Introduction Letter

August 4, 2020

William J. Oldenburg, PE
Assistant Director of Project Development
Chairperson, Consultant Selection Committee
New Hampshire Department of Transportation
William.Oldenburg@dot.nh.gov

RE: **Statewide On-Call Preliminary Engineering Prequalified List of Consultants for Locally Administered Local Public Agency (LPA) Qualifications-Based Selection Contracts**

Dear Mr. Oldenburg,

GM2 Associates, Inc. (GM2), founded in 1988, provides infrastructure engineering and consulting services to state and municipal agencies throughout New England, including NHDOT. GM2's success, and continued repeat client service, is based upon our ability to design for each client's needs within their budget and on schedule. The key to this success is our schedule and solution driven design approach, which incorporates innovative new technology, when appropriate, while continuously evaluating constructability and environmental and user impacts. This approach has led to GM2 accomplishing many 'bridge design firsts'; including a first of its kind 2-span GRS-IBS structure, the strategic use of High Ratio Co-Polymerized Calcium Coatings (HRCSA), the use of 100% prefabricated elements, and the use of a unique sheet pile abutment that doubles as a substructure seawall. For these efforts, GM2 has won several awards, including the recent 2019 ACEC Engineering Excellence Award for the reconstruction of US Route 123A over Bowers Brook in Acworth, NH.

At GM2 we recognize infrastructure improvements are typically the most complicated and costly assets for local agencies. We bring a shared commitment with local agencies to rectify any functional, structural or operational deficiencies as a trusted partner, who will extract the highest value and maximize the public benefit in the most efficient manner possible. GM2 has been instrumental in providing such services to our partners, ranging from culvert replacement (Milford-Mason Road Bridge #056/096 in Milford), to the scour mitigation of historic bridges (Sawyers Crossing over Ashuelot River in Swanzey and Gunn Mountain Road over Ashuelot River in Winchester) to urban and rural infrastructure such as pavement reconstruction, drainage and safety improvements (NH 26 and NH 171 Roundabout in Ossipee). In short, GM2 has completed over 400 bridge rehabilitation and replacement projects of various sizes and complexity and numerous miles of roadway improvements.

Working from our Concord, NH office, we have the ability to provide all the services necessary under this contract; including site/civil, highway, structural, geotechnical, traffic and hydraulic/hydrology engineering, environmental, land survey and public involvement. Our team of industry experts is adept at project management from concept through construction close-out. They have assisted clients in bidding and construction phase services, including design during construction and construction inspection services; public involvement to gain buy-in and/or share project information; and permitting and multi-stakeholder coordination. Each of GM2's project manager's is a seasoned, highly-respected industry expert with significant State of New Hampshire DOT and municipal project experience. With each assignment they will partner directly with the client to ensure the needs and goals of each assignment is clearly understood and the right solution is provided.

In closing, GM2 is committed to providing the proposed resources in support of public agencies' needs for the duration of this contract. Our team of proven professionals possesses the talent, experience, qualifications, and resources to fulfill this on-call contract. We hope you find our qualifications to substantially meet your requirements and look forward to learning of your prequalification selections.

Respectfully,

Darren Blood, PE
Executive Vice President

Project Understanding and Approach

GM2 has the in-house resources and disciplines to fully support local public agencies in their efforts to improve their transportation infrastructure. We understand this contract serves as a shortlist for use by public agencies for the development of quality-based agreements for the delivery of preliminary and final design documents and the development of contract plans and documents for highway, bridge and/or alternative delivery projects. Services under these agreements may include project management, environmental documentation, natural and cultural resource investigation and permitting; traffic, hydraulic and geotechnical evaluation and engineering; survey and ROW layout and plan development, public involvement, alternative procurement methods, and assistance in coordination between local public agencies and NHDOT.

GM2 offers a reputation for completing projects on schedule and within budget. This speaks to our effective team and stakeholder communication, overall project management, and motivation to deliver. In delivering projects, we listen to our client's needs to develop tailored project solutions. GM2 has successfully provided services to towns/cities of Loudon, Bedford, Milford, Washington, Concord, Laconia, Dover, and Keene.

Highway Design Efforts. GM2 offers a dynamic team experienced in providing comprehensive design and contract documents for new or the rehabilitation of existing roadways, intersection improvements, drainage systems, signalization, park and ride lots, right-of-way plan development, sidewalks, trails, bike lanes, complete streets and alternative transportation facilities. Our resume includes traffic impact studies, modifications and/or encroachments to local or state transportation networks and planning for corridor studies. Specifically, we've designed preliminary horizontal and vertical alignments to reconstruct 1,600FT of US Route 4, in Durham, to improve geometric deficiencies to meet the required design speed and increase sight distance; we've completed the design for roadway safety improvements including 1,200FT of US Route 1 roadway reconstruction and relocation of the North Road intersections, drainage design, signal warrant analysis, and bridge design in North Hampton; and the half-mile reconstruction of US Route 302 under a design-build bridge replacement contract in Hart's Location. Additional projects include the $6.2M contract for the rehabilitation/ reconstruction of 4.5-miles of local roads in Enfield, CT and the pavement rehabilitation of 1.8-miles of Coldbrook Road, in Little Compton, RI. These projects entailed capacity and analysis of the storm drainage systems and modifications, soil boring programs to determine the most appropriate repair strategy, new catch basins and pipe connecting to existing closed drainage systems, ADA compliant sidewalks, survey, and public outreach to coordinate with residents and businesses. GM2 also provided traffic and site/civil engineering services under a multi-year contract for the evaluation, recommendation and design of improvements for 15 high hazard intersections located in North and South Kingstown, Narragansett and Westerly, RI. Lastly, under an NHDOT On-call Highway Design Services contract, GM2 has completed, under accelerated delivery, the design of a roundabout and water line relocation, in Ossipee *(Pictured, above right)*. Services also included land survey services to delineate the existing right-of-way.

GM2's Capabilities

- Bridge Design
- Highway/Roadway Engineering
- Bridge Inspection
- Bridge Load Rating
- Construction Engineering
- Construction Inspection
- Site/Civil Engineering
- Drainage Evaluation & Design
- Environmental
- Geotechnical Engineering
- Hydraulic/Hydrology Engineering
- Traffic Engineering
- Right-of-Way
- Stormwater/Sanitary Sewer Engineering
- Survey
- Public Involvement
- Bid Assistance

Technical Staff

17 | Bridge/Highway Structures
9 | Bridge Inspectors
9 | Highway/Roadway
6 | Site/Civil
2 | Geotechnical
2 | Hydraulic/Hydrology
2 | Traffic
2 | Environmental
8 | Land Survey
3 | Public Involvement
17 | Construction

Bridge Design Efforts. Since our founding as a structural engineering firm in 1988, we've built a respected reputation as a go-to firm for bridge engineering. GM2's bridge engineering includes inspection, load rating, completion of Bridge Rating Form 4, and design for the maintenance and preservation, rehabilitation and replacement of structural steel, timber, cast-in-place, and prestressed concrete bridge types, including hydraulics and hydrology where required. As highlighted in our introduction letter we have been awarded for the design and delivery of numerous complex structures and have been at the forefront of implementing new technology. Our bridge experience includes the replacement of the Mill Street Bridge over Ammonoosuc Rail Trail in Haverhill which entailed the replacement of a timber structure with a single span precast concrete arch bridge on cast-in-place concrete abutments; the rehabilitation of three bridge and roadway projects in the City of Dover (Chestnut Street, Washington Street and Central Avenue) where all field work, inspections/evaluations, design, plans, specifications, estimates and bid documents were completed in a 60 day timespan; and the replacement of the Ayers Pond Road Bridge over Woodward Brook in Washington, a Red List bridge not adequate to convey current storm events, was replaced with a 36FT span structure comprised of reinforced concrete abutments and wingwalls and a new glued laminated timber superstructure. In Milford, GM2 designed a steel pipe-arch rehabilitation with a 13FT span and 62FT length. This structure was comprised of a reinforced concrete invert along the bottom of the pipe-arch to restore the structure's integrity and strength capacity while extending its service life up to 30 years. GM2 has held, and currently has, an On-call Bridge contract with NHDOT. Under this contract GM2 has provided comprehensive engineering design services for projects like the rehabilitation of the I-89 Bridges carrying traffic over Hardy Hill Road in Lebanon and the deck rehabilitation for the two-span bridge carrying NH Route 111 over I-95 in North Hampton. Lastly, GM2 has completed more than 600 bridge load ratings and over 1,000 bridge inspections totaling over 11,207,000SF of deck area for municipal and DOT owned bridges.

Additional Work Efforts as Required. In working with our clients, GM2 serves as an extension of our clients' own staffs. In doing so we look beyond the immediate project for impacts to the environment, adjacent properties and the community as a whole. This combined with hearing our clients need and budget we mobilize our in-house resources to tailor the right solution. Our Project Managers are adept in initiating and leading projects from concept through construction close-out for traditional design-bid-build and alternative delivery methods like design-build. For the majority of our projects GM2 provides the preparation of all environmental documents, including natural and cultural resource investigations and permitting requirements as well as hydraulics, geotechnical, traffic design, survey, and public outreach where necessary. An example of this is our client representative/preliminary engineering services contract for the design-build bridge replacement and highway reconstruction for US Route 4 over Bunker Creek in Durham. GM2's scope of work for this contract includes alternatives development, roadside design, hydraulic and hydrologic analyses of the tidal controlled Bunker Creek, public information meetings and stakeholder coordination, NEPA documentation, drainage and bridge design. Administrative services include preparation of the Request for Qualifications and Request for Proposal documents, review of the proposals for compliance, Alternative Technical Concept review, and final design plan review. Other projects include the numerous previously highlighted, and, in particular, the US Route 302 over Sawyer River in Hart's Location. This design-build project encompassed the design and construction of a new 135FT bridge. Based upon the soil conditions found during the geotechnical investigation, the design was revised to incorporate precast concrete elements (a concrete box culvert on its side) that could be set, leveled and tied together, along with a cast-in-place subfooting utilizing a sheeted excavation to reduce construction time and eliminate part of the cost of the steel sheeting. GM2 also simplified the structural steel details and utilized precast concrete deck panels in an effort to reduce fabrication and construction time and overall construction costs. Another example is in Errol where GM2 provided geotechnical services to assist in technical specifications and design plan development for a new pre-cast concrete box culvert for the Potter Farm Road Reconstruction under the US Forest Service. GM2 reviewed progress plans and 90% design plans for geotechnical concerns and recommendations and incorporation into the final design documents. Recommendations were made for soil bearing capacity, subgrade preparation, filter concerns, dewatering, earthwork and assisting with earthwork material specifications. Of particular concern was subgrade preparation in light of scour and undermining.

GM2's leadership hold the Local Public Agency (LPA) required certification, are fluent in NHDOT and AASHTO requirements and adept in NHDOT and municipal coordination.

Organizational Chart

Project Manager

Darren Blood, PE
Highway Engineer

Bridge Lead

Thomas Levins, PE
Structural Engineer

Jagdeesh Gopal, PE
Structural Engineer

Travis Manning, EIT
Structural Engineer

Brandon Loiselle
Structural Engineer

Amit KC, PE
Bridge Inspection

Brian Swanson, EIT
Bridge Inspection

Highway & Traffic Engineering

Jennifer Mercer, PE
Senior Highway Engineer

Seth Hill, PE
Highway/Drainage Engineer

Vincent Avino, PE
Senior Traffic Engineer

Erik Rolser, EIT
Highway Engineer

Joseph Anatone, EIT
Highway Engineer

Survey

Mitch Cummings, LLS
Licensed Surveyor

Ben Hammond
Survey Technician

Environmental

Jennifer Riordan, CWS
Environmental Scientist

James Fougere, CWS
Wetland Scientist

Geotechnical Engineering

Lawrence Dwyer, PE
Geotechnical Lead

Hydraulics/Hydrology

Michelle Handfield, PE
Hydraulic Engineer

Organizational chart identifies key staff. Those with names in **Bold** have resumes included in this submission.

Route 1 Reconstruction & North Road Realignment | North Hampton

Route 123A over Bowers Brook Bridge Replacement | Acworth

Route 28 & Route 171 Roundabout | Ossipee

Project Team

Staff *Name & Role*	Relevant Project Experience									
	Ayers Pond Road Bridge, Washington, NH	Chestnut St., Washington St., & Central Ave. Bridges, Dover, NH	Savage Road over Unnamed Brook, Milford, NH	NH123A over Bowers Brook, Acworth, NH	I-93 over Bog Brook & Route 3 over I-93 Bridge Preservation, Plymouth & Campton, NH	Route 302 over Sawyer River Design-Build, Hart' s Location, NH	Route 4 over Bunker Creek Design-Build, Durham, NH	Reconstruction of NH 125, Plaistow-Kingston, NH	Route 28 & Rte 171 Intersection Roundabout, Ossipee, NH	Reconstruction of Route 1 & Design of North Road Intersection Relocation, North Hampton, NH
Darren Blood, PE *Project Manager*				√	√	√	√	√	√	√
Thomas Levins, PE *Structural Engineer/Bridge Lead*	√	√	√	√	√	√	√	√		√
Jagdeesh Gopal, PE *Structural Engineer*						√	√			
Travis Manning, EIT *Structural Engineer*	√			√	√					
Brandon Loiselle *Structural Engineer*					√			√		
Amit KC, PE *Bridge Inspection*		√								
Brian Swanson, EIT *Bridge Inspection*		√								
Jennifer Mercer, PE *Senior Highway Engineer/Lead*		√	√	√	√	√	√	√	√	√
Seth Hill, PE *Highway/Drainage Engineer*					√			√	√	
Vincent Avino, PE *Traffic Engineer*					√			√		
Erik Rolser, EIT *Highway Engineer*					√			√	√	
Joseph Anatone, EIT *Highway Engineer*								√		
Lawrence Dwyer, PE *Geotechnical Engineer*						√				
Michelle Handfield, PE *Hydraulic Engineer*										
Jennifer Riordan, CWS *Environmental Scientist*			√	√	√			√	√	
James Fougere, CWS *Wetland Scientist*										
Mitch Cummings, LLS *Land Surveyor*	√	√	√	√		√	√	√	√	√
Ben Hammond Survey Technician	√		√	√			√	√		√

Darren Blood, PE, brings more than 27 years of transportation expertise to his role of **Project Manager**. He will be responsible for administration of the contract and will provide project coordination and oversight. His civil engineering experience includes highway and rail design, and planning studies. He has served as Project Manager on large scale complex NHDOT projects, like the Sagamore Bridge in Nashua and the Conway Bypass, as well as numerous municipal projects. His responsibilities have included project management, roadway, interchange, and railroad geometric designs and alternatives analyses, public outreach and stakeholder coordination. He is adept in alternative project delivery and client representation. Mr. Blood is NHDOT Local Public Agency certified.

Thomas Levins, PE, with his more than 35 years of bridge design and construction expertise, will serve as **Bridge Design Lead**. He has design, analysis, and rating experience for new and existing bridges, as well as an extensive background in bridge construction for DOT and municipal projects throughout New England. His experience includes structural steel, timber, and cast-in-place and prestressed concrete bridge types. He is adept in project management, stakeholder coordination, and public outreach; and has a thorough knowledge of AASHTO guidelines, as well as NHDOT Bridge Design Standards. Mr. Levins is NHDOT Local Public Agency certified.

Jagdeesh Gopal, PE, is a **senior structural engineer** with 19 years of bridge rehabilitation and replacement design and construction experience. He is experienced in the design and load-rating of structures utilizing complex analysis methods like response spectral, seismic, material and geometric non-linearity, pushover, refined 3D modeling, soil structure interaction, and time dependent and buckling load analysis. His experience includes the design of steel and concrete bridges, retaining walls, cantilever and overhead sign support structures, temporary facilities for construction, and deep foundations. He has performed evaluation, design, and ratings of bridges and culverts including local road structures and complex multi-span interstate highway bridges. He has a thorough knowledge of NHDOT design standards and is a licensed Professional Engineer in New Hampshire.

Michelle Handfield, PE, **Hydraulics Lead**, has over 15 years of direct experience conducting and reviewing the hydrologic, hydraulic and scour analysis for state and local road bridges. Her experience includes specialization in hydrologic, hydraulic, floodway, and scour engineering for bridge and stream channel design in both inland and tidal environments. She also has provided services for the stream and embankment stabilization design utilizing soil bioengineering in FEMA floodways. In addition, Michelle has provided environmental permitting and regulatory applications for bridge, highway and rail projects.

Jennifer Mercer, PE, brings 24 years of diverse civil engineering experience to her role as **Highway Design Lead**. Her responsibilities have included roadway design, traffic control, pedestrian/bike path design, construction cost estimates, QA/QC reviews, and plan preparation using various design software packages. In addition, she has experience in bridge design, plan preparation, and load ratings. Jennifer is NHDOT Local Public Agency certified, has a thorough knowledge of AASHTO guidelines and NHDOT design standards.

Lawrence Dwyer, PE, Geotechnical Design, has over 35 years of experience in geotechnical engineering on a wide range of projects. He has expertise in rock slope stability analyses, controlled blasting and related rock engineering, deep and shallow foundation analyses, slope stability analyses, and retaining wall design. He is a licensed professional engineer in all New England states, and has served on the NHSPE Board of Directors for 10 years.

Jennifer Riordan, CWS, Environmental/Wetland Scientist, has 16 years of experience supporting transportation infrastructure projects. She offers extensive expertise in preparing federal, state, and local environmental permit applications and has contributed to dozens of NEPA documents. Jennifer has worked on a wide array of wetland delineation, permitting, water quality, wildlife habitat, and erosion control projects throughout New England.

Mitch Cummings, LLS, is GM2's lead **Land and ROW Surveyor**. He has 11 years of experience including a multi-faceted skillset of survey, engineering, and construction. He is adept in land record research; plan preparation and drafting within various CADD platforms; the management of multiple crews and tight project deadlines, including that for airports; and quality control. His resume includes Right-of-Way Survey for Route 4 in Durham, Route 123A in Acworth, Route 1 in North Hampton, and Route 125 in Plaistow and Kingston; and the topographic survey for Winchester Street in Keene, as well as boundary and statutory survey for various municipal clients.

References

Rick Riendeau
Director of Public Works
Town of Milford
289 South Street
Milford, NH 03055
(603) 673-1662
rriendeau@milford.nh.gov

Hartshorn Mill Road Pipe-Arch Rehabilitation
State Municipal Bridge Aid Program Funded

Savage Road over Unnamed Brook
State Municipal Bridge Aid Program Funded

Ed Thayer
Director of Public Works
Town of Washington
7 Halfmoon Pond Road
Washington, NH 03280
(603) 495-3641
ethayer@washingtonnh.org

Ayers Pond Road over Woodward Brook
Town Funded

Dave White, PE
City Engineer
City of Dover
288 Central Avenue
Dover, NH 03820
(603) 516-6450
d.white@dover.nh.gov

Chestnut Street, Washington Street & Central Avenue Bridges
Town Funded

Appendix

Resumes (5 pgs max; 1 resume/page)
Applicable Work Experience (5 pgs; 1 project/page)

Darren Blood, PE

Project Manager

Mr. Blood has more than 27 years of civil engineering experience involving highway, bridge and rail design and management. His major responsibilities include operations and project management. His design experience includes roadway, interchange, and right-of-way development; parking lot and railroad geometric designs; alternatives analyses; and plan preparation using various design software packages. Darren is experienced in staff and budget management, preparation of final contract documents, and cost estimating. His relevant project experience includes:

PROFESSIONAL EXPERIENCE
27 Years / 11 with Firm

PROFESSIONAL REGISTRATION
NH PE #9896 ; VT PE #63424; ME PE #10437
RI PE #9382; CT PE #27568

CERTIFICATIONS
NHDOT Local Public Agency Training #1007
NCEES Certificate #39453

EDUCATION
- BS, Civil Engineering, University of Hartford, 1993

Reconstruction of NH 125, Plaistow-Kingston, NH. Project Manager for the safety improvements and widening of 1.8 miles of two-lane State of NH highway including compliance with MS4 water quality standards.

NH Route 4 over Blackwater River, Andover, NH. Project Manager responsible for the development of rehabilitation/replacement alternatives, NEPA documentation, hydraulics, land survey, scope, budget, schedule and quality control.

NH Route 152 over North River, Nottingham, NH. Project Manager responsible for the development of replacement alternatives, NEPA documentation, hydraulics, land survey, scope, budget, schedule and quality control.

I-89 over Mascoma River and NH Route 10, Lebanon, NH. Project Manager responsible for the design development, schedule and budget for the rehabilitation/preservation of four bridges, two over the Mascoma River, and two over NH Route 10. The scope of work included roadway improvements including pavement rehabilitation, guardrail and drainage upgrades.

NH 28 and NH 171 Roundabout, Ossipee, NH. Project Manager responsible for the design development, schedule, budget, water line relocation coordination, and quality control for a fast-track intersection improvement project. The intersection had a history of serious accidents. As such, the schedule was condensed and the project was completed on-time and under budget.

Plymouth-Campton Bridge Preservations, Plymouth & Campton, NH. Project manager for the preservation of three bridges, two on I-93 over Bog Brook, and one over on US Route 3 over I-93. Responsible for the design development for the bridge preservation and associated traffic control involving phased and temporary signal-controlled staging, schedule, budgeting, quality control, and estimating.

US Route 1 over Former B&M Railroad, North Hampton, NH. Project Manager responsible for all coordination, roadway and bridge alternative development, quality control, cost control, sub-consultant coordination, staff management, and public participation support.

US Route 4 over Bunker Creek, Durham, NH. Project Manager responsible for all coordination, schedule, design, and sub-consultant activities for the bridge replacement project, as well as NEPA documentation and roadway design. Additional activities included Owner's Representation during a Design/Build procurement and final design review services.

NH Route 123A over Bowers Brook, Acworth, NH. Project Manager responsible for all coordination, schedule, quality control, NEPA documentation, sub-consultant coordination, staff management, and cost control.

US Route 302 over Sawyer River, Hart's Location, NH. Design Manager for the Design/Build bridge replacement responsible for management of all aspects of bridge, hydraulics, and roadway design. Responsible for quality control, design coordination, client coordination, staff management, scheduling, and cost control.

Thomas P. Levins, PE

Project Manager | Lead Structural Engineer

Mr. Levins has more than 35 years' experience in all aspects of bridge design and construction. He serves as the manager of bridge design and lead bridge engineer for GM2's Concord, New Hampshire, Office. He has design, analysis, and rating experience for new and existing bridges; as well as an extensive background in bridge construction for projects throughout New England. His experience includes structural steel, timber, cast-in-place, and prestressed concrete bridge types for public sector clients such as NHDOT, MassDOT, Maine DOT, and municipalities in New Hampshire and Vermont. He has a thorough knowledge of AASHTO guidelines, as well as NHDOT, MassDOT, VTrans, and Maine DOT bridge design standards. Tom's relevant project experience includes:

PROFESSIONAL EXPERIENCE
35 Years / 7 with Firm

PROFESSIONAL REGISTRATION
NH PE #7622; VT PE #89371; ME PE #9921
MA PE #43188; RI PE #11007

CERTIFICATIONS
NHDOT Local Public Agency #1358

EDUCATION
- BS Civil Engineering, University of Vermont, 1985

NHDOT Bridge Load Rating, District 2, NH. Structural Engineer responsible for the inspection and As-Built load rating of over 200 bridges throughout New Hampshire District 2 under a Statewide Bridge Load Rating project performed by NHDOT Bridge Design Staff. The bridges varied in type and size from single span concrete slabs, T-beams and frames to multi-span continuous steel girders, and in complexity from non-composite steel stringers to steel truss superstructures. All ratings were performed in accordance with the AASHTO *Manual for Bridge Evaluation* using Load Factor Rating (LFR) methodology.

Reconstruction of Savage Road over Unnamed Brook, Milford, NH. Project Manager/Lead Structural Engineer responsible for the design of a culvert replacement. The project included replacement of twin metal pipe-arches with two 60-inch diameter reinforced concrete pipes.

Whittier Street Bridge over Cocheco River, Dover, NH. Project Manager/Senior Structural Engineer responsible for the preliminary design of a new 160FT single-span structure with steel plate girders and a reinforced concrete deck. The scope of work includes correcting deficiencies in the existing roadway alignment and profile, improving the hydraulic performance by removing the existing pier, and a new sidewalk for pedestrian traffic.

Sawyers Crossing over Ashuelot River, Swanzey & NH/Gunn Mountain Road over Ashuelot River, Winchester, NH. Lead Structural Engineer responsible for preliminary and final design of scour mitigation and countermeasures for the rehabilitation of two historic covered bridges. The project involved design of standard riprap for the abutments and concrete armor matrix components (A-Jacks) for the piers.

US Route 4 over Bunker Creek Design-Build, Durham, NH. Lead Structural Engineer responsible for the development of bridge replacement preliminary design alternatives; preliminary bridge design and plan development for selected alternative for use in the BTC for procurement, preliminary quantities and cost estimates. Alternatives include short-term road closure and accelerated bridge construction techniques.

US Route 302 over Sawyer River, Hart's Location, NH. Lead Structural Engineer for the Design-Build bridge replacement responsible for construction services for design changes, shop drawing review, and detail consultation.

NH Route 123A over Bowers Brook, Acworth, NH. Lead Structural Engineer responsible for preliminary and final design of this bridge replacement project utilizing accelerated bridge construction techniques with precast concrete substructure and superstructure elements. The structure is a single span Precast Concrete Voided slab bridge on precast concrete abutments.

Providence Hill Road over Providence Hill Brook, Salem, NH. Project Manager responsible for management of all design aspects including bridge design (Precast Concrete Frame), hydraulics, roadway design, and permitting. Responsibilities included quality control, design coordination, client coordination, staff management, scheduling, bid assistance, construction inspection, construction administration, and cost control.

Jennifer A. Mercer, PE

Project Manager | Lead Highway Engineer

Ms. Mercer is a civil engineer with over 24 years of project experience throughout New England. Specializing in highway and bridge design, she implements a 'big picture' approach to her work resulting in the successful implementation of construction documents. Jennifer's work includes roadway, interchange, traffic control, parking lot, and pedestrian/bike path design, as well as bridge design, construction cost estimates, QA/QC reviews, load ratings, and plan preparation using various design software packages. Ms. Mercer's relevant project experience includes:

PROFESSIONAL EXPERIENCE
24 Years / 9 with Firm

PROFESSIONAL REGISTRATION
NH PE #11375 ; ME PE #12469; VT PE # 74437

CERTIFICATIONS
NHDOT Local Public Agency #1036

EDUCATION
- BS, Civil Engineering, University of Hartford, 1996

PROFESSIONAL AFFILIATIONS
NH Institute for Transportation Engineers

Plymouth-Campton Bridge Preservations, Plymouth & Campton, NH. Senior Highway Engineer responsible for the traffic control for the preservation of three bridges, two on I-93 over Bog Brook, and one over on US Route 3 over I-93. Responsible for the design development for traffic control associated with the bridge preservation, which involved phased construction (on the I-93 bridges) and temporary signal-controlled staging (on the US Route 3 bridge).

NH 28 and NH 171 Roundabout, Ossipee, NH. Senior Highway Engineer responsible for the quality control for a fast-track intersection improvement project. The intersection had a history of serious accidents. As such, the schedule was condensed and the project was completed on-time and under budget.

I-89 over US Route 4 & Mascoma River Bridges, Lebanon, NH. Senior Highway Engineer responsible for the design of the complex traffic control utilizing on-site diversions, ramp reconstruction, and guardrail and drainage rehabilitation as part of the bridge superstructure replacements and restorations.

US Route 1 over Former B&M Railroad, North Hampton, NH. Senior Highway Engineer responsible for the development of roadway design alternatives, traffic control, quantities, and plan preparation as part of the bridge rehabilitation.

Reconstruction of US Route 4 over Bunker Creek, Durham, NH. Senior Highway Engineer responsible for the development of roadway design alternatives, traffic control, quantities, and plan preparation as part of the bridge replacement. Additional activities included Owner's Representation during a Design/Build procurement and final design review services.

Reconstruction of NH123A over Bowers Brook, Acworth, NH. Senior Highway Engineer responsible for the development of roadway design alternatives, traffic control, quantities, and plan preparation for the roadway improvements as part of the bridge replacement.

NH Route 125 Final Design, Plaistow – Kingston, NH. Project Engineer and Roadway Task Manager for the Segment 1 portion of the widening and reconstruction of a six-mile segment of NH Route 125 in Plaistow and Kingston, NH. Improvements included roadway widening, new intersection configurations, and implementation of access management treatments. Project responsibilities included design of the horizontal and vertical geometry, plan preparation, and cost estimates for the slope and drain plans.

Joppa Road/Bedford Road Intersection Improvements, Bedford, NH. Project Engineer for the reconfiguration of Joppa Road at Bedford Road as part of the Baboosic Brook Bridge project. Responsibilities included the design of horizontal and vertical alignments, pavement layout, traffic control, guardrail calculations, plan preparation, and construction estimates for the project.

Roundhouse T Bicycle and Pedestrian Path, Keene, NH. Project Engineer for a new pedestrian/bicycle path connecting existing paths within the City of Keene. Project responsibilities included design of preliminary and final alignments, preparation of preliminary and final design plans, and quantity calculations for the engineer's estimate.

Lawrence J. Dwyer, PE

Lead Geotechnical Engineer

Mr. Dwyer has over 35 years of experience in geotechnical engineering on a wide range of projects. He has expertise in rock slope stability analyses, controlled blasting and related rock engineering, in addition to deep and shallow foundations, slope stability analyses, and retaining wall design. Larry's project experience includes highways and bridges, wastewater facilities, sewer and gas transmission lines, educational institutions, commercial and manufacturing facilities, communications towers, wind turbine generators, special inspections, and expert witness testimony.

Mr. Dwyer is a retired Lt. Colonel in the United States Air Force Reserve, serving more than 22 years in combined active and reserve duty. His experience as a civil engineering officer included construction contract administration, civil and geotechnical engineering design, and operations management. Approximately 16 years were affiliated with the Civil Engineering Support Squadron and the National Airspace Systems Organization at Hanscom Air Force Base. Larry's relevant project experience includes:

PROFESSIONAL EXPERIENCE

35 Years / 1 with Firm

PROFESSIONAL REGISTRATION

NH PE #09191; CT PE #15120; MA PE #38964
ME PE #10350; VT PE #08265; NY PE #102692

EDUCATION

- MS, Geotechnical Engineering, University of Massachusetts, 1985
- BS, Civil Engineering, University of Massachusetts, 1978

AFFILIATIONS

- American Society of Civil Engineers
- National Society of Professional Engineers (Past President NH Chapter)
- United States Air Force (retired)

Route 175A Bridge, Holderness and Plymouth, NH. Senior Technical Reviewer of subsurface investigations, design criteria, and liquefaction assessment for design of the new Route 175A Bridge over the Pemigewasset River between Plymouth and Holderness. Work also included design recommendations for the overhead sign foundations and site retaining walls. Site concerns included 55 feet of loose alluvial and glaciolacustrine soils overlaying dense sand at the east abutment, and bedrock at the west abutment. Deep foundations with coffer dams and tremie seals were recommended.

Route 302 over Sawyer River, Hart's Location, NH. Senior Geotechnical Engineer on a design-build project to replace the existing single-span, steel-girder structure, which sustained severe foundation damage from scour during Tropical Storm Irene. The new bridge was lengthened 40 feet in order to widen the channel; soil supported abutment foundations were lowered 5 feet to protect against future scour. Provided geotechnical engineering LRFD design criteria for new foundations, as well as erosion protection criteria for the stream bank. Multiple filtered layers of graded stone and riprap were used along the stream bank installed to the scour depth of the channel. Filter compatibility analyses indicated using three materials **for** scour protection without the need for a geotextile.

Route 3 Water Main Crossing, Merrimack, NH. Project Geotechnical Manager for a water main crossing beneath the F.E. Everett Turnpike (Route 3) to support the Merrimack Premium Outlets development. Subsurface conditions consisted of fill and glaciofluvial sand over bedrock at depths of 10 to more than 22 feet. Geotechnical recommendations included horizontal directional drilling or pipe jacking methods to avoid open cutting. Mixed conditions of overburden soil and bedrock were a complicating factor for either method.

Route 103 over Black River, Ludlow, VT. Approved Project Reviewer for oversight and review of analyses and preparing a geotechnical report using LRFD criteria in accordance with VAOT and AASHTO specifications. The proposed structure consisted of an 86-foot single span bridge supported by integral abutments. Subsurface conditions consisted of recent and glacial fluvial soil over bedrock. Foundation recommendations included steel H-Piles installed to bedrock. Pile foundations were modeled to evaluate acceptable lateral displacement and bending stress.

Route 151 over Salmon River, Haddam, CT. Geotechnical Engineer responsible for investigating the cause of bridge pier settlement as the bridge super-structure was being renovated. Drilled borings through bridge pier foundation to investigate voids, soil bearing conditions and scour. Recommended and monitored grout stabilization to provide long-term support of the bridge pier.

Jennifer Riordan, CWS, CPESC

Environmental/Wetland Scientist

Ms. Riordan has 16 years of environmental consulting experience within the transportation industry. Her resume is comprised of diverse transportation projects ranging from on-call environmental services to the complex reconstruction of interstate highways and airport improvements. She offers extensive expertise in preparing federal, state, and local environmental permit applications and has contributed to dozens of NEPA documents. Along with her technical skills, Ms. Riordan is an effective communicator, accountable team partner, and impactful project leader. Jennifer's relevant project experience includes:

PROFESSIONAL EXPERIENCE

16 Years / 2 with Firm

CERTIFICATIONS

NH Certified Wetland Scientist #269

Certified Professional in Erosion and Sediment Control #5845

EDUCATION

- BS, Environmental Science and Biology, Rensselaer Polytechnic Institute, 2004

NH Route 125 Improvements, Epping, NH. Environmental Scientist responsible for preparing NEPA documentation for proposed improvements to a 3-mile segment of NH Route 125. Ongoing tasks include wetland delineation, endangered species reviews, invasive species surveys, and agency coordination. Also responsible for coordinating the Section 106 Cultural Resource review and the air quality and noise studies.

NH Route 123A over Bowers Brook, Acworth, NH. Environmental Scientist responsible for delineating wetlands within the project area, reviewing the site for invasive plant species, and conducting a stream crossing assessment. Services also included preparing a NEPA Categorical Exclusion document, NH Department of Environmental Services (NHDES) Wetlands Permit application, and NHDES Shoreland Permit application for the project.

Mill Street over Ammonoosuc Rail Trail, Haverhill, NH. Environmental Scientist responsible for preparing a NEPA Categorical Exclusion/Section 4(f) Evaluation for this bridge replacement project. Services included coordinating with the US Fish and Wildlife Service regarding possible impacts to the Northern Long-Eared Bat and conducting a survey of the bridge to determine if it provided potential bat habitat.

I-93 Improvements Project, Salem to Manchester, NH. Environmental Scientist responsible for the field verification of wetland boundaries along the I-93 corridor, performing invasive species field surveys, and conducting field evaluations of wildlife habitat pursuant to the development of wildlife crossing and fish passage alternatives. Services also included providing technical support for the design of several stream relocations and conducting chloride monitoring of the I-93 corridor.

US Route 4 over the Blackwater River Bridge Replacement, Andover, NH. Environmental Scientist responsible for delineating wetlands within the project area, reviewing the site for invasive species, and coordinating with resource agencies. Also responsible for preparing a NEPA Categorical Exclusion document and coordinating the Section 106 Cultural Resource review.

Bridge Preservation Project, Plymouth and Campton, NH. Environmental Scientist responsible for preparing a NEPA Categorical Exclusion document for proposed preservation and maintenance work on three bridges (I-93 Northbound over Bog Brook and I-93 Southbound over Bog Brook in Campton, and US Route 3 over I-93 Ramp A and B in Plymouth). Also delineated wetlands adjacent to the bridges and reviewed the sites for invasive species.

NH Route 152 over the North River Bridge Replacement, Nottingham, NH. Environmental Scientist responsible for delineating wetlands within the project area, reviewing the site for invasive species, and coordinating with resource agencies. Also responsible for preparing the environmental documentation and coordinating the Section 106 Cultural Resource review.

NHDOT Statewide On-Call Environmental Services Agreement, NH. Project Manager for a 3-year contract with the New Hampshire Department of Transportation. Tasks included NEPA documentation, wetland delineation and permitting, invasive species surveys, agency coordination, and bat acoustic surveys for various bridge rehabilitation and highway improvement projects.

ROUNDABOUT DESIGN NH ROUTE 28 AND ROUTE 171 INTERSECTION

OSSIPEE, NH

NHDOT | Project Duration 2018-2020 | Construction Value $2.2M

SERVICES
Roadway Design
Drainage Design
Stormwater Design
Public Participation
Survey / ROW

ROLE: Prime

CLIENT REFERENCE
Keith Cota, PE
NHDOT
Bureau of Highway Design
7 Hazen Drive, PO Box 483
Concord, NH 03302
603-271-1615
Keith.Cota@dot.nh.gov

GM2 completed Preliminary and Final Design services, permitting support, as well as Right of Way (ROW) delineation and Registry Plan development for the NH Route 28 and NH Route 171 intersection in Ossipee. The scope of work involved the design of a single lane roundabout centered on the existing intersection along with approximately 1,600 feet of roadway reconstruction on NH Route 28 and approximately 400 feet on NH Route 171. In addition to the roadway design, GM2 coordinated with Carroll County to design waterline relocations for the existing facilities within the intersection. A closed drainage system along with a stormwater treatment swale were also incorporated into the project's design. This project was identified for safety improvements by NHDOT due to history of severe and/or fatal crashes, most recently in the summer of 2018. Due to the safety concerns, the project schedule was accelerated in order for construction to begin in the summer of 2019, leaving 9 months to complete final design, ROW acquisitions and permitting.

AYERS POND ROAD BRIDGE OVER WOODWARD BROOK

WASHINGTON, NH

Town of Washington | Project Duration 2019 | Contract Value $24K

SERVICES
Bridge Design
Roadway Design
Survey

ROLE: Prime

CLIENT REFERENCE
Ed Thayer
Director of Public Works
Town of Washington
7 Halfmoon Pond Road
Washington, NH 03280
603-495-3641
ethayer@washingtonnh.org

GM2 provided Final Design services for this bridge replacement project. This existing 17-foot span bridge carrying Ayers Pond Road traffic over Woodward Brook was on the Red List and was not adequate to convey recent storm events. The replacement structure has a clear span of 36-feet and is constructed of reinforced concrete abutments and wing walls and has a new glued laminated timber superstructure. This project fully funded by the Town of Washington.

CHESTNUT STREET, WASHINGTON STREET & CENTRAL AVENUE BRIDGES

DOVER, NH

City of Dover | Project Duration 2018-2019 | Contract Value $44K

SERVICES
Bridge Design
Roadway Design
Survey

ROLE: Prime

CLIENT REFERENCE
David White
Director of Public Works
Town of Dover
288 Central Avenue
Dover, NH 03820
603-516-6450
d.white@dover.nh.gov

GM2 recently developed the plans and specifications for three (3) bridge and roadway projects for the City of Dover. The projects included related work at the Chestnut Street (pictured), Washington Street, and Central Avenue bridges. Between all 3 projects, GM2 was tasked with lane configuration modifications, expansion joint and deck slab evaluations and subsequent repair details, and an evaluation of a broken water main and development of repair details. All field work, evaluations, design, plans, specifications, estimates, and bid documents were completed in a 60-day timespan.

RECONSTRUCTION OF US ROUTE 1 AND DESIGN OF THE NORTH ROAD INTERSECTION RELOCATION

NORTH HAMPTON, NH

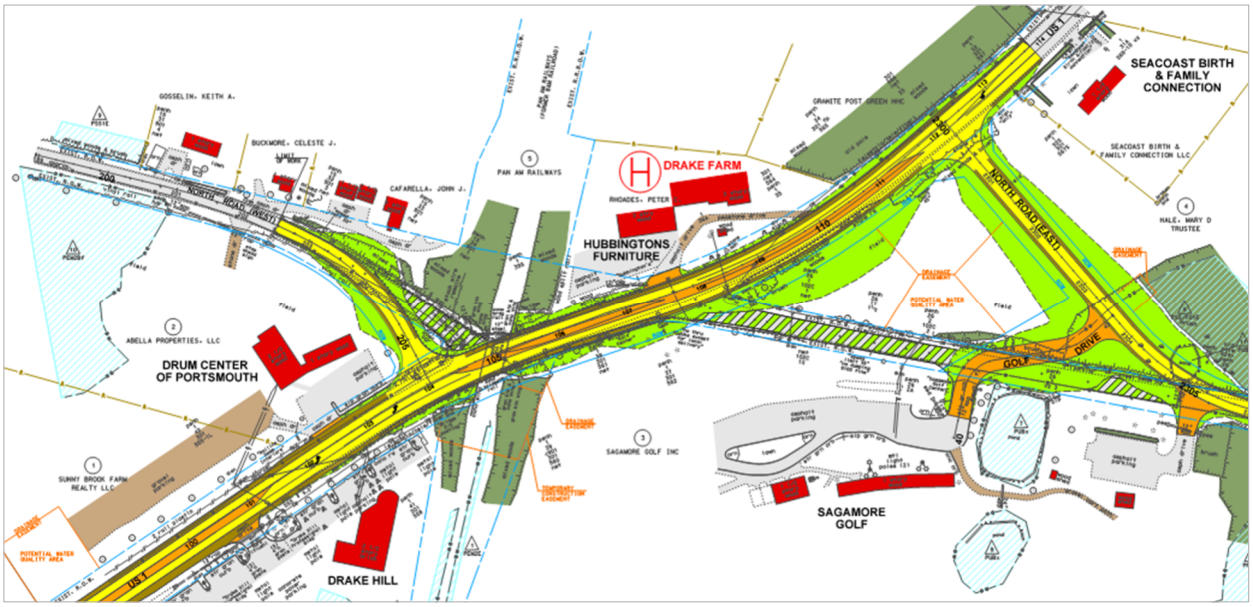
NHDOT | Project Duration 2014-Present | Construction Value $2M

SERVICES
Alternatives Development & Analysis
Roadway Design
Bridge Design
NEPA Documentation
Public Participation
Survey / ROW

ROLE: Prime

CLIENT REFERENCE
Keith Cota, PE
NHDOT
Bureau of Highway Design
7 Hazen Drive, PO Box 483
Concord, NH 03302
603-271-1615
Keith.Cota@dot.nh.gov

GM2 recently completed the Preliminary Design and NEPA documentation for the Reconstruction of US Route 1, the North Road Intersections, and the bridge carrying US Route 1 over the former B&M Railroad in North Hampton. The scope of work included approximately 1200-feet of roadway reconstruction on US Route 1, relocation of the North Road intersections, roadside design, drainage design, and bridge design. The roadway is being widened to better accommodate a center turn lane and to improve existing roadway geometric deficiencies and drainage. The existing intersections did not have proper sight distance which warranted their relocation to provide safer entrance to/from US Route 1. Overhead utilities and a major waterline may require relocation as GM2 enters the Part B Final Design phase. GM2 is responsible for all design, NEPA documentation, and public participation for this project.



SAVAGE ROAD OVER UNNAMED BROOK

MILFORD, NH

Town of Milford | Project Duration 2015 (3 months) | Contract Value $149K

GM2 provided bridge and roadway design, survey, and environmental permitting services to replace the twin metal pipe-arches on Savage Road. GM2 conducted the hydraulic analysis and determined that two 60-inch diameter reinforced concrete pipes with flared concrete end sections would be the most cost-effective solution for replacement of the 84” x 58” pipe arches. GM2 completed the field survey, hydraulic analysis, design, and permitting in less than 10 weeks. Construction is complete.

SERVICES
Bridge Design
Environmental Permitting
Hydraulics
Roadway Design
Survey

ROLE: Prime

CLIENT REFERENCE
Rick Riendeau
Director of Public Works
Town of Milford
289 South Street
Milford, NH 03055
603-673-1662
rriendeau@milford.nh.gov