

## **GENERAL ENGINEERING SCOPE OF WORK**

### **Purpose**

The General Engineering Consultant (GEC) for the Maine Turnpike Authority (Authority) shall provide qualified technical and professional personnel to perform the duties and responsibilities assigned under the terms of this Contract.

### **General Requirements**

The General Turnpike Revenue Bond Resolution (Bond Resolution) adopted by the Authority on April 18, 1991, as amended and supplemented, in part, stipulates the duties and responsibilities of the GEC. The GEC shall be an independent engineer or engineering firm or corporation having a nationwide and favorable reputation for skill and experience in such work, as set forth in Section 805 of the Bond Resolution. The GEC must provide sufficient staffing levels, both in numbers and appropriate personnel, to adequately address the scope, magnitude and number of assignments.

The GEC shall be responsible for the thorough understanding of the requirements pertaining to the services required. All services provided by the GEC shall be in strict conformance with the Authority's Engineering Consultant General Conditions, unless detailed otherwise in this Scope of Work. The GEC shall become familiar with the Authority's procedures, presentation and coordinating requirements necessary for the effective performance of these services.

### **Services Required Under Contract**

There are three (3) types of services required under this contract:

- Services Required by the Turnpike Bond Resolution,
- Supplementary GEC Services,
- Additional Services Upon Request

All of these services shall be initiated by the Authority through the Task/Project Order Process. Judgment on the content of the scope of the Task/Project Order will be with the Authority. To the extent that the Authority determines necessary, some of the Supplementary GEC Services and any of the Additional Services Upon Request may be performed by another qualified, independent consultant.

### **Services Required by Turnpike Bond Resolution**

The GEC shall perform the following duties and responsibilities required of “Consulting Engineers” as set forth in the Bond Resolution and as requested by the Authority. In particular, such duties and obligations shall consist of the services enumerated in the specific sections of the Bond Resolution that are referenced hereinafter.

To the extent the GEC deem it reasonably necessary, the GEC may rely upon certifications and statements made by other independent consultants approved by the Authority they deem necessary in the performance of their duties under the Bond Resolution.

#### **Section 204(c). Issuance and Delivery of Additional Bonds**

The GEC shall prepare and provide a report containing capital cost estimates and projected operating expenses and projected required maintenance deposits, as required with the issuance of Additional Bonds, as set forth in Paragraph (c) of Section 204 of the Bond Resolution.

#### **Section 802. Toll Schedules and Revisions**

The GEC shall make recommendations as to a revised schedule of tolls, as set forth in Paragraphs (b) and (c) of Section 802 of the Bond Resolution. The Authority may also request the GEC to prepare a revenue certificate to support any future toll adjustments.

#### **Section 806. Duties of Consulting Engineers**

The GEC shall make an inspection at least once a year of the Turnpike, and, on or before the first day of October of each year, and shall submit to the Authority a report setting forth

- (a) Their findings whether the Turnpike been maintained in good repair, working order and condition,
- (b) Their advice and recommendations as to the proper maintenance, repair and operation of the Turnpike during the ensuing Fiscal Year and an estimate of the amount of money necessary for such purposes
- (c) Their advice and recommendations as to the insurance to be carried under the provisions of Section 807 of the Bond Resolution, and
- (d) Their recommendations as to the amount that should be deposited during the ensuing Fiscal Year to the credit of the Reserve Maintenance Fund for the purposes set forth in Section 508 of the Bond Resolution.

On or before February 28th of each year, the GEC shall submit a draft 4-year Capital Investment Plan (Construction Project List), as required by MTA and in accordance with the Sensible Transportation

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Policy Act of 1991 and rules adopted pursuant to that Act. The draft will detail estimated project amounts for the subsequent years.

#### Section 807. Maintenance of Insurance

The GEC shall certify that insurance coverage provided to the Authority is in amounts necessary or advisable to protect against loss or damage to protect the interest of the Authority and the Bondholder and to provide income during the loss of revenues, as set forth in Paragraph (a) of Section 807 of the Bond Resolution. Such insurances include:

- (a) Multi-risk insurance on the facilities of the Turnpike
- (b) Use and occupancy insurance covering loss of revenues
- (c) Public liability insurance
- (d) Worker's compensation
- (e) Officer's and director's insurance
- (f) Customary insurance for construction or reconstruction projects
- (g) Any additional insurance necessary or advisable.

In the event the Authority elects to self-insure all or any portion of the risks outlined in Paragraph (a) of Section 807 of the Bond Resolution, the GEC shall recommend amounts to deposit into the Insurance Account.

#### Section 808. Insurance Policies and Application of the Proceeds

If portions of the Turnpike shall be damaged or destroyed and the proceeds of any insurance paid on account of such damage are insufficient to pay the cost of reconstruction or replacement, the GEC shall determine, in accordance with Paragraph (b) of Section 808 of the Bond Resolution, the extent of monies that can be made available from the Reserve Maintenance Fund to apply to the deficiency. The GEC shall furnish a certificate to the Authority indicating such monies are not needed to be reserved for the purposes of the Reserve Maintenance Fund.

#### Section 809. Security for Contracts

In accordance with Paragraph (b) of Section 809 of the Bond Resolution, the GEC shall review and approve all requests for final payment for completed construction contracts and requests for payment on substantially completed construction contracts that request a reduction in retained amounts. In connection with the latter, the GEC shall determine the amounts reasonable required to be retained to secure satisfactory performance of the remaining work under the contract. Prior to approving all requests for final payments on completed construction contracts, the GEC shall attend and participate in the final field inspection on all construction contracts. Also, at such time prior to final payment that a contractor may request

a reduction in retained amounts on said substantially completed construction project, the GEC shall perform a field review of construction progress to determine the amount reasonably required to secure satisfactory performance of the remaining work under the construction contract as the basis for recommending the release of retained monies to the contractor.

### **Supplementary GEC Services**

In addition to performing those duties and obligations required by the Bond Resolution, the GEC shall, when requested, perform supplementary services that are important to develop and maintain a level of knowledge of the condition of the physical facilities and operations of the Maine Turnpike. That knowledge will enhance the value of the GEC's services to the Maine Turnpike Authority and its bondholders.

All of the supplementary services, as set forth hereinafter, will assist the GEC to properly prepare estimates and provide the certifications required for the "Consulting Engineers" under the Bond Resolution. In addition, the GEC shall also provide other supplementary services that must be performed on a recurring and continuing basis, in order to protect the interests of the bondholders and to otherwise provide the GEC with continuous access to the planning, construction, operation and maintenance of the Maine Turnpike. Included in these supplementary services are the following:

1. Attendance by the GEC's Managing Principal, or designee as approved by the Authority, at monthly Maine Turnpike Authority Board Meetings as well as other meetings, as required, such as meetings with rating agencies.
2. Consult, advise and render professional opinions and advice on general engineering problems that arise in connection with the operation and maintenance of the Maine Turnpike. Detailed studies and analyses to develop engineering solutions to design and construction problems would be the subject of further negotiations with the Authority with respect to scope and compensation and are not included herein.
3. Provide an estimate of the current replacement cost for the Maine Turnpike bridges for the Authority's use in discussions with its insurance consultants for the purpose of determining a suitable level of insurance coverage.
4. Review schedules for capital improvement projects and programs. Provide input on coordination of construction contract award schedules.
5. Verify the findings and cost estimates of other consultants, so that the GEC can base its estimates required by the Bond Resolution upon all available information and data.
6. Communicate with the Authority and attend, as may be appropriate, strategic meetings to maintain a basic level of knowledge of the planning and development activities on the projects comprising the Authority's Capital Program.

7. Conduct periodic reviews of Maine Department of Transportation specifications, standard details, design manuals and guides and other state and national manuals and design guides for applicability to Authority needs.
8. Advise or provide assistance managing the Authority's Project Development Manual, Construction Manual, Surveying Manual and Work Zone Traffic Control Plans, as well as policies and procedures for managing right of way and utilities and other required manuals and standard documents.
9. Maintain the Turnpike Bridge Inventory. This includes updating the inventory information to reflect the latest annual inspection and reporting the revised bridge inventory information.
10. Perform traffic data computations. This includes collecting traffic count station data, evaluating new data for accuracy and providing a periodic summary and analysis of the data as requested by the Authority.
11. Participate in general long term planning, revenue forecasting and other executive or Board level administrative processes. This includes but is not limited to preparing reports, documents or other engineering analysis in support of the 30-year financial plan as required by the Authority. For planning purposes, the GEC shall provide the Authority with a proposed construction project list for the ensuing 4 years, including the ensuing fiscal year.
12. Periodically perform updates to the existing traffic and revenue model.
13. Review and recommend encumbrances, leases and outsales of real property. In the event the Authority elects to sell, mortgage, lease or otherwise dispose of or encumber any real property, the Authority may engage the GEC to render an opinion on if the sale, mortgage, lease or other disposition is in accordance with prudent practice for a turnpike or highway system similar in scope and character to the Turnpike.

### **Additional Services Upon Request**

The Consultant may be required to provide additional staffing resources and expertise to the Authority's Engineering, Government Relations/Planning, and Finance/Toll departments, as requested by the Authority. These services may include, but are not necessarily limited to the following:

#### **Engineering Program support:**

1. Provides general assistance to Authority's Engineering Program Manager with managing overall capital and maintenance program and working on projects in planning and permitting stage but not necessarily taking them all to design and construction.
2. May perform feasibility investigations and preliminary design engineering for projects as requested in order to develop refined project scopes and construction cost estimates.
3. May perform design and provide project specifications, plans and estimates for smaller, minor projects if the use of the GEC is in the best interest of the Authority.
4. Provide consultation and advice to the Authority on an as-needed basis during the construction period on construction matters relating to the execution, progress and completion of construction work or the interpretation of the contract documents.

**Traffic Engineering support:** provides resources to assist with general traffic engineering, sign design and support in interpreting the needs identified in the Manual on Uniform Traffic Control Devices.

**Environmental engineering support:** provides support for storm water management and drainage issues. Provides consultation and advice to the Authority in the investigation of environmental regulations and the preparation of permits in support of construction projects.

**Finance/Toll system support:** provides Finance/Toll department with intelligent transportation system (ITS) engineering support, and general toll system support.

**Planning support:** Provides government relations department with general planning assistance, alternative transportation program management assistance, and performs studies and other projects as needed.

**Construction Inspection support:** Provides qualified construction inspection and/or Resident Engineering services to supplement the Authority's staff on construction projects.

**Unanticipated Repairs:** In the case of any future or unanticipated repairs and/or improvement programs which might arise as the result of any field inspection, architectural, mechanical and/or electrical testing and investigation, the CPM shall, at the direction and approval of the Authority, provide the needed services. The CPM may be directed by the Authority to provide

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complete 100% design, plans, specifications and estimates for projects and assignments as determined necessary by the Authority.

Emergency Repairs: At the direction of the Authority, in any case in which a condition is found to exist which, in the opinion of the Authority, with the advice and counsel of the GEC, poses an imminent risk to public health and safety and the safe operation of the facilities, the CPM shall prepare the design and construction documents for fast track construction to complete the emergency repairs.

Other additional services:

1. Detailed inspection or additional engineering studies in connection with the conditions of specific structures or other elements of the Maine Turnpike;
2. Prepare for and appear as a witness on behalf of the Authority in any litigation, public hearing or other similar forum which may require testimony or presentation by the GEC;
3. Special engineering studies necessary to evaluate existing or future projects for bonding purposes;
4. Prepare a Needs Assessment for system wide traffic operations and safety for the Turnpike facility when required by the Authority; and
5. Any other services deemed appropriate.

**Task/Project Order Process**

All required, supplementary and additional services shall be managed through the Task/Project Order Process. No work shall proceed until a Task/Project Order has been approved and executed by the Authority and executed by the GEC. In order to satisfactorily complete a Task/Project Order, the GEC will be required to provide the following information:

1. Estimated number of hours by position level, required to satisfactorily complete the project requirements;
2. Personnel proposed for assignment to the project; including contact person;
3. Total estimated cost to complete the assignment;
4. A written understanding of the project requirements, including deliverables; and
5. A project schedule complete with milestones and completion date.

**Coordination and Administration of Services**

The GEC will coordinate its activities with assigned Authority personnel throughout the course of this contract. Early on, the GEC will establish a means of coordinating and reporting its activities with the designated project liaison to ensure an expeditious exchange of information. A detailed description of all activities conducted under this Contract shall be provided as part of

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each month's progress report, including the activities of the GEC's managing principal and any on-call services provided at the request of the Authority.

The GEC may be required to contact and/or meet with representatives of state, municipal and/or other agencies. The GEC shall coordinate with the Authority staff on all meetings so that Authority personnel can attend, if necessary. The GEC shall prepare Memoranda of Record for all meetings.

All correspondence, invoices and transmittals shall be referenced by the Authority's Project number, the Authority's Contract number and when appropriate, the specific Task/Project Order number.

The GEC's Managing Principal and Project Manager of any Task/Project Order shall not be removed from the project without prior written approval from the Authority's Executive Director or his representative. The GEC shall also present for Authority's Executive Director's approval the appropriate person to be assigned for the position vacated.

#### **Professional Liability Insurance**

The subsection "Professional Liability" of the Engineering Consultant General Conditions is deleted and replaced by the following paragraph for the purpose of work under this Contract.

The GEC shall purchase and maintain a Professional Liability insurance policy for errors and omissions that provides minimum liability coverage of \$2,000,000 per claim and annual aggregate. Sub-Consultants engaged by the GEC shall purchase and maintain a Professional Liability insurance policy for errors and omissions that provides minimum liability coverage of \$1,000,000 per claim and annual aggregate. The GEC's policy shall cover negligent acts, errors or omissions by the GEC and Sub-Consultants engaged by the GEC and any other person or entity for whom the GEC is legally liable arising out of the rendition of services pursuant to the Contract. Each Sub-Consultant's policy shall cover negligent acts, errors and omissions of the Sub-Consultant. The Authority reserves the right to adjust liability coverage on a project-by-project basis as it deems appropriate.

#### **Responsibilities of the Authority**

The Authority will furnish, without cost to the GEC, services and data to the GEC in connection with services performed under the terms of this contract, as deemed necessary.