

**Massachusetts Department of Transportation - Highway Division**  
**Agreement**

**Amount Range: \$500,000 and up**

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<b>Originating Office:</b> <u>Utilities</u>	<b>Agreement #:</b> <u>64287</u>
<b>Agreement Type:</b> <u>Municipal Earmark/Bond Agreement</u>	<b>Project ID:</b> <u>604532, 605189</u>
<b>Project/Location:</b> <u>Acton-Bruce Freeman Rail Trail</u>	
<b>Vendor/Party Name:</b> <u>Town of Acton</u>	
<b>Vendor/Party Address:</b> <u>472 Main Street</u>	
<u>Acton, MA 01720</u>	
<b>Original Max. Obligation:</b> <u>\$1,431,500.00</u>	<b>Completion Date/Duration:</b> <u>6/30/2015</u>
<b>NTP Date:</b> <u>6-27-2011</u>	<b>Federal Aid Number:</b> <u>STP-002-S-032-000</u>

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**Description:**

Attached are two (2) copies of Agreement Number 64287 in the amount of \$1,431,500.00 between the MassDOT, and the Town of Acton (acting as the lead community), relative to the design and upgrading of the roadway network associated with said project. The Non-Federal Aid portion in the amount of \$1,031,500.00 will be funded through 100% State Funds:NFA Capital Funds. The Federal Aid portion in the amount of \$400,000.00 was approved by the FHWA on June 10, 2011. Following approval, one (1) copy should remain in the files of MassDOT and one (1) copy should be forwarded to:

Town of Acton  
472 Main Street  
Acton, MA 01720


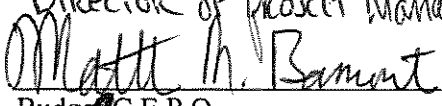
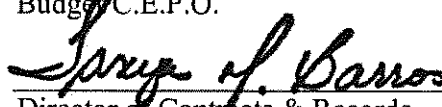
Attention: Steven Ledoux-Town Manager

GR/ker

cc: Utilities, Construction, District 3 State Aid-Kati Murphy, Project Management


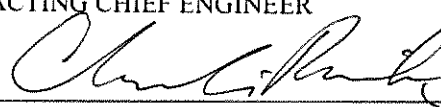
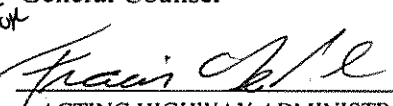
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**Submitted By:**

	<u>6/20/11</u>
	Date
<u>Marie Rose</u>	<u>6/20/11</u>
Director of Project Management	Date
	<u>6/21/11</u>
Budget C.E.P.O.	Date
	<u>6/27/11</u>
Director of Contracts & Records	Date

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**Approved By:**

	<u>6/22/11</u>
ACTING CHIEF ENGINEER	Date
	<u>6/23/11</u>
General Counsel	Date
For 	<u>6/23/11</u>
ACTING HIGHWAY ADMINISTRATOR	Date
<u>N/R</u>	
Secretary/CEO	Date

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Deval L. Patrick, Governor  
Timothy P. Murray, Lt. Governor  
Jeffrey B. Mullan, Secretary & CEO  
Frank DePaola, Acting Administrator



AGREEMENT  
NOTICE TO PROCEED

June 29, 2011

Town of Acton  
472 Main Street  
Acton, MA 01720

Agreement Number: 64287  
Action Item #: 13  
Action Item Date: June 29, 2011

Dear Steven Ledoux:

Enclosed is a signed copy of your agreement between the Massachusetts Department of Transportation, Highway Division and Town of Acton, relative to an agreement in the amount of \$1,431,500.00 with regards to the design and upgrading of the roadway project on the Bruce Freeman Rail Trail in Acton.

In accordance with the terms of this agreement, you are hereby notified to commence work on June 27, 2011. This work is scheduled to be completed on June 30, 2015.

Thank you,

Tanya M. Barros  
Director of Contracts & Records

TMB/Inc

cc:

FHWA  
Fiscal  
Contracts & Records

E-Mail:

Guy Rezendes, Utilities  
Andrew Nunes, Construction  
Suzette Cunha, D3 Construction  
Mohamed Zawahreh, D3 Construction  
David Maylott, D3 Construction  
Michael Hartnett, D3 Construction  
Thomas Emerick, D3 DUCE  
David Shedd, Project Management  
Kati Murphy, D3 State Aid

# COMMONWEALTH OF MASSACHUSETTS - STANDARD CONTRACT FORM



This form, to be used for New Contracts and Contract Amendments/Renewals, is jointly issued and published by the Executive Office for Administration and Finance (ANF), the Office of the Comptroller (CTR) and the Operational Services Division (OSD) for use by all Commonwealth Departments. Any changes to the official printed language of this form shall be void. Additional non-conflicting terms may be added by Attachment. Contractors should only complete sections marked with a "→". For Instructions and hyperlinks (italics), please view this form at: [www.mass.gov/osc](http://www.mass.gov/osc) under Guidance For Vendors - Forms or at [www.mass.gov/osd](http://www.mass.gov/osd) under OSD Forms.

<p>→ <u>Contractor Legal Name</u> (and d/b/a): TOWN OF ACTON</p> <p>→ <u>Legal Address</u> (from W-9): 472 MAIN ST., ACTON, MA 01720</p> <p>→ <u>Payment Remittance Address</u> (from W-9): SAME AS ABOVE</p> <p>→ <u>Contract Manager</u>: STEVEN LEDOUX</p>	<p><u>Department MMARS Alpha Code and Name</u>: MassDOT- HIGHWAY DIVISION</p> <p><u>Business Mailing Address</u>: 10 PARK PLAZA – ROOM 6340, BOSTON, MA 02116</p> <p><u>Billing Address</u> (if different):</p> <p><u>Contract Manager</u>: GUY REZENDES</p>
<p>→ <u>E-Mail Address</u>:</p> <p>→ <u>Fax</u>:</p> <p>→ <u>State of Incorporation</u> (if a corporation) or "N/A": N/A</p> <p>→ <u>Vendor Code</u>: 6000191689 - AD/001</p> <p><u>MMARS Object Code</u>: N21</p>	<p>→ <u>Phone</u>:</p> <p>→ <u>TTY</u>:</p> <p><u>E-Mail Address</u>: guy.rezendes@state.ma.us</p> <p><u>Fax</u>:</p> <p><u>MMARS Doc ID(s)</u>: CT-DOT-6433-INTF-00X0-2011-A-00-64287</p> <p><u>RFR/Procurement or Other ID Number</u> (if applicable): 0064287</p> <p><u>Account(s) Funding Contract</u>: 6121-0816</p>
<p style="text-align: center;"><b><u>X</u> NEW CONTRACT</b></p> <p><u>COMPENSATION</u> (Check only one):</p> <p><u>X</u> Total <u>Maximum Obligation</u> of this Contract \$ 1,431,500.00</p> <p><u>Rate Contract</u> (Attach details of rate(s) units and any calculations):</p> <p>The following <u>COMMONWEALTH TERMS AND CONDITIONS</u> for this Contract has been executed and filed with CTR (Check only one):</p> <p><u>X</u> Commonwealth Terms And Conditions</p> <p><u>Commonwealth Terms And Conditions For Human And Social Services</u></p> <p><u>PROCUREMENT OR EXCEPTION TYPE</u> (Check one option only):</p> <p><u>X</u> Single Department Procurement/Single Department User Contract</p> <p><u>Single Department Procurement/Multiple Department User Contract</u></p> <p><u>Multiple Department Procurement/Limited Department User Contract</u></p> <p><u>Statewide Contract (OSD or an OSD-designated Department)</u></p> <p><u>Grant (as defined by 815 CMR 2.00)</u></p> <p><u>Emergency Contract (attach justification)</u></p> <p><u>Contract Employee (Complete <u>Employment Status Form</u>)</u></p> <p><u>Collective Purchase (attach OSD approval)</u></p> <p><u>Legislative/Legal Exemption (attach authorizing language)</u></p> <p><u>Other (Specify and attach documentation):</u></p> <p><u>ANTICIPATED START DATE</u>: 6/27/2011 (Enter the Date Contract Obligations may begin. Review Certification for Effective Date Below prior to entry.)</p> <p><u>CONTRACT END DATE</u>: JUNE 30, 2015</p>	<p style="text-align: center;"><b><u>CONTRACT AMENDMENT/RENEWAL</u></b></p> <p>ENTER <u>CURRENT CONTRACT START</u> and <u>END DATES</u> (prior to amendment)</p> <p>Current Start Date: _____ Current End Date: _____</p> <p><u>COMPENSATION</u>: (Check Either, "No Compensation Change", "Maximum Obligation" or "Rate change". ATTACH Amended Scope and Budget to support Amendment.)</p> <p><u>NO Compensation Change (Skip to "OTHER" section below and select change)</u></p> <p><u>Redistribute Budget Line Items (No Maximum Obligation Change)</u></p> <p><u>Maximum Obligation Change</u></p> <p>a) <u>Current Total Contract Maximum Obligation</u>: \$ _____ (Total Contract Maximum Obligation, including all prior amendments).</p> <p>b) <u>Amendment Amount ("+" or "-")</u>: \$ _____</p> <p>c) <u>NEW TOTAL CONTRACT MAXIMUM OBLIGATION</u>: \$ _____</p> <p><u>Rate Changes to Rate Contract</u></p> <p><u>OTHER</u>: (Check option, explain under "Brief Description" below, and attach documentation.)</p> <p><u>Amend Duration Only (No Compensation or Performance Change)</u></p> <p><u>Amend Scope of Services/Performance Only (no budget impact)</u></p> <p><u>Interim Contract (Temporary Extension to complete new Procurement)</u></p> <p><u>Other: (Describe Details and Attach documentation):</u></p> <p><u>ANTICIPATED START DATE</u>: _____ (Enter the Date Amendment Obligations may begin. Review Certification for Effective Date Below prior to entry.)</p> <p><u>NEW CONTRACT END DATE</u>: _____</p>
<p>→ <u>PROMPT PAYMENT DISCOUNTS</u>. Contractor has agreed to the following Prompt Pay Discounts for the listed Payment Issue Dates. See <u>Prompt Payment Discount Policy</u>.</p> <p><u>% Within 10 Days</u> <u>% Within 15 Days</u> <u>% Within 20 Days</u> <u>% Within 30 Days</u> OR, Check off the following if:</p> <p><u>X</u> Contractor either claims hardship, or chooses not to provide PPD, or compensation is not subject to prompt pay discounts (grants, non-commodity or non-service compensation)</p>	
<p><u>BRIEF DESCRIPTION OF CONTRACT PERFORMANCE OR REASON FOR AMENDMENT</u> (Reference to attachments is insufficient): THE TOWN OF ACTON (ACTING AS THE LEAD COMMUNITY W/ WESTFORD, CARLISLE &amp; CONCORD) HAS PROCURED THE SERVICES OF THE CONSULTING FIRM OF GREENMAN PETERSON, INC. (GPI) TO REDESIGN AND UPGRADE THE ROADWAY NETWORK ASSOCIATED WITH THE BRUCE FREEMAN TRAIL (PHASE 2A &amp; 2C) DESIGN PROJECT. (604532 &amp; 605189)</p>	
<p><u>CERTIFICATIONS</u>: Notwithstanding verbal or other representations by the parties, or an earlier Start date listed above, the "Effective Date" of this Contract or Amendment shall be the latest date this Contract or Amendment has been executed by an authorized signatory of the Contractor, the Department, a later Contract or Amendment Start Date specified above, or the date of any required approvals. By executing this Contract/Amendment, the Contractor makes, under the pains and penalties of perjury, all certifications required under the attached <u>Contractor Certifications</u>, and has provided all required documentation noted with a "→", or shall provide any required documentation upon request, including the terms of the applicable Commonwealth Terms and Conditions available at <a href="http://www.mass.gov/osc">www.mass.gov/osc</a> under <u>Guidance For Vendors - Forms</u> or at <a href="http://www.mass.gov/osd">www.mass.gov/osd</a> under <u>OSD Forms</u>, the terms of the attached <u>Instructions</u>, the Request for Response (RFR), solicitation (if applicable) or other authorization, the Contractor's response to the RFR or solicitation (if applicable), and any additional negotiated performance or budget provisions. The terms of this Contract shall survive its termination for the purpose of resolving any claim, dispute or other Contract action, or for effectuating any negotiated representations and warranties. THE PARTIES HEREBY ALSO CERTIFY THAT (Check one option only):</p> <p>1. <u>X</u> the Contractor has NOT incurred any obligations triggering a payment obligation for dates prior to the Effective Date of this Contract or Amendment; OR</p> <p>2. <u>any obligations incurred by the Contractor prior to the Effective Date of this Contract or Amendment (for which a payment obligation has been triggered) are intended to be part of this Contract/Amendment and shall be considered a final Settlement and Release of these obligations which are incorporated herein, and upon payment of these obligations, the Contractor forever releases the Commonwealth from any further claims related to these obligations.</u></p>	
<p><u>AUTHORIZING SIGNATURE FOR THE CONTRACTOR</u>:</p> <p>→ X: _____ Date: 6/15/11</p> <p>(Signature and Date Must Be Handwritten At Time of Signature)</p> <p>→ <u>Print Name</u>: Steven L Ledoux</p> <p>→ <u>Print Title</u>: Town Manager</p>	<p><u>AUTHORIZING SIGNATURE FOR THE DEPARTMENT</u>:</p> <p>X: _____ Date: 6/22/11</p> <p>(Signature and Date Must Be Handwritten At Time of Signature)</p> <p><u>Print Name</u>: FRANCIS A. DEPAOLA, P.E.</p> <p><u>Print Title</u>: ACTING HIGHWAY ADMINISTRATOR</p>

COMMONWEALTH OF MASSACHUSETTS  
CONTRACTOR AUTHORIZED SIGNATORY LISTING

Issued May

2004



CONTRACTOR LEGAL NAME : Town of Acton  
CONTRACTOR VENDOR/CUSTOMER CODE:

**INSTRUCTIONS:** Any Contractor (other than a sole-proprietor or an individual contractor) must provide a listing of individuals who are authorized as legal representatives of the Contractor who can sign contracts and other legally binding documents related to the contract on the Contractor's behalf. In addition to this listing, any state department may require additional proof of authority to sign contracts on behalf of the Contractor, or proof of authenticity of signature (a notarized signature that the Department can use to verify that the signature and date that appear on the Contract or other legal document was actually made by the Contractor's authorized signatory, and not by a representative, designee or other individual.)

**NOTICE:** *Acceptance of any payment under a Contract or Grant shall operate as a waiver of any defense by the Contractor challenging the existence of a valid Contract due to an alleged lack of actual authority to execute the document by the signatory.*

For privacy purposes **DO NOT ATTACH** any documentation containing personal information, such as bank account numbers, social security numbers, driver's licenses, home addresses, social security cards or any other personally identifiable information that you do not want released as part of a public record. The Commonwealth reserves the right to publish the names and titles of authorized signatories of contractors.

AUTHORIZED SIGNATORY NAME	TITLE
<u>Steven L. Lebov</u>	<u>Town Manager</u>

I certify that I am the President, Chief Executive Officer, Chief Fiscal Officer, Corporate Clerk or Legal Counsel for the Contractor and as an authorized officer of the Contractor I certify that the names of the individuals identified on this listing are current as of the date of execution below and that these individuals are authorized to sign contracts and other legally binding documents related to contracts with the Commonwealth of Massachusetts on behalf of the Contractor. I understand and agree that the Contractor has a duty to ensure that this listing is immediately updated and communicated to any state department with which the Contractor does business whenever the authorized signatories above retire, are otherwise terminated from the Contractor's employ, have their responsibilities changed resulting in their no longer being authorized to sign contracts with the Commonwealth or whenever new signatories are designated.

Signature

Date: 8/16/12

Title: Town Manager

Telephone: 778-925-6111

Fax: 95

Email: slbov@acton-ma.gov

[Listing can not be accepted without all of this information completed.]

A copy of this listing must be attached to the "record copy" of a contract filed with the department.

COMMONWEALTH OF MASSACHUSETTS  
CONTRACTOR AUTHORIZED SIGNATORY LISTING

Issued May  
2004



CONTRACTOR LEGAL NAME :  
CONTRACTOR VENDOR/CUSTOMER CODE:

PROOF OF AUTHENTICATION OF SIGNATURE

This page is optional and is available for a department to authenticate contract signatures.  
It is recommended that Departments obtain authentication of signature for the signatory  
who submits the Contractor Authorized Listing.

This Section MUST be completed by the Contractor Authorized Signatory in presence of notary.

Signatory's full legal name (print or type): Steven Leo Ledoux

Title: Town manager

X [Signature]

Signature as it will appear on contract or other document (Complete only in presence of notary):

AUTHENTICATED BY NOTARY OR CORPORATE CLERK (PICK ONLY ONE) AS FOLLOWS:

I, Maura Ann Haberman (NOTARY) as a notary public certify that I witnessed  
the signature of the aforementioned signatory above and I verified the individual's identity on this date:

August 16, 20 10

My commission expires on:

Jan 12, 2012



MAURA ANN HABERMAN  
Notary Public  
Commonwealth of Massachusetts  
My Commission Expires  
January 12, 2012

AFFIX NOTARY SEAL

I, \_\_\_\_\_ (CORPORATE CLERK) certify that I witnessed the  
signature of the aforementioned signatory above, that I verified the individual's identity and confirm the individual's  
authority as an authorized signatory for the Contractor on this date:

\_\_\_\_\_, 20 \_\_\_\_

AFFIX CORPORATE SEAL

Agreement Number 64287

Date: 6.27.2011

FHWA Transportation Enhancement funding & Massachusetts State Capitol Funds

MUNICIPALITY: ACTON (LEAD COMMUNITY)

PROJECT: BRUCE FREEMAN TRAIL (PHASE 2A and 2C) DESIGN AGREEMENT

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This Agreement made and entered into by and between the MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, hereinafter called "MassDOT", and the MUNICIPALITY OF ACTON (acting as the Lead Community) (hereinafter called the "MUNICIPALITY") and

WHEREAS, the MUNICIPALITY has procured the services of the consulting firm of GREENMAN PETERSON, INC (GPI). (hereinafter called the "DESIGN ENGINEER") to redesign and upgrade the roadway network associated with the BRUCE FREEMAN RAIL TRAIL (PHASE 2) DESIGN PROJECT.

WHEREAS, MassDOT has prequalified the DESIGN ENGINEER to perform the required work through its Architects & Engineers Review Board, see "Exhibit C", and

WHEREAS, A PORTION OF the DESIGN PROJECT is to be financed in part by the Federal Government through its Department of Transportation (hereinafter called the "FHWA"), and

WHEREAS, the eligibility of Federal participation has been established in accordance with FHWA Transportation Enhancement funds AND Massachusetts State Capitol funding.

NOW THEREFORE, in consideration of the premises and mutually dependant covenants herein contained, it is hereby agreed between the parties hereto as follows:

#### DIVISION OF WORK

All necessary labor, materials, equipment and other services shall be furnished by the MUNICIPALITY, through its DESIGN ENGINEER, who shall develop said roadway project to Final Design Plans, Specifications, and Estimate (PS&E).

The MUNICIPALITY shall provide by its own DESIGN ENGINEER, all plans, specifications, contract and environmental documents in accordance with the attached Scope of Work, labeled "EXHIBIT A".

All work done under this contract shall be in conformance with the Massachusetts Highway Department Standard Specifications for Highways and Bridges dated 1988 and the English Supplemental Specifications dated December 11, 2002; the Standard Special Provisions contained in this book, the 1977 Construction Standards and the Supplemental Drawings dated April 2003; the latest edition of the Manual on Uniform Traffic Control Devices with revisions; the 1990 Standard Drawings for Signs and Supports; the 1968 Standard Drawings for Traffic Signals and Highway Lighting; the latest edition of American Standard for Nursery Stock; the Plans and these Special Provisions, 521 CMR Rules and Regulations of the Architectural Access Board (AAB) and Americans with Disabilities Act (ADA), any and all state or federal regulations, and/or to the satisfaction of MassDOT's Chief Engineer.

Any and all approvals made by MassDOT during the Project's design review shall not relieve the MUNICIPALITY's responsibility for design errors and omissions as specified under this agreement.

In addition, all work shall be done in accordance with the policies of MassDOT and FHWA. The DESIGN ENGINEER's contract with the MUNICIPALITY shall adhere to MassDOT's six Articles of the Standard Provisions for a Consultant Contract, 1993 edition, as applicable and noted within the body of this agreement, and/or "EXHIBIT D". In addition, the said MUNICIPALITY contract shall adhere to the FHWA's 23 CMR 172 Administration of Engineering and Design Related Service Contracts.

MassDOT shall review the DESIGN ENGINEER's work performance at the appropriate stages to ensure that all design tasks are being met.

MassDOT shall forward to FHWA all design documents for review at these appropriate stages.

Therefore, the MUNICIPALITY shall provide a summary of the Workhours expedited by its DESIGN ENGINEER at the 25%, 75%, and 100% design submissions to MassDOT for review and approval. The MUNICIPALITY shall not be allowed to proceed with the said design contract beyond each respective submissions, as described, until the MUNICIPALITY received written approval by MassDOT.

The MUNICIPALITY shall obtain any and all applicable permits and/or clearances required by local, state, and federal agencies, unless otherwise directed by MassDOT. The MUNICIPALITY shall also be responsible for obtaining all easements, property right interests and/or right of way appraisals needed for the construction, unless otherwise directed by MassDOT.

The MUNICIPALITY shall also provide, by its DESIGN ENGINEER, a complete set of plans, specifications, and estimate for the Project which shall be advertised by MassDOT. Any additional funds required for the said roadway project shall be the responsibility of the MUNICIPALITY.



In the event that the MUNICIPALITY believes an extension of time is necessary, the MUNICIPALITY agrees to submit to MassDOT a written request for an extension no later than 60 days prior to the termination date specified on the attached signature page. MassDOT, in its absolute discretion, may agree to grant said request for an extension of time if it finds that sufficient justification has been provided by the MUNICIPALITY.

#### DIVISION OF EXPENSE

The MUNICIPALITY is responsible to pay the 20% share. The COMMONWEALTH will reimburse the MUNICIPALITY for 80% of the actual costs incurred to complete the PROJECT. The total estimated cost is \$1,917,432.00. Given that the MUNICIPALITY has already spent \$496,632 for survey and Preliminary Engineering, therefore the COMMONWEALTH will reimburse up to, but not exceeding \$1,431,500.00. This maximum obligation was negotiated between representatives of MassDOT and the MUNICIPALITY. All costs incurred shall be approved by MassDOT prior to reimbursement by the COMMONWEALTH. Any costs in and above this amount shall be borne by the MUNICIPALITY.

For all services to be performed under this Agreement, the MUNICIPALITY shall be compensated in accordance with the costs plus a net fee payment method. The maximum amounts to be paid under this Agreement are indicated in "EXHIBIT B".

Extra work, change orders, additional items that may arise as a result of any errors, omissions, or at the request of the MUNICIPALITY shall be considered non-participating costs and shall be borne by the MUNICIPALITY.

The Workhour Estimate is attached hereto and made part hereof as "EXHIBIT B".

The DESIGN ENGINEER shall insure that the compensation provisions and cost principals in Federal Acquisition Regulation 31 (Technical Reference 48 CFR, Chapter 1, Part 31 are adhered to and are referenced in contracts with direct expense subconsultants.

The MassDOT Audit Operations has performed a prequalification audit on the DESIGN ENGINEER in accordance with 23 CFR, part 172. See 'EXHIBIT E'. The overhead rate, as indicated in "EXHIBIT B" on allowable indirect costs shall apply notwithstanding, any audit which indicates that higher indirect costs were actually incurred.

The following provisions shall supersede the relative paragraphs of Article VI of the Standard Provisions ("EXHIBIT D"):

- In no event shall the maximum amount to be reimbursed to the MUNICIPALITY under this Agreement exceed the maximum payment figures indicated in "EXHIBIT B", final audit results notwithstanding, except by agreement of all parties.
- The maximum limit of \$90,000 for salaries allowed as a charge to indirect costs, the maximum overhead rate of 135%, and the indirect costs additive rate of 10% are not applicable to this Agreement

MassDOT's current policy to limit the hourly rate for engineering and technical employees is a maximum of \$51.00 per hour. The salaries are capped at the current rates listed within this agreement and cannot be exceeded without the approval of MassDOT.

No CADD machine time charges for computerized drafting or design shall be allowed under direct expenses. No markup will be allowed on Direct Expenses.

Direct Expenses in excess of the stated limit or amended limit, as well as any costs which are directly attributable to this Contract that are not pre-approved in writing as direct expenses, shall be considered to be unallocated costs and shall not be charged to overhead.

Reimbursable direct expenses for private mileage, meals, and lodging shall conform with the following limits:

1. **Private Mileage** - In accordance with present company policy and the Federal Travel Regulations, but limited to a maximum of \$0.40 per mile. Necessary tolls and parking fees will be considered included under said mileage limit.
2. **Meals** - In accordance with present company policy, and the Federal Travel Regulations, but limited to breakfast \$5.00 max, lunch \$10.00 max, and dinner \$20.00 max, except that the cost of meals related to trips made in the course of a normal work day shall not be reimbursed.
3. **Lodging** - Actual costs in accordance with present company policy, and the Federal Travel Regulations, but not to exceed \$125.00 per day, only when the work performed is greater than 50 miles from the Consultant's office or sub-consultant's office, and only when overnight lodging is required. All reimbursable expenses are to be accompanied by a receipt.

The Administration costs incurred by the MUNICIPALITY for the said roadway project are not eligible for reimbursement.

It is understood that rates and cost components used in the estimate are not intended for use as reimbursable billing rates or costs in lieu of actual costs supported by the MUNICIPALITY's accounting records.

Federal participation was received in accordance with the Federal Aid Highway Program listed within the Catalog of Federal Domestic Assistance, identifying number 20.205 (Highway Planning and Construction). The MUNICIPALITY is a sub-recipient of a federal award and is subject to the Single Audit Act Amendments of 1996, Section 7502 (f)(2).

The total of payments made shall be adjusted to conform to a final audit. The total audited amount shall not exceed the maximum fee. Interim audits may be undertaken at any time. Costs will be determined in accordance with Federal Acquisition Regulations (FAR).

Toward compliance with the Single Audit Act Amendments of 1996, the MUNICIPALITY shall engage the services of an independent public accountant to conduct audits and issue audit reports in accordance with OMB circular A-133: Audits of States, Local Governments and Non Profit Organizations.

MassDOT reserves the right to reject IPA audit findings and to perform its own audit and issue its audit reports insofar as this agreement is concerned.

#### METHOD OF PAYMENT TO THE MUNICIPALITY

Section 1. During the course of the PROJECT, the MUNICIPALITY may present monthly progress bills of the incurred costs for approval and payment by MassDOT.

Section 2. Upon the completion of the PROJECT to the satisfaction of MassDOT and the MUNICIPALITY, written notification shall be given to the District Highway Director of MassDOT by the MUNICIPALITY that said work has been completed and, within 120 days thereof, the MUNICIPALITY will submit to MassDOT a final detailed bill (in quintuplicate) as required by the FHWA, and final settlement will then be made between the COMMONWEALTH and the MUNICIPALITY. In addition to the final detailed bill, the MUNICIPALITY may forward to MassDOT all calculations, plans, and environmental documents and other data necessary to complete the PROJECT. This information may be submitted in an electronic format compatible with MassDOT's needs.

Section 3. All reimbursable charges in connection with this Agreement will be subject to audit by representatives of MassDOT and/or FHWA; and the MUNICIPALITY will retain all records and documents pertaining to the Agreement charges until such audit is completed or until written approval to destroy the records is given by MassDOT.

The Governor or his designee, the Secretary of Administration and Finance, and the State Auditor or his designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other complications of data of the MUNICIPALITY which pertain to the performance of the provisions and requirements of this Agreement.

#### FUTURE MAINTENANCE

The MUNICIPALITY shall continue sole responsibility for the maintenance and upkeep of all property associated with the PROJECT and the costs thereof.

#### MISCELLANEOUS

This agreement shall not be considered fully executed, and work shall not commence until MassDOT signs this agreement and the MUNICIPALITY has received an official Notice to Proceed from MassDOT.

#### EXPIRATION DATE

This agreement is set to expire on **June 30, 2015**. If an extension of time is needed beyond this date, a request is needed in writing with a minimum 60-day advance notice before the expiration date.

The request will need to address the current expiration date, the proposed expiration date and any other information deemed necessary.

An extension for this agreement after this date will not be granted and will be terminated.

**MASSACHUSETTS DEPARTMENT OF TRANSPORTATION**

**HIGHWAY DIVISION**

**INTEROFFICE MEMORANDUM**

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TO: Guy Rezendes, P.E., Utility and Agreements Engineer  
FROM: Marie J. Rose, P.E., Director of Project Management  
DATE: June 24, 2010  
RE: ACTON, WESTFORD, CARLISLE AND CONCORD – BRUCE FREEMAN  
RAIL TRAIL-PHASE 2A AND PHASE 2C  
PROJECT No. 604532 & 605189

**Submission of Consultant Scope of Work and Work Hour Estimate using  
Enhancement Funds and Capitol Funds**

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Project Management Section is in receipt of the consultant scope of work and work hours estimate to be used with enhancement funds (\$500,000) and Capital Funds (\$931,500). This contract will provide for a full P.S.& E. including construction phase services.

This project was approved by the Project Review Committee on November 16, 2007 (Proj. No. 604532) and November 24, 2008 (Proj. No. 605189) and involves an 8.5 mile multi use trail through the Towns of Acton, Westford, Carlisle and Concord. The trail will be constructed primarily on an abandoned rail bed and includes construction, replacement or rehabilitation of 10 bridges.

The Town of Acton is acting as the representative for the project on all financial matters and is designated as the lead community. Attached is the Intermunicipal Agreement signed by Acton, Westford, Acton and Concord.

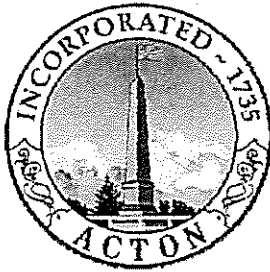
The total cost to design the project is \$1,917,432. This amount reflects \$496,632 already expended by the municipalities for survey and preliminary engineering. This amount exceeds 20% of the entire cost of the design and satisfies the local 20% local match. The costs previously expended are shown in the attached document.

The Project Management Section has reviewed the consultant scope of work and work hours estimate for design. It is our opinion that the scope and estimate are reasonable for the proposed improvements identified and reflect the intention of the funding. The Project Management Section recommends that a design agreement for a total of \$1,431,500 (combined \$500,000 and \$931,500) be drafted.

The finalized Scope of Work and Workhour Estimate are attached.

If you have any questions, please call the Project Manager, David Shedd at extension 8084.

**- EXHIBIT A -**



Planning Department

**TOWN OF ACTON**  
472 Main Street  
Acton, Massachusetts 01720  
Telephone (978) 264-9636  
Fax (978) 264-9630  
[planning@acton-ma.gov](mailto:planning@acton-ma.gov)  
[www.acton-ma.gov](http://www.acton-ma.gov)

June 22, 2010

David G. Shedd, P.E.  
Project Manager  
MassDOT/Highway Division  
10 Park Plaza, Suite 6340  
Boston, MA 02116

**Re: Bruce Freeman Rail Trail – Phases 2A and 2C**  
**Local expense to-date for survey and design**

David:

The Towns of Acton, Concord, Carlisle, and Westford have so far spent the following amounts for survey and design of the Bruce Freeman Rail Trail Phases 2A and 2C. Essentially, these expenditures brought the design of these phases to the current 25% design stage.

Acton	\$	242,520
Concord	\$	215,000
Carlisle	\$	19,112
Westford	\$	20,000
<b>Total</b>	<b>\$</b>	<b>496,632</b>

Please let me know if need any additional information.

Regards,

Roland Bartl, AICP  
Planning Director

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**- EXHIBIT A -**



**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT  
10 Park Plaza, Boston, MA**

**STANDARDIZED  
SCOPE OF SERVICES  
AND  
WORK HOUR ESTIMATE FORMS  
FOR CONSULTANT SERVICES**

**FINAL DESIGN OF BRUCE FREEMAN RAIL TRAIL  
PHASES 2A AND 2C  
ACTON-CARLISLE-WESTFORD-CONCORD**

**May 26, 2010**

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**GENERAL**

The Bruce Freeman Rail Trail (BFRT) corridor extends approximately 25 miles along the Framingham and Lowell railroad corridor and is named in memory of former State Representative Bruce Freeman. Phase 2A of the BFRT is approximately 4.8 miles in length and begins at the Phase 1 terminus at Route 225 in Westford and continues southerly through Carlisle and Acton ending at Acton Indoor Sports along the former Penn Central/Old Colony Railroad right-of-way. Phase 2C of the BFRT approximately 2.5 miles in length and runs from the Sudbury Town line (north of Route 117) to a point southeast of Commonwealth Avenue in the Town of Concord. The section of the BFRT from Commonwealth Avenue to the Acton town line will be addressed as part of the Concord Rotary project.

This Scope of Work has been prepared based on the satisfactory review and approval of the 25% plans for Phase 2C submitted by the Town of Concord to MassDOT and the Design Public Hearing held on 6/25/2009. It is assumed that all previously completed plans, documents, studies, traffic counts, CADD files etc. will be provided to GPI.

**SECTION 150 ENVIRONMENTAL**

**152 Historic/Archaeology – Federal Section 106 and State Chapter 254**

Phase 2A – No effort is anticipated.

Phase 2C - Historic review will be completed by MassDOT Cultural Resources Unit. GPI will be available for consultation with CRU staff.

**157 NEPA–Categorical Exclusion (CE)**

Phase 2A – No effort is anticipated.

Phase 2C - Prepare a Categorical Exclusion (CE) Determination Checklist for Federal-Aid Actions in accordance with the *Programmatic Agreement For Approval Of Categorical Exclusions Between The Federal Highway Administration And The Massachusetts Highway Department*, dated May 17, 2005, and Federal Highway Administration Regulation 23 C.F.R. § 771.117 (1987).

**163 MEPA–Environmental Notification Form (ENF)**

Prepare an ENF for Phase 2A and Phase 2C and associated correspondence to various agencies, as necessary, in accordance with the Massachusetts Environmental Policy Act and MEPA Regulations 301 CMR 11.00. Prepare associated filing attachments, such as a distribution list and public notice; responses to comments, as necessary; and attend one (1) public scoping session.

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**168 Massachusetts Endangered Species Act (MESA) and Notice of Intent (NOI)  
Streamlined Review**

Phase 2A – No effort is anticipated.

Phase 2C – No effort is anticipated. This project will require additional coordination with NHESP for being in habitat with a number of species. This additional coordination will be completed by MassDOT. Any information and/or required in the Contract will be provided by MassDOT to GPI.

**170 USACE Section 404 Programmatic General Permit (PGP)**

Phase 2A and 2C - No effort is anticipated. MassDOT will submit the NOI filing with a cover letter prepared by the Wetlands Unit.

**176 Wetland Resource Area Delineation**

Phase 2A and 2C - No effort is anticipated.

**177 WPA Abbreviated Notice of Resource Area Determination (ANRAD)**

No effort is anticipated.

**179 WPA Notice of Intent (NOI)**

Phase 2A - Prepare and submit an NOI to the Acton and Westford Conservation Commissions in accordance with the Massachusetts Wetlands Protection Act. Include the preparation of all associated forms and backup documentation; permit plans, coordination during review, a site walk, and attending four (4) conservation commission hearings, 2 per town.

Phase 2C - Prepare and submit an NOI to the Concord Conservation Commission in accordance with the Massachusetts Wetlands Protection Act. Include the preparation of all associated forms and backup documentation; permit plans, coordination during review, a site walk, and attending two (2) conservation commission hearings.

**182 Water Quality Certification**

Phase 2A and Phase 2C - No effort is anticipated. It is assumed that the Order of Conditions will serve as the Water Quality Certificate.

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**186 Coordination and Liaison**

Phase 2A - Include scheduling and participating in environmental two (2) meetings with MassDOT, assisting in expediting the permitting process, and compiling and maintaining environmental files and records.

Phase 2C - Include scheduling and participating in environmental two (2) meetings with MassDOT, assisting in expediting the permitting process, and compiling and maintaining environmental files and records.

**SECTION 220 DESIGN EXCEPTION REPORT**

A Design Exception Report is required for Phase 2C of the BFRT in Concord. No effort is anticipated for Phase 2A. The tasks below apply to Phase 2C only.

**221 Evaluate the 13 Controlling Criteria**

Compare the recommended values of the 13 controlling criteria of Chapter 2 of the Guidebook to the proposed values. Revisit those features requiring a design exception and work toward developing a design that is consistent with current recommended design standards.

**222 Perform Incremental Evaluation**

For each of the controlling criteria that do not meet the current recommended design criteria, prepare a summary of impacts resulting from implementing the desirable, minimum and the proposed designs. Also include a summary of impacts of designs in the range between the minimum and the proposed designs. Include right of way impacts, impacts to trees, walls, wetland resource areas, constructions costs and other impacts which influence the selected design.

**223 Prepare Narrative/Report**

Prepare a Design Exception Report including a narrative, traffic analysis, typical sections, photographs, and summary of impacts.

**SECTION 350 DESIGN PUBLIC HEARING**

It is assumed that two separate public hearings will be held. The Phase 2A Public Hearing will be held in Acton and the Phase 2C Public Hearing will be held in Concord. Both hearings will require the same effort. The tasks below apply to both Phase 2A and Phase 2C.

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**352 Hearing Preparation**

Prepare the graphics and other visual aids per the negotiated scope of services to display at the public hearing.

**353 Design Public Hearing**

Attend a Design Public Hearing, present the project to the public and respond to questions. Assist MassDOT in preparing written responses to letters received from concerned individuals as a result of the hearing.

**SECTION 400 75% HIGHWAY DESIGN SUBMISSION**

It is assumed that the Phase 2A and Phase 2C submissions will remain independent and will not be combined. The tasks below apply to both Phases 2A and 2C.

**401 Response to 25% Comments**

Prepare a formal written response to all comments received regarding the 25% review and address revisions stemming from the Design Public Hearing that MassDOT and the Consultant deem necessary.

**402 Field Reconnaissance**

Conduct a field review of the proposed project interface with adjacent properties, streets, drives, drainage, utilities, wetlands, etc. Define additional survey needs, if needed.

**403 Meetings Liaison and Coordination**

Attend four (4) meetings for Phase 2A and three (3) meetings for Phase 2C and provide the liaison necessary to advance the design of a project. Coordinate and attend meetings with MassDOT's Boston and District Offices, community representatives, planning agencies, as determined in the project scoping process. Provide MassDOT with minutes of the meetings.

**404 Utility Coordination**

Contact utility companies affected by the proposed work. Discuss project impacts and note the locations of relocated utilities (poles, pipes, etc.) on the plans. Include estimate and special provisions for publicly owned utility work that is to be performed by the construction contractor.

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**405 Final Horizontal Design Geometrics**

Adjust the horizontal geometry based on the 25% review comments and comments stemming from the Design Public Hearing. Plans must clearly show all aspects of the horizontal geometry, including curve components such as Point of Curvature (PC), Radius (R), DELTA, Length of Curve (L), Tangent (T) and Point of Tangency (PT) along with a description of roadway widths, station equations and horizontal offsets between survey baseline and design centerline.

**406 Final Vertical Design Geometrics**

Adjust vertical geometry based on 25% review comments and comments stemming from the Design Public Hearing. Plans must clearly show all pertinent aspects of the vertical geometry including Stopping Sight Distance (SSD), Passing Sight Distance (PSD), Grade 1 (G1), Grade 2 (G2), Length of Vertical Curve (L), K (factor), station and elevation of Point of Vertical Curvature (PVC), Point of Vertical Tangency (PVT) and Point of Vertical Intersection (PVI). Profiles are to be prepared in accordance with the Guidebook.

**407 Pavement Design**

Respond to Pavement Design Engineer's review comments and prepare a detailed pavement design with updated data sheets, per the Guidebook.

**408 Typical Cross Sections**

Finalize the typical cross sections ensuring that materials and dimensions are clearly labeled in accordance with the proposed pavement structure approved by the Pavement Management Section.

**409 Plot Cross Sections**

Adjust cross sections to ensure that the slope limits and treatments of each cross section are crafted to suit the specific site locations. Individual cross sections should be evaluated regarding guardrail locations, gravel box detail, pay limits, and the need for subdrains and retaining walls.

**410 Plot Proposed Layout and Easements**

Adjust the plans based on the limits establish by the final cross sections to ensure that adequate right of way is available to perform the work. Existing layout lines, proposed alterations and any temporary or permanent easements must be clearly labeled.

**411 Construction Plans**

Prepare the Construction Plans in accordance with the Guidebook. Each item of work within the project limits must be clearly labeled. Drawings must be formatted as described in the Guidebook.

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**412 Grading and Tie Plans**

Prepare grading and tie plans as applicable showing detailed information regarding proposed curve geometry and grades.

**413 Drainage and Water Supply Details**

Clearly show all existing and proposed drainage and water supply installations. The drainage and water supply design must address all work required to accommodate the proposed roadway improvements.

During the Project's design development, the plan presentation of proposed drainage facilities will show rim and invert elevations. These will be included in a separate CADD layer, so that they can be frozen off in the PS&E documents. These elevations shall not be shown on the final plans.

**414 Traffic Signs**

Identify locations for all warning, regulatory and route marker signs. Indicate on the construction plans the status of existing sign structures.

**415 Guide Sign Design and Overhead Directional (OD) Elevations**

NOT REQUIRED

**416 Traffic Signals and Plan Preparation**

Include designs for traffic signal installations, supports, and foundations. Develop traffic signal specifications. Finalize phasing details and prepare the traffic signal plans at the following intersection:

- Acton Road (Route 27) at Carlisle Road (Route 225) – Phase 2A

Include design of Passive Signal control at the following trail crossing locations:

- Main Street (Route 27) – Phase 2A
- Main Street (Route 27) – Phase 2A
- Brook Street – Phase 2A
- Concord Road – Phase 2A
- Wetherbee Street – Phase 2A
- Old Marlboro Road – Phase 2C
- Williams Road – Phase 2C

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**417 Pavement Markings and Plan Preparation**

Design and layout the roadway pavement markings, stop lines, cross walks, gore markings, etc. Prepare pavement marking plans.

**418 Traffic Management**

Finalize the construction staging. Prepare the temporary traffic control construction plans in accordance with the MUTCD such that sufficient information is provided to demonstrate a feasible means of constructing the project. The level of detail shall recognize that the actual traffic management plan implemented by the contractor may vary from that shown on the plans.

**419 Highway Lighting Plans and Details**

NOT REQUIRED

**420 Landscaping and Plan Preparation**

Finalize planting locations and species based on review comments. Develop planting schedules and tabulate relevant data.

**421 Erosion Control**

Detail the sequencing, material placement and measures to control the potential damage to adjacent properties, wetlands, bodies of water, etc. Include erosion control measures in the plans.

**422 Miscellaneous Contract Plans**

Prepare miscellaneous full size drawings for presentation of the proposed project. These shall include the following miscellaneous contract plans, as required: Title Sheet, Index, Key Plan, Boring Plans, Boring Logs, Typical Sections, and Special Details.

**423 Quantity & Cost Estimate**

Prepare a detailed estimate based on the latest edition of the Standard Nomenclature. Check that every item of work shown on the plans has a pay item. Prepare the estimate in accordance with the Method of Measurement and Basis of Payment described in the Standard Specifications for Highways and Bridges including the latest supplements and the Standard Special Provisions.

**424 Special Provisions**

Prepare draft special provisions based on the latest edition of the Standard Specifications for Highways and Bridges and Supplemental Specifications, and verify that every item in the estimate that is listed in the Standard Nomenclature with an asterisk (\*) has a special provision. Ensure that special provisions are drafted only when absolutely necessary to describe a specific or unique activity to be performed by the contractor.



**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**425 Constructability and Quality Control (QC) Reviews**

Perform an independent review of the project using an experienced engineer, who is not directly involved in the preparation of the contract documents. The review shall focus on the practicality of constructing the project based on access to site, equipment needs, material properties, etc. Also provide an overall review of the plans, specifications and estimate for conformity to the Guidebook, the Standard Specifications for Highways and Bridges, the latest Supplemental Specifications, the Bridge Manual, the Construction and Traffic Standard Details, and the latest Engineering and Policy Directives.

**426 Submission Check List**

Prepare and submit the 75% Design Check List.

**SECTION 450 100% HIGHWAY DESIGN SUBMISSION**

It is assumed that the Phase 2A and Phase 2C submissions will remain independent and will not be combined. The tasks below apply to both Phases 2A and 2C.

**451 Respond to 75% Comments**

Prepare a formal written response to all comments received regarding the 75% review. Resolve any further review comments.

**452 Finalize Plans**

Prepare a set of plans addressing all comments received from the 75% review. Ensure that the plans are clear and are prepared in accordance with Chapter 2 of the Guidebook.

**453 Finalize Special Provisions**

Review the special provisions to ensure that the special provisions do not duplicate those with respect to Division I of the Standard Specifications. Review the Method of Measurement and Basis of Payment for every item in order to ensure that the special provisions are clearly defined and not ambiguous.

**454 Finalize Estimate**

Prepare a calculation book in accordance with Chapter 18 of the Guidebook. Prepare calculations for all items of work that have a pay item. Identify any non-participating work.

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**455 Quality Control (QC) Review**

Perform an independent review of the project using an experienced engineer, who is not directly involved in the preparation of the contract documents to perform an independent review of the project. Refer to the MassDOT web site for the latest edition of all reference documents, Engineering Directives and Policy Directives. Verify that the plans, specifications and estimate are prepared in accordance with these documents.

**456 Submission Check List**

Prepare and submit the 100% Design Check List.

**SECTION 500 RIGHT OF WAY**

Right-of-way efforts will be required for both Phases 2A and 2C. .

**501 Preliminary Right of Way Plans**

No effort is anticipated. It is assumed that the Preliminary Right-of-Way Plans for Phase 2C were submitted and approved

**502 Layout Plans and Order of Taking**

Prepare Layout Plans based on the approved Preliminary Right of Way Plans. Show lengths and bearings of all lines and calculate areas. The Layout Plans shall be prepared in accordance with Chapter 18 of the Guidebook and shall include the proposed layout lines, property lines, corner markers, names of property owners, parcels to be taken, access and non-access points and the locations of all bounds. The preparation of a Decree Plan shall be included, if required.

**503 Written Instrument**

The Written Instrument for the Layout and Order of Taking shall be prepared in accordance with MassDOT Policy. The Written Instrument shall be carefully checked against the Layout Plan.

**504 Final Right of Way Plans**

After the FHWA has granted authority to the State and approved Federal participating funds to acquire the right of way takings and/or the Right of Way Bureau accepts the Preliminary Right of Way Plan, the Preliminary Right of Way Plan will become the Final Right of Way.

**505 Title Search**

GPI will assist the Towns with the Title Search process. GPI will provide project right-of-way plans, coordinate between MassDOT and the Towns and will attend two (2) meetings.

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SECTION 600 GEOTECHNICAL DESIGN**

Geotechnical Design efforts will be required for both Phases 2A and 2C.

**606 Geotechnical Report**

Coordinate with the Geotechnical subconsultant on the preparation of the Geotechnical Report, as per Directive M15-1, Bridge Manual, Footprint Program and other guidelines. For this scope, it is assumed that the Geotechnical Report will be limited to the information regarding the grade separated crossing alternative of the bridge over Route 2A/119 (Phase 2A) Powder Mill Road (Phase 2C). The actual soil borings will be obtained by MassDOT through their open ended contracts with drillers.

**607 Meetings, Reviews and Liaisons**

Coordinate and meet with MassDOT for reviews, revisions, and advancement of project submittals.

**SECTION 700 PROJECT DEVELOPMENT – STRUCTURAL**

**General**

BFRT Phase 2A involves the modification of 6 existing simple span steel girder bridges over Nashoba Brook and Butter Brook. The condition of these bridges and reuse options were presented in the January 2007 Preliminary Structures Report. No comments were received on this report, however the following structures scope of work is based on the assumption that the conclusions of the report are valid. The intent is to reuse the 6 existing superstructures with no structural repairs.

A listing of the bridge is presented below:

Acton – Existing #1 - 40 foot simple span - Existing steel built up girders  
Acton – Existing #2 - 35 foot simple span - Existing steel built up girders  
Acton – Existing #3 - 48 foot simple span - Existing steel built up girders  
Acton – Existing #4 - 30 foot simple span - Existing steel built up girders  
Acton – Existing #5 - 21 foot simple span - Existing steel rolled section girders  
Acton – Existing #6 - 16 foot simple span - Existing steel built up girders

The one new bridge structure is anticipated to be a prefabricated truss carrying the rail trail over Route 2A. No preliminary engineering has been done on this structure other than some visual concepts provided for the Public Hearing and 25% Highway Design phase. The approaches are anticipated to be embankments constructed from mechanically stabilized earth (MSE) walls.

Acton – New#1 - Route 2A/119 - New structure at new location - Prefabricated truss over Route 2A - MSE embankments on approaches

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HIGHWAY DEPARTMENT**

BFRT Phase 2C involves 3 bridge locations. A BRIDGE SUMMARY was completed by GPI on March 15, 2010 and does include additional clarifications to the Phase 2C scope. The three locations are:

1) Bridge No. C-19-032 – Abandon Line over Nashoba Brook – Mile Marker 14.81

This existing bridge is an approximately 70 foot long ballasted deck bridge. The bridge is comprised of 3 spans, with the 2 piers located in the river. The proposed solution at this location is to reuse the existing bridge and construct the trail on the bridge itself.

2) Bridge No. C-19-031 – Abandon Line over Assabet River – Mile Marker 15.16

The existing bridge superstructure has been removed at this location. The span between the remaining abutments is approximately 90 feet. The proposed solution at this location is to construct a prefabricated structure on the existing abutments.

3) Bridge No. C-19-015 – Powder Mill Road over Abandon Line

This existing structure in this location is a corrugated steel pipe arch that exists within the 20 foot embankment of Power Mill Road. The proposed solution at this location is to construct a tunnel along the same alignment as the corrugate steel pipe arch.

**701 Field Investigation**

Phase 2A - Conduct a field inspection to review the Route 2A bridge site and adjacent conditions, and establish project parameters and constraints. Evaluate the ground and river survey to determine the parameters for bridge design.

Phase 2C - Conduct a field inspection to review the conditions at the three locations referenced above. Evaluate the ground and river survey to determine the parameters for bridge design.

**702 Determine Bridge Configurations**

Collaborate with the highway designer to determine the vertical and horizontal alignments and typical cross-sections for both the roadway over and the roadway under. Determine a preliminary span length and vertical bridge clearance. Provide accommodations on the bridge for both existing and proposed utilities.

Phase 2A - This effort is for the Route 2A bridge approaches and cross section as well as final dimensions for the 6 existing bridges to be reused.

Phase 2C – This effort is for the existing bridge over Nashoba Brook, the structure over the Assabet River and the Powder Mill Road tunnel.

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HIGHWAY DEPARTMENT**

**703 Preliminary Structural Analysis**

None anticipated.

Phase 2A - The 6 existing bridges were reviewed in the January 2007 preliminary structures report and determined adequate for reuse without strengthening. The bridge over Route 2A will be a new structure.

Phase 2C – Bridge C-19-032 was evaluated in previous reports and is assumed adequate for support of a rail trail bridge. The other two locations will be a new prefabricated superstructure and a new tunnel.

**704 Comparative Design and Cost Analyses**

Evaluate those alternate bridge structure types that are appropriate to the site based on considerations of highway design parameters, traffic safety, impacts to surrounding properties and environmentally sensitive areas, traffic management, constructability, and aesthetics. Cost shall only be used to select between alternates that have been determined to be equally appropriate to the site based on the Type Section Worksheet.

Phase 2A - This effort is primarily associated with the proposed prefabricated bridge over Route 2A and associated approach embankment options. Some additional work will be involved in determining the final existing bridge deck type considering concrete, timber, or some other material.

Phase 2C - This effort is primarily associated with the proposed prefabricated bridge at C-19-031 and the tunnel under Powder Mill Road.

**705 Preliminary Structures Report Preparation**

No effort is anticipated.

Phase 2A - This report was previously completed in January 2007 for the 6 existing bridges. No further work is anticipated.

Phase 2C – Reports have been compiled previously by others during the 25% design.

**706 Bridge Type Selection Worksheet Preparation**

Prepare a Type Selection Worksheet per the MassDOT Bridge Manual detailing the various design alternatives for the bridge, complete with appropriate graphics, descriptive text and cost breakdowns justifying the recommendations presented.

Phase 2A - This effort is associated with the Route 2A bridge and associated approaches.

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

Phase 2C – This effort is associated with the new bridge at C-19-031 and the tunnel under Powder Mill Road.

**707 Meetings and Liaison**

Attend meetings and coordinate with MassDOT during the preparation of the type study report to advance the work. Respond to MassDOT review comments.

**SECTION 710 SKETCH PLANS**

**711 Establish Boring Locations**

Determine the locations for the proposed bridge borings based on an approved structure type. Coordinate the boring program and the geotechnical design with MassDOT's Geotechnical Section. Prepare the boring location plans.

Phase 2A - This effort is associated with the Route 2A bridge and approaches.

Phase 2C – This effort is associated with the new bridge at C-19-031 and the tunnel under Powder Mill Road.

**712 Hydraulics Study and Report (Bridges over Water)**

No hydraulic reports are anticipated since the existing bridge openings will not be modified.

**713 Sketch Plan Development**

Prepare sketch plans for each structure in accordance with the MassDOT Bridge Manual. Submit review copies together with the foundation report to MassDOT. Check to ensure that the proposed design and construction staging plan addresses the cost and scheduling impacts associated with accommodating both existing and proposed utilities. Review the boring logs and foundation reports. Perform geometric design calculations.

Phase 2A - Sketch plans are anticipated for all 6 existing bridges and the new bridge at Route 2A. The existing bridge sketch plans are anticipated to be two sheets each with no boring log information. The new Route 2A bridge sketch plans are anticipated to be 5 sheets including 2 sheets of boring logs.

Phase 2C - Sketch plans are anticipated for all 3 locations. The existing bridge (C-19-032) sketch plans are anticipated to be two sheets each with no boring log information. The new prefabricated bridge (C-19-031) sketch plans are anticipated to be 5 sheets including 2 sheets of boring logs. The tunnel (C-19-015) under Powder Mill Road is anticipated to be 6 sheets including 3 sheets of boring logs.

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**714 Meetings, Coordination and Liaison**

Participate in MassDOT Sketch Plan review meetings. Prepare responses to agency comments and plan revisions, as necessary. Provide coordination during the soils testing program and prior to the preparation of the soils and foundation reports being provided by the geotechnical staff or a subconsultant.

**715 Constructability Review**

Review the design of the proposed structure to ensure that the structure does not present any unusual matters that would unduly increase the cost the project or present potential scheduling delays during construction resulting in claims for extra work. Particular attention must be given to the proposed construction staging and available right of way.

**716 Submission Check List**

Prepare and submit Bridge Section Check list for each bridge.

**SECTION 750 FINAL BRIDGE DESIGN**

**751 Structural Design – Superstructure**

Prepare the design calculations, and perform an independent design check of the calculations for all superstructure components in accordance with the MassDOT Bridge Manual.

Phase 2A - This includes deck designs for the 6 existing structures with variable girder spacing, railing design and compatibility with the chosen deck system, and preliminary prefabricated bridge analysis to determine appropriate loads for substructure design at Route 2A.

Phase 2C - This includes railing design, deck modifications, superstructure repair details, preliminary prefabricated bridge analysis, tunnel wall and ceiling analysis and for design applicability and determination of foundation loads.

**752 Structural Design – Substructure**

Prepare the design calculations and perform an independent design check of the calculations for all substructure components, including any cofferdams and permanent excavation support system requirements in accordance with the MassDOT Bridge Manual.

Phase 2A - This effort includes potential small retaining walls at the existing bridges to support the rail trail embankments and a larger effort for the abutments and approach embankment walls at the Route 2A bridge.

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

Phase 2C - This effort includes potential small retaining walls at the existing bridges to support the rail trail embankments and a larger effort for the foundations associated with the Powder Mill Tunnel location.

**753 Bridge Layout Geometrics**

Prepare the design calculations and perform an independent design check of the bridge geometric calculations, including framing, layout, critical clearance and elevation of footings, layout and ties, etc.

Phase 2A - This is for the geometry at all 7 bridges.

Phase 2C – This is for the geometry at all 3 structure locations including approaching retaining walls.

**754 Contract Drawings**

Prepare the structural drawings in accordance with the MassDOT Bridge Manual and check the drawings for content and accuracy.

Phase 2A - It is anticipated that the 6 existing bridges will each have 5 sheets consisting of bridge cover sheet, abutment plan and elevation, abutment details, superstructure and deck details, miscellaneous details. The new bridge at Route 2A will be 9 sheets consisting of bridge cover sheet, boring log sheets, plan and elevation, abutment plans and elevations, embankment wall details, miscellaneous abutment and wall details,

Phase 2C - It is anticipated that the existing bridge (C-19-032) will have 7 sheets consisting of bridge cover sheet, abutment plan and elevation, abutment details, superstructure and deck details, miscellaneous details. The new prefabricated bridge (C-19-031) will be 9 sheets consisting of bridge cover sheet, boring log sheets, plan and elevation, abutment plans and elevations, miscellaneous abutment and wall details. The tunnel at Powder Mill Road will be approximately 12 sheets consisting of bridge cover sheet, boring log sheets, plan and elevation, foundation details, tunnel details, approach wingwalls, and miscellaneous details.

**755 First Review Submission**

Prepare and submit the bridge design plans for MassDOT review and subsequent resolution of the comments and recommendations received from MassDOT.

**756 Quantity Cost Estimates**

Prepare the quantity calculations, and perform an independent check of the quantity calculations of the bridge items and related cost estimates.



**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**757 Special Provisions**

Prepare the bridge special provisions in accordance with the MassDOT Bridge Manual.

**758 Second Review Submission**

Prepare and submit updated final bridge designs plans for MassDOT review and subsequent resolution of MassDOT comments and recommendations.

**759 FHWA Reviews**

No FHWA review is anticipated.

**760 Meetings and Liaison**

Participate in meetings and coordinate in scheduling and advancing the bridge design.

**761 Constructability and Quality Control (QC) Review**

Perform an independent review of the project by an experienced engineer who is not directly involved in the preparation of the contract documents. Review shall focus on the practicality of constructing the structure based on access to site, equipment needs, material properties, etc. Provide an overall review of the plans, specifications and estimate for conformity to the Guidebook, the Standard Specifications for Highways and Bridges, the latest Supplemental Specifications, the Bridge Manual, the Construction and Traffic Standard Details, and the latest Engineering and Policy Directives.

**762 Submission Check List**

Prepare and submit Bridge Section Check list for each bridge.

**SECTION 800 PS&E SUBMISSION**

It is assumed that the Phase 2A and Phase 2C submissions will remain independent and will not be combined. The tasks below apply to both Phases 2A and 2C.

**801 Respond to 100% Comments**

Prepare a formal written response to all comments received regarding the 100% review.

**802 Finalize Plans, Specifications and Estimate**

Ensure that all comments from 100% review are addressed and reflected in the contract documents.

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**803 Prepare Detail Sheets**

Prepare Detail Sheets in accordance with Chapter 13 of the Guidebook. All items of work not adequately reflected on the plans are to be described in the Detail Sheets.

**804 Combine Highway and Bridge**

Ensure that the highway plans accurately depict the approved bridge design and that the index correctly identifies the page numbering of the bridge plans. Combine Special Provisions and Estimate into one package that eliminates redundancy and ambiguity.

**805 Quality Control (QC) Review**

Have an experienced engineer who is not directly involved in the preparation of the contract documents perform an independent review of the project. Log on to the MassDOT website for the latest reference documents such as Engineering Directives and Policy Directives, and verify that the Plans, Specifications and Estimate are prepared in accordance with these documents. Review all environmental permits and ensure that the contract documents provide a means of compensating the construction contractor for performing work described in the permits.

**806 Consultant Peer Review**

GPI will respond to peer review comments.

**SECTION 900 CONSTRUCTION ENGINEERING**

**901 Pre-Bid Services**

Review and respond to inquiries from MassDOT related to the bid documents. Participate in Pre-Bid Conference. Provide written responses to contractor's questions.

**902 Pre-Construction Conference**

Attend the Pre-Construction Conference. Answer questions and prepare the minutes of the meeting.

**903 Highway Shop Drawings and Signal Permit**

Review lighting, traffic signals, and sign shop drawings, including foundations and supports; and perform an operational site inspection. Prepare a signal permit based on as-built conditions.

**904 Bridge and Wall Shop Drawings**

Review and approve or take other appropriate action upon structural shop drawings for conformance with the contract documents.

**COMMONWEALTH OF MASSACHUSETTS  
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**905 Bridge Construction Procedures**

Review and approve or take other appropriate action according to the Bridge Manual regarding the conformance of the bridge demolition and erection procedures to the contract documents

**906 Furnishing Advice and Field Visits**

Provide assistance to MassDOT in interpreting the contract documents. Conduct field visits to the project site during construction as requested by the Engineer to provide consultation on design intent, assistance in addressing unforeseen conditions and /or similar matters, as requested by the Engineer. Attend periodic status and coordination meetings as determined by complexity of the project.

**908 Bridge Rating and Photographs**

Visit project site and evaluate structures for conformance to the contract documents. Take photographs of completed structure. Prepare Bridge Rating Report. The VIRTIS software is not anticipated to be used. to prepare the rating report.

Phase 2A - It is anticipated that the Route 2A bridge manufacturer/designer will complete bridge rating calculations and provide a professional engineers stamp for those calculations. GPI will only be responsible for compiling the report into MHD format. Bridge rating reports will not be provided for the 6 existing bridges.

Phase 2C - It is anticipated that the prefabricated bridge (C-19-031) manufacturer/designer will complete bridge rating calculations and provide a professional engineers stamp for those calculations. GPI will only be responsible for compiling the report into MHD format. Bridge rating reports will not be provided for the existing bridge (C-19-032) or the tunnel under Powder Mill Road.

**909 Traffic Signal Inspection and Fine Tuning**

Assist with Fine Tuning and Adjustment of Traffic Signals and assist with Final Inspection and Approval of Traffic Signals.

### SCOPING WORKBOOK Form 1.4 Summary Table

EXHIBIT B

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Acton/Westford/Carlisle/Concord	Contract No.:
Location:	BFRT Phase 2A and Phase 2C Final Design	Assignment No.:
Bridge No.:		ProjInfo No.: 604532/605189

<b>SECTION 100</b>								
<b>PROJECT DEVELOPMENT ENGINEERING</b>								
<b>PROJECT TYPE CODE: -- PROJECT DESCRIPTION:</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
101	Project Concept Preparation	8	32	40	72	4	8	164
102	Preliminary Project Area Analysis	2	14	24	32	24	4	100
103	Reasonable Alternative(s) Identification	8	40	40	72	16	40	216
104	Alternatives Analysis & Report Preparation	16	72	160	240	200	40	728
<b>SUBTOTAL</b>		<b>34</b>	<b>158</b>	<b>264</b>	<b>416</b>	<b>244</b>	<b>92</b>	<b>1208</b>

<b>SECTION 150</b>								
<b>ENVIRONMENTAL</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
151	Early Coordination							
152	Hist./Arch. Impacts (Section 106 and Chapter 254)							
153	MESA Determination							
154	Hazardous Materials Research/Review							
155	Project Development Meetings and Hearings							
156	NEPA/MEPA Determination							
157	NEPA - Categorical Exclusion (CE)							
158	NEPA - Environmental Assessment (EA)							
159	NEPA - Draft Environmental Impact Statement (EIS)							
160	NEPA - Final Environmental Impact Statement (EIS)							
161	NEPA - Supplemental Environmental Impact Statement (EIS)							
162	NEPA - Reevaluation							
163	MEPA - Environmental Notification Form (ENF)							
164	MEPA - Draft Environmental Impact Report (DEIR)							
165	MEPA - Final Environmental Impact Report (FEIR)							
166	MEPA - Notice of Project Change (NOPC)							
167	MEPA - Supplemental Environmental Impact Report (SEIR)							
168	MESA/NOI Streamlined Review							
169	MESA - Conservation and Management Permit							
170	USACE Section 404 Programmatic General Permit (PGP)							
171	USACE Individual Section 404 Permit							
172	U.S. Coast Guard Bridge Permit							
173	Programmatic Section 4(f) Evaluation							
174	Draft Individual Section 4(f) Evaluation							
175	Final Individual Section 4(f) Evaluation							
176	Wetland Resource Area Delineation							
177	Wetlands Protection Act (WPA) ANRAD							
178	WPA - Request for Determination of Applicability							
179	WPA - Notice of Intent (NOI)							
180	WPA - Variance							
181	Chapter 91 License/Permit Application		2	4	12	12	16	46
182	Water Quality Certification (401)							
183	Coastal Zone Management Consistency Certificate							
184	Wildlife/Rare Species Assessment							
185	Essential Fish Habitat Assessment							
186	Coordination and Liaison	4	8	8	8			28

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Westford, Carlisle and Acton	Contract No.							
Location	Bruce Freeman Rail Trail Phase 2A	Assignment No.	Survey Only						
Bridge No.		ProjInfo No.	604532						
<b>SECTION 100</b>									
<b>PROJECT DEVELOPMENT ENGINEERING</b>									
<b>PROJECT TYPE CODE: - PROJECT DESCRIPTION:</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
101	Project Concept Preparation								
102	Preliminary Project Area Analysis								
103	Reasonable Alternative(s) Identification								
104	Alternatives Analysis & Report Preparation								
SUBTOTAL									
<b>SECTION 150</b>									
<b>ENVIRONMENTAL</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
151	Early Coordination								
152	Hist./Arch. Impacts (Section 106 and Chapter 254)								
153	MESA Determination								
154	Hazardous Materials Research/Review								
155	Project Development Meetings and Hearings								
156	NEPA/MEPA Determination								
157	NEPA - Categorical Exclusion (CE)								
158	NEPA - Environmental Assessment (EA)								
159	NEPA - Draft Environmental Impact Statement (EIS)								
160	NEPA - Final Environmental Impact Statement (EIS)								
161	NEPA - Supplemental Environmental Impact Statement (EIS)								
162	NEPA - Reevaluation								
163	MEPA - Environmental Notification Form (ENF)								
164	MEPA - Draft Environmental Impact Report (DEIR)								
165	MEPA - Final Environmental Impact Report (FEIR)								
166	MEPA - Notice of Project Change (NOPC)								
167	MEPA - Supplemental Environmental Impact Report (SEIR)								
168	MESA/NOI Streamlined Review								
169	MESA - Conservation and Management Permit								
170	USACE Section 404 Programmatic General Permit (PGP)								
171	USACE Individual Section 404 Permit								
172	U.S. Coast Guard Bridge Permit								
173	Programmatic Section 4(f) Evaluation								
174	Draft Individual Section 4(f) Evaluation								
175	Final Individual Section 4(f) Evaluation								
176	Wetland Resource Area Delineation								
177	Wetlands Protection Act (WPA) ANRAD								
178	WPA - Request for Determination of Applicability								
179	WPA - Notice of Intent (NOI)								
180	WPA - Variance								
181	Chapter 91 License/Permit Application								
182	Water Quality Certification (401)								
183	Coastal Zone Management Consistency Certificate								
184	Wildlife/Rare Species Assessment								
185	Essential Fish Habitat Assessment								
186	Coordination and Liaison								
SUBTOTAL									
<b>SECTION 200</b>									
<b>FUNCTIONAL DESIGN REPORT (FDR)</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
201	Evaluate Existing Conditions								
202	Traffic Count Analysis								
203	Safety Analysis								
204	MUTCD Signal Warrants								
205	Intersection Analysis								
206	Proposed Geometrics								
207	Report Preparation								

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town		Acton/Westford/Carlisle/Concord				Contract No.:				
Location:		BFRT Phase 2A and Phase 2C Final Design				Assignment No.:				
Bridge No.:						ProjInfo No.: 604532/605189				
		SUBTOTAL		4	10	12	20	12	16	74
<b>SECTION 200</b>										
<b>FUNCTIONAL DESIGN REPORT (FDR)</b>										
			PIC	PM	SE	Eng	AE	ET	TOTAL	
201	Evaluate Existing Conditions									
202	Traffic Count Analysis									
203	Safety Analysis									
204	MUTCD Signal Warrants									
205	Intersection Analysis									
206	Proposed Geometrics									
207	Report Preparation									
		SUBTOTAL								
<b>SECTION 220</b>										
<b>DESIGN EXCEPTION REPORT</b>										
			PIC	PM	SE	Eng	AE	ET	TOTAL	
221	Evaluate 13 Controlling Criteria (PDDG Ch. 2)			2	4	8	4			18
222	Perform Incremental Evaluation			4	8	16	8			36
223	Prepare Narrative/Report		2	4	4	16	4	4		34
		SUBTOTAL		2	10	16	40	16	4	88

## SCOPING WORKBOOK Form 1.3 Work Hour Estimate

- EXHIBIT B -



**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Acton/Westford/Carlisle/Concord	Contract No.:
Location:	BFRT Phase 2A and Phase 2C Final Design	Assignment No.:
Bridge No.:		ProjInfo No.: 604532/605189

<b>SECTION 400</b>								
<b>75% HIGHWAY DESIGN SUBMISSION</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
401	Response to 25% Comments	6	24	32	32	28	18	140
402	Field Reconnaissance		8		8	8		24
403	Meetings, Liaison and Coordination (6 meetings)	24	32	56				112
404	Utility Coordination	2	16	24	24	20		86
405	Final Horizontal Design Geometrics	6	20	30	30	80	40	206
406	Final Vertical Design Geometrics	4	10	28	23	67	36	168
407	Pavement Design		4	2	4			10
408	Typical Cross Sections			6	12	16	2	36
409	Plot Cross Section	4	8	8	24	40	16	100
410	Plot Proposed Layout and Easements		12	8	16			36
411	Construction Plans	6	12	18	36	102	60	234
412	Grading & Tie Plans		6	20	16	16		58
413	Drainage and Water Supply Details	2	16	32	48	36	46	180
414	Preliminary Traffic Signs			16	16			32
415	Guide Sign Design & Overhead Directional Elevations							
416	Traffic Signals and Plan Preparation	4	6	16	40	64	58	188
417	Pavement Markings and Plan Preparation		8	28	28	28		92
418	Traffic Management and Suggested Sequence of Construction		4	8	10	6		28
419	Highway Lighting Plans and Details							
420	Landscaping and Plan Preparation		16	28	20	8	76	148
421	Erosion Control Plans		8	20	16	20		64
422	Miscellaneous Contract Plans		4	8	8	20	16	56
423	Quantity & Cost Estimate	2	8	16	66	160	96	348
424	Special Provisions		40	28				68
425	Constructability and Quality Control (QC) Review	10	40	32				82
426	Submission Check List	2	6	10				18
<b>SUBTOTAL</b>		<b>72</b>	<b>308</b>	<b>474</b>	<b>477</b>	<b>719</b>	<b>464</b>	<b>2514</b>

<b>SECTION 450</b>								
<b>100% HIGHWAY DESIGN SUBMISSION</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
451	Respond to 75% Comments		16	28	28			72
452	Finalize Plans	4	36	62	64	228	174	568
453	Finalize Special Provisions		14	8				22
454	Finalize Estimate	2	16	16	48	52	34	168
455	Quality Control (QC) Review	4	24	24				52
456	Submission Check List	6	6	8				20
<b>SUBTOTAL</b>		<b>16</b>	<b>112</b>	<b>146</b>	<b>140</b>	<b>280</b>	<b>208</b>	<b>902</b>

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Acton/Westford/Carlisle/Concord	Contract No.:
Location:	BFRT Phase 2A and Phase 2C Final Design	Assignment No.:
Bridge No.:		ProjInfo No.: 604532/605189

<b>SECTION 500</b>								
<b>RIGHT OF WAY</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
501	Preliminary Right of Way Plans							
502	Layout and Order of Taking Plans		16	20	36	52	44	168
503	Written Instrument		16	44	16	54	52	182
504	Final Right of Way Plans	8	8	8	16	58	24	122
505	Title Search		16		8	8	16	48
SUBTOTAL		8	56	72	76	172	136	520

<b>SECTION 600</b>								
<b>GEOTECHNICAL REPORT</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
601	Research Available Subsurface Data							
602	Field Reconnaissance							
603	Subsurface Investigation Plan							
604	Subsurface Investigation Inspection							
605	Office Studies, Analysis and Testing							
606	Geotechnical Report		4	8	4	16	12	44
607	Meetings, Reviews and Liaison	4	4	4	4		8	24
608	Final Plans, Specifications and Estimate							
SUBTOTAL		4	8	12	8	16	20	68

<b>SECTION 700</b>								
<b>PROJECT DEVELOPMENT (STRUCTURAL)</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
701	Field Investigation		8	10				18
702	Determine Bridge Configuration		6	22	12	2		42
703	Preliminary Structural Analysis							
704	Comparative Design and Cost Analysis	2	26	36	50	172	154	440
705	Preliminary Structures Report Preparation							
706	Bridge Type Selection Worksheet Preparation	2	20	16	34	16	8	96
707	Meetings and Liaison	4	10	12	2			28
SUBTOTAL		8	70	96	98	190	162	624

<b>SECTION 710</b>								
<b>SKETCH PLANS</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
711	Establish Boring Locations		2	6	6			14
712	Hydraulics Study and Report (Bridges over Water)							
713	Sketch Plan Development	4	58	102	140	368	308	980
714	Meetings, Coordination and Liaison	6	28	24	12			70
715	Constructability Review		32	24	18			74
716	Submission Check List	8	8	8				24

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Acton/Westford/Carlisle/Concord				Contract No.:				
Location:	BFRT Phase 2A and Phase 2C Final Design				Assignment No.:				
Bridge No.:					ProjInfo No.: 604532/605189				
SUBTOTAL					18	128	164	176	368
								308	1162

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town		Acton/Westford/Carlisle/Concord				Contract No.:			
Location:		BFRT Phase 2A and Phase 2C Final Design				Assignment No.:			
Bridge No.:						ProjInfo No.: 604532/605189			

<b>SECTION 750</b>								
<b>FINAL BRIDGE DESIGN</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
751	Structural Design - Superstructure	2	80	72	96	178	80	508
752	Structural Design - Substructure	2	60	68	72	140	68	410
753	Bridge Layout Geometrics	2	12	56	46	86	46	248
754	Contract Drawings	3	69	100	253	648	622	1695
755	First Review Submission	2	28	40	24	56	46	196
756	Quantity Cost Estimates	6	12	24	42	68	36	188
757	Special Provisions		12	46	8	24	12	102
758	Second Review Submission		58	38	14	48	46	204
759	FHWA Reviews							
760	Meetings and Liaison	40	64	52	8			164
761	Constructability and Quality Control (QC) Review	8	56	48				112
762	Submission Check List	6	8	6				20
SUBTOTAL		71	459	550	563	1248	956	3847

<b>SECTION 800</b>								
<b>PS&amp;E SUBMISSION</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
801	Respond to 100% Comments	2	8	16	8			34
802	Finalize Plans, Specifications and Estimate	4	24	36	54	108	162	388
803	Prepare Detail Sheets		8	10	20	36		74
804	Combine Highway and Bridge	4	6	14	18	42		84
805	Quality Control (QC) Review	4	30	16				50
806	Consultant Peer Review		6	14	48	8		76
SUBTOTAL		14	82	106	148	194	162	706

<b>SECTION 900</b>								
<b>CONSTRUCTION ENGINEERING</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
901	Pre-Bid Services		14	15	48			77
902	Pre-Construction Conference		10	8				18
903	Highway Shop Drawings and Signal Permit	4	10	10	20			44
904	Bridge and Wall Shop Drawings	4	20	22	44	62	48	200
905	Bridge Construction Procedures	4	20	22	20	62	52	180
906	Furnishing Advice and Field Visits	6	44	96	100	124	96	466
907	Geotechnical Construction Evaluation							
908	Bridge Rating and Photographs	4	12	18	22	70	40	166
909	Traffic Signal Inspection and Fine Tuning		2	16	12			30
SUBTOTAL		22	132	207	266	318	236	1181

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPE OF WORK**

Acton/Westford/Carlisle/Concord	Contract No.:	0
BFRT Phase 2A Final Design	BFRT Phase 2A 1 Assignment No.:	0
	ProjInfo No.:	604532/605189
		7700000

**Direct Costs**

Expenses	Design	Construction	Total
Printing & Copying	\$2,500.00		\$2,500.00
Mileage & Travel	\$400.00		\$400.00
Misc.	\$503.00	\$1,000.00	\$1,503.00
NOBIS (GEOTECH) MBE	\$53,700.00		\$53,700.00
GREEN (SURVEY) MBE	\$61,200.00		\$61,200.00
NOVER ARMSTRONG (ENVIRONMENTAL) WBE	\$62,900.00		\$62,900.00
Sub-Total Direct Costs	\$181,203.00	\$1,000.00	\$182,203.00

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Acton-Carlisle-Westford-Concord			Contract No.:			
Location:	Bruce Freeman Rail Trail, Phases 2A and 2C			Assignment No.:			
Bridge No.:				ProjInfo No.:			
SECTION 100							
PROJECT DEVELOPMENT ENGINEERING							
PROJECT TYPE CODE: -- PROJECT DESCRIPTION:							
	51		51	26.66	16.64	TOTAL	
101	Project Concept Preparation						
102	Preliminary Project Area Analysis						
103	Reasonable Alternative(s) Identification						
104	Alternatives Analysis & Report Preparation						
SUBTOTAL							
SECTION 150							
ENVIRONMENTAL							
	PIC	PM	SE	Eng	AE	ET	TOTAL
151	Early Coordination						
152	Hist./Arch. Impacts (Section 106 and Chapter 254)			2		4	8
153	MESA Determination						
154	Hazardous Materials Research/Review						
155	Project Development Meetings and Hearings						
156	NEPA/MEPA Determination						
157	NEPA - Categorical Exclusion (CE)			1		2	4
158	NEPA - Environmental Assessment (EA)						
159	NEPA - Draft Environmental Impact Statement (EIS)						
160	NEPA - Final Environmental Impact Statement (EIS)						
161	NEPA - Supplemental Environmental Impact Statement (EIS)						
162	NEPA - Reevaluation						
163	MEPA - Environmental Notification Form (ENF)			30		60	140
164	MEPA - Draft Environmental Impact Report (DEIR)						
165	MEPA - Final Environmental Impact Report (FEIR)						
166	MEPA - Notice of Project Change (NOPC)						
167	MEPA - Supplemental Environmental Impact Report (SEIR)						
168	MESA/NOI Streamlined Review						
169	MESA - Conservation and Management Permit						
170	USACE Section 404 Programmatic General Permit (PGP)						
171	USACE Individual Section 404 Permit						
172	U.S. Coast Guard Bridge Permit						
173	Programmatic Section 4(f) Evaluation						
174	Draft Individual Section 4(f) Evaluation						
175	Final Individual Section 4(f) Evaluation						
176	Wetland Resource Area Delineation						
177	Wetlands Protection Act (WPA) ANRAD						
178	WPA - Request for Determination of Applicability						
179	WPA - Notice of Intent (NOI)			60		140	428
180	WPA - Variance						
181	Chapter 91 License/Permit Application						
182	Water Quality Certification (401)						
183	Coastal Zone Management Consistency Certificate						
184	Wildlife/Rare Species Assessment						
185	Essential Fish Habitat Assessment						
186	Coordination and Liaison			12		8	20
SUBTOTAL							
	105		211		234	50	600

### SCOPING WORKBOOK Form 1.4 Summary Table

EXHIBIT B

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Acton, MA	Contract No.:	
Location:	Bruce Freeman Rail Trail - Phase 2A	Assignment No.:	
Bridge No.:		ProjInfo No.:	
<b>SECTION 100</b>			
<b>PROJECT DEVELOPMENT ENGINEERING</b>			
<b>PROJECT TYPE CODE: -- PROJECT DESCRIPTION:</b>			
		PIC	PM
		SE	Eng
		AE	ET
		TOTAL	
101	Project Concept Preparation		
102	Preliminary Project Area Analysis		
103	Reasonable Alternative(s) Identification		
104	Alternatives Analysis & Report Preparation		
105	Meetings (2)		
SUBTOTAL			
<b>SECTION 150</b>			
<b>ENVIRONMENTAL</b>			
		PIC	PM
		SE	Eng
		AE	ET
		TOTAL	
151	Early Coordination		
152	Hist./Arch. Impacts (Section 106 and Chapter 254)		
153	MESA Determination		
154	Hazardous Materials Research/Review		
155	Project Development Meetings and Hearings		
156	NEPA/MEPA Determination		
157	NEPA - Categorical Exclusion (CE)		
158	NEPA - Environmental Assessment (EA)		
159	NEPA - Draft Environmental Impact Statement (EIS)		
160	NEPA - Final Environmental Impact Statement (EIS)		
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168	MESA/NOI Streamlined Review		
169	MESA - Conservation and Management Permit		
170	USACE Section 404 Programmatic General Permit (PGP)		
171	USACE Individual Section 404 Permit		
172	U.S. Coast Guard Bridge Permit		
173	Programmatic Section 4(f) Evaluation		
174	Draft Individual Section 4(f) Evaluation		
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176	Wetland Resource Area Delineation		
177	Wetlands Protection Act (WPA) ANRAD		
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179	WPA - Notice of Intent (NOI)		
180	WPA - Variance		
181	Chapter 91 License/Permit Application		
182	Water Quality Certification (401)		
183	Coastal Zone Management Consistency Certificate		
184	Wildlife/Rare Species Assessment - N/A per MassHighway		
185	Essential Fish Habitat Assessment - N/A per MassHighway		
186	Coordination and Liaison - N/A per MassHighway		
SUBTOTAL			



**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

EXHIBIT B

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Acton, MA	Contract No.:	
Location:	Bruce Freeman Rail Trail - Phase 2A	Assignment No.:	
Bridge No.:		ProjInfo No.:	
SUBTOTAL			

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Acton, MA	Contract No.:	
Location:	Bruce Freeman Rail Trail - Phase 2A	Assignment No.:	
Bridge No.:		ProjInfo No.:	
<b>SECTION 350</b>			
<b>DESIGN PUBLIC HEARING</b>			
		PIC	PM
		SE	Eng
		AE	ET
		TOTAL	
352	Hearing Preparation		
353	Design Public Hearing		
SUBTOTAL			
<b>SECTION 400</b>			
<b>75% HIGHWAY DESIGN SUBMISSION</b>			
		PIC	PM
		SE	Eng
		AE	ET
		TOTAL	
401	Response to 25% Comments		
402	Field Reconnaissance		
403	Meetings, Liaison and Coordination		
404	Utility Coordination		
405	Final Horizontal Design Geometrics		
406	Final Vertical Design Geometrics		
407	Pavement Design		
408	Typical Cross Sections		
409	Plot Cross Section		
410	Plot Proposed Layout and Easements		
411	Construction Plans		
412	Grading & Tie Plans		
413	Drainage and Water Supply Details		
414	Preliminary Traffic Signs		
415	Guide Sign Design & Overhead Directional Elevations		
416	Traffic Signals and Plan Preparation		
417	Pavement Markings and Plan Preparation		
418	Traffic Management		
419	Highway Lighting Plans and Details		
420	Landscaping and Plan Preparation		
421	Erosion Control Plans		
422	Miscellaneous Contract Plans		
423	Quantity & Cost Estimate		
424	Special Provisions		
425	Constructability and Quality Control (QC) Review		
426	Submission Check List		
SUBTOTAL			
<b>SECTION 450</b>			
<b>100% HIGHWAY DESIGN SUBMISSION</b>			
		PIC	PM
		SE	Eng
		AE	ET
		TOTAL	
451	Respond to 75% Comments		
452	Finalize Plans		
453	Finalize Special Provisions		
454	Finalize Estimate		
455	Quality Control (QC) Review		
456	Submission Check List		
SUBTOTAL			

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Acton, MA	Contract No.:	
Location:	Bruce Freeman Rail Trail - Phase 2A	Assignment No.:	
Bridge No.:		ProjInfo No.:	
<b>SECTION 500</b>			
<b>RIGHT OF WAY</b>			
		PIC	PM
		SE	Eng
		AE	ET
		TOTAL	
501	Preliminary Right of Way Plans		
502	Layout and Order of Taking Plans		
503	Written Instrument		
504	Final Right of Way Plans		
SUBTOTAL			
<b>SECTION 600</b>			
<b>GEOTECHNICAL REPORT</b>			
		PIC	PM
		SE	Eng
		AE	ET
		TOTAL	
601	Research Available Subsurface Data	2	12
602	Field Reconnaissance		16
603	Subsurface Investigation Plan		2
604	Subsurface Investigation Inspection	2	12
605	Office Studies, Analysis and Testing	2	24
606	Geotechnical Report	2	16
607	Meetings, Reviews and Liaison		
608	Final Plans, Specifications and Estimate		
SUBTOTAL		8	68
<b>SECTION 700</b>			
<b>PROJECT DEVELOPMENT (STRUCTURAL)</b>			
		PIC	PM
		SE	Eng
		AE	ET
		TOTAL	
701	Field Investigation		
702	Determine Bridge Configuration		
703	Preliminary Structural Analysis		
704	Comparative Design and Cost Analysis		
705	Preliminary Structures Report Preparation		
706	Bridge Type Selection Worksheet Preparation		
707	Meetings and Liaison		
SUBTOTAL			
<b>SECTION 710</b>			
<b>SKETCH PLANS</b>			
		PIC	PM
		SE	Eng
		AE	ET
		TOTAL	
711	Establish Boring Locations		
712	Hydraulics Study and Report (Bridges over Water)		
713	Sketch Plan Development		
714	Meetings, Coordination and Liaison		
715	Constructability Review		
716	Submission Check List		
SUBTOTAL			

## SCOPING WORKBOOK Form 1.3 Work Hour Estimate

City/Town	Acton, MA	Contract No.:						
Location:	Bruce Freeman Rail Trail - Phase 2A	Assignment No.:						
Bridge No.:		ProjInfo No.:						
<b>SECTION 750</b>								
<b>FINAL BRIDGE DESIGN</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
751	Structural Design - Superstructure							
752	Structural Design - Substructure							
753	Bridge Layout Geometrics							
754	Contract Drawings							
755	First Review Submission							
756	Quantity Cost Estimates							
757	Special Provisions							
758	Second Review Submission							
759	FHWA Reviews							
760	Meetings and Liaison							
761	Constructability and Quality Control (QC) Review							
762	Submission Check List							
SUBTOTAL								
<b>SECTION 800</b>								
<b>PS&amp;E SUBMISSION</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
801	Respond to 100% Comments							
802	Finalize Plans, Specifications and Estimate							
803	Prepare Detail Sheets							
804	Combine Highway and Bridge							
805	Quality Control (QC) Review							
SUBTOTAL								
<b>SECTION 900</b>								
<b>CONSTRUCTION ENGINEERING</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
901	Pre-Bid Services							
902	Pre-Construction Conference							
903	Highway Shop Drawings and Signal Permit							
904	Bridge and Wall Shop Drawings							
905	Bridge Construction Procedures							
906	Furnishing Advice and Field Visits							
907	Geotechnical Construction Evaluation							
908	Bridge Rating and Photographs							
SUBTOTAL								

### SCOPING WORKBOOK Form 1.4 Summary Table

# EXHIBIT B

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPE OF WORK**

Direct Costs				
Expenses	Design	Construction	Total	
Printing & Copying	\$100.00	\$0.00	\$100.00	
Mileage & Tolls	\$500.00	\$0.00	\$500.00	
Driller	\$0.00	\$0.00	\$0.00	
Police Detail	\$0.00	\$0.00	\$0.00	
Soil Laboratory	\$0.00	\$0.00	\$0.00	
Equipment / Materials	\$100.00	\$0.00	\$100.00	
Mast Arm Boring	\$0.00	\$0.00	\$0.00	
Pavement Test Pits/Analysis	\$0.00	\$0.00	\$0.00	
Sub-Total Direct Costs	\$700.00	\$0.00	\$700.00	

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Westford, Carlisle and Acton			Contract No.				
Location	Bruce Freeman Rail Trail Phase 2A			Assignment No.	Survey Only			
Bridge No.				ProjInfo No.	604532			
SUBTOTAL								
<b>SECTION 220</b>								
<b>DESIGN EXCEPTION REPORT</b>								
		PIC	PM	SE	Eng	AE	ET	TOTAL
221	Evaluate 13 Controlling Criteria (PDDG Ch. 2)							
222	Perform Incremental Evaluation							
223	Prepare Narrative/Report							
SUBTOTAL								



**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Westford, Carlisle and Acton				Contract No.				
Location	Bruce Freeman Rail Trail Phase 2A				Assignment No.	Survey Only			
Bridge No.					ProjInfo No.	604532			
SECTION 300									
25% HIGHWAY DESIGN SUBMISSION									
			PIC	PM	SE	Eng	AE	ET	TOTAL
301	Project Initiation and Data Compilation			2	6	8	8	8	32
302	Utility Coordination				1	8	24	16	49
303	Survey Coordination and Controls			4	2	16	16	40	78
304	Base Plans, Profiles and Typical Sections			8	16	40	160	180	404
305	Field Reconnaissance					24	62		86
306	Plot Existing Layout Lines			4	20		24	40	88
307	Meetings and Liaison								
308	Determine Roadway Cross Section								
309	Preliminary Horizontal Geometry								
310	Preliminary Vertical Geometry								
311	Cross Section Studies								
312	Prepare Cross Sections								
313	Plot Proposed Layout and Easements								
314	Pavement Design								
315	Typical Sections								
316	Construction Details								
317	Hydrological Studies and Hydraulics Report								
318	Preliminary Drainage and Utility Studies								
319	Lane Configuration								
320	Traffic Signals								
321	Signs and Pavement Markings								
322	Traffic Management								
323	Early Environmental Coordination								
324	Constructability Review								
325	Quality Control (QC) Review								
326	Preliminary Construction Estimate								
327	Submission Check List								
328	Modifications and Revisions								
329	Value Engineering (VE)								
SUBTOTAL				18	45	96	294	284	737
SECTION 350									
DESIGN PUBLIC HEARING									
			PIC	PM	SE	Eng	AE	ET	TOTAL
352	Hearing Preparation								
353	Design Public Hearing								
SUBTOTAL									

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Westford, Carlisle and Acton				Contract No.				
Location	Bruce Freeman Rail Trail Phase 2A				Assignment No.	Survey Only			
Bridge No.					ProjInfo No.	604532			
<b>SECTION 400</b>									
<b>75% HIGHWAY DESIGN SUBMISSION</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
401	Response to 25% Comments								
402	Field Reconnaissance								
403	Meetings, Liaison and Coordination								
404	Utility Coordination								
405	Final Horizontal Design Geometrics								
406	Final Vertical Design Geometrics								
407	Pavement Design								
408	Typical Cross Sections								
409	Plot Cross Section								
410	Plot Proposed Layout and Easements								
411	Construction Plans								
412	Grading & Tie Plans								
413	Drainage and Water Supply Details								
414	Preliminary Traffic Signs								
415	Guide Sign Design & Overhead Directional Elevations								
416	Traffic Signals and Plan Preparation								
417	Pavement Markings and Plan Preparation								
418	Traffic Management								
419	Highway Lighting Plans and Details								
420	Landscaping and Plan Preparation								
421	Erosion Control Plans								
422	Miscellaneous Contract Plans								
423	Quantity & Cost Estimate								
424	Special Provisions								
425	Constructability and Quality Control (QC) Review								
426	Submission Check List								
SUBTOTAL									
<b>SECTION 450</b>									
<b>100% HIGHWAY DESIGN SUBMISSION</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
451	Respond to 75% Comments								
452	Finalize Plans								
453	Finalize Special Provisions								
454	Finalize Estimate								
455	Quality Control (QC) Review								
456	Submission Check List								
SUBTOTAL									

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Westford, Carlisle and Acton				Contract No.				
Location	Bruce Freeman Rail Trail Phase 2A				Assignment No.	Survey Only			
Bridge No.					ProjInfo No.	604532			
<b>SECTION 500</b>									
<b>RIGHT OF WAY</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
501	Preliminary Right of Way Plans								
502	Layout and Order of Taking Plans								
503	Written Instrument								
504	Final Right of Way Plans								
SUBTOTAL									
<b>SECTION 600</b>									
<b>GEOTECHNICAL REPORT</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
601	Research Available Subsurface Data								
602	Field Reconnaissance								
603	Subsurface Investigation Plan								
604	Subsurface Investigation Inspection								
605	Office Studies, Analysis and Testing								
606	Geotechnical Report								
607	Meetings, Reviews and Liaison								
608	Final Plans, Specifications and Estimate								
SUBTOTAL									
<b>SECTION 700</b>									
<b>PROJECT DEVELOPMENT (STRUCTURAL)</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
701	Field Investigation								
702	Determine Bridge Configuration								
703	Preliminary Structural Analysis								
704	Comparative Design and Cost Analysis								
705	Preliminary Structures Report Preparation								
706	Bridge Type Selection Worksheet Preparation								
707	Meetings and Liaison								
SUBTOTAL									
<b>SECTION 710</b>									
<b>SKETCH PLANS</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
711	Establish Boring Locations								
712	Hydraulics Study and Report (Bridges over Water)								
713	Sketch Plan Development								
714	Meetings, Coordination and Liaison								
715	Constructability Review								
716	Submission Check List								
SUBTOTAL									

**COMMONWEALTH OF MASSACHUSETTS  
HIGHWAY DEPARTMENT**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Westford, Carlisle and Acton				Contract No.				
Location	Bruce Freeman Rail Trail Phase 2A				Assignment No.	Survey Only			
Bridge No.					Proj Info No.	604532			
<b>SECTION 750</b>									
<b>FINAL BRIDGE DESIGN</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
751	Structural Design - Superstructure								
752	Structural Design - Substructure								
753	Bridge Layout Geometrics								
754	Contract Drawings								
755	First Review Submission								
756	Quantity Cost Estimates								
757	Special Provisions								
758	Second Review Submission								
759	FHWA Reviews								
760	Meetings and Liaison								
761	Constructability and Quality Control (QC) Review								
762	Submission Check List								
SUBTOTAL									
<b>SECTION 800</b>									
<b>PS&amp;E SUBMISSION</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
801	Respond to 100% Comments								
802	Finalize Plans, Specifications and Estimate								
803	Prepare Detail Sheets								
804	Combine Highway and Bridge								
805	Quality Control (QC) Review								
SUBTOTAL									
<b>SECTION 900</b>									
<b>CONSTRUCTION ENGINEERING</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
901	Pre-Bid Services								
902	Pre-Construction Conference								
903	Highway Shop Drawings and Signal Permit								
904	Bridge and Wall Shop Drawings								
905	Bridge Construction Procedures								
906	Furnishing Advice and Field Visits								
907	Geotechnical Construction Evaluation								
908	Bridge Rating and Photographs								
SUBTOTAL									

### SCOPING WORKBOOK Form 1.4 Summary Table

EXHIBIT B

**Direct Expenses**

Mileage	400	miles X	0.4	per mile	\$160
Utility Research					\$300
Deed/Plan Research					\$100
Police Data	8	hrs X	\$50	per hour	\$400
Print / Copy					\$250
Overnight Mail					\$125
Abutter Notification via Certified Mail					\$100
<hr/>					
Total					\$1,435

**MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Concord				Contract No.					
Location	Bruce Freeman Rail Trail Phase 2C				Assignment No.	Survey Only				
Bridge No.					ProjInfo No.					
SECTION 100										
PROJECT DEVELOPMENT ENGINEERING										
PROJECT TYPE CODE: -- PROJECT DESCRIPTION:										
		PIC	PM	SE	Eng	AE	ET	TOTAL		
101	Project Concept Preparation									
102	Preliminary Project Area Analysis									
103	Reasonable Alternative(s) Identification									
104	Alternatives Analysis & Report Preparation									
SUBTOTAL										
SECTION 150										
ENVIRONMENTAL										
		PIC	PM	SE	Eng	AE	ET	TOTAL		
151	Early Coordination									
152	Hist./Arch. Impacts (Section 106 and Chapter 254)									
153	MESA Determination									
154	Hazardous Materials Research/Review									
155	Project Development Meetings and Hearings									
156	NEPA/MEPA Determination									
157	NEPA - Categorical Exclusion (CE)									
158	NEPA - Environmental Assessment (EA)									
159	NEPA - Draft Environmental Impact Statement (EIS)									
160	NEPA - Final Environmental Impact Statement (EIS)									
161	NEPA - Supplemental Environmental Impact Statement (EIS)									
162	NEPA - Reevaluation									
163	MEPA - Environmental Notification Form (ENF)									
164	MEPA - Draft Environmental Impact Report (DEIR)									
165	MEPA - Final Environmental Impact Report (FEIR)									
166	MEPA - Notice of Project Change (NOPC)									
167	MEPA - Supplemental Environmental Impact Report (SEIR)									
168	MESA/NOI Streamlined Review									
169	MESA - Conservation and Management Permit									
170	USACE Section 404 Programmatic General Permit (PGP)									
171	USACE Individual Section 404 Permit									
172	U.S. Coast Guard Bridge Permit									
173	Programmatic Section 4(f) Evaluation									
174	Draft Individual Section 4(f) Evaluation									
175	Final Individual Section 4(f) Evaluation									
176	Wetland Resource Area Delineation									
177	Wetlands Protection Act (WPA) ANRAD									
178	WPA - Request for Determination of Applicability									
179	WPA - Notice of Intent (NOI)									
180	WPA - Variance									
181	Chapter 91 License/Permit Application									
182	Water Quality Certification (401)									
183	Coastal Zone Management Consistency Certificate									
184	Wildlife/Rare Species Assessment									
185	Essential Fish Habitat Assessment									
186	Coordination and Liaison									
SUBTOTAL										
SECTION 200										
FUNCTIONAL DESIGN REPORT (FDR)										
		PIC	PM	SE	Eng	AE	ET	TOTAL		
201	Evaluate Existing Conditions									
202	Traffic Count Analysis									
203	Safety Analysis									
204	MUTCD Signal Warrants									
205	Intersection Analysis									
206	Proposed Geometrics									
207	Report Preparation									

**MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Concord				Contract No.:			
Location	Bruce Freeman Rail Trail Phase 2C				Assignment No.:		Survey Only	
Bridge No.:					ProjInfo No.:			
SUBTOTAL								
SECTION 220								
DESIGN EXCEPTION REPORT								
		PIC	PM	SE	Eng	AE	ET	TOTAL
221	Evaluate 13 Controlling Criteria (PDDG Ch. 2)							
222	Perform Incremental Evaluation							
223	Prepare Narrative/Report							
SUBTOTAL								



**MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Concord				Contract No.				
Location	Bruce Freeman Rail Trail Phase 2C				Assignment No.		Survey Only		
Bridge No.					ProjInfo No.				
SECTION 300									
25% HIGHWAY DESIGN SUBMISSION									
			PIC	PM	SE	Eng	AE	ET	TOTAL
301	Project Initiation and Data Compilation								
302	Utility Coordination								
303	Survey Coordination and Controls								
304	Base Plans, Profiles and Typical Sections								
305	Field Reconnaissance								
306	Plot Existing Layout Lines								
307	Meetings and Liaison								
308	Determine Roadway Cross Section								
309	Preliminary Horizontal Geometry								
310	Preliminary Vertical Geometry								
311	Cross Section Studies								
312	Prepare Cross Sections								
313	Plot Proposed Layout and Easements								
314	Pavement Design								
315	Typical Sections								
316	Construction Details								
317	Hydrological Studies and Hydraulics Report								
318	Preliminary Drainage and Utility Studies								
319	Lane Configuration								
320	Traffic Signals								
321	Signs and Pavement Markings								
322	Traffic Management								
323	Early Environmental Coordination								
324	Constructability Review								
325	Quality Control (QC) Review								
326	Preliminary Construction Estimate								
327	Submission Check List								
328	Modifications and Revisions								
329	Value Engineering (VE)								
SUBTOTAL			2	2	12	9	30	55	
SECTION 350									
DESIGN PUBLIC HEARING									
			PIC	PM	SE	Eng	AE	ET	TOTAL
352	Hearing Preparation								
353	Design Public Hearing								
SUBTOTAL									

**MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Concord				Contract No.:				
Location:	Bruce Freeman Rail Trail Phase 2C				Assignment No.:		Survey Only		
Bridge No.:					Proj Info No.:				
SECTION 400									
75% HIGHWAY DESIGN SUBMISSION									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
401	Response to 25% Comments								
402	Field Reconnaissance								
403	Meetings, Liaison and Coordination								
404	Utility Coordination								
405	Final Horizontal Design Geometrics								
406	Final Vertical Design Geometrics								
407	Pavement Design								
408	Typical Cross Sections								
409	Plot Cross Section								
410	Plot Proposed Layout and Easements								
411	Construction Plans								
412	Grading & Tie Plans								
413	Drainage and Water Supply Details								
414	Preliminary Traffic Signs								
415	Guide Sign Design & Overhead Directional Elevations								
416	Traffic Signals and Plan Preparation								
417	Pavement Markings and Plan Preparation								
418	Traffic Management								
419	Highway Lighting Plans and Details								
420	Landscaping and Plan Preparation								
421	Erosion Control Plans								
422	Miscellaneous Contract Plans								
423	Quantity & Cost Estimate								
424	Special Provisions								
425	Constructability and Quality Control (QC) Review								
426	Submission Check List								
SUBTOTAL									
SECTION 450									
100% HIGHWAY DESIGN SUBMISSION									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
451	Respond to 75% Comments								
452	Finalize Plans								
453	Finalize Special Provisions								
454	Finalize Estimate								
455	Quality Control (QC) Review								
456	Submission Check List								
SUBTOTAL									

**MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Concord				Contract No.:					
Location	Bruce Freeman Rail Trail Phase 2C				Assignment No.:		Survey Only			
Bridge No.:					ProjInfo No.:					
<b>SECTION 500</b>										
<b>RIGHT OF WAY</b>										
			PIC	PM	SE	Eng	AE	ET	TOTAL	
501	Preliminary Right of Way Plans									
502	Layout and Order of Taking Plans									
503	Written Instrument									
504	Final Right of Way Plans									
SUBTOTAL										
<b>SECTION 600</b>										
<b>GEOTECHNICAL REPORT</b>										
			PIC	PM	SE	Eng	AE	ET	TOTAL	
601	Research Available Subsurface Data									
602	Field Reconnaissance									
603	Subsurface Investigation Plan									
604	Subsurface Investigation Inspection									
605	Office Studies, Analysis and Testing									
606	Geotechnical Report									
607	Meetings, Reviews and Liaison									
608	Final Plans, Specifications and Estimate									
SUBTOTAL										
<b>SECTION 700</b>										
<b>PROJECT DEVELOPMENT (STRUCTURAL)</b>										
			PIC	PM	SE	Eng	AE	ET	TOTAL	
701	Field Investigation									
702	Determine Bridge Configuration									
703	Preliminary Structural Analysis									
704	Comparative Design and Cost Analysis									
705	Preliminary Structures Report Preparation									
706	Bridge Type Selection Worksheet Preparation									
707	Meetings and Liaison									
SUBTOTAL										
<b>SECTION 710</b>										
<b>SKETCH PLANS</b>										
			PIC	PM	SE	Eng	AE	ET	TOTAL	
711	Establish Boring Locations									
712	Hydraulics Study and Report (Bridges over Water)									
713	Sketch Plan Development									
714	Meetings, Coordination and Liaison									
715	Constructability Review									
716	Submission Check List									
SUBTOTAL										

**MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION**

**SCOPING WORKBOOK Form 1.3 Work Hour Estimate**

City/Town	Concord	Contract No.							
Location	Bruce Freeman Rail Trail Phase 2C	Assignment No.		Survey Only					
Bridge No.		ProjInfo No.							
<b>SECTION 750</b>									
<b>FINAL BRIDGE DESIGN</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
751	Structural Design - Superstructure								
752	Structural Design - Substructure								
753	Bridge Layout Geometrics								
754	Contract Drawings								
755	First Review Submission								
756	Quantity Cost Estimates								
757	Special Provisions								
758	Second Review Submission								
759	FHWA Reviews								
760	Meetings and Liaison								
761	Constructability and Quality Control (QC) Review								
762	Submission Check List								
<b>SUBTOTAL</b>									
<b>SECTION 800</b>									
<b>PS&amp;E SUBMISSION</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
801	Respond to 100% Comments								
802	Finalize Plans, Specifications and Estimate								
803	Prepare Detail Sheets								
804	Combine Highway and Bridge								
805	Quality Control (QC) Review								
<b>SUBTOTAL</b>									
<b>SECTION 900</b>									
<b>CONSTRUCTION ENGINEERING</b>									
		PIC	PM	SE	Eng	AE	ET	TOTAL	
901	Pre-Bid Services								
902	Pre-Construction Conference								
903	Highway Shop Drawings and Signal Permit								
904	Bridge and Wall Shop Drawings								
905	Bridge Construction Procedures								
906	Furnishing Advice and Field Visits								
907	Geotechnical Construction Evaluation								
908	Bridge Rating and Photographs								
<b>SUBTOTAL</b>									

**SCOPING WORKBOOK Form 1.4 Summary Table**

EXHIBIT B

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION

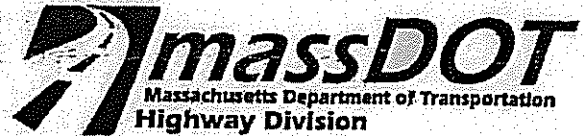
SCOPING WORKBOOK Direct Expense

Direct Expenses

Mileage	50 miles X	\$ 0.40	per mile	\$20
Police Detail	hours X	\$ 50.00	per hour	\$0
<hr/>				
Total				\$20



Deval L. Patrick, Governor  
Timothy P. Murray, Lt. Governor  
Jeffrey B. Mullar, Secretary & CEO  
Luisa Palewonsky, Administrator



## Architects and Engineers Review Board - Prequalification

Effective: June 5, 2009

Expires: June 5, 2011

Greenman-Pedersen, Inc.  
105 Central Street, Suite 4100  
Stoneham MA 02180

### You are Prequalified in the following Disciplines:

- |  |  |
|--|--|
| <input type="checkbox"/> Environmental Studies   | <input type="checkbox"/> Landscape Architecture                              |
| <input checked="" type="checkbox"/> Basic Roadway Design                               | <input checked="" type="checkbox"/> Transportation Planning                  |
| <input checked="" type="checkbox"/> Intermediate Roadway Design                        | <input checked="" type="checkbox"/> Intelligent Transportation Systems       |
| <input checked="" type="checkbox"/> Complex Roadway Design                             | <input type="checkbox"/> Transit and Rail Systems Design                     |
| <input checked="" type="checkbox"/> Basic Bridge Design/Rating                         | <input type="checkbox"/> Cultural Resources                                  |
| <input checked="" type="checkbox"/> Intermediate Bridge Design/Rating                  | <input type="checkbox"/> Hazardous Waste - Site Investigation and Assessment |
| <input checked="" type="checkbox"/> Complex Bridge Design/Rating                       | <input type="checkbox"/> Hazardous Waste - Remediation                       |
| <input type="checkbox"/> NBIS Bridge Inspection  | <input type="checkbox"/> Wetlands - Delineation and Assessment               |
| <input type="checkbox"/> Moveable Bridge Design/Rating                                 | <input type="checkbox"/> Wetlands - Mitigation                               |
| <input type="checkbox"/> Moveable Bridge Inspection                                    | <input type="checkbox"/> Water Quality - Assessment                          |
| <input checked="" type="checkbox"/> Traffic Operations Studies and Design              | <input type="checkbox"/> Water Quality - Mitigation                          |
| <input type="checkbox"/> Geotechnical Engineering Including Soils & Foundation Studies | <input type="checkbox"/> Air Quality   |
| <input checked="" type="checkbox"/> Construction Oversight                             | <input type="checkbox"/> Noise Studies                                       |
| <input type="checkbox"/> Construction Contract Assistance                              | <input type="checkbox"/> Ecology   |
| <input checked="" type="checkbox"/> Hydraulics and Hydrology                           | <input checked="" type="checkbox"/> Engineering Field Survey                 |
| <input type="checkbox"/> Materials Inspection and Testing                              | <input checked="" type="checkbox"/> Total Station AutoCAD Base Plan Services |
| <input type="checkbox"/> Architecture  | <input checked="" type="checkbox"/> Layout Document Preparation              |
|  | <input checked="" type="checkbox"/> Photogrammetry                           |

MassDOT will retain this rating on its list of prequalified firms until the Expiration Date shown above. Your firm is required to submit a new or updated ADM-016 Form on or before the Expiration Date if you wish to continue to be considered for new services by the Department. Revised ADM-016 Forms may also be submitted at any time prior to the Expiration Date. Failure to furnish an updated ADM-016 Form prior to the Expiration Date will result in your firm being removed from MassDOT's list of prequalified firms. This will disqualify your firm from being selected for new contracts with MassDOT until an updated form is submitted and MassDOT has issued a new rating.

Sincerely,

  
Peter VanBuskirk, Secretary  
Architects & Engineers Review Board

STANDARD PROVISIONS - ATTACHMENT I

ARTICLE I. GENERAL PROVISIONS

1. DEFINITIONS

The following words as used herein, heretofore, and hereinafter shall mean:

**CONSULTANT.....** The Contractor

**COMMONWEALTH.....** The Commonwealth of Massachusetts

**CONTRACTOR.....** The Party of the Second Part to this Contract, acting directly or through an authorized lawful agent or employee.

**DEPARTMENT.....** The Massachusetts Highway Department of the Commonwealth of Massachusetts.

**ENGINEER.....** The Chief Engineer of the Department acting directly or through an authorized representative, such representative acting within the scope of the particular duties entrusted to him.

**FEDERAL HIGHWAY ADMINISTRATION OR "FHWA" .....** The Federal Highway Administration of the United States Department of Transportation.

**PROJECT .....** All work described in the special provisions under the heading "SCOPE OF SERVICES".

**SPECIFICATIONS....** The directions, provisions and requirements comprising both these Standard Provisions and the Special Provisions.

**SPECIAL PROVISIONS .....** The special directions, provisions and requirements prepared to cover proposed work not expressly provided for in these specifications. The special provisions shall be included within the general term "Specifications" and shall be made a part of the contract with the expressed understanding that in the event of conflict, they shall prevail over all other specifications of the contract.

2. TIME SCHEDULE

The Consultant shall begin performance of the services designated in the contract promptly, and shall complete the services without delay.

All work shall be performed by the Consultant in accordance with the time schedule as shown in the Standard Service Contract Section 2(b) and in the Special Provisions hereinafter.

Should circumstances occur, which are beyond the control of the Consultant such as an increase in the scope of work, revisions to approved work, or a change in the conditions under which the work is to be performed, the specified estimated completion date may be extended. If the extension of time is more than one year beyond the originally specified time period, the contract fee may be renegotiated. Four months prior to reaching the completion date for the Contract, it shall be the Consultant's responsibility to notify the Department in writing if he feels that he cannot meet the completion date. The Consultant shall state the reason why that date cannot be met and request a revised date for consideration. If the Department determines that an extension of time is warranted, both parties shall agree to a new completion date. Any adjustment to the contract fee attributed to escalated salaries and/or other costs resulting from the extended time shall only apply to costs incurred beyond the one year addition to the original completion date. Also, the Consultant is made aware that no compensation will be paid for services that are rendered either prior to the date of the Notice to Proceed or beyond the duration specified in the Contract, unless an extension of time is granted.

3. TERMINATION

Upon receipt of written notification from the Department that this Contract, or any part thereof, is to be terminated, the Consultant shall immediately cease operations on the work stipulated, and assemble all material that has been prepared, developed, furnished or obtained under the terms of this Contract that may be in his possession or custody, and shall transmit the same to the Department on or before the fifteenth day following the receipt of the above written notice of termination, together with his evaluation of the cost of the work performed. The Consultant shall be entitled to just and equitable payment in accordance with ARTICLE VI, Section D for any uncompensated work satisfactorily performed prior to such notice.

The Department shall determine the amount of acceptable work performed by the Consultant under this Contract. The Department's evaluation shall be used as a basis to determine the amount of compensation due him for this work, provided it shall be made in good faith and supported by substantial evidence.

In determining the value of the work performed by the Consultant prior to termination, no consideration will be given to profit which the Consultant might have reasonably expected to make on the uncompleted portion of the work.



If no contract for construction of the project is executed within one year after completion of the services outlined in ARTICLE IV, the services as outlined in ARTICLE V shall be cancelled and the services under this contract shall be deemed to have been completed.

#### **4. STANDARD SPECIFICATIONS**

The Consultant agrees to perform the work required under this contract in strict conformity with the provisions of the Department's current Standard Specifications for Highways and Bridges and amendments thereto insofar as said provisions are applicable to this contract, said Standard Specifications and amendments being specifically made a part of this contract as fully and to the same effect as if the same had been set forth at length herein, except as herein otherwise provided.

#### **5. DESIGN STANDARDS**

All work shall be designed in accordance with the standards adopted by the American Association of State Highway and Transportation Officials and with the design standards of the Department using data as appears in the Department's current Standard Specifications for Highways and Bridges, as amended, and as shown in the Highway Design Manual, Manual on Uniform Traffic Control Devices, Bridge Manual, Construction Manual, Survey Manual, Right of Way Manual and the Utility Accommodation Policy, along with all other standards, specifications, memoranda, directives and practices presently adopted for use by the Department and as may be from time to time amended.

The design of projects on the Federal Aid Highway System must comply with standards as approved by the United States Department of Transportation, Federal Highway Administration. All roads on the Interstate System must comply with the standards as provided in Section 109 Title 23 of the Federal Highway Act of 1956, as amended.

#### **6. STAFFING OF OFFICE AND INSPECTION OF WORK**

The Consultant shall maintain an office located within the confines of the Commonwealth of Massachusetts. Such office shall be staffed with professional personnel adequate in number, training and experience to perform the work required under this contract.

Prior to the beginning of work, the Consultant shall submit the names, titles and salary rates of all personnel to be assigned to the work and any subsequent increase in salary rates shall require the approval of the Engineer. In addition, education and experience records of supervisory personnel who will actively participate in the work shall be submitted. If, at any time during the term of this contract, any supervisory position is vacated, notice shall be immediately sent to the Engineer as to the person vacating the position and the name, title, education, experience record and rate of pay of the person who will fill the vacancy. Prior written approval of the Engineer for the change in supervisory personnel must be received by the Consultant.

It is understood that authorized representatives of the Massachusetts Highway Department and the United States Department of Transportation, Federal Highway Administration may inspect or review the Consultant's design work in progress during normal working hours. Plans and documents, including those in the formative stage, shall be readily available in the Consultant's Massachusetts Office at all times during normal working hours.

It is agreed that any or all portions of the work performed by the Consultant may be reviewed by consultant engineers retained by the Department for this purpose.

#### **7. LODGING, ETC.**

Every person employed in the work covered by this Contract shall lodge, board or trade where and with whom he elects, and neither the Consultant nor his agents or employees shall directly or indirectly require as a condition of employment therein that an employee shall lodge, board or trade at a particular place or with a particular person.

#### **8. AVAILABLE DATA AND MATERIALS**

All data applicable to this project in possession of the Department shall be made available to the Consultant by the Department. The Department shall furnish to the Consultant forms, cross section paper and other material for the preparation of plans, profiles, cross sections, etc. if such materials are standard only with the Department and cannot be obtained elsewhere.

## **9. HEARINGS & MEETINGS**

The Department shall make all arrangements for and hold all necessary official public hearings in connection with the project.

Public meetings to obtain citizen participation in the planning and design of the project may be arranged by the Department or by the Consultant under the direction of the Engineer.

The Consultant shall not, at any time, make any commitments or give any information regarding projects being planned by the Department without prior approval of the Engineer.

The Consultant shall, when requested by the Engineer, render such assistance as necessary, including preparation and explanation of sketches or plans, at or for any hearing, meeting or conference held by the Department.

## **10. AGREEMENTS**

The Department shall negotiate and prepare all necessary agreements with railroads, public utilities, municipalities, agencies of the United States Government or others.

The Consultant shall prepare the plans, sketches and other data necessary in connection with these agreements and assist the Engineer, if requested, at conferences related to such agreements.

## **11. APPEARANCE AS WITNESS**

If and when required by the Department, the Consultant shall prepare for and appear in any litigation concerning this project in behalf of the Commonwealth, and he shall be paid actual salary and overhead costs with no profit allowance for his services and he shall be reimbursed for any expenses incurred by him in relation thereto. These services and expenses shall not be considered as covered by the total of the fees stipulated in this contract.

## **12. REPORTS OF MEETINGS**

The Consultant shall keep a record indicating the subject and substance of all formal meetings with the engineers of the Department as well as with representatives of other State and Federal agencies, municipalities, private organizations and the general public, at which he is in attendance. Reports shall be prepared and submitted to the Engineer describing the subject matter discussed at each meeting, and subsequent reports submitted as to actions taken as a result of recommendations presented.

## **13. CONTRACT PROPOSALS**

After the Consultant has furnished to the Department contract drawings, proposed special provisions of the specifications, estimates of quantities and unit costs by items, the Department shall prepare the documents for receipt of proposals from construction contractors and for execution of a construction contract or contracts.

## **14. APPROVAL OF CONTRACT PLANS**

It is understood that after the Consultant has submitted to the Engineer complete contract plans, special provisions, estimates and layout plans as required under ARTICLE IV, Sections C, E and F, the Engineer shall, within a reasonable time, either approve said documents or return them with such comments or recommended changes as he deems desirable. No such approval shall relieve the Consultant of his liability for any defect, error or omission in his work.

## **15. REVISIONS OF APPROVED WORK**

If after receiving written approval of his work as specified under ARTICLE IV, Sections C, E and F, the Consultant shall be ordered in writing by the Engineer to make revisions of the plans and/or other data, the Consultant shall be entitled to additional compensation as provided in ARTICLE VI, Section C.

No compensation will be made under this section for work which the Consultant has completed and for which approval has not been given, or for revisions caused by errors, omissions, oversight or neglect on the part of the Consultant.

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**16. PUBLICATION OF PLANS**

No copies or sketches of plans, including design plans in the formative stage are to be released by the Consultant to any other person or agency, except after prior approval of the Department. All press releases including plans and information to be published in newspapers, magazines, and other news media are to be through Department sources only.

**17. EMPLOYMENT OF DEPARTMENT PERSONNEL**

The employment by the Consultant of personnel on the payroll of the Massachusetts Highway Department shall not be permitted in the execution of this Contract, even though such employment may be outside of the employee's regular working hours or on Saturdays, holidays or vacation time. The Consultant is presumed to have a sufficient and competent organization to do the work required.

**18. WARRANTY**

The Consultant warrants that he has not employed or retained any company or person, other than a bona fide employee working solely for the Consultant, to solicit or secure this Contract, and that he has not paid or agreed to pay any company or person, other than a bona fide employee working solely for the Consultant, any fee, commission, percentage, brokerage fee, gifts, or any other consideration, contingent upon or resulting from the award or making of this Contract. For breach or violation of this warranty, the Department shall have the right to annul this Contract without liability, or, in its discretion, to deduct from the Contract price or consideration without liability, or otherwise recover the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

**19. SUBCONTRACTING**

The Consultant shall perform with his own organization amounting to not less than fifty (50) percent of the contract fee, except that any items designated in the contract as "Specialty Items" may be performed by sub-contract.

If the complexity and nature of the project are such as to require highly specialized professional or expert assistance, services or advice in connection with special phases of the work which normally are not the type performed directly by the Consultant, such services may be obtained, provided that prior written approval is received from the Department, and, in the case of Federal-Aid Projects, both the Department and the F.H.W.A.

The Consultant warrants that his contracts with subconsultants shall bind each sub-consultant to all provisions of this contract to the extent that the regulations, rights and interests of the Department and the Federal Highway Administration may be effected; and the Consultant accepts legal and financial responsibility for any failures to so protect and enforce the regulations, rights and interests of the Department and the Federal Highway Administration.

The Department reserves the right to approve any changes in sub-contractors or changes in the amounts or rates of cost reimbursement to any sub-contractor. The employment of other firms or individuals for supplemental specialized services, such as soil testing and ground or aerial survey work included in the predetermined fee, shall not require approval of the Federal Highway Administration or the Board of Commissioners, but prior written approval shall be obtained from the Chief Engineer of the Department.

Requests for approval of work to be sublet must include a clear description of the work to be performed, capabilities of the sub-contractor to perform such work, breakdown of costs and man hours, method of payment and maximum amount to be paid. Any subcontract exceeding \$10,000.00 in cost shall contain all the contractual provisions required by Federal-Aid Highway Program Manual Vol. 1 Ch. 7, Sec. 2, Par. 6.

**20. NON-DISCRIMINATION IN EMPLOYMENT AND AFFIRMATIVE ACTION**

During the performance of this contract, the Consultant, for itself, its assignees and successors in interest, shall comply with the regulations of the Department of Transportation relative to nondiscrimination in Federally assisted programs of the Department of Transportation (Title 49, CFR, Part 21, hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

The Consultant shall comply with all provisions of the "Required Contract Provision for Equal Opportunity, the Special Provision for Specific Equal Opportunity Responsibilities" and the "Disadvantaged Business Enterprise Provision" which are included herein and made a part of this Contract.

**21. NOTICE**

Unless otherwise specified, any notice hereunder shall be in writing and shall be deemed delivered when given in person to either party or deposited in the U.S. mail, postage prepaid and addressed as follows:

To the Department: Chief Engineer  
Massachusetts Highway Department  
10 Park Plaza, Boston, MA 02116

To the Contractor: (Contractors address as listed on page 1 of the Standard Contract)

**22. INSURANCE**

The Consultant shall carry insurance in a sufficient amount to assure the restoration of any plans, drawings, computations, field notes or other similar data relating to the work covered by this Contract in the event of loss or destruction until all data is turned over to the Department.

The Consultant shall submit copies of the insurance policies as well as any applicable certificates to the Department for subsequent filing with the Department Secretary. The Department shall not be obligated to make any payment to the Consultant for services performed under the provisions of this contract before receipt of evidence of insurance coverage.

The Consultant shall also carry Professional Services Liability Insurance for errors and omissions, in an amount stated in the SPECIAL PROVISIONS. This insurance shall be obtained by the Consultant and shall remain in force from the date when the Consultant affixes his Registered Professional Engineer's stamp to the Contract documents to the date when all construction work designed under this Contract is completed, unless this Contract is terminated as herein provided, or until it is determined by the Engineer that construction has advanced to the stage where errors in design cannot further affect said construction. This policy shall indemnify and save harmless the Commonwealth, its officers, agents and employees from claims, suits, actions, damages and costs of every name and description resulting from errors and omissions in the work performed by the Consultant after the starting date of and under the terms of this Contract. A certificate showing that he is carrying this insurance shall be submitted to the Department for subsequent filing with the Department Secretary.

No cancellation of such insurance, whether by the insurers or by the insured, shall be valid unless written notice thereof is given by the party proposing cancellation to the other party and to the Department at least twenty (20) days prior to the intended effective date thereof, which date shall be expressed in said notice. Notice of cancellation sent by the party proposing cancellation by certified mail, postage prepaid, with a return receipt of addressee requested, shall be sufficient notice. An affidavit from any officer, agent or employee, duly authorized by the insured, shall be prima facie evidence that the notice was sent.

This section shall apply to the legal representative, trustee in bankruptcy, receiver, assignee, trustee and the successor in interest of such Consultant. The aforesaid insurance shall be taken out and maintained by the Consultant.

Failure to provide and continue in force any insurance as described in this section shall be deemed a material breach of the Contract and shall operate as an immediate termination thereof.

**23. INDEMNIFICATION OF COMMONWEALTH/CONSULTANT LIABILITY**

The Consultant shall be liable for all damage caused by errors or omissions in his work or in the work of his subcontractors, agents, or employees performed under this agreement. The Consultant expressly agrees that his subcontractors, agents, or employees shall possess the experience, knowledge and character necessary to qualify them individually for the particular duties they perform. Nothing in this Article or in this Agreement shall create or give to third parties any claim or right of action against the Consultant or the Department beyond such as may legally exist irrespective of this Article or Agreement.

The Commonwealth may elect to indemnify the Contractor for claims arising in tort if it determines that the Contractor performed its obligations under this agreement pursuant to the direct supervision and control of the Commonwealth or its designated agent(s).

**24. AMENDMENT**

If, during the term of the contract, the Department revises the limits of the project or makes other substantial changes in the scope or character of the work so as to thereby increase the work to be performed by the Consultant, such increased work shall result in an additional fee to be paid to the Consultant in accordance with ARTICLE VI Section C, provided that a written agreement concerning such increased work and additional fee has been made by all parties concerned prior to the performance of such increased work. In the event that no such written agreement has been executed prior to the performance of such increased work, the Consultant shall not be entitled to any additional fee. On projects being reimbursed with Federal Funds, approval of said written agreement by the F.H.W.A. shall be required prior to the performance of such increased work.

**25. NEGOTIATION SUBSEQUENT TO CONTRACT EXECUTION**

Assignments of work in non-project specific contracts ("open-ended" contracts) shall be negotiated in conformance with all applicable State and Federal regulations. The applicable salary rates utilized to determine individual assignment limiting fee may be fixed by the Department prior to contract execution.

## ARTICLE II. TRAFFIC STUDY PHASE

### A. DATA COLLECTION

Traffic counts shall be taken by the Consultant within the corridor being evaluated using an Automatic Traffic Recorder capable of producing hourly volumes. The locations and sampling durations shall be approved by the Engineer.

Manual turning movement studies shall be taken by the Consultant. Study format and sampling duration shall be approved by the Engineer. All turning movement studies shall be adjusted to reflect twenty-four (24) hour turning volumes and shall be adjusted to reflect current year Average Annual Daily Traffic (AADT).

Manual classification studies shall be conducted by the Consultant at the locations approved by the Engineer. Format shall be consistent with Department classification methods and sampling duration.

In order to establish a source for specific traffic volume data necessary in preparing estimates of the maximum demand for the following time frames; 24, 8, 3 and 1 hour, a traffic volume counting station shall be established by the Consultant. The location and sampling duration at the established station shall be approved by the Engineer.

All material obtained by the Consultant shall be furnished to the Engineer. This material shall include a narrative describing method of analysis used in developing present day traffic data from the field counts.

Origin and Destination studies shall be conducted by the Consultant if the Engineer determines that a study is necessary for a specific project. The operational methodology for such a study shall be approved by the Engineer.

### B. TRAFFIC COUNT ANALYSIS

The Consultant shall furnish the Engineer with a straight-line traffic flow diagram. This diagram shall include all turning movements at intersections; main line volumes between intersections; and all intersecting road volumes. All data on the diagram shall be presented on a current year Average Annual Daily Traffic (AADT) basis.

### C. FORECASTING AND ASSIGNMENTS

The Consultant shall furnish the Engineer with traffic forecasts and assignments to each and every alternative being evaluated. The forecasts and assignments shall be for specific time frames as determined by the Engineer. All phases of the traffic forecasts, development models utilized and analytical methodology shall be documented in detail for submission to the Engineer.

Appropriate design criteria shall be developed for the following items:

- K - Peak hour in percent
- D - Directional Distribution percent
- TPH - Peak Hour Truck Factor in percent
- TAD - Average Day Truck Factor in percent

A narrative shall be prepared for the above items including graphical displays, frequency distributions and other backup material needed to support the individual items.

A straight-line traffic flow diagram shall be developed by the Consultant illustrating the limits of the project, all turning movements at intersections, main line traffic volumes between intersections and intersecting road volumes for streets which may be bridged or closed. The diagram shall include the appropriate design criteria applicable to the project. The diagram or diagrams shall be developed for the design year and intermediate years as determined by the Engineer.

### ARTICLE III PROJECT DEVELOPMENT PHASE

#### A. ENGINEERING STUDY AND REPORT

The broad purpose of the ENGINEERING STUDY is to provide an analysis and determination of the most feasible location for the transportation facility between limits as identified in the SCOPE OF CONSULTANT WORK.

The Consultant shall fully familiarize himself with the topographic, geological and other physical characteristics of the study area. All possible alternate locations must be considered. He shall prepare the STUDY to describe the most feasible location with a comparison of the advantages and disadvantages of alternate possibilities, with supporting data for his conclusions. Those alternates which are not considered practicable and are eliminated from further study must be shown on a map and be accompanied by a description of the location with a statement as to why further consideration is not warranted. The Consultant shall demonstrate that all discarded alternates have been thoroughly investigated before being eliminated.

The Consultant shall evaluate all practical alternate solutions which will substantially serve the major traffic desire. Each evaluation shall take into account all the factors affecting the cost of construction, such as foundation problems, material sources, construction difficulties, major utilities affected, streams and other water areas. The Consultant shall also ascertain all probable economic and social impact on the communities traversed for all alternates.

The work shall include for each practical alternate, consideration of existing and potential land use as related to industrial and residential development, existing or planned mass transportation facilities, terminal parking facilities, schools, recreational facilities, church parishes and religious institutions, shopping centers, urban renewal areas, natural resources, wildlife habitat, areas of water pollution or hazardous waste and any other factors which may influence the proposed facility. The aesthetics of the design shall also be considered with a view to producing the most visually attractive facility possible consistent with public safety and the interest of the communities traversed.

The Consultant shall be responsible for acquainting himself with the details of existing facilities and the plans of other agencies, such as Regional Planning Agencies, local planning boards, utility owners, housing authorities, park and conservation commissions, etc., and he shall arrange meetings for this purpose and collect all necessary data and information. The Consultant shall give consideration to the plans and suggestions of such agencies in the development of the alternate studies and show on the plans the general location of all major utilities which may be affected by the proposed design.

The Consultant shall study sub-surface soil conditions as may be available from any source, such as evidence from study of field conditions, previous explorations, seismic studies and geological maps. If, in the development of any alternate, the Consultant finds additional sub-surface information is needed with regard to possible bridge sites, excavation areas, ledge, swampy areas or other conditions which may influence the selection of an alternate location, he shall so advise the Engineer to submit for approval, plans and recommendations for the making of preliminary sub-surface investigations. If the Engineer concurs, borings, test pits or other sub-surface tests shall be made. These tests shall be made by the Department, unless otherwise determined by the Engineer. Reimbursement for such work, as may be performed by the Consultant shall be made in accordance with the provisions of ARTICLE IV, Section D.

Unless otherwise stated in the Contract Special Provisions, the Engineer shall furnish the Consultant the basic traffic data and traffic assignment for existing and proposed facilities within the contract limits. The Consultant shall develop all features of his designs to be consistent with the traffic requirements and the supporting traffic information shall be shown on the plans for all locations studied. Traffic assignments for all vehicles shall be made to the main roadway and to each interchange ramp as well as turning movements at intersections at grade. Assignments are to be expressed in terms of average daily design traffic and directional design hourly volumes for both the present and for the selected design years as designated by the Engineer.

The Consultant shall show: right-of-way requirements; horizontal alignments; profiles and typical crosssections for all segments of main highways, interchange ramps and service or frontage roads; typical sections for all existing and proposed intersecting roads; sketches showing locations of interchanges and grade intersections of sufficient scope to insure feasibility of design; connections to other highways, including frontage and service roads; railroad separations or grade crossings; bridges; and such other features as may be pertinent to the work.



In addition to the aforementioned plans which shall show the location of all bridges, the Design Engineer shall develop and prepare supplementary plans for each bridge. These shall consist of one or more drawings, at an appropriate scale, showing in detail the type of bridge proposed, the span arrangements, minimum clearances and other pertinent data as may be required to establish the general design features of the structure. Comparative studies shall be made of the possible types of bridge for each location and an evaluation of the economic and aesthetic considerations shall be made. If a bridge is over water, the Consultant shall make all computations necessary to determine the proper waterway openings for both hydraulic and navigational purposes.

An inventory shall be made by the Consultant of the dwellings and/or other improved properties which will be affected by each alternate location, and an estimate made of the number of families to be displaced. A list of the business establishments displaced and the number of persons employed in each shall be compiled. The Consultant shall plot on plans the property lines of all property affected by the alternates under study. The information required to establish these property lines shall be obtained from assessor's plans, tax maps, county records, deeds, and field review. The obtaining of all such information shall be the responsibility of the Consultant. The plans shall also show the limits of the right-of-way required and such provisions as may be necessary for access to those properties to which all means of access would otherwise be closed.

The Consultant shall also include in the ENGINEERING REPORT the basic traffic information and subsequent computations, factors and methods used by the Consultant in assigning such traffic.

If directed by the Engineer, the Consultant shall develop an economic analysis for each of the alternate schemes in accordance with current practice of the American Association of State Transportation Officials, or instructions furnished by the Engineer.

Estimates of the cost of construction and of right-of-way shall be tabulated for each of the alternative alignments studied. The Consultant shall develop cost estimates for the purpose of programming funds to construct the proposed transportation facility. Limits of construction sections, as well as other methods of stage construction, shall be recommended with costs apportioned to each section. The costs shall include cost estimates for right-of-way, removal or relocation of buildings, railroad or utility changes, in addition to cost estimates for the roadways, structures, drainage and other construction items. All such tabulations shall be presented for each municipality traversed.

The Consultant shall develop plans and profiles at a horizontal scale of not less than 1" = 200', with vertical scale five times greater than the horizontal. Vertical controls and all necessary geometrics shall be in sufficient detail to permit the establishment of the approximate centerline on the ground. Careful consideration shall be given to the use of independent alignments and profiles for directional roadways. In the development of grade lines, consideration shall be given to obtaining balance of earthwork quantities where practical.

On the basis of the foregoing studies, the Consultant shall evaluate the alternates considered and submit adequate supporting data to substantiate his conclusions. All alternates studied shall be available for review by the Engineer.

The Consultant shall assemble all information and data as required to achieve the objectives of the STUDY. Copies of a preliminary draft of this study shall be submitted to the Engineer for review and acceptance. Sufficient primary and supporting information, as determined by the Engineer, in the form of maps, detailed work sheets, tabulations, exhibits and procedural methods, shall be presented to augment the proposed narrative and graphic contents of the REPORT. The preliminary draft of the ENGINEERING REPORT shall be presented in a form sufficiently representative of the FINAL ENGINEERING REPORT to facilitate and permit comprehensive review; and shall include an evaluation and cost comparison of the alternatives studied.

Following the Department's review and comments on the preliminary draft of the ENGINEERING REPORT, the Consultant shall submit three copies of the revised plans and profiles to the scales as aforementioned for display at public hearings. Such hearings shall be arranged by the Engineer and the Consultant shall render such assistance as determined by the Engineer in accordance with the terms of ARTICLE I, Section H.

The Consultant shall review the transcript of the public hearings and make such revisions to the ENGINEERING REPORT as determined necessary by the Engineer.

The Consultant shall submit the FINAL ENGINEERING REPORT, with plans, in a quantity and within the time limitations as set forth in the SCOPE OF WORK. All revisions and requirements, as designated by the Department's review, shall be incorporated in the FINAL ENGINEERING REPORT.



Included in each copy of the FINAL ENGINEERING REPORT shall be copies of the plans and profiles showing the recommended location for the transportation facility and feasible alternates reduced in size to not less than 1" = 600'. Three copies of these plans to the scale of not less than 1" = 200' shall also be submitted to the Department.

#### **B. ENVIRONMENTAL IMPACT STATEMENTS**

Under this section, the consultant shall conduct the studies and produce the documents necessary to meet the requirements of the National Environmental Policy Act and the Massachusetts Environmental Protection Act, as they have been amended.

The requirements of the National Environmental Policy Act, for the purpose of this contract are contained in the F.H.W.A. PPMs 81-1 and 90-7 and Federal Aid Highway Program Manual, numbers 7-7-1, 7-7-2, 7-7-3, and 7-7-5 as they have been amended.

The requirements of Massachusetts Environmental Protection Act for the purposes of the contract are contained in the Rules and Regulations filed by the Executive Office of Transportation and Construction on November 8, 1973 and amendments thereto.

The said documents shall address all alternatives, including a no-build alternative, as developed in the ENGINEERING REPORT.

The consultant shall produce any or all of the following documents as specified in the SPECIAL PROVISIONS:

- 1) National Environmental Policy Act
  - a. Environmental Assessment
  - b. Negative Declaration
  - c. Draft Environmental Statement
  - d. Final Environmental Statement
- 2) Massachusetts Environmental Protection Act
  - a. Environmental Assessment Form
  - b. Draft Environmental Impact Report
  - c. Final Environmental Impact Report

Preliminary copies of all said documents shall be required for review prior to the printing of the finished document.

An assessment of the proposed project shall be conducted to assess the effects of this project on first; the physical environment; i.e. the natural and man-made environments; and second, the environments involving people.

The following shall be studied in depth to determine the effect of construction of the project on the environment:

#### **1. Air Quality**

The effect of the proposed transportation impacts on air quality shall be assessed. Both long and short-term projections of future air quality shall be made. Projections shall be made based on initial and design traffic volumes of the new facility considering future anticipated levels of vehicular pollution using approved air quality predictive models. The effect of changes in air quality on the ecological system of the region shall be assessed at a level of detail consistent with available data as to background concentrations of relevant air pollutants. Coordination and consultation shall be made with the cognizant air pollution control agency for consistency with the State Implementation Plan and transportation control strategies.

#### **2. Water Quality**

The effect of the proposed construction on both the quantity and quality of surface and ground water shall be studied. The possibility of ice control chemicals used on the roadway polluting either surface or ground water shall be investigated.

The effect of possible pollution on present or future water supplies shall be assessed and recommendations made to minimize such effects both during construction and for the long term.

### 3. Noise

Changes in noise levels, both during construction and when the road is in service, shall be estimated. The effect of such changes on current and future land use shall be studied. The following shall be considered as sensitive receptors:

- Residential Areas
- Schools
- Hospitals
- Parks and Recreational Areas

### 4. Economic

A study shall be made of the economic effects of this project both on the immediate area and on the region as a whole. The economic benefits of improved transportation shall be evaluated against the possible loss of taxable property to the municipalities traversed. Possible increase in industrial development, and its effect on the character and growth of the municipalities affected, shall be studied in both a general and site-specific context.

### 5. Ecologic

The ecological changes to be expected to occur as the result of this project shall be assessed. Studies shall include the effect on plant and wildlife in the area along with recommendations to minimize undesirable changes.

### 6. Socio-Political

Displacement of families, businesses, and community facilities through land taking procedures shall be evaluated, and methods of relocation of displaced activities, or the actual replacement of such dwellings and other structures, shall be recommended.

The effect on municipal services shall be studied, and needs for increased police protection, changes in water, sewer, and other municipal services shall be evaluated.

A divisive effect on the municipalities caused by the proposed project shall be evaluated.

### 7. Parks, Wildlife Sanctuaries, Recreational Facilities and Historic Resources

Particular attention shall be paid to the effect of this project on parks, wildlife sanctuaries, recreational facilities and historic resources. All possible effort shall be made to avoid using or taking such areas. Where affected, recommendations to minimize undesirable effects shall be made and provisions to increase the effectiveness of such facilities shall be investigated.

Sufficient information shall be presented in the Environmental Statement to demonstrate that a comprehensive examination has been made of significant effects of the proposed project including social, economic and physical environmental factors.

The Environmental Statement shall be presented in a format and language that will be readily understandable and of use in familiarizing the public with the type and extent of potential environmental effects attributable to the transportation facility construction.

As prescribed by the Federal Highway Administration requirements, this Statement shall contain and discuss a description of the proposed projects; the probable impact of the proposed project on the environment; and probable adverse environmental effects which cannot be avoided; alternatives to the proposed project; the relationship between local short-term uses on man's environment and on maintenance and enhancement of long-term productivity; any irreversible commitments of resources; problems and objections raised by others; and, as appropriate, steps to be taken to minimize harm.

The basic approach to be employed in the development of this method shall be as follows:

1. A comprehensive data collection program including public meetings, and coordination with local, State and Federal agencies, as required.
2. Examination of data to establish base lines to be used as reference for environmental impacts.
3. Evaluation of sensitivity of various factors.
4. Preliminary evaluation of the prepared project to identify environmental impacts and possible problem areas for both the short-term use and long-term productivity.
5. A more detailed analysis of significant environmental impacts and establishment of the overall impact of the project on the environment.
6. Preparation of the Draft Statement, with copies, to be issued to various public agencies for their comment.
7. Upon receipt and evaluation of comments following a public hearing, a Final Statement shall be prepared with copies, as required, for proper distribution.

This phased approach will assure that the Environmental Statement fulfills the purpose previously stated to provide a comprehensive evaluation of a wide range of environmental considerations. This approach will allow periodic reviews and modifications to the study as more information becomes available.

#### C. SECTION 4 (f) STATEMENT

The Consultant shall produce a document to adequately support the determination required by Section 1653 (f) Title 49, United States Code 1/, Section 138 Title 23 of the Federal Department of Transportation Act, hereafter referred to as Section 4 (f), and FHWA Federal Aid Highway Program Manual 7-7-2 as amended. The applicable portion of that Act shall be supplied to the Consultant by the Department as part of this contract. The Section 4 (f) Statement shall be part of the Environmental Impact Statement but shall be written in such a form that reference to other parts of the Environmental Impact Statement is not necessary.

#### D. PRELIMINARY RELOCATION REPORT

The "Guidelines For Consultant Work In Preparing Preliminary Report on Relocation Needs and Resource," as currently amended or revised by the Department, are hereby incorporated by reference in this contract as a statement of the requirement of the Consultant for this part of the Project Development Report. Any modification of these guidelines as they apply to this contract will be noted in the Special Provisions. A copy of these guidelines shall be furnished to the Consultant by the Engineer.

The Consultant shall prepare a Project Development Composite Report based on studies conducted in accordance with subsections A, B, C, and D. Such Report shall meet the requirements of all applicable Federal and Massachusetts laws, rules, and regulations concerning the documentation and justification of proposed transportation improvements including, but not being limited to: their engineering feasibility; alternatives; expected social, economic and environmental impacts; and the process provided for obtaining public participation in their development. A draft of the Environmental Impact Statement component of such Composite Report shall be available for circulation by the Department to government agencies and the public for review and comment. After such circulation, a final Composite Report, including a Final Environmental Impact Statement taking into consideration the views of such agencies and the public, which explains and justifies the final design of the improvement, shall be prepared by the Consultant.

Such Composite Report shall contain the following parts:

- 1) Introduction and General Project Background
- 2) Engineering Study and Report
- 3) Environmental Impact Statement
- 4) 4(f) Statement
- 5) Preliminary Relocation Report
- 6) General Appendix, Bibliography, Public Hearing Transcript
- 7) Plans

The above listed parts of such Composite Report shall be arranged so as to be capable of being submitted independently, along with part 1) Introduction and General Project Background, to various government review agencies.

It is not the intent of this contract that the parts of the Project Development Composite Report shall be prepared independently of each other or in the order as set forth above. These parts shall be developed concurrently to the extent possible so that information developed in any one part shall be reflected in the other parts as well as in the conclusions and recommendations of the Report.

It is the Department's intent that, when the Project Development Report has been completed and the selected corridor location has been approved by the Federal Highway Administration, the data contained shall be of sufficient detail that engineering can be advanced to the Design Stage.

## ARTICLE IV DESIGN PHASE

### A. SURVEYS

The complete or partial survey may be made by either the Department or the Consultant or partially by each, as designated in the SCOPE OF CONSULTANT'S WORK AND SPECIAL PROVISIONS, and shall include the following:

#### 1. FIELD SURVEY

Surveys shall be made as necessary for the preparation and completion of preliminary and final designs, contract plans and layout plans for the project including investigation and survey of property boundaries and property owners' names as obtained from records filed at the County Registry of Deeds.

Horizontal control, including control for photogrammetry, shall be of second order precision and accuracy unless otherwise specified, and in strict conformance to the current Massachusetts Highway Department Survey Manual or Specifications for Aerial Surveys and Mapping by Photogrammetric Methods for Highways, whichever applies.

Design of primary traverses and proposed connection to Mass. Geodetic Survey control are to be submitted by the Consultant to the Location and Surveys Engineer prior to actual survey. The Location and Surveys Engineer shall review the proposed connections and traverse design and may require changes before his approval. Subsequent changes the Consultant may wish to make must be submitted to the Location and Surveys Engineer for approval. Control must be designed so that it will be connected in position and azimuth to Mass. Geodetic Survey monumentation of equal or higher accuracy. If the Location and Surveys Engineer decides that the existing MGS control is for some reason inadequate, he may direct Department forces to expand, resurvey and readjust the MGS control. The intent is that the Consultant shall base his project surveys upon MGS control that the Department has at the time judged reliable and the Consultant shall expand control so that there will be sufficient, dependable and accurate permanent and semi-permanent control on the Massachusetts System of Rectangular Coordinates.

Primary control and all main base line surveys shall be adjusted by the Department. The Consultant shall submit to the Location and Surveys Engineer all field and office data including field notebooks for review and computation. Work which does not conform to Department standards will be rejected, and the Consultant will be directed to perform the work correctly at his own expense.

Vertical control, including control for photogrammetry, shall be of second order accuracy and on the MGS datum unless otherwise specified, and shall be subject to same prior approval and other conditions as horizontal control.

Base line, detail, levels and cross sections may be taken and recorded in notebooks furnished by the Department and performed in accordance with the current Survey Manual or alternate procedures may be approved by the Department.

The Consultant shall include in the survey notebooks adequate ties to all horizontal and vertical control points so that these points may be reproduced accurately. He shall also furnish tie-sheets of these points. Points, including baseline stakes or pins, which were placed by the Consultant and which become displaced or removed and cannot be replaced by existing ties, shall be reestablished by him.

All field survey work performed by the Consultant shall be subject to inspection by the Department during and after actual survey. The Consultant shall keep the District Office continuously aware of the location of his survey parties. District Survey Supervisors and their superiors, as well as representatives of Location and Surveys, may make field inspections they may deem necessary for proper performance of the work on the project, and may require changes or additions subject to approval of the Location and Surveys Engineer.

Surveys made by photogrammetric methods may be used upon approval of the Department, but must be supplemented by necessary ground survey to obtain information not available or not sufficiently accurate by using this photogrammetric method, such as base lines, property lines, underground structures, underwater data and other detail and elevations obscured by natural growth and structures.

Field survey shall include the location and staking of points where borings or other subsurface investigations are required. Where soft unstable material is evident, such as swamps, organic deposits, etc., sufficient punchings shall be taken to show the approximate profile of the hard bottom. This work will be considered as part of the field survey work and no extra compensation will be paid.

## ARTICLE IV

**2. COMPUTATION AND PLOTTING NOTES**

All survey notes shall be computed and traverse sheets prepared on forms to be provided by the Department, except that all main base line surveys shall be adjusted into the Massachusetts System of Rectangular Coordinates by the Department.

Data from survey notes shall be transcribed and plotted on base plans, profiles and cross sections in accordance with the current practice of the Department to the scales as directed by the Engineer.

All field survey and plotting of such data, including base line, detail and cross sections, shall be performed in accordance with the Department's current SURVEY MANUAL.

**B. PRELIMINARY DESIGN SUBMISSION (Commonly called the 25% submission)**

The Consultant shall prepare plans, profiles and typical cross sections to the scale of the contract plans showing all design details and approximate highway layout lines, including sketch plans for bridges, major drainage structures and for walls. Sub-surface investigations shall be required to establish the design at this stage.

All data as may be shown on plans prepared in connection with the project development report shall be refined and expanded and any additional design added. Design computations will be necessary only to establish the general details in accordance with the scale of the plans. Sketch plans of bridges and major structures shall show plans and elevation views, profiles, cross sections and any major structural details, all as described in the Bridge Manual.

Three copies of the plans and any pertinent data shall be submitted to the Engineer for approval.

**C. CONTRACT PLANS AND DOCUMENTS**

1. Upon approval of the plans submitted for the preliminary design submission, the Consultant shall proceed with the preparation of contract plans and documents.

2. As the various stages of the design are completed the Consultant shall prepare and submit to the Engineer a minimum of two copies each of cross sections; profiles; right of way plans; drainage plans; plans for stream relocations and wetland hearings; traffic control devices; highway lighting and signs; plans for bridges and structures; landscaping, if required, and other miscellaneous construction details. All such submissions shall be to the scales of the base plans and profiles as described in ARTICLE IV Section A 2.

3. The Consultant shall prepare necessary plans and specifications to secure any additional boring data, if required, at structures or other locations as approved by the Engineer, in accordance with the provisions of ARTICLE IV, Section D.

4. The Consultant shall prepare standard license plans, papers and other data as may be required for submission by the Department to the U.S. Coast Guard, U.S. Army Corp of Engineers or any other agency, in connection with bridges over navigable waterways.

5. The Consultant shall contact the various utility companies and authorities whose facilities will be affected by the proposed construction and obtain from such companies and authorities the location of existing facilities, together with proposed changes.

6. The Consultant shall design alterations of publicly owned utilities which may be required on account of construction of the project, except in cases such as alterations of fire or police signal systems or other systems where, in the opinion of the Engineer, public convenience or safety requires such alterations to be designed and performed by the particular public agency involved. Insofar as practicable, and as approved by the Engineer, designs of such alterations of publicly owned utilities by the Consultant shall conform to the requirements and design standards of the particular public agency involved.

7. In connection with all alterations of utilities not designed by the Consultant, whether publicly or privately owned, and in connection with alterations of facilities of public transit systems or of railroads, the Consultant shall furnish to the agencies involved, information needed for design by them of the alterations, including information regarding possible interferences with other facilities. The Consultant shall review designs made by other agencies and coordinate all alterations, whether designed by him or not.
8. In the case of those utilities or railroad alterations to be designed and performed at the expense of the Commonwealth by other agencies, such as Commonwealth or Municipal Departments, utility owners or railroad companies the Consultant shall assist in obtaining cost estimates from such agencies and shall review such estimates and report to the Engineer concerning them.
9. Estimates of work to be performed by the forces of the Commonwealth or municipal agencies or of public utility or railroad companies shall be incorporated in the preliminary design estimates.
10. The Consultant shall perform these services in connection with other agencies as part of the work covered by the General Fee unless otherwise specified in the Special Provisions or in a supplemental agreement.
11. The Consultant shall prepare plans, specifications and estimates for the demolition of buildings within the highway layout as specified by the Department's Right of Way Bureau. These documents may be included in the prime construction contract or in a separate demolition contract as determined by the Engineer.
12. No work shall commence on final contract tracings, estimates, job specifications and other data necessary for the construction of the roadway, structures and appurtenances until said preliminary submissions have been approved by the Engineer.
13. A submission of all material prepared including detailed plans, profiles and cross sections for all roadways; service roads, interchanges; major and minor structures; drainage facilities; utilities; rest areas; landscaping; signs; traffic control devices and lighting, if required; and details covering other special problems and supplementary specifications augmenting the latest edition of Standard Provisions for Highways and Bridges will be made to the Engineer for examination in the period after eighty-five (85) percent and before ninety (90) percent of the work is completed. This submission has been called the "75%" submission of the "first final" submission.
14. The Consultant shall prepare and submit to the Department final design plans and all necessary contract plans to be subdivided in one or several construction contracts as stated in the Special Provisions. All drawings and symbols thereon shall conform to the required standards of the Department, sample of which may be obtained from the Engineer. The Consultant shall submit to the Department as final contract plans either India ink tracings on tracing cloth or full scale reproductions by photo-offset-lithograph process on tracing cloth. Tracings made on polyester drafting film using acetate ink will also be accepted. Washable plastic pencil on drafting film will be accepted as final contract plans for bridge work. The drafting film shall have a minimum film thickness of four (4) mils with a matte surface on one side only for bridge plans. Preprinted drafting appliques representing north arrows, general notes, symbols, etc., shall not be used on contract plans. The final design data shall be plotted on the base plans and profiles as described in ARTICLE IV Section A 2.
15. The Consultant shall prepare and submit to the Engineer, for approval, estimates of quantities with unit costs by items covering work to be done under construction contracts, with separate estimates for each bridge, and shall prepare and submit detail sheets identifying and locating the typical sections and contract items and providing other necessary information. The estimates and detail sheets shall be prepared in accordance with standard practices and requirements of the Department and shall be typed on forms furnished by the Department.
16. The Consultant shall prepare Special Provisions for incorporation in construction contracts. The Special Provisions shall consist of all such special directions, provisions and requirements as are specially applicable to the particular construction contracts contemplated, and which are not sufficiently covered in the Standard Specifications for Highways and Bridges. The Consultant shall submit to the Engineer, for approval, two copies of a completed draft of the Special Provisions before ninety (90) percent of the work is completed.



17. The Consultant, whenever requested, shall submit to the Engineer, letters, reports, or other data to substantiate the features of his design or recommendations and shall make available to the Engineer for the purpose of having reproductions made, all plans, specifications or other data which have been prepared by the Consultant.

18. The Consultant shall carefully verify all computations, postings, and design calculations and shall furnish to the Department, after approval by the Engineer of the completed design (including plans, tracings, estimates of quantities and unit costs and special provisions), two (2) permanent legible copies, each of his original design calculations and bridge quantity calculations suitably bound. All calculations must be submitted in duplicate. One set shall be prepared and signed by the professional design engineer. The second check shall be reviewed and signed by another professional engineer.

19. The "REGISTERED PROFESSIONAL ENGINEER" or "REGISTERED LAND SURVEYOR" stamp of the Commonwealth of Massachusetts, whichever is applicable, shall appear on the right-of-way plans, construction plans, specifications, reports and any other documents prepared by the Consultant which will be retained in the permanent files of the Department or filed in the Registry of Deeds.

In addition to the required stamp as stated above, the signature of the registrant shall appear directly below the stamp. The use of a facsimile stamp will not be accepted.

#### **D. SUBSURFACE INVESTIGATIONS**

The Consultant shall make an investigation of subsurface conditions of sufficient scope to permit determination of general soil characteristics and depth to bedrock as a basis for the proper design of roadway and highway structures.

In order to properly make the determination of underground conditions, the Consultant shall submit to the Engineer for approval a proposed program of borings, test pits, plate bearing tests or other field or laboratory tests, along with an estimated cost for performing such work.

The Engineer may limit, reduce or extend the sub-surface investigation program proposed by the Consultant, or, at his option, the Engineer may specify in detail the type, extent and details of sub-surface investigations that are to be made by the Department forces or by such other means as the Engineer may desire. In any case, the Consultant shall lay out the work in detail and prepare any necessary plans and contract documents for any of the approved sub-contracts.

If the Engineer shall require the Consultant to sub-contract any field tests, the Consultant shall receive competitive bids from qualified contractors which shall be submitted to the Engineer for his approval before any work is authorized. All special laboratory tests for which extra payment is to be made shall be previously approved by the Engineer. The Department shall reimburse the Consultant for the direct costs of the field tests and special laboratory tests. Salary and overhead costs, excluding profit, and travel expenses for field inspectors furnished by the Consultant shall be reimbursed as a direct cost.

Field inspectors shall be furnished by the Consultant only if Department inspectors are not available and only after written authorization is given by the Engineer as to the number to be provided.

The Consultant shall be responsible for properly identifying, describing and classifying soil and rock encountered in sub-surface investigations as part of his general fee. In this connection, he shall visually and manually examine all soil samples and rock cores and shall certify in writing to the Engineer, when, where and who examined such soil samples.

Reports shall be prepared by the Consultant covering all sub-surface investigations and soils analysis which shall be submitted to the Engineer, copies of which shall be made for submission to the Federal Highway Administration.

It is understood that the Consultant shall either have in his employ an engineer capable of performing the basic soils and foundation work or engage the services of a soils engineer, the cost of which is to be included in his general fee.

The Consultant shall not receive extra payment for the preparation of plans, contracts, reports or other office work in connection with sub-contracts for sub-surface investigation work nor for his professional engineering services in connection with the field or laboratory work or in connection with engineering analyses of the results of such tests, such services being considered as covered by the General fee as defined hereinafter.



No work for which additional payment is claimed shall be performed unless previously approved in writing by the Engineer and no claim for payments for sub-contractors, field inspectors or for any other amount in excess of General Fee shall be valid unless so approved.

#### **E. RIGHT-OF-WAY PLANS**

Right-of-Way plans shall be prepared by the Consultant or Department as specified herein and as noted in applicable Federal Highway Administration Policies and Regulations.

Right-of-Way plans shall include all pertinent data affecting the costs of right-of-way such as structures, land services or access roads, improvements, landscaping, drainage, fences, cesspools, septic tanks, wells, etc., where applicable.

The size, form and arrangement of Right-of-Way plans shall conform to the general requirements for highway plans. The following appropriate symbols and/or identification information as shown on Construction Plans shall also be included on the Right-of-Way plan:

- (a) Right-of-Way Federal Aid Project Number
- (b) Notation as to scales used
- (c) A north arrow for each plan sheet and for each insert plan included on any sheet
- (d) Access symbols or any other symbols which may be employed for brevity of identification

#### **PRELIMINARY RIGHT-OF-WAY PLANS**

Preliminary Right-of-Way plans shall be prepared on transparent linen cloth or polyester drafting film. All existing data and detail shall be in ink and all proposed work shall be prepared in pencil so as to provide legible prints. These plans shall remain in the preliminary stage until after the layout has been duly filed in the Registry of Deeds.

Right-of-Way acquisition information shall be posted on the Preliminary Right-of-Way Plan by the Consultant just as soon as the information is obtained. The Consultant shall, from time to time, be required to provide the Department with copies of the Preliminary Right-of-Way Plan for coordination and informational purposes.

#### **FINAL RIGHT-OF-WAY PLANS**

After the Department has recorded the layout in the Registry of Deeds the Preliminary Right-of-Way Plan will become the Final Right-of-Way Plan.

The Preliminary Right-of-Way Plan will be returned to the Consultant with a copy of layout as recorded. The Consultant will then India ink all pencil work, making all necessary changes to ensure conformity with the recorded layout plans. Each sheet shall be labeled "Final Right-of-Way Plan". Upon completion, the Final Right-of-Way Plan will be returned to the Department as a permanent record. Provision shall be made on each sheet of the Final Right-of-Way Plan for the notation and date of additions or revisions.

#### **THE RIGHT-OF-WAY PLAN (PRELIMINARY & FINAL)**

The Right-of-Way Plan shall include the following:

1. Title Sheet
2. Typical Cross-sections and Critical Profiles
3. Parcel Summary Sheet
4. Location Maps
5. Property Plan Sheets

#### **1. TITLE SHEET**

The content of the title sheet shall include the information shown on the Department's title sheet prepared for highway construction drawings. Information noted on the construction plan title sheet, which is obviously not germane to the Right-of-Way Plan, shall be erased.

The following information shall be noted on the title sheet of the Right-of-Way Plan, in any event:

- (a) The Right-of-Way Federal-aid project number

(b) An index of the content of the Right-of-Way Plan

(c) The title sheet shall be labeled as a Preliminary or a Final Right-of-Way Plan

## 2. TYPICAL CROSS-SECTIONS AND CRITICAL PROFILES

Included as part of the Right-of-Way Plan there shall be provided typical cross-sections with profiles for locations where the profile is critical relative to the land damage involved.

## 3. PARCEL SUMMARY SHEET

A parcel summary sheet shall show the following information:

- (a) All parcel numbers
- (b) The name of the owner of record
- (c) The before area of each property involved
- (d) The areas of all takings, noting whether the taking is made in fee or as a permanent or temporary easement.
- (e) Sheet numbers where a subject property is shown on the Location Maps and the Property Plan Sheets.
- (f) The areas of all portions of an affected property which remain after the takings and a notation as to the status of access on the remainder portion so noted.
- (g) Reference to the book and page denoting evidence of title as recorded in the appropriate registry of deeds and/or probate court.

## 4. LOCATION MAPS

A Location Map shall be prepared to show, in baseline sequence, every property which suffers land damage by reason of the acquisition or construction. A Location Map shall be prepared whether or not a Basic Right-of-Way Plan is available. The Location Map shall be to a scale which shall produce legible prints such as one inch equals two hundred feet or one inch equals one hundred feet, whichever scale appears to be more appropriate.

The Location Maps shall be prepared through the addition by pencil of Right-of-Way information to a transparent linen cloth reproduction of Basic Right-of-Way Plan (which has been screened to tone down photogrammetric detail) and shall include the following:

- (a) Right of Way location lines both existing and proposed.
- (b) Each property which suffers land damage by reason of the acquisition or construction. In the event a property cannot be shown in its entirety on the Location Map in its proper baseline sequence, the property shall be shown in its entirety at an appropriate scale as an insert on a Location Map sheet.
- (c) Every taking made from each property together with the parcel number of each taking.
- (d) All structures on the property.

## 5. PROPERTY PLAN SHEETS

Property Plan Sheets shall be prepared at a scale of 40 feet or 20 feet to the inch, whichever is more suitable for the particular project.

All properties being affected by the proposed takings and/or construction should be shown in their entirety, when possible, in baseline sequence. If a property is too large to be shown in its entirety on the Property Plan Sheets, it should be put on a separate insert sheet at a scale which is appropriate, usually 100 or 200 scale. It must contain all information that would appear on the 40 scale or 20 scale Property Plan Sheets.

The following information shall be shown for each property on the Property Plan Sheets:

- (a) Right-of-Way limits, both existing and proposed, and the baseline with stations. The width of the proposed Right-of-Way shall be shown where applicable. Information relative to access provisions, if applicable, shall be indicated with approved points of access clearly shown.
- (b) All takings, together with the parcel number of each taking, whether made in fee or as a temporary or permanent easement, the area and dimensions thereof, and the owner's name.

- (c) All improvements to the property, especially those located within the limits of the taking areas such as structures, driveways, landscaping, fences, walks, wells, septic tanks and cesspools, where applicable.
- (d) The top and bottom of slope of the proposed construction, whether within or beyond the limits of the existing or proposed Right-of-Way.
- (e) New construction features such as driveways, structures, drainage, etc., that may affect a particular property.
- (f) All work to be performed in mitigation of land damages such as proposed rights of way or access roads.

It should be noted and emphasized that a minimum amount of construction detail be shown on the Right-of-Way Plans. This construction detail should be limited to tops and bottoms of slopes, proposed retaining walls, driveway construction, and drainage where it affects a particular property. Edges of pavement and sidewalks should be shown lightly as not to detract from clarity of the Right-of-Way detail.

It is understood that cases may arise when portions of these specifications may not be suitable for a particular project. In the event this occurs, the Right-of-Way Bureau, Project Section, should be contacted for clarification.

#### **F. LAYOUT AND TAKING PLANS AND ORDER OF TAKING**

The Consultant shall prepare and submit to the Department, for the approval of the Engineer, all the instruments which are required to be recorded in the Registry of Deeds in connection with the acquisition of any interest in real estate made necessary by the work to be done under this contract. These instruments shall be comprised of the plans (tracings), descriptions and orders of taking for advance takings, alterations, layouts and/or easements. The preparation of these instruments shall conform to standard Department practice. Drawings shall be made on tracing cloth using India ink, samples of which may be obtained from the Engineer. The title sheet of all plans to be recorded shall be stamped with the seal of a Land Surveyor registered in Massachusetts who shall be in charge of the work and such shall be signed by him below said seal.

The recording and filing of these instruments in the Registry of Deeds, in the office of the County Commissioners, and in the office of the City or Town Clerk shall be by the Department as shall also be the appraisal and settlement of all land damages, including negotiations with property owners relative to same.

**ARTICLE V CONSTRUCTION PHASE**

If a contract or contracts for construction of the project or part of it are executed within one year after completion by the Consultant of the services outlined in ARTICLE IV, the Consultant shall also render the following services to the Department. Such services shall not be rendered if the project is not constructed.

**A. ATTENDANCE OF PRECONSTRUCTION CONFERENCE**

As part of his general fee, the Consultant shall attend a pre-construction conference scheduled by the Department. The person representing the Consultant shall be familiar with the project and have sufficient design experience to interpret the construction plans and documents.

**B. CHECKING SHOP DRAWINGS**

As part of his general fee, the Consultant shall review, check and approve all shop details and construction drawings prepared by construction contractors or their sub-contractors to assure conformance with the construction contract requirements and good engineering practice. These shall include, when applicable, all steel details, prestressed beam details, reinforcing bar lists, cofferdam details, falsework, formwork and details of all other items required to conform to the Department's specifications and practices.

**C. CONSULTATION DURING CONSTRUCTION**

(1) As part of his General Fee, the Consultant shall furnish consultation and interpretation of his drawings and specifications as may be required by the Engineer. No payment will be made for visits to the site of work in relation to errors and omissions or insufficient data in work previously submitted by the Consultant.

(2) The Consultant shall also make his service available during construction for visits to the site of work for consultations in regard to additional design services or unforeseen problems as may be required by the Engineer. Compensation for these services will be made as further described in ARTICLE VI Section B. Additional personnel of the Consultant's staff, if required and approved by the Engineer, shall be paid as stated under ARTICLE VI Section C or, in the case of specialists who are not employees of the Consultant and are approved as subcontractors, reimbursement will be made as a direct expense.

ARTICLE VI COMPENSATION OF CONSULTANTA. GENERAL FEE

The Commonwealth hereby agrees to pay and the consultant agrees to accept as full compensation for all services rendered to the satisfaction of the Department a fee established in accordance with whichever of the following two payments is set forth in the SPECIAL PROVISIONS:

PAYMENT METHOD 1 (LUMP SUM)

For all services to be performed under the General Fee a lump sum amount plus allowance for direct expenses as further described in Payment Method 2 (d) of such allowance for direct expenses is expressly provided for in the SPECIAL PROVISIONS.

PAYMENT METHOD 2 (COSTS PLUS A NET FEE)

For all services to be performed under the General Fee, the Consultant shall be paid an amount equal to the sum of the following items a, b, c, and d:

(a) Actual direct salary costs paid engineering and technical employees by the Consultant for the time such employees are directly utilized on work necessary to fulfill the provisions of the Contract.

Actual direct salary costs shall consist of payroll costs at straight time for engineering and technical employees, excluding all principals or administrative officers such as owners, partners, stockholders owning more than one percent of the common stock outstanding, or other major supervisory personnel, for the time such employees are directly utilized on the work covered by this contract. If it is the usual practice for salaried principals or administrative officers of small firms to perform engineering work, permission may be granted by the Engineer to compensate them for the time when they are actually engaged in this work, but only at a rate of pay commensurate with the type of work performed. Permission may also be given by the Engineer for certain principals or administrative officers of large firms to be paid for engineering work performed by them at a rate of pay commensurate with the type of work performed, but only under unusual conditions for specific periods of time. Written approval shall be required from the Engineer prior to the use of said principals or officers by both large and small firms.

Payment of any said principals or officers for administrative duties at the usual rate of pay for these positions will not be allowed, it being considered that their salaries are included under overhead.

Salary rates and increases thereof paid to engineering or technical employees assigned to this project shall be commensurate with salaries paid and increases thereof made to other employees of the Consultant engaged in similar work. Any increases in salary shall be the result of company wide evaluation of all engineering and technical employees. Such evaluation shall be in accordance with company wide personnel regulations and established policies.

The Engineer shall have the right to exercise the power of review and approval of salaries and increases thereof for a period of thirty days following receipt of the Consultant's written notice of such rates and/or increases. This notice must be submitted prior to the date when such rates become effective.

Unless the Engineer notifies the Consultant in writing during the thirty day period that such salary rate or increase thereof is in his opinion, unreasonable, such lack of notice shall constitute approval of the rate or increase from the proposed effective date. All salary changes from those submitted on the previous invoice shall be specifically noted by the Consultant on his next invoice giving the date of the letter requesting such increase. Changes in salary rates made prior to the date of this letter will not be approved for payment. Any such salary increase shall not be considered as justification for an increase in the maximum payment for direct salary costs shown under Maximum Payment Amounts hereinbefore.

No premium payment shall be made for overtime work unless previously approved by the Engineer.

It is the current policy of the Department to limit the hourly rate for engineering and technical employees to \$38.50 per hour. Permission for higher rates per hour may be granted in special situations with the written approval of the Engineer.

(b) Applicable indirect costs incurred during the period of this contract, to the extent that such indirect costs are allowable under the "Contract Cost Principles and Procedures" set forth in the Federal Acquisition Regulation 31 (Technical Reference 48 CFR Chapter 1 Part 31) which document is incorporated herein and made a part hereof by reference.

That part of the salary and/or other payments, excepting monies paid as reimbursement for business expense, in excess of a rate of \$90,000. annually paid to any individual shall not be allowed by the Department as a charge to overhead or otherwise to this contract in any manner, directly or indirectly.

For purposes of partial payments a provisional indirect cost additive rate, expressed as a percent of actual direct salary costs, will be specified in the SPECIAL PROVISIONS.

The amount to be allowed for indirect costs shall be the actual audited amounts of such costs incurred by the Consultant, provided, however, that the total allowance for such costs shall in no event exceed an amount which is obtained by multiplying the actual direct salary costs paid under "a" above by the provisional indirect costs additive percentage rate as set forth in the SPECIAL PROVISIONS, plus 10 percent of the amount paid by the Consultant for actual direct salary costs in accordance with "a" above but limited to a maximum of 135 percent. Said limit on allowable indirect costs shall apply notwithstanding any audit which indicates that higher indirect costs were actually incurred.

(c) A net fee as shown in the SPECIAL PROVISIONS to cover consultant's profit, miscellaneous expenses, and other factors that may be considered under the applicable regulations and that are not paid for otherwise.

(d) Reimbursement for direct expenses to the extent that they are allowable under the provisions of the Federal Acquisition Regulation referred to above and meet the requirements set forth below. Reimbursable direct expenses shall include, but not be limited to, costs covering work performed by other parties such as borings, laboratory tests, field survey, special electronic computer programming, services of other professionals or specialists, special printing and reproductions and certain telephone and travel expense as further set forth below and normally not included in overhead expense.

Prior written approval shall be obtained by the Consultant from the Engineer before these direct expenses are incurred. Reimbursable direct expenses are included under the Maximum Payment Amount.

All requests for reimbursement of such direct expenses shall be submitted in writing to the Engineer, together with estimates of the cost for each type of expense and the reasons for such expenses.

All billing of direct expenses shall be itemized by date, name of person incurring such expenses, location of travel or communication points, and shall include all other data relevant to a verification of the expenses together with a copy of the Engineer's letter authorizing such expenditure.

Telephone charges shall not be considered as a direct expense except for toll charges specifically approved by the Engineer.

Travel Expenses when authorized under the SPECIAL PROVISIONS of this Contract shall be measured from the Massachusetts office of the Consultant, or the residence of the Consultant's employee traveling to a project-related destination point, whichever is the lesser distance, unless otherwise expressly authorized by the Chief Engineer in writing. No travel expense will be paid unless provided for in the SPECIAL PROVISIONS or as may be previously approved in writing by the Engineer. Travel shall be made by the least expensive reasonable means. First class air-fare, deluxe accommodations and unreasonable meal costs will not be approved. The use of rented automobiles will be reimbursed only at the same mileage rate as approved for personal or firm-owned vehicles. The cost of meals related to trips made in the course of a normal work-day will not be reimbursed. Travel and certain other necessary expenses for attendance at public meetings and hearings, as designated by the Engineer, may be reimbursed subject to written approval of the Engineer.

Since it is agreed that the work under this contract shall be performed in an adequately staffed office of the Consultant located within the Commonwealth of Massachusetts, costs incurred by the Consultant for telephone calls and travel to or from his out-of-state offices, shall not be reimbursed. Travel and subsistence shall not be paid for employees from any out-of-state office to work in Massachusetts except for certain specialists when expressly approved by the Chief Engineer in writing.

Printing of plans and copying of data as required for reviews and normal submissions shall not be reimbursed as direct expense, notwithstanding the fact that the Consultant does not own printing or copying equipment. Payment for special printing of reports and preparation of matter to distribute at public meetings, hearings and similar occasions may, with the approval of the Engineer, be reimbursed.

Expenses for administrative personnel performing administrative work will not be reimbursed.

All direct costs not reimbursable under this Article, and not allowable upon audit of the Consultant's records as an overhead item, shall be included in the net fee for profit and unallocated costs.

All costs as described in the foregoing paragraphs are to be determined by actual records kept by the Consultant in accordance with the provision of this contract and are subject to final audit by the Department and/or the FHWA. The total partial payments made shall be adjusted to conform to determinations made in such final audit in accordance with the above provisions of this Article. At their discretion, the Department and/or the Federal Government may undertake interim audits at any time during the term of the Contract.

In no event shall the maximum amount to be paid under this Contract exceed the amount as shown on Page 1 of the STANDARD CONTRACT notwithstanding final audit results, except by agreement of all parties, and with the concurrence of the U.S. Department of Transportation, Federal Highway Administration in the case of Federal-Aid projects.

The maximum amount may be adjusted when the Consultant establishes, and the Department and the FHWA are in agreement, that there has been or is to be a significant change in:

- (1) Scope, complexity, or character of the services to be performed
- (2) Conditions under which the work is required to be performed; and
- (3) Duration of work, if the change from the time period specified in the agreement for completion of the work warrants such adjustment.

Upon adjustment of the maximum amount, an appropriate adjustment in the predetermined net fee shall be considered.

#### **B. PAYMENT FOR WORK DURING CONSTRUCTION**

For all visits to the site of the work for consultation as described in ARTICLE V, Section B2, the Consultant shall be paid in accordance with PAYMENT METHOD 2 - COSTS PLUS A NET FEE for all services rendered by his employees. Subconsultant costs for all visits to the site of the work for consultation will be paid for as a direct expense. In addition, all travel expenses shall be paid from the Consultant's Massachusetts office or from the employee's home, whichever is the shorter distance. Other approved direct expenses shall be reimbursed to the extent that they are allowable under the provisions of Federal Acquisition Regulation 31 (technical ref. 48 CFR Ch. 1 Part 31). All visits to the site of work shall require prior written approval by the Engineer.

No payment to the Consultant shall be made for visits to the construction site in connection with errors and/or omissions, or insufficient data in work previously submitted by the Consultant.

All costs as described in the foregoing paragraphs are to be determined by actual records kept by the Consultant during the term of the contract and are to be subjected to final audit by the Department and/or the F.H.W.A. All partial payments made shall be adjusted to conform to determinations made in said final audit. Also, at its discretion, the Department and/or the F.H.W.A. may undertake interim audits at anytime during the term of the contract; and partial payments shall be adjusted to conform to determinations made in such interim audits.

#### **C. ADDITIONAL FEES IN EXCESS OF GENERAL FEE**

If the Consultant performs services for revisions of plans as described in ARTICLE I, Section 19 or other services for which an additional fee is provided, he shall be paid an amount based on one of the following methods:



**PAYMENT METHOD 1 - LUMP SUM**

An additional lump sum amount to be determined by an estimate made of the Consultant's anticipated costs to perform such additional services, and including an allowance for profit.

**PAYMENT METHOD 2 - COSTS PLUS A NET FEE**

An additional amount based on costs plus a net fee as described in ARTICLE VI SECTION A PAYMENT METHOD 2.

**PAYMENT METHOD 3 - COSTS PER UNIT OF WORK**

An additional amount to be determined by applying agreed costs to each unit of work or to cost per mile.

Before authorization for any work to be paid for in excess of the General Fee, the Consultant and the Engineer shall concur as to the maximum amount which may be paid for each work order.

No work for which additional payment is claimed shall be performed unless previously ordered in writing by the Engineer and no claim shall be valid unless so ordered.

**D. PAYMENT FOR TERMINATION OF WORK**

In the event the Department sees fit to notify the Consultant to abandon, limit or defer the work under this Contract, or any part thereof, the Consultant shall be paid for any uncompensated work satisfactorily performed prior to date of said notice in one or more of the following methods, as shall be determined by the Engineer:

1. By estimate of amount of work completed and by payment of a lump sum amount.
2. By costs plus a net fee as stated in ARTICLE VI, Section A, Payment Method 2. Such net fee shall be in proportion with the amount of work performed.
3. By payment of work completed as applied to costs of each unit or to costs per mile.

If the work to be performed under this Contract is terminated due to bankruptcy proceedings, or for any other cause due to action or inaction by the Consultant, the Consultant shall be paid for any uncompensated work satisfactorily performed prior to said termination as so stated above, minus the percentage of all previous partial payments which were retained as part security for fulfillment of this Contract. This amount will be forfeited by the Consultant to the Department to compensate for damages suffered by the Department due to the Consultant's failure to complete the contract.

**E. PAYMENTS**

Partial payments against the General Fee shall be due and paid monthly upon approval by the Engineer of the Consultant's invoice for all services performed to the end of the preceding month in accordance with one of the two payment methods as shown in ARTICLE VI Section A of the SPECIAL PROVISIONS.

**PAYMENT METHOD 1 - LUMP SUM**

Partial payments against the General Fee shall be for the estimated value of all services performed under ARTICLES II, III and IV by the Consultant as shown in the estimates submitted by the Consultant and approved by the Engineer. The estimated value of such services performed under ARTICLES II, III and IV shall be based on the estimated proportion which said services bear to the total of all such services to be performed under ARTICLES II, III and IV.

The total fee to be paid for services rendered under ARTICLES II, III and IV shall be an amount as shown in the SPECIAL PROVISIONS.

Partial payments of all work performed by the Consultant under ARTICLE V, Sections A and B, shall be made in accordance with PAYMENT METHOD 2 - COSTS PLUS A NET FEE. Partial payments shall be made as approved by the Engineer.



# **PAYMENT METHOD 2 - COSTS PLUS A NET FEE**

Partial payments against the General Fee shall be for the value of all services performed as shown on invoices submitted by the Consultant and approved by the Engineer. Invoices must be accompanied by actual or certified copies of time records of his employees and receipted bills from other firms for work authorized and performed under the provisions of this Contract.

Partial payments shall be based on actual salaries paid monthly as specified under ARTICLE VI Section A: Method 2 Paragraph a; plus costs as specified under paragraph b; plus the proportionate share of the net fee as specified under paragraph c, which represents the percentage of work completed to date covered by the monthly invoices; plus reimbursement for authorized direct expenses based on receipted bills as provided under paragraph d.

The Department reserves the right to defer any partial payments when the ratio of the total salary costs billed (exclusive of direct costs) to the total salary costs as shown in the original proposal is greater than the ratio of the work completed to the total work to be performed under the contract provisions.

Payments on account of additional fees for revisions or for other services as specified in ARTICLE VI Section C shall be due and payable upon approval by the Engineer of the Consultant's invoices for such services performed to the end of the preceding month accompanied by actual or certified copies of paid invoices and/or payrolls for the same, if required under the method of payment used.

Payments in reimbursement to the Consultant for direct costs and expenses incurred by him or any of his sub-consultants shall be due and payable upon submission and approval by the Engineer of the Consultant's bill accompanied by actual or certified copies of paid invoices and/or payrolls for the same.

No premium payments shall be made for overtime work unless previously approved by the Engineer.

Periodic invoices shall, in addition to current charges, incorporate all previous charges, either paid or unpaid, for services performed under the contract through the date of each such invoice.

All invoices and time records shall contain a statement that the Consultant certifies, under the pains and penalties of perjury, that all work for which payment is requested has been performed and that such performance is in full compliance with the provisions of the Contract.

The Department shall retain five percent (5%) of all amounts due for partial payments made against work performed under Articles II, III and IV, except for amounts due for actual reimbursable direct costs, as part security for the fulfillment of this Contract by the Consultant.

After deduction of this retainage and all other sums to be kept or retained from the total amount due to date for work performed under this Contract, the remainder shall be paid to the Consultant.

When all work under ARTICLES II, III and IV are completed, the Consultant shall so notify the Engineer in writing requesting approval of said work and shall submit to the Department with said notification a copy of all supporting records kept by him in accordance with ARTICLE I, Section 25(a) below which are relevant to the work performed in accordance with said ARTICLES II, III, and IV. Within ninety (90) days after written approval of said work by the Engineer, all amounts previously retained by the Department as part security for completion of said work shall be paid to the Consultant in addition to or less any amount determined by the Department's interim audit to be due the Consultant or the Department, if such interim audit has been completed and such amount has been determined.

Payments for checking of shop drawings shall be made as approved by the Engineer.

**INTEROFFICE MEMORANDUM**  
**Pre-Award Review # 11A-854**

To: Guy Rezendes, Utilities/Railroad Engineer  
From: Elizabeth A. Pellegrini, Director of Audit Operations *EAP*  
Date: May 18, 2011  
RE: Pre-Award Review of Town of Acton – Greenman-Pedersen, Inc.  
Project: Bruce Freeman Rail Trail (Phase 2A & 2C) Design Agreement – Acton  
Highway Division Agreement # 64287  
Maximum Obligation: \$1,431,500 State Share  
Federal Transportation Enhancement Funds

As requested, Audit Operations has completed a Pre-Award Review on the consultant and the subconsultants for the Town of Acton..

To assist your office in determining the reasonableness of the proposed labor and indirect cost rates we present the following comments.

We note that the man-hour estimate/budget for Nover Armstrong Associates in the proposed Agreement is overstated as it is calculated with an overhead rate of 149.06%. The man-hour estimate/budget should be corrected to reflect the company's actual provisional overhead rate of 121.75%. - \*

Audit Operations has reviewed the proposed salaries for Greenman-Pedersen, Inc. and their three subconsultants under the proposed contract. The proposed salary rates and costs appear to be reasonable, except for Greenman-Pedersen, Inc.'s Engineering Position. The proposed labor rate is overstated by \$1.05/hour for the design phase and \$1.01/hour for the construction phase.

Audit Operations has also reviewed the indirect cost rate submittals for Greenman-Pedersen, Inc. and their three subconsultants for their most recent fiscal years and has approved the following rates.

Accordingly, we recommend the below indirect cost rates be used for billing purposes on the proposed federally funded contract.

<u>Municipality:</u>	
Town of Acton	N/A - No proposed costs under this contract.
<u>Consultant:</u>	Greenman-Pedersen, Inc. 155% *
<u>Subconsultants:</u>	Nobis Engineering, Inc. 175% *
	Green International Affiliates, Inc., 129.55%
	Nover Armstrong Associates, Inc. 121.75% *

\* - Overhead rates proposed. Actual overhead rate is higher.

\* The man-hour estimate/budget for Nover Armstrong Associates in the proposed Agreement is overstated as it is calculated with an overhead rate of 149.06%.

We have not reviewed the proposed direct expenses. Contract Administration procedures require direct expenses to be reviewed and approved by Highway Division's Project Engineer prior to being incurred. Audit Operations has not reviewed any other area of the proposed contract.

If you have any questions, please contact Andrew Cardinale at extension 7292.

CC: FHWA – Michael Lawton & William Roark  
Audit Unit File

*Exhibit E*  
*page 1 of 5*

**Certificate of Indirect Costs**

Firm Name: Greenman - Pedersen, Inc.

Indirect Costs and Rate(s) for Fiscal Year Ending: December 31, 2009

*This is to certify that I have reviewed the indirect costs and rate(s) proposal submitted as per the MassDOT prequalification audit requirement to establish billing or final indirect cost rates for the above firm's fiscal period as specified and to the best of my knowledge and belief:*

*1.) All costs included in this proposal to establish billing or final indirect cost rates are allowable in accordance with the cost principles of the Federal Acquisition Regulations (FAR) of title 48, Code of Federal Regulations (CFR), part 31.*

*2.) This proposal does not include any costs which are expressly unallowable under the cost principles of the FAR of 48 CFR 31 or its supplements. All known material transactions or events that have occurred affecting the firm's ownership, organization and indirect cost rates have been disclosed.*

*3.) All costs included in this proposal are properly allocable to Government contracts on the basis of beneficial or causal relationship between the expenses incurred and the contracts to which they are allocated in accordance with applicable acquisition regulations. Further, the same costs that have been treated as indirect costs have not been claimed as direct costs and that similar types of costs have been accounted for consistently.*

*I declare that under penalty of perjury that the foregoing is true and correct.*

Signature: Michael J. Blumcore

Name of Certifying Official (Print): Michael J. Blumcore

Title: CFO

Date of Certification: May 18, 2011

## Certificate of Indirect Costs

Firm Name: NOBIS ENGINEERING

Indirect Costs and Rate(s) for Fiscal Year Ending: 12/31/10

*This is to certify that I have reviewed the indirect costs and rate(s) proposal submitted as per the MassDOT prequalification audit requirement to establish billing or final indirect cost rates for the above firm's fiscal period as specified and to the best of my knowledge and belief:*

*1.) All costs included in this proposal to establish billing or final indirect cost rates are allowable in accordance with the cost principles of the Federal Acquisition Regulations (FAR) of title 48, Code of Federal Regulations (CFR), part 31.*

*2.) This proposal does not include any costs which are expressly unallowable under the cost principles of the FAR of 48 CFR 31 or its supplements. All known material transactions or events that have occurred affecting the firm's ownership, organization and indirect cost rates have been disclosed.*

*3.) All costs included in this proposal are properly allocable to Government contracts on the basis of beneficial or causal relationship between the expenses incurred and the contracts to which they are allocated in accordance with applicable acquisition regulations. Further, the same costs that have been treated as indirect costs have not been claimed as direct costs and that similar types of costs have been accounted for consistently.*

*I declare that under penalty of perjury that the foregoing is true and correct.*

Signature: 

Name of Certifying Official (Print): Abhyjit Nobis

Title: CEO

Date of Certification: 4-22-11

## Certificate of Indirect Costs

Firm Name: Green International Affiliates, Inc.

Indirect Costs and Rate(s) for Fiscal Year Ending: 3/31/10

*This is to certify that I have reviewed the indirect costs and rate(s) proposal submitted as per the MassDOT prequalification audit requirement to establish billing or final indirect cost rates for the above firm's fiscal period as specified and to the best of my knowledge and belief:*

*1.) All costs included in this proposal to establish billing or final indirect cost rates are allowable in accordance with the cost principles of the Federal Acquisition Regulations (FAR) of title 48, Code of Federal Regulations (CFR), part 31.*

*2.) This proposal does not include any costs which are expressly unallowable under the cost principles of the FAR of 48 CFR 31 or its supplements. All known material transactions or events that have occurred affecting the firm's ownership, organization and indirect cost rates have been disclosed.*

*3.) All costs included in this proposal are properly allocable to Government contracts on the basis of beneficial or causal relationship between the expenses incurred and the contracts to which they are allocated in accordance with applicable acquisition regulations. Further, the same costs that have been treated as indirect costs have not been claimed as direct costs and that similar types of costs have been accounted for consistently.*

*I declare that under penalty of perjury that the foregoing is true and correct.*

Signature: Ko Ishikura

Name of Certifying Official (Print): Ko Ishikura

Title: President

Date of Certification: 5/17/11

Exhibit E  
page 4 of 5

Certificate of Indirect Costs

Firm Name: NOVER ARMSTRONG ASSOCIATES

Indirect Costs and Rate(s) for Fiscal Year Ending: 2009

*This is to certify that I have reviewed the indirect costs and rate(s) proposal submitted as per the MassDOT prequalification audit requirement to establish billing or final indirect cost rates for the above firm's fiscal period as specified and to the best of my knowledge and belief:*

*1.) All costs included in this proposal to establish billing or final indirect cost rates are allowable in accordance with the cost principles of the Federal Acquisition Regulations (FAR) of title 48, Code of Federal Regulations (CFR), part 31.*

*2.) This proposal does not include any costs which are expressly unallowable under the cost principles of the FAR of 48 CFR 31 or its supplements. All known material transactions or events that have occurred affecting the firm's ownership, organization and indirect cost rates have been disclosed.*

*3.) All costs included in this proposal are properly allocable to Government contracts on the basis of beneficial or causal relationship between the expenses incurred and the contracts to which they are allocated in accordance with applicable acquisition regulations. Further, the same costs that have been treated as indirect costs have not been claimed as direct costs and that similar types of costs have been accounted for consistently.*

*I declare that under penalty of perjury that the foregoing is true and correct.*

Signature: Marta G. Nov

Name of Certifying Official (Print): MARTA NOVER

Title: PRINCIPAL

Date of Certification: 5-17-2011

EXHIBIT E

page 5 of 5

**Request For Allocation of  
Funds Prior to Encumbrance**

Project Number(s)
604532
605189

Encumbrance Document ID			
Trans	Dept	Unit	Identification Number
CT	DOT	6433	INTF00X02011A0064287

681

6/20/2011

**Funding Source**

Capital ☐ Tolls Capital ☐ Tolls General ☐ Federal Grant ☐  
Operating ☐ Tolls Operating ☐ Expendable Trust ☐

Approp No	Obj	Unit	Activity	Program	Phase	N/P	Amount Allocated
61210816	N21	6433	022P	P604532	P12		\$400,000.00
61210817	N21	6433	022N	P604532	P11		\$1,031,500.00
							<b>\$1,431,500.00</b>

**Obligation By Fiscal Year for Multi-Year Contracts**

	61210816	61210817	Total
2011	\$100.00	\$500.00	\$600.00
2012	\$300,000.00	\$850,000.00	\$1,150,000.00
2013	\$70,000.00	\$150,000.00	\$220,000.00
2014	\$29,000.00	\$30,000.00	\$59,000.00
2015	\$900.00	\$1,000.00	\$1,900.00
<b>MMARS Total</b>	<b>\$400,000.00</b>	<b>\$1,031,500.00</b>	<b>\$1,431,500.00</b>

Reason for Request:

Contract #: 64287

Cost Reduction %:

Vendor ID & Address Code: VC6000191689 AD001

Current Year Savings:

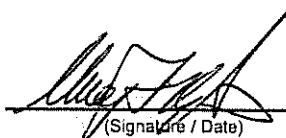
Vendor Name: TOWN OF ACTON

Contract Location: ACTON -CARLISLE -CONCORD -WESTFORD

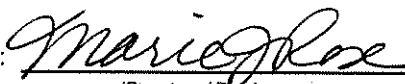
Contract Description: Bruce Freeman Trail-Phase 2A and 2C (FHWA Enhancement and State Capitol Funds)

Report Notes:

Recommended by:

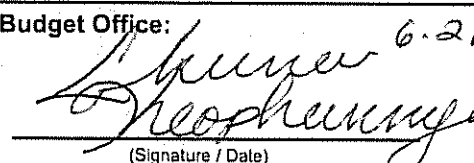
 6/20/11  
(Signature / Date)

Approved by:


 6/20/11  
(Signature / Date)

Completed by the Budget Office:

Expense Budget  
Entered By:

 6-21-11  
(Signature / Date)

Approved by:

 6/21/11  
(Signature / Date)

Document Name		ACTON		[706925]	
Document Description		BRUCE FREEMAN TRAIL			
Code		Dept	Unit	Document Identifier	
CT	DOT	6433		INTF00X02011A0064287	
Header / Vendor Information		MA Information			
Budget FY:	2011	Document Total:	\$1,431,500.00		
Fiscal Year:	2011	Vendor Name:	TOWN OF ACTON		
Period:	11	Vendor Address:	472 MAIN ST	City:	ACTON
Board Award:	0064287	Vendor/Customer No.:	VC6000191689	State:	MA
Requester ID:	dotds3	Address Code:	AD001		
Report Note:	Comment:				

Line #1- Commodity Information					
Commodity Code	721317000000	List Price		Description	BRUCE FREEMAN TRAIL
Line Type	Service	Unit Price		Contract Amount	\$1,431,500.00
Quantity		Service From		Commodity Ref. Line	
Unit of Measure		Service To	06/30/2015		
Line #1- Accounting Information					
Event Type	PR05	Budget FY	2011	Unit	6433
Line Amount	\$100.00	Fiscal Year	2011	Object	N21
Dept	DOT	Period	11	Appropriation	61210816
Line Description	BRUCE FREEMAN TRAIL				
				Major Program	
				Program	P604532
				Program Period	
				Activity	022P

**TO THE COMPTROLLER OF THE COMMONWEALTH OF MASSACHUSETTS**  
I hereby certify under the penalties of perjury that all laws of the Commonwealth governing disbursements of public funds and the regulations thereof have been complied with and observed.

Print Name: Guy Rezendes Signed: [Signature] Title: Prepared by

Print Name: Guy Rezendes Signed: [Signature] Title: Authorized Signatory

FOR FISCAL USE ONLY  
Entered By: [Signature] Date: 6/20/11 Verified By: [Signature] Date: 6/20/11  
(Initial) (Initial)

Phone Ext.: 7598 Date: 6/20/11  
Phone Ext.: 7598 Date: 6/20/11



Document Name	ACTON		[706925]
Document Description	BRUCE FREEMAN TRAIL		

Document I.D.			
Code	Dept	Unit	Action
CT	DOT	6433	Entry
		INTF00X02011A0064287	

**Line #2- Accounting Information**

Event Type	PR08	Budget FY	2012	Unit	6433	Major Program	Location
Line Amount	\$300,000.00	Fiscal Year	2011	Object	N21	Program	Phase P12
Dept	DOT	Period	11	Appropriation	61210816	Program Period	Activity 022P
Line Description	BRUCE FREEMAN TRAIL						
				Dept Object			

**Line #3- Accounting Information**

Event Type	PR08	Budget FY	2013	Unit	6433	Major Program	Location
Line Amount	\$70,000.00	Fiscal Year	2011	Object	N21	Program	Phase P12
Dept	DOT	Period	11	Appropriation	61210816	Program Period	Activity 022P
Line Description	BRUCE FREEMAN TRAIL						
				Dept Object			

**Line #4- Accounting Information**

Event Type	PR08	Budget FY	2014	Unit	6433	Major Program	Location
Line Amount	\$29,000.00	Fiscal Year	2011	Object	N21	Program	Phase P12
Dept	DOT	Period	11	Appropriation	61210816	Program Period	Activity 022P
Line Description	BRUCE FREEMAN TRAIL						
				Dept Object			

**TO THE COMPTROLLER OF THE COMMONWEALTH OF MASSACHUSETTS**

I hereby certify under the penalties of perjury that all laws of the Commonwealth governing disbursements of public funds and the regulations thereof have been complied with and observed.

Print Name: _____	Signed: _____	Title: _____	Phone Ext.: _____	Date: _____
Prepared by				
Print Name: _____	Signed: _____	Title: _____	Phone Ext.: _____	Date: _____
Authorized Signatory				

FOR FISCAL USE ONLY			
Entered By: _____	Date: _____	Verified By: _____	Date: _____
(Initial)		(Initial)	

Document Name	ACTON		[706925]
Document Description	BRUCE FREEMAN TRAIL		

Document I.D.			
Code	Dept	Unit	Action
CT	DOT	6433	Entry
		INTF00X02011A0064287	

Line #5- Accounting Information					
Event Type	PR08	Budget FY	2015	Unit	6433
Line Amount	\$900.00	Fiscal Year	2011	Object	N21
Dept	DOT	Period	11	Appropriation	61210816
Line Description	BRUCE FREEMAN TRAIL				
				Dept Object	
				Major Program	
				Program	P604532
				Program Period	
				Location	Phase P12
				Activity	022P

Line #6- Accounting Information					
Event Type	PR05	Budget FY	2011	Unit	6433
Line Amount	\$500.00	Fiscal Year	2011	Object	N21
Dept	DOT	Period	11	Appropriation	61210817
Line Description	BRUCE FREEMAN TRAIL				
				Dept Object	
				Major Program	
				Program	P604532
				Program Period	
				Location	Phase P11
				Activity	022N

Line #7- Accounting Information					
Event Type	PR08	Budget FY	2012	Unit	6433
Line Amount	\$850,000.00	Fiscal Year	2011	Object	N21
Dept	DOT	Period	11	Appropriation	61210817
Line Description	BRUCE FREEMAN TRAIL				
				Dept Object	
				Major Program	
				Program	P604532
				Program Period	
				Location	Phase P11
				Activity	022N

**TO THE COMPTROLLER OF THE COMMONWEALTH OF MASSACHUSETTS**

I hereby certify under the penalties of perjury that all laws of the Commonwealth governing disbursements of public funds and the regulations thereof have been complied with and observed.

Print Name: _____	Signed: _____	Title: _____	Phone Ext.: _____	Date: _____
Print Name: _____	Signed: _____	Title: _____	Phone Ext.: _____	Date: _____
			Authorized Signatory	

FOR FISCAL USE ONLY				
Entered By: _____	Date: _____	Verified By: _____	Date: _____	(Initial)

Document Name	ACTON		[706925]
Document Description	BRUCE FREEMAN TRAIL		

Document i.D.			
Code	Dept	Unit	Action
CT	DOT	6433	Entry
		INTF00X02011A0064287	

**Line #8- Accounting Information**

Event Type	PR08	Budget FY	2013	Unit	6433	Major Program		Location	
Line Amount	\$150,000.00	Fiscal Year	2011	Object	N21	Program	P604532	Phase	P11
Dept	DOT	Period	11	Appropriation	61210817	Program Period		Activity	022N
Line Description	BRUCE FREEMAN TRAIL								
				Dept Object					

**Line #9- Accounting Information**

Event Type	PR08	Budget FY	2014	Unit	6433	Major Program		Location	
Line Amount	\$30,000.00	Fiscal Year	2011	Object	N21	Program	P604532	Phase	P11
Dept	DOT	Period	11	Appropriation	61210817	Program Period		Activity	022N
Line Description	BRUCE FREEMAN TRAIL								
				Dept Object					

**Line #10- Accounting Information**

Event Type	PR08	Budget FY	2015	Unit	6433	Major Program		Location	
Line Amount	\$1,000.00	Fiscal Year	2011	Object	N21	Program	P604532	Phase	P11
Dept	DOT	Period	11	Appropriation	61210817	Program Period		Activity	022N
Line Description	BRUCE FREEMAN TRAIL								
				Dept Object					

**TO THE COMPTROLLER OF THE COMMONWEALTH OF MASSACHUSETTS**

I hereby certify under the penalties of perjury that all laws of the Commonwealth governing disbursements of public funds and the regulations thereof have been complied with and observed.

Print Name: _____	Signed: _____	Title: _____	Phone Ext.: _____	Date: _____
Prepared by				
Print Name: _____	Signed: _____	Title: _____	Phone Ext.: _____	Date: _____
Authorized Signatory				

FOR FISCAL USE ONLY				
Entered By: _____	Date: _____	Verified By: _____	Date: _____	(Initial)
		(Initial)		

# MASSACHUSETTS HIGHWAY DEPARTMENT

PARS NUMBER

9/22/2009

DATE

PARS NO: **P604532P12** SYSTEM: ☐ FED. AID PROJECT NO: **STP-002-S-032-000**

TOWN/CITY: **Acton - Carlisle - Westford**

LOCATION: **Bruce Freeman Rail Trail**

ACTIVITY CODES: **009-011-012-020-021-022** FHWA AUTH. DATE: **9/21/2009** ADV. DATE:

REMARKS: **Final design of the Bruce Freeman Rail Trail Phases 2A**

FIXED ASSET: ☐

## REQUEST FOR ALLOCATION OF BOND FUNDS PRIOR TO ENCUMBRANCE

### ENCUMBRANCE DOCUMENT ID

TRANS

DEPT

R/ORG

NUMBER

DATE

#### SECTION A:

APPROPRIATION	SUB.	OBJ.	ORG.	ACT.	N / P	AMOUNT

#### SECTION B: OBLIGATION BY FISCAL YEAR FOR MULTI-YEAR CONTRACTS

APPROPRIATION				
TOTAL:				

REASON FOR REQUEST:

CONTRACTOR / CONTR. NO:

REMARKS:

RECOMMENDED - TITLE

APPROVED - TITLE

TO BE COMPLETED BY FISCAL MANAGEMENT:

APPROVED:

MANAGER / DATE

TO BE COMPLETED BY CEPO:

EXPENSE BUDGET:

ENTERED BY / DATE

APPROVED BY:

ACCOUNT MANAGER / DATE

**MASSACHUSETTS HIGHWAY DEPARTMENT**  
**PARS NUMBER**

6/6/2011  
DATE

PARS NO: **P604532P11** SYSTEM: **J** FED. AID PROJECT NO: **None**

TOWN/CITY: **Acton**

LOCATION: **Bruce Freeman Rail Trail**

ACTIVITY CODES: **009-011-012-020-021-022** FHWA AUTH. DATE:  ADV. DATE:

REMARKS: **Agreement to reimburse the municipality for costs associated with the NFA design agreement Bruce Freeman (Phases 2A/2C)**

FIXED ASSET: ☐

**REQUEST FOR ALLOCATION OF BOND FUNDS PRIOR TO ENCUMBRANCE**

ENCUMBRANCE DOCUMENT ID

TRANS	DEPT	R/ORG	NUMBER

DATE

SECTION A:

APPROPRIATION	SUB.	OBJ.	ORG.	ACT.	N / P	AMOUNT

SECTION B: OBLIGATION BY FISCAL YEAR FOR MULTI-YEAR CONTRACTS

APPROPRIATION			
TOTAL:			

REASON FOR REQUEST:

CONTRACTOR / CONTR. NO:

REMARKS:

RECOMMENDED - TITLE

APPROVED - TITLE

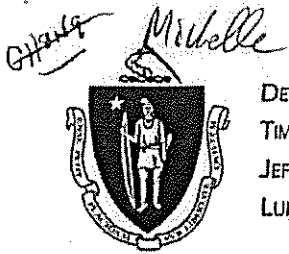
TO BE COMPLETED BY FISCAL MANAGEMENT:

APPROVED: \_\_\_\_\_  
MANAGER / DATE

TO BE COMPLETED BY CEPO:

EXPENSE BUDGET: \_\_\_\_\_  
ENTERED BY / DATE

APPROVED BY: \_\_\_\_\_  
ACCOUNT MANAGER / DATE

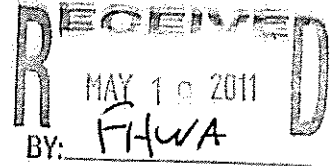


DEVAL L. PATRICK, GOVERNOR  
TIMOTHY P. MURRAY, LT. GOVERNOR  
JEFFREY B. MULLAN, SECRETARY & CEO  
LUIA PAIEWONSKY, ADMINISTRATOR



May 18, 2011

Re: Request for FHWA approval  
Acton - Bruce Freeman Trail (Phase 2A and 2C) Design Agreement



Ms. Pamela Stephenson, Division Administrator  
Federal Highway Administration  
55 Broadway - 10<sup>th</sup> Floor  
Cambridge, MA 02142

Dear Ms. Stephenson:

Forwarded for your approval is one copy of an unexecuted agreement between MassHighway and the municipality of Acton with an estimate in the amount of \$1,431,500.00 (80% of \$1,917,432.00) for design and engineering work to be done for the subject project.

The procurement procedure has been reviewed and deemed an acceptable, valid solicitation and contracting process.

Subject to your approval, CEPO will request funding for this work.

*Approved*  
*Michelle G. Laughlin* 6/10/11  
for **Division Administrator**

Sincerely,  
*Guy F. Rezendes*  
Guy F. Rezendes, P.E.  
Utilities Engineer

*\*Subject to revision of Indirect Rate for Nover Armstrong Assoc in accordance with MassDOT Internal Audit Dept. Interoffice Memorandum, dated May 18, 2011, Exhibit E. Total maximum amounts should be adjusted accordingly.*

Enclosures

Cc: Utilities

Run Date: 09/23/2009  
Run Time: 09:03:50

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
FEDERAL-AID PROJECT AGREEMENT

Report: FMISD05A  
Page 1

STATE: MASSACHUSETTS

PROJECT NO: 002S(032)

STATE PROJ. NO:

THE STATE, THROUGH ITS HIGHWAY AGENCY, HAVING COMPLIED, OR HEREBY AGREEING TO COMPLY, WITH THE APPLICABLE TERMS AND CONDITIONS SET FORTH IN (1) TITLE 23, U.S. CODE, HIGHWAYS, (2) THE REGULATIONS ISSUED PURSUANT THERETO AND (3) THE POLICIES AND PROCEDURES PROMULGATED BY THE FEDERAL HIGHWAY ADMINISTRATION RELATIVE TO THE ABOVE DESIGNATED PROJECT, AND THE FEDERAL HIGHWAY ADMINISTRATION HAVING AUTHORIZED CERTAIN WORK TO PROCEED AS EVIDENCED BY THE DATE ENTERED OPPOSITE THE SPECIFIC ITEM OF WORK, FEDERAL FUNDS ARE OBLIGATED FOR THE PROJECT NOT TO EXCEED THE AMOUNT SHOWN HEREIN, THE BALANCE OF THE ESTIMATED TOTAL COST BEING AN OBLIGATION OF THE STATE. SUCH OBLIGATION OF FEDERAL FUNDS EXTENDS ONLY TO PROJECT COSTS INCURRED BY THE STATE AFTER THE FEDERAL HIGHWAY ADMINISTRATION AUTHORIZATION TO PROCEED WITH THE PROJECT INVOLVING SUCH COSTS. (N)

PROJECT DESCRIPTION: STP-002S(032), FINAL DESIGN OF THE BRUCE FREEMAN RAIL TRAIL PHASES 2A (WESTFORD-CARLISLE-ACTON) AND 2C (CONCORD).

DUNS #: 07-313-0932

CLASSIFICATION OF PHASE OF WORK  
TO BE PUT UNDER AGREEMENT

EFFECTIVE DATE  
OF AUTHORIZATION

HIGHWAY PLANNING & RESEARCH  
PRELIMINARY ENGINEERING  
RIGHT-OF-WAY  
CONSTRUCTION  
MCSAP  
OTHER

09/10/2009

PROGRAM CODE	URBAN/ WITH	TOTAL COST	FEDERAL SHARE	FEDERAL FUNDS UNDER AGREEMENT	ADVANCED CONST. FUNDS
33B0		\$500,000.00	80.00%	\$400,000.00	\$0.00
TOTAL		\$500,000.00		\$400,000.00	

ESTIMATED TOTAL COST: \$500,000.00  
TOTAL AUTHORIZED FOR PROJECT: \$400,000.00

EX OFF OF TRANSPORTATION & CON

AVAILABLE FUNDS CERTIFIED BY:	PAUL K. JAY	DATE:	09/09/2009
APPROVED AND AUTHORIZED BY:	PAUL K. JAY	DATE:	09/09/2009
AGRMT/MODIFY REQUESTED BY:	PAUL K. JAY	DATE:	09/09/2009

FEDERAL HIGHWAY ADMINISTRATION

PROJECT INFORMATION REVIEWED BY:	MARGERY A. BERNIS	DATE:	09/09/2009
APPROVAL RECOMMENDED BY:	JOHN M. MCVANN	DATE:	09/21/2009
APPROVED AND AUTHORIZED BY:	JOHN M. MCVANN	DATE:	09/21/2009

STATE REMARKS: PROJECT AUTHORIZATION. Obligation of \$400,000 in Appr. Code 33B0 Federal funds. STIP REFERENCE = FFY09 STWD TRANSPORTATION ENHANCEMENT.

DIVISION REMARKS: