation, Local Project
 Administration Certification.

Urban Design Workshop:
 Congress for New Urbanism, New England Chapter

PROFESSIONAL EMPLOYMENT

1998 to present	Terrence J DeWan & Associates Landscape Architects & Planners Yarmouth, ME
1996-1998	MGB+A, The Grassli Group Landscape Architects Salt Lake City, Utah
1993-1996	Landscape Designer Fairfax Station, VA

SELECTED PROJECT EXPERIENCE

Merrill Memorial Library, Yarmouth, ME.

Site design, landscape design, and construction documentation for a library renovation and entrance addition. An accessible granite entry plaza included reuse of existing site granite. Site work and entrance addition completed in 2014.

Augusta Court Facility, Augusta, ME.

Site design, permitting, plaza design, planting design, construction documentation, construction administration and LEED™ documentation for a new court house facility attached via connector to the existing court house. Construction completed in 2014.

Bigelow Laboratory for Ocean Science, East Boothbay, ME.

Campus Master Plan, site design, permitting, construction documentation, and construction administration for a new 62.8 acre waterfront campus which included the first three LEED™ Platinum laboratory buildings and waterfront development.

Coastal Maine Botanical Garden, Boothbay, ME.

Design development, construction documentation, and construction administration for a world class botanical garden master planned by EDAA, Inc.

State House Common, Augusta, ME.

A pedestrian connection between the State House and the State Archive Building includes a pedestrian plaza with stone walls, a water feature and perennial gardens.

Snowberry Ocean View Park at Pine Point Beach, Scarborough, ME.

A heavily used and well landscaped public space that provides access to Pine Point Beach. The plan features a stamped concrete boardwalk, trellis bench, interpretive panels, bike parking, drinking fountain, and foot wash.

College of Education, Health and Rehabilitation, University of Maine at Farmington, ME.

Site planning, landscape design and construction documentation for a LEED™ SILVER Certified Building. Plan included gathering plazas, native plantings, open space preservation, and green technologies.

Franklin Health Medical Arts Center, Farmington, ME.

TJD&A assisted with the site planning and provided the landscape design and construction drawings for this new facility.

Long Creek Watershed Corridor Enhancements, Westbrook, ME.

A Long Creek Watershed Management District Project to naturalize a section of Blanchette Brook along Thomas Drive. An extensive native planting scheme developed to improve the health of the stream with vegetative buffers, shading, and in-stream habitat.

Holy Cross Cemetery Columbarium Garden, Yarmouth, ME.

Design, construction documentation, and construction administration for a phased columbarium garden. Design included marked ground plots, future columbarium wall locations, and a peaceful white blooming planting scheme.

Haigis Parkway, Scarborough, ME.

Streetscape design for the intersection at Haigis Parkway and Route One. Design included stone columns, traffic Island plantings, and street trees.

Maine Medical Center Research Institute Addition, Scarborough, ME.

Landscape design and pedestrian circulation planning for the addition including the entry plaza reconfiguration.

Village Green, Trail, and Overlook, Thomaston, ME.

Design of a village green, walking path and two plazas overlooking the St. George River as a first step toward the development of the former state prison site. Design included plantings, recycled granite seating and a large focal flagpole.

Harrison Lyseth Elementary School Greening, Portland, ME.

School ground greening design assistance including courtyard planting, a labyrinth garden of the senses, and K through 5th grade raised vegetable beds.

Downtown Improvement Plan, Harrison, ME.

A plan to incorporate pedestrian improvements, traffic calming and streetscape beautification with MDOT planned improvements.

Central Maine Medical Center, Lewiston, ME.

Landscape design and site planning coordination for main campus improvements including High Street reconfiguration, a new cardiac facility, and Lowell Square courtyard.

Housatonic Riverfront Restoration and Trail Plan, Pittsfield, MA.

An ecological restoration and public access master plan for a series of contaminated industrial sites along the Housatonic River.

Camp Agawam Master Plan, Raymond, ME.

Site evaluation and master planning for a traditional summer camp on Crescent Lake.

Maine Yankee Fuel Rod Storage Screening, Wiscasset, ME.

Screening plan for fuel rod storage site at a former nuclear power plant.

Franklin Memorial Hospital Campus Master Plan, Farmington, ME.

A master plan to guide long-term development of a major medical campus in western Maine.

PROFESSIONAL AFFILIATIONS

MAINE USGBC Maine Chapter of the US Green Building Council

AWARDS AND DISTINCTIONS*Maine AIA*

2014 Merit Award

Bigelow Laboratory for Ocean Sciences
East Boothbay, Maine

Boston Society of Architects

2013 Honor Award for Design Excellence and

2013 Sustainable Design Award

Bigelow Laboratory for Ocean Sciences
East Boothbay, Maine

Friends of Midcoast Maine Smartgrowth Award

Coastal Maine Botanical Gardens

2008 Annual Award for innovative reuse of a site, creative site planning, buffered parking pods, and sensitive siting of infrastructure that enhances the landscape.

Boston Society of Landscape Architects

2006 Merit Award for Landscape Analysis and

Planning – Park Planning

Central Gardens Master Plan, Coastal Maine
Botanical Gardens

Colorado Chapter

American Society of Landscape Architects.

2006 Presidents Award of Excellence

For Planning and Urban Design

Central Gardens Master Plan, Coastal Maine
Botanical Gardens



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David E. Titcomb, PLS **President**

Mr. Titcomb has over 35 years of experience in land surveying, starting out as a rodman working summers for his father, Robert P. Titcomb. He became president and owner of Titcomb Associates in 1985.

Mr. Titcomb's primary responsibilities with the company include supervision of survey projects and management of the firm. He has been involved with a vast array of projects including subdivision and development work, first order control projects, existing conditions surveys, boundary and topographic surveys, construction surveys, and route surveys. He is a hands-on surveyor actively participating in the projects in which he is involved.

Mr. Titcomb is actively involved in the profession and is currently serving as Chairman of the Maine State Board of Licensure for Land Surveyors. He has also served as Chairman of the Legislative Committee of the Maine Society of Land Surveyors, Chairman of the MSLS Education Committee and is Past President of the local MSLS Chapter. Mr. Titcomb has served as a court appointed commissioner to resolve a boundary dispute, has provided testimony as an expert witness in court proceedings, and was appointed by the State to serve on a committee to study continuing education requirements for land surveyors. He also currently serves as a member of the Visitors Advisory Board to the Surveying Engineering Technology Program at the University of Maine at Orono.

Education

University of Maine, Orono, Maine
Bachelor of Science, Surveying Engineering - 1983

Registration

Maine Professional Land Surveyor #1273 (1984)
New Hampshire Licensed Land Surveyor #692 (1987)
Vermont Licensed Land Surveyor #691 (1998)

Professional Affiliations

Maine Society of Land Surveyors
New Hampshire Land Surveyors Association
Vermont Society of Land Surveyors
American Congress on Surveying and Mapping
National Society of Professional Surveyors