



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



27
Bourlac

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

Bureau of Highway Design
November 27, 2017

His Excellency, Governor Christopher T. Sununu
and the Honorable Council
State House
Concord, New Hampshire 03301

REQUESTED ACTION

Authorize the Department of Transportation to amend Contract #5000624, with CHA Consulting, Inc., Keene, NH Vendor #221991, for preliminary design engineering services to widen approximately twelve miles of the F. E. Everett Turnpike from Nashua to Bedford, by increasing the total amount payable by \$497,642.29 (from \$2,114,730.22 to \$2,612,372.51) for additional design services that were not anticipated in the original scope of work, effective upon Governor and Council approval, through August 31, 2019. 100% Turnpike Funds.

Funds to support this request are available in the following account in State FY 2018 and FY 2019, and are contingent upon the availability and continued appropriation of funds in FY 2020, with the ability to adjust encumbrances between State Fiscal Years through the Budget Office, if needed and justified:

Table with 4 columns: Account Number, FY 2018, FY 2019, FY 2020. Row 1: 04-96-96-961017-7507 Central NH Turnpike. Row 2: 046-500463 Eng Consultants Non-Benefits. Values: \$150,000.00, \$300,000.00, \$47,642.29.

EXPLANATION

On March 9, 2016, the Governor and Council authorized the subject engineering, environmental, and public outreach consultant services Agreement (Item #38; copy of Resolution attached) in the amount of \$2,114,730.22 to widen approximately twelve (12) miles of the F. E. Everett Turnpike beginning north of Exit 8 (Somerset Pkwy) in the City of Nashua and continuing northerly through the Interstate 293/NH Rte.101 interchange in the Town of Bedford. The F.E. Everett Turnpike is the principal arterial linking Manchester and Nashua and as such serves a vital role in the economy of this region and the state. The goals of the Part A preliminary design phase of this project are to select a preferred alternative that is technically feasible, environmentally permissible, and economical; develop an approved Environmental Assessment; and bring the preferred alternative to a Special Committee Public Hearing for layout approval. Assuming a successful Public Hearing, the Department reserves the right to either negotiate a fee for the Part B final design services or terminate the contract. This project is currently included in the State's Ten-Year Transportation Improvement Plan (Nashua-Bedford 13761).

This amendment to the Agreement is for additional work associated with the following items:

- 1. Base Plan Preparation - An additional 3,200 feet of ground topography covering Northbound and Southbound through the I-293/101 interchange was incorporated into the original base mapping by the Department. Due to numerous updates to the base mapping, the Consultant is required to update the roadway modeling. This will affect the proposed vertical alignment at several locations, requiring a detailed review of the entire project area.
2. Alternative Development & Evaluation - During the course of the project it was determined that several more bridge replacement alternatives needed to be developed for the Baboosic Lake Road Overpass, Wire Road Overpass, and the Pennichuck Brook Bridge. - Alternatives are also needed for the new F.E. Everett bridge over Baboosic Brook and for the roadway geometry north and south of the Souhegan Bridge.
3. Cost Estimates - Additional cost estimating is required for the additional alternatives noted above, extension of the project limits to the north, Limited Reuse Soils, and a detailed comparison of the estimates.

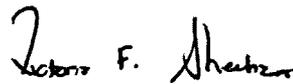
4. Environmental Documentation - It was originally assumed that the project study area would involve five acres of land outside of the ROW for stormwater BMPs. Based on current estimates an additional five acres will require review. Furthermore, it was anticipated that 12 noise barriers would be modeled and sited within the existing ROW. At this point, it is anticipated that there will be 20 noise barriers to model, 8 more than originally assumed, and requiring 17 acres additional land outside of the three originally defined improvement segments to be delineated. Therefor the total additional area of 22 acres (5 additional due to BMPs and 17 additional due to noise barriers) will require investigation for wetlands, hazardous materials, 4(f) resources, 6(f) resources, wildlife habitat and invasive species.
5. Cultural Resources (Architectural) - NHDHR requested a more thorough property-by-property assessment of the impacts that tree clearing associated with the proposed widening will have on individual properties; this includes creating detailed maps that show tree cutting and noise barrier installations in the ROW.
6. Cultural Resources (Archaeology) - Archaeological investigation is needed to follow up sampling that discovered five Pre-Contact sites requiring Phase IB testing at two sites and three Phase II sites. This work is required for the Environmental Assessment. Combined Phase IA and Phase IB investigations are needed for the additional BMP and noise barrier areas.
7. Agency Coordination - based on the environmental, Architectural and Archaeology additional work tasks noted above, as well as the development of additional bridge and highway alternatives, additional coordination with Natural Resource Agency and NH Division of Historical Resources will be required.
8. Environmental Impacts of Reasonable Range of Alternatives - Noise – The 8 additional noise barriers will require noise analysis of existing conditions.
9. Public Participation - After the project website was developed, the Department updated/clarified their Americans with Disabilities Act (ADA) website guidelines. The website will be updated accordingly.
10. Project Management - The original project schedule anticipated a Public Hearing date of July 2017. Currently a Public Hearing date of March of 2018 is targeted. This additional nine months will require additional effort related to project management and coordination.

The increase in fee as proposed is commensurate with the revised scope of work and the corresponding additional engineering and technical services to be furnished.

This amended Agreement has been approved by the Attorney General as to form and execution. The Department has verified that the necessary funds are available. Copies of the fully-executed amended Agreement are on file at the Secretary of State's Office and the Department of Administrative Services, and subsequent to Governor and Council approval will be on file at the Department of Transportation.

It is respectfully requested that authority be given to amend this Agreement for consulting services as outlined above.

Sincerely,



Victoria F. Sheehan
Commissioner



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



**VICTORIA F.
SHEEHAN**

WILLIAM CASS, P.E.
ASSISTANT COMMISSIONER

NASHUA-BEDFORD
13761 (Part A)

Fee Increase Amendment
(Agreement Dated January 21, 2016,
Contract No. 5000624)

Bureau of Highway Design
Room 200 (CMF)
Tel. (603) 271-2171
Fax: (603) 271-7025

November 27, 2017

Mr. William C. Ashford, P.E.
CHA Consulting, Inc.
11 King Court
Keene, NH 03110

Dear Mr. Ashford:

This letter amends the Table of Contents, Article I, and Article II in the above-referenced Agreement.

The Table of Contents is being amended to add Attachment A – Modifications to Part A Supplemental Scope of Work.

Portions of Article I are being amended by Attachment A.

Article II, Section A (General Fee) is being amended to increase the total amount payable under this Agreement by \$497,642.29 as payment for additional design services by CHA Consulting, Inc. and subconsultants McFarland-Johnson, Inc., Preservation Company, and Independent Archaeological Consulting, LLC for work associated with alternatives analysis, cost estimates, environmental resource identification, cultural resource investigations, hazardous materials investigation, and hydraulic reports.

The portion of Article II, Section A (General Fee) specifying the dates for the fee and manhour estimates is being amended to read as follows:

“The total amount to be paid under this AGREEMENT shall not exceed \$2,612,372.51, the sum of the amounts shown in Article II, Section B (which amount is based on the CONSULTANT’S fee and manhour estimates of August 7, 2015 and November 7, 2017),...”

Furthermore, this fee increase revises the amounts in Article II, Section B (Summary of Fees) as follows:

- Increases the estimated amount of (a) actual CONSULTANT’S salaries, costs applicable to actual salaries, salary burden (direct and indirect) and administrative costs attributable to overhead by \$256,608.04, from \$838,641.46 to \$1,095,249.50.
- Increases the amount of (b) fixed fee to cover profit and non-reimbursed costs by \$25,660.80, from \$83,864.15 to \$109,524.95.
- Does not change the estimated amount of (c) reimbursement for direct, out-of-pocket expenses, which remains at \$50,982.50.
- Increases the estimated amount of (d) reimbursement for actual cost of subconsultant McFarland-Johnson, Inc. by \$128,569.14, from \$851,922.15 to \$980,491.29.

- Increases the estimated amount of (d) reimbursement for actual cost of subconsultant Preservation Company by \$25,362.41, from \$19,350.23 to \$44,712.64.
- Increases the estimated amount of (d) reimbursement for actual cost of subconsultant Independent Archaeological Consulting, LLC by \$61,441.90, from \$50,697.66 to \$112,139.56.
- Does not change the estimated amount of (d) reimbursement for actual cost of subconsultant Applied Economic Research, which remains at \$54,426.38.
- Does not change the estimated amount of (d) reimbursement for actual cost of subconsultant RSG, Inc., which remains at \$147,643.19.
- Does not change the estimated amount of (d) reimbursement for actual cost of subconsultant Resilience Planning & Design, LLC, which remains at \$17,202.50.

Also, the first sentence in paragraph 1 of Article II, Section C (Limitation of Costs) is being amended to read as follows:

"Costs incurred against this AGREEMENT shall not exceed \$2,612,372.51, unless otherwise authorized."

The above additional work revises the total amount payable under this Agreement, which increases by \$497,642.29, from \$2,114,730.22 to \$2,612,372.51 by this amendment.

This amendment becomes effective upon approval by the Governor and Council.

Sincerely,



Wendy A. Johnson, P.E.
Project Manager

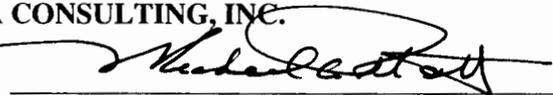


Approved:

Peter E. Stamnas, P.E.
Director of Project Development

We concur in the above Amendment.

CHA CONSULTING, INC.

By: 

Title: General Counsel - Exec VP

WAJ/wjh
Attachments

AGREEMENT AMENDMENT

NASHUA-BEDFORD, 13761 (PART A)

CHA CONSULTING, INC.

IN WITNESS WHEREOF the parties hereto have executed this amended AGREEMENT on the day and year first above written.

Consultant

WITNESS TO THE CONSULTANT

By: Nikki C. Dames

Nikki C. Dames, Vice President

Dated: November 27, 2017

CONSULTANT

By: [Signature]

General Counsel - EVP (Title)

Dated: November 27, 2017

Department of Transportation

WITNESS TO THE STATE OF NEW HAMPSHIRE

By: [Signature]

Dated: 12/1/17

THE STATE OF NEW HAMPSHIRE

By: [Signature]
Director of Project Development

FOR DOT COMMISSIONER

Dated: 12/1/17

Attorney General

This is to certify that the above-amended AGREEMENT has been reviewed by this office and is approved as to form and execution.

Dated: 12/15/17

By: [Signature]
Assistant Attorney General

Secretary of State

This is to certify that the GOVERNOR AND COUNCIL on _____ approved this amended AGREEMENT.

Dated: _____

Attest:

By: _____

Secretary of State

CERTIFICATE OF AUTHORITY/VOTE

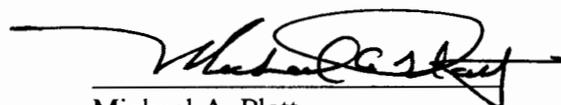
I, Michael A. Platt, Secretary of CHA Consulting, Inc., a corporation organized and existing under the laws of the State of New York, hereby certify that the following resolution was duly adopted by the Board of Directors of said corporation, at a meeting duly held on the 8th day of August, 2017.

RESOLVED, that each of the officers of the corporation named below individually is hereby authorized to negotiate, make, execute and approve on behalf of this corporation, and to bind the corporation with respect to, any and all contracts and other business transactions, and all amendments, statements, certifications and other documents required in connection with such contracts or transactions or otherwise related thereto, including that certain project for the preliminary design for the widening of approximately twelve (12) miles of the F.E. Everett Turnpike beginning north of Exit 8 (Somerset Parkway) in the City of Nashua and continuing northerly through Interstate 293/NH Route 101 interchange in the Town of Bedford, Project No. 13761 (Part A), the agreement dated January 21, 2016 (Contract No. 5000624) and any amendments thereto.

<u>Authorized Signatories</u>	<u>Title</u>
Michael D. Carroll	President and Chief Executive Officer
Dom M. Bernardo	Chief Financial Officer and Executive Vice President
Michael A. Platt	General Counsel and Executive Vice President
Richard M. Loewenstein, Jr.	Senior Vice President
Robert J. Faulkner	Vice President

AND I DO FURTHER CERTIFY that the resolution set forth above has not been in any way altered, amended, revoked, or repealed and is now in full force and effect.

IN WITNESS WHEREOF, I hereunto set my hand this 27th day of November, 2017.



Michael A. Platt
Secretary

State of New Hampshire

Department of State

CERTIFICATE

I, William M. Gardner, Secretary of State of the State of New Hampshire, do hereby certify that CHA CONSULTING, INC. is a New York Profit Corporation registered to transact business in New Hampshire on June 09, 2011. I further certify that all fees and documents required by the Secretary of State's office have been received and is in good standing as far as this office is concerned.

Business ID: 651702



IN TESTIMONY WHEREOF,

I hereto set my hand and cause to be affixed
the Seal of the State of New Hampshire,
this 28th day of November A.D. 2017.

A handwritten signature in black ink, appearing to read "William M. Gardner".

William M. Gardner
Secretary of State



CHAHOLDING

CMURPHY

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
07/26/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Ames & Gough 859 Willard Street Suite 320 Quincy, MA 02169	CONTACT NAME:	
	PHONE (A/C, No, Ext): (617) 328-6555	FAX (A/C, No): (617) 328-6888
	E-MAIL ADDRESS: boston@amesgough.com	
	INSURER(S) AFFORDING COVERAGE	
	INSURER A : National Fire Insurance Company of Hartford A(XV)	20478
	INSURER B : Liberty Mutual Fire Insurance Co, XV	23035
	INSURER C : Continental Insurance Company A(XV)	35289
	INSURER D : The First Liberty Insurance Corporation	33588
	INSURER E : New Hampshire Insurance Company	23841
	INSURER F :	

INSURED
CHA Consulting, Inc.
575 Broadway
Albany, NY 12207

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR	X		6014087067	08/01/2017	08/01/2018	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 500,000 MED EXP (Any one person) \$ 15,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:						
B	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY	X		AS2-Z11-260446-017	08/01/2017	08/01/2018	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
C	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 10,000			6014087053	08/01/2017	08/01/2018	EACH OCCURRENCE \$ 15,000,000 AGGREGATE \$ 15,000,000
D	<input checked="" type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		Y/N N/A	WC6-Z11-260446-027	08/01/2017	08/01/2018	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
E	<input checked="" type="checkbox"/> Professional Liab			002910563	08/01/2017	08/01/2018	Per Claim \$ 6,000,000
E				002910563	08/01/2017	08/01/2018	Aggregate \$ 10,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
If AI box is checked, GL Endorsement Form #CNA75079XX, Auto AI #CA20481013 to the extent provided therein applies and all coverages are in accordance with the policy terms and conditions.

Contract No. 13761 New Hampshire Department of Transportation shall be listed as additional insured with respect to general and auto liability where required by written contract. 30 day notice of cancellation is provided in accordance with policy terms and conditions. Professional Liability per claim Deductible: \$75,000.

CERTIFICATE HOLDER

CANCELLATION

New Hampshire Department of Transportation
Attn: Bureau of Highway Design
John O. Morton Building, 7 Hazen Drive
P.O. Box 483
Concord, NH 03302-0483

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

ATTACHMENT A

NASHUA-MERRIMACK-BEDFORD 13761

F.E. EVERETT TURNPIKE WIDENING

MODIFICATIONS TO: PART A SUPPLEMENTAL SCOPE OF WORK

October 9, 2017

AMENDMENT 1:

MODIFICATIONS TO PART A SUPPLEMENTAL SCOPE OF WORK

The following modifies or supplements the original Part A Supplemental Scope of Work dated August 7, 2015. The intention and purpose of the following is to clarify additional services to be provided by CONSULTANT during the preparation of the F.E. Everett (F.E.E.T.) Environmental Assessment (EA), the approach to completing the work, the final deliverables, and the anticipated schedule of work. Any sections, or subsections not specifically listed below are understood to be adequately defined in Part A or unchanged from the Part A Supplemental, both dated August 7, 2015.

A. LOCATION OF PROJECT

No modification to original supplemental scope associated with this Section

B. SCOPE OF WORK (GENERAL)

No modification to original supplemental scope associated with this Section

C. SCOPE OF WORK (SPECIFIC)

1. Preliminary Engineering

b. Base Plan Preparation

The original contract assumed minimal updates to the existing base mapping. The following outlines where extra effort is required to finalized the base mapping of the entire corridor, from the southern end of Segment 1 to the northern end of Segment 3.

- i. The original aerial survey (completed under a separate contract) was based on limits provided by the DEPARTMENT. Through the alternative development, it was determined that the coverage of the northern segment was insufficient and approximately 3200 LF of additional ground topography was required which subsequently needed to be incorporated into the overall base map. The DEPARTMENT provided updating survey / mapping in this area and the

CONSULTANT is required to perform a field review to determine if all features were picked up in the survey and an office review to determine if there are any issues with the updated section of the base mapping. Based on these reviews the CONSULTANT will prepare a survey request to clarify any issues.

- ii. The original level of effort for base plan preparation had assumed that the supplemental survey information provided by the DEPARTMENT would require minimal review and correction and also would be provided in a more continuous/complete manner. During the review of the originally provided base mapping, the DEPARTMENT supplemented the aerial survey with Rolling GPS survey for the roadway surface to update the base mapping. When the CONSULTANT receives the updated base mapping from the DEPARTMENT, several areas/features in the base mapping will need to be checked and reviewed to make sure that all features are fully defined. Additionally, the updated base mapping is to be provided in sections, as discussed with the CONSULTANT to allow continued work efforts on the project. These two issues require the CONSULTANT to undertake a detailed review of the base mapping on every occasion an update is provided; provide detailed updates to the DEPARTMENT on errors/omissions found in each base mapping update; and rework the roadway modeling based on new information. The CONSULTANT will perform six incremental updates to the base plan, work completed in this fashion is inefficient and requires additional effort.
- iii. Base mapping issues were discussed on 08/07/17 where it was determined there were a series of issues that led to some of the base mapping errors and a need for additional information. The biggest concern is that at some point it was realized that the survey was in two different units of measure, International Feet and US Survey Feet. The original Agreement with the CONSULTANT requires that the final deliverable to be produced be a recordable boundary survey plan, which requires US Survey Feet. The project was converted by DEPARTMENT staff into International feet through discussions with the CONSULTANT. This should not have occurred. As a result, the base plan needs to be converted back to US Survey Feet. This task was completed by the DEPARTMENT. This will require

the CONSULTANT to conduct a thorough review of all of the base mapping and provide the DEPARTMENT with a survey request related to any issues identified. Further, the CONSULTANT anticipates additional effort at a future date to resolve as of yet undetermined minor issues in file conversions and subsequent incorporation of new data. It is assumed that CONSULTANT will meet with DEPARTMENT and that four more updates to the base mapping will be needed.

e. Alternative Development & Evaluation

It should be noted that in the number of highway and bridge alternatives discussed below, the number of bridge and highway alternatives developed at any given locations are not necessarily the same. In some cases more bridge than highway alternatives were investigated, and vice versa.

i. Develop Reasonable Alternatives (Highway)

The original Part A Supplemental scope dated August 7, 2015 outlined the alternatives to be evaluated at each location/segment of the project. During development of the alternatives the CONSULTANT was directed to evaluate a number of scenarios in an effort to re-evaluate project costs and bring the project within budget restrictions. Additional highway design efforts required are noted below as related to evaluation of multiple alternatives and several incorporations of updated base mapping.

Highway

Several additional alternatives need to be developed at bridge crossing locations. These include several alternatives/iterations in the Pennichuck Brook area to evaluate TCP and environmental impacts as well as the Baboosic Brook crossing area where several profile alternatives as well as horizontal alternatives require evaluation. The Baboosic Lake Road and Wire Road overpasses also require development of additional alternatives.

Furthermore, due to numerous updates to the base mapping, the CONSULTANT will be required to update the roadway modeling on multiple occasions. In addition, this effects the proposed vertical alignment at several locations, a detailed review of the entire project area will be required, with several areas needing to be refined/adjusted based on updated survey/base mapping.

Overpass Bridge Replacement Alternatives – Roadway Approach

The CONSULTANT’s original assumptions was that the three alternatives (on-line replacement with temporary bridge, on-line replacement with bridge closure and off-line replacement) would be evaluated at both of the overpass bridges (Baboosic Lake Road and Wire Road). Based on initial review of the project site and during the original scoping of the projects, it was assumed that certain alternatives would not require evaluation as the environmental impact, ROW impact and/or high cost made them impractical compared to other feasible alternatives. At Wire Road, there are powerlines just to the south of the existing bridge as well as several residential properties adjacent to the south side of Wire Road, therefore relocation to the south was not considered feasible in the original scope. At Baboosic Lake Road there are power lines to the north of the bridge and an American Legion in the northeast quadrant, therefore relocation to the north was not considered feasible in the original scope. The DEPARTMENT requested review/development of multiple alternatives at each bridge (Baboosic Lake Road - 13 alternatives / Wire Road - 14 alternatives)

Baboosic Lake Rd	Wire Road
<u>Single Span</u>	<u>Single Span</u>
Alt 1 - Bridge Closure/Detour*	Alt 1 - Bridge Closure/Detour*
Alt 2 - Phased Construction in place	Alt 2 - Phased Construction
Alt 3 - Temp. Bridge North	Alt 3 - Temp. Bridge North*
Alt 4 - New Bridge North	Alt 4 - New Bridge North*
Alt 5 - Temp Bridge South*	Alt 5 - Temp Bridge South
Alt 6 - New Bridge South*	Alt 6 - New Bridge South
Alt 7 - Prowse Bridge Reuse	Alt 7 - Phased Construction North
<u>Double span</u>	<u>Double span</u>
Alt 1 - Bridge Closure/Detour**	Alt 1 Bridge Closure/Detour**
Alt 2 - Phased Construction	Alt 2 Phased Construction
Alt 3 - Temp. Bridge North	Alt 3 - Temp. Bridge North
Alt 4 - New Bridge North	Alt 4 - New Bridge North
Alt 5 - Temp Bridge South	Alt 5 - Temp Bridge South
Alt 6 - New Bridge South	Alt 6 - New Bridge South
	Alt 7 - Phased Construction North

*These alternatives were included in the original scope, they are listed here for clarity but are not considered part of the effort detailed in the EWA.

**No effort associated with this option as it was eliminated as a choice for the single span. Only listed for completeness/consistency as it was discussed in meetings.

Changing from single span to double span requires changes bridge deck elevation and thus roadway approach elevations. For both of these overpass roads, due to the close proximity of abutters/structures, evaluation of slope limits is required for each option.

Furthermore, during project initiation the DEPARTMENT gave clear guidance that all alternatives for overpasses were to be based on the abutments being outside of the F.E. Everett clear zone. As the project progressed the DEPARTMENT requested to see multiple options, with the final guidance to move the abutments into the clear zone to shorten bridge spans and reduce beam height and subsequent side road elevation. This final guidance will require developing additional side road layouts as well re-evaluation of the F.E. Everett layout under the overpass bridges.

Northern Segment

- The DEPARTMENT requested a review of extending the project limits to the north. In order to facilitate a review of this extension, a top-down layout with a typical section needs to be modeled to facilitate cost estimates and to evaluate impacts.

Middle Segment

- Baboosic Brook Area (just north of Wire Road overpass) - Based on review of hydraulics/100 year flood elevation in this area it was determined that the existing culvert needed to be replaced by a bridge and that the existing roadway would be over topped by the 100 year flood. Based on these findings, multiple alternatives require investigation. The alignment of this section of road is on a tangent and the original level of effort in developing an alternative was considered minimal (online/on grade) as it was anticipated that expansion of the highway in this area would simply be widening to the outside and not be a re-alignment of the road. To address potential flooding/bridge replacement five alternatives, in addition to the anticipated online/on grade widening alternative, require investigation, including an off-line alignment and multiple grade changes to evaluate cost impacts. Additional alternatives include:
 - 16 ' shift west of F.E.E.T. at Baboosic Brook (approximately 1 mile of Mainline)
 - Develop multiple profiles for an elevational increase of F.E.E.T. over Baboosic Brook to quantify potential cost implications: Elevation changes to be evaluated include:
 - 1 foot
 - 2 foot
 - 3 foot
 - 4.25 foot

Additionally, once the hydraulic analysis in this area has been completed, it is anticipated that an additional final alternative will be needed.

- Alternatives to the F.E.E.T. geometry at the Souhegan Bridge (curves to the north and south of the bridge total 1950 feet) area also need to be evaluated due to the F.E.E.T.'s non-standard geometry and superelevation through this area. Because this bridge was constructed as a recent project, it was assumed that the roadway approaches were constructed to current design standards, and minimal effort would be needed to widen the approaches.

Southern Segment

- Pennichuck Brook Bridge Alternatives - 2 bridge alternatives with 8 approach roadway alternatives need to be developed for the F.E.E.T. over the Pennichuck Brook. The eight corresponding highway alternatives, noted below, addressing on-line and off-line alternatives as well as review of multiple TCP options are more than originally anticipated.
1. Alternative 1 - 14' roadway shift - 3 phase construction (2600+/- feet of mainline).
 - a. A-1: 14' roadway shift with 2:1 side slopes.
 - b. A-2: 14' roadway shift with 1.5:1 side slopes.
 - c. 1A-3: 14' roadway shift with retaining wall side slopes.
 - d. 1B- 14' roadway shift with net-zero impacts.
 2. Alternative 2: 14' roadway shift - 2 phase construction. (2600+/- feet of mainline, but in original scope – no EWA effort)
 3. Alternative 3 - Maintain F.E.E.T. Center Line - 3 phase construction
 - a. 3A: Maintain F.E.E.T. CL with 2:1 side slopes.
 - b. 3B: Maintain F.E.E.T. CL with 1.5:1 side slopes.
 - c. 3C: Maintain F.E.E.T. CL with retaining wall side slopes.
 - d. 3D: Maintain F.E.E.T. CL with net-zero impacts.
 4. Alternative 4: Maintain F.E.E.T. CL with 2 phase construction (in original scope – no EWA effort)
 5. Alternative 5: Existing bridge rehabilitation and widening.
 6. Alternative 6: Accelerated bridge construction (ABC). (in original scope – no EWA effort).
 7. Alternative 7: Bridge replacement with approach causeways removed.
 8. Alternative 8: 19' roadway shift with 2:1 side slopes (2600+/- feet of mainline).

Meetings & Site Reviews: It is anticipated that due to the additional duration of the project and the increased alternatives, additional meetings with the DEPARTMENT will be required. Additional meetings will include two CONSULTANT highway staff members meeting with the DEPARTMENT staff (6 additional meetings assumed) to discuss the project developments throughout the course of the project.

ii. Cost Estimates

Highway

The DEPARTMENT has requested that cost estimates be required for all preliminary alternatives, especially at F.E.E.T. over the Pennichuck and over pass bridges (Baboosic Lake Road and Wire Road). At each of these bridges numerous alternatives need to be evaluated, increasing the effort associated with cost estimates for these additional alternatives.

Evaluation of extension of the project limits to the north is required, including cost estimates to determine the overall financial impact of the extension. These estimates were not considered in the original scope of work.

Through the entire project area (Northern, Middle and Southern Segments and gaps areas), the DEPARTMENT requested that the CONSULTANT calculate the volume of Limited Reuse Soils for any disturbed areas (including noise barriers and BMPs) and make a determination of its re-use/placement with the existing ROW. This work was not considered part of the original scope.

During the course of the project the CONSULTANT was informed that in the Southern Segment, from Exit 8 to Exit 10, asbestos could have been incorporated into the fill used in this area. Therefore when estimating the work in this area, the CONSULTANT will need to quantify any material that is excavated for drainage, in cut areas and benching needed for fill areas. This level of estimating was not considered in the original scope of work.

The DEPARTMENT evaluated the current overall project cost estimate (2017) in comparison to previous cost estimates (2001 and 2010). As the current estimate is significantly higher than the

2001 and 2010 estimates, the DEPARTMENT has requested that the CONSULTANT do a detailed comparison between the three estimates (2001, 2010 and 2017). This detailed comparison of cost estimates was not included in the original scope of work.

Bridge

Additional effort is required due to the development of multiple bridge replacement alternatives at the Pennichuck Brook Bridges, the Wire Road and Baboosic Lake Road Bridges, and the Baboosic Brook Bridge. See above for listing of alternatives at these structures. Many alternatives were evaluated at each bridge location, resulting in additional cost estimates for each structure. It is estimated that some refinement of the current estimates will be required before the project is complete.

iii. Bridges / Structures Alternatives

Bridges/Structures Evaluation Report

Additional effort will be required which was not anticipated in the original Scope of Work. A summary of the additional effort required for the affected structures is summarized below:

1) Bridge 106/042 & 107/042 F.E.E.T. over Pennichuck Brook

Additional effort is required due to the development of multiple bridge replacement alternatives. The anticipated alternatives are listed above under the section labeled “Southern Segment, Pennichuck Brook Bridge Alternatives.” Each requires analysis for the NHDOT Resource Agency Meetings and the project design team.

2) Bridge 107/131 Baboosic Lake Road Over the F.E.E.T.

Additional effort is required due to the development of multiple bridge replacement alternatives. The bridge variations are summarized in Section i “Develop Reasonable Alternatives (Highway)” under “Overpass Bridge Replacement Alternatives – Roadway Approach.” Furthermore, the DEPARTMENT’s original directive was that the abutments be placed outside of the clear-zone, but in order to contain project costs the DEPARTMENT has requested that alternatives with abutments in the clear zone be evaluated. Two additional bridge alternatives with abutments located within the clear-zone require development (with associated sketches and cost estimates) for presentation

at the NHDOT Front Office Meetings. A summary of the anticipated additional bridge alternatives include:

1. Two-span bridge with full height reinforced concrete abutments within the clear zone.
2. Two-span bridge with full height MSE abutments within the clear zone.

3) Bridge 114/140 Wire Road Over the F.E.E.T.

Additional effort is required due to the development of multiple bridge replacement alternatives. The bridge variations are summarized in Section i “Develop Reasonable Alternatives (Highway)” under “Overpass Bridge Replacement Alternatives – Roadway Approach.” Furthermore, the DEPARTMENT’s original directive was that the abutments be placed outside of the clear-zone, but in order to contain project costs the DEPARTMENT has requested that alternatives with abutments in the clear zone be evaluated. Two additional bridge alternatives with abutments located within the clear-zone require development (with associated sketches and cost estimates) for presentation at the NHDOT Front Office Meetings. A summary of the anticipated additional bridge alternatives include:

1. Two-span bridge with full height reinforced concrete abutments within the clear zone.
2. Two-span bridge with full height MSE abutments within the clear zone.

4) Bridge 116/140 F.E.E.T. over Baboosic Brook.

Additional effort is required for the development of a preferred alternative due to the number of alternatives that were developed as a result of reconciling the hydraulic analysis of Baboosic Brook. Both the existing FEMA mapping and an independent Engineering Study Report (ESR) of the Baboosic Brook prepared in 2014 for the Town of Merrimack by Quantum Construction Consultants (QCC) indicated that during 100-year flood events, the existing F.E.E.T. would be overtopped. Because of this overtopping, it became apparent that replacement of the existing box culvert structure would be required as opposed to lengthening it as was assumed in the original scope of work. Additional effort is required to develop alternatives which evaluate a new culvert or bridge in this location (including an alternative on a new stream alignment), and to present these alternatives at two Natural Resource Agency meetings. Eight alternatives require development for presentation at two Natural Resource Agency meetings in order

to determine a preferred alternative. These alternatives include three different bridge options, based on the preliminary hydraulic analysis and the need to minimize profile changes, if possible. Evaluation of different options is necessary in order to determine the most cost-effective and reasonable solution that minimizes environmental impacts. A summary of the alternatives anticipated is provided below:

1. Alternative 1: Existing culvert extension. (within original scope – no EWA effort)
2. Alternative 2: O-Series culvert replacement (within original scope – no EWA effort)
3. Alternative 3: Multi-Cell rigid frame culvert replacement (within original scope – no EWA effort)
4. Alternative 4A: 90' bridge span with full height abutments
5. Alternative 4B: 90' bridge span with sloping embankment
6. Alternative 5A: 60' bridge span with full height abutments
7. Alternative 5B: 60' bridge span with sloping embankment
8. Alternative 6: 66' bridge span with full height abutment

Additional effort is required for the development of the Final Hydraulic Report. The original scope required only the development of the Preliminary Hydraulic Report. However, due to the results of the alternatives analysis which indicate a new bridge with a corresponding increase in the profile elevation of the F.E.E.T. is required, the development of the Final Hydraulic Report is required to accurately determine the required profile increase of the F.E.E.T.

The Final Hydraulic Report will be prepared in accordance with the NHDOT Bridge Design Manual (Section 2.7) and the FEMA requirements for a LOMR/CLOMR. The report will be based on the hydraulic analysis performed for the 2014 Engineering Study Report prepared by QCC and the preliminary effort performed for the development of the preferred alternative, the following is assumed in the development of the Final Hydraulic Report:

- The HEC-RAS model developed for the 2014 ESR by QCC will be used as a basis for the CONSULTANT to prepare the final Hydraulic Report. The lower reach of Baboosic Brook from the first FEMA lettered cross section above the Bedford Road Bridge to the confluence with the Souhegan River in the existing HEC-RAS model will be reviewed

and revised as required. The analysis limits of Baboosic Brook will include the entire reach required for any future CLOMR or LOMR, including the bridges owned by the Town of Merrimack.

- The Final Hydraulic Report and analysis will be completed for the future condition assuming replacement of the existing downstream structure carrying US Route 3 over Baboosic Brook. The assumed hydraulic opening and grading of the US Route 3 Structure will be as recommended in the ESR. The final hydraulic analysis and corresponding report will be developed using the HEC-RAS software compatible with FEMA requirements (Version 5.0.3).
- A Field reconnaissance and review of the hydraulic reach will be performed for the development of the Final Hydraulic Report.
- The CONSULTANT will review the hydrologic data in the 2014 ESR. The FEMA hydrologic data will be used as the design flows for the final Hydraulic Report and for a future CLOMR or LOMR. The FEMA flows will be used to determine the freeboard criteria of the proposed structure. The two other hydrologic methods used in the 2014 QCC ESR will be reviewed, and the proposed structure will be checked to ensure the flows can pass at least 1' below the proposed low chord. No additional hydrologic methods will be evaluated.
- A scour analysis for the proposed F.E.E.T. bridge will be performed for the preferred alternative only.
- Any additional survey that is required to complete the Hydraulic Report will be provided by the DEPARTMENT.

Meetings & Site Reviews: It is anticipated that due to the additional duration of the project and the increased alternatives, additional meetings with the DEPARTMENT will be required. Additional meetings will include two CONSULTANT bridge staff members meeting with the DEPARTMENT staff (6 additional meetings assumed) to discuss the project developments throughout the course of the project.

i. Project Team Meetings

It is anticipated that due to the additional duration of the project, additional Project Team Meetings with the DEPARTMENT will be required. Additional meetings will include four

CONSULTANT staff members will meet with the DEPARTMENT staff (6 additional meetings assumed) to discuss the project developments throughout the course of the project. The intent of these meetings is to review project status, general design discussions, and issues with stakeholders that are not directly involved with the alternative developments.

2. Environmental Documentation

It was originally assumed that the project study area would involve an additional five acres of land outside of the ROW for stormwater BMPs. Furthermore, it was anticipated that 12 noise barriers would be modeled and sited within the existing ROW. Based on current estimates there will be 7 acres of land needed for BMPs outside of the existing ROW, or 2 acres more than originally assumed. Since proposed BMP locations may still change and additional land may be affected, it is assumed that review of three additional acres may be require review, making a total of 5 additional acres that were not in the original scope will require review. At this point, it is anticipated that there will be 20 noise barriers to model, 8 more than originally assumed. The noise barriers in the gap sections will require additional resource identification and impact assessment. Based on the noise analysis done to date, there will be approximately 7,500 linear feet of noise barriers that extend beyond the original delineation area (the widening segments) in the gap segments. Assuming the ROW width to delineate is 100 feet wide, there will be approximately 17 acres (7,500 feet times 100 feet) of additional land within the ROW to be delineated. Therefor the total additional area to be delineated is approximately 22 acres (5 additional due to BMPs and 17 additional due to noise barriers). The following tasks will therefore require additional effort:

a. Data Collection

i. Water-Based Resources

d) Wetlands:

Wetlands will be delineated within the additional BMP and noise barrier areas as noted above. Appropriate data will be collected during the delineation to document methods and evaluate functions and impacts.

ii. Land-Based Resources

For BMP and noise barrier areas in the gap sections as indicated above, the CONSULTANT will confirm that the following resources are identified:

- c) Public and Conserved Lands: Publicly owned lands, bicycle and pedestrian trails, and privately conserved lands will be identified.
- d) Section 4(f) Resources: Parks, historic sites, or other areas subject to Section 4(f) will be identified.
- e) Section 6(f) Resources: Lands receiving Section 6(f) funds will be identified based on coordination with the NH Department of Resources and Economic Development.

iii. Wildlife

Wildlife resources will be investigated where BMPs or noise walls are proposed in previously widened turnpike segments as indicated above.

- a) Wildlife and Habitat: Wildlife resources will be identified with information from the NH Wildlife Action Plan and supplemented as needed by field reconnaissance.
- c) Threatened and Endangered Species: The original database reviews and requests targeted the widening segments and did not include the previously widened segments where additional noise barriers may be located. The CONSULTANT will coordinate with the NH Department of Natural and Cultural Resources, NH Fish and Game Department, and the US Fish and Wildlife Service to ensure the rare species records cover the entire project footprint. Existing habitat types in the additional impact areas (BMPs and noise barriers in the gap segments as indicated above) will be noted during the additional wetland delineation field investigations. The habitat types will be reviewed for suitability for rare species, but no rare species surveys are proposed.

iv. Cultural Resources (Architectural)

Based on conversations held at a joint agencies meeting at NHDOT on March 9, 2017 in which the responses to the RPR for the original project limits were received, NHDHR requested a more thorough property-by-property assessment of the impacts that tree clearing associated with the

proposed widening will have on individual properties. The original scope of work and associated level of effort was based on a corridor wide assessment which has been typical of the level of effort on previous projects. Therefore, more detailed assessments and review will be required than originally assumed and include creating detailed maps that show tree cutting and noise barrier installation in the ROW. The areas potentially affected by the storm water drainage will also be evaluated. Where these activities are adjacent to parcels with potential historic resources, the CONSULTANT will conduct additional fieldwork to determine the exact nature of these impacts on the resources. If there is potential for an effect to any historic resources, then they would need to be surveyed according to NHDHR guidelines. This additional survey effort assumes documentation of one small neighborhood historic district and ten individual historic resources.

Assumptions:

The effort assumes attendance of three people (one each from MJ, CHA, and architectural historian) at two additional meetings at NHDOT or NHDHR.

v. Cultural Resources (Archaeology)

Additional archaeological investigation is needed to follow up on five sites that were previously found to be sensitive as well as BMP and noise barrier areas in the gap segments as indicated above.

- 1) As a result of Phase IB sampling within the original scope of 150 shovel test pits, the CONSULTANT discovered five Pre-Contact sites and recommended additional Phase IB testing at two sites, and three Phase II Determinations of Eligibility (DOEs) at the remaining sites. For the two Phase IB sites, the CONSULTANT proposes to excavate brackets at 2-m intervals around the single positive shovel test pits to see if they can recover additional artifacts or evidence of cultural features. If more artifacts are found, the CONSULTANT proposes a second set of brackets for a total excavation of as many as eight shovel test pits (STPs). They will follow the bracketing with the excavation of a 1 m x 1 m test unit in the location of the greatest yield of artifacts. If the eight bracketing

- shovel test pits do not yield additional artifacts, the CONSULTANT will excavate the 1 m x 1 m test unit at the site of the original positive STP.
- 2) The Narrow Ridge site is, as its name implies, a narrow landform only partly within the APE; a portion of the site extends west within the ROW, but as this area is not proposed for impact, no Phase II testing is proposed here. On the narrow landform, the CONSULTANT proposes the excavation of eight STPs – brackets of four at 2-m intervals at each of the two positive STPs. The bracketing will be followed by the excavation of two 1-x-1s at the location of the greatest yield of artifacts. Total Phase II coverage is 4 sq. meters.
 - 3) At the Naticook Brook I site, a Phase II DOE will entail bracketing at 2 m intervals around positive test holes, as well as the filling in of a 4-m grid between positive test holes, with the expectation of requiring 42 shovel test pits to delineate site boundaries and identify the intra-site spatial relation between features and artifacts. The CONSULTANT will set up a transit and establish a Cartesian grid with coordinates at the Naticook Brook I site to control for horizontal distribution of materials. Following the excavation of STPs, the CONSULTANT will excavate four 1-m-x-1-m test units in the location of features (e. g., the thermal feature in T17-2W) and/or within the area of greatest artifact yield. The proposed Phase II field effort at the Naticook Brook I site is 14.5 sq. meters.
 - 4) The Naticook Brook II site is constrained to the west margin of both the ROW and APE, and the site has been presently identified along the eastern terrace edge. The CONSULTANT proposes the excavation of 24 STPs on the terrace and downslope on the eastern side of the terrace to confirm site boundaries. The CONSULTANT will excavate two 1-x-1s at the location of positive STPs, or where the Phase II STPs indicate high(er) artifact yield or the presence of features.
 - 5) For the three Phase II DOEs, the CONSULTANT will prepare research questions related to Pre-Contact culture history, from the Paleoindian period to the Woodland. The CONSULTANT will conduct additional background research, particularly of the two Thornton Ferry sites within 100 m of the Cinemagic Isolated Find. Prior to fieldwork, the CONSULTANT will flag for DigSafe, then map existing sites and lay out the follow-up testing. Because of the more extensive boundaries of the Naticook Brook I site, they

will use a Total Station transit to set up a Cartesian grid to control for the horizontal distribution of artifacts and features.

- 6) The CONSULTANT will catalogue, measure and analyze all Pre-Contact materials. One charcoal sample will be submitted for radiocarbon dating; one thermal feature is already known at the Naticook Brook I site, and if another feature is exposed at any of the other sites, the sample with the best (least disturbed) context will be chosen.
- 7) Areas for additional archaeological investigation include additional BMP and noise barrier areas. To accommodate further changes in BMP locations, up to 5 additional acres of BMP locations will be delineated. For noise barriers that are proposed outside the original delineation area, up to 7,500 linear feet long by 100 feet wide (approximately 17 acres) of land within the ROW will be delineated. Appropriate archaeological survey will be conducted to evaluate the sensitivity of new BMP and noise barrier locations, and within archaeological sensitivity areas, Phase IB investigations will be undertaken, as described below.
- 8) The CONSULTANT will undertake a combined Phase IA archaeological sensitivity assessment and a Phase IB intensive archaeological investigation of areas identified as sensitive along this stretch of highway. The Phase IA assessment will consist of background research (a site file search to confirm the presence or absence of known sites in the project area; review of soil types in the project area; cartographic analysis of 18th-, 19th- and 20th-century maps to reconstruct historic land-use) and an inspection of the project area with limited subsurface testing of the project area.
- 9) Following the IA assessment, the CONSULTANT will conduct Phase IB excavation of areas designated as sensitive for either Pre-Contact or Post-Contact archaeological resources. For the purposes of this proposal, it is assumed that slightly more than half of the additional survey area (a total of 22 acres, of which 5 acres are for BMPs and 17 acres for noise barriers) is sensitive for Pre-Contact archaeological resources, owing to the area's proximity to the Merrimack River. We anticipate the Phase IB effort will require 30 shovel test pits for the 22 additional acres. Shovel test pits will be hand excavated by natural and cultural layers (i.e., "strata") with all soils passed through ¼-inch mesh for the collection of artifacts. The CONSULTANT will catalogue, measure and analyze all

Pre-Contact artifacts and materials. One radiocarbon date is assumed in the event a Pre-Contact feature with organic materials is encountered.

- 10) The deliverable will be a report with findings from the Phase IA-IB assessment and investigation, and these results will be included in the report on the other archaeological findings from the overall project.

ix. Invasive Species:

The CONSULTANT will determine the presence of invasive species in conjunction with other project field investigations. General locations and types will be identified during wetland delineation field work within the additional BMP and noise barrier area, but no detailed mapping will be provided.

x. Hazardous Materials:

Through the entire project area, the DEPARTMENT requested that the CONSULTANT calculate the volume of Limited Reuse Soils for any disturbed areas (including noise barriers and BMPs). See the cost estimate section of this EWA for scope and estimate of effort related to this task.

In the Southern Segment, from Exit 8 to Exit 10, it has been noted that asbestos could have been used in the fill for the original bridge project and excavation estimates will need to quantify this material. See the cost estimate section of this EWA for scope and estimate of effort related to this task.

The original scope stated that the CONSULTANT will identify properties within the three project segment areas and within 1,000 feet of the project limits that could represent a potential to contain or be a source of hazardous wastes or contaminated materials. With additional noise barriers outside of the three originally defined segments, the CONSULTANT will need to review the proposed noise barrier locations and perform the screening outlined in the original Part A Supplemental in areas not covered by the previously performed screening.

b. Agency Coordination

Agency meetings have involved presentation of more alternatives in more detail than originally assumed. The result is that each meeting has required more preparation time and more consultant staff attendance than originally assumed. In addition to those meetings included in the original scope of work, the CONSULTANT will attend two additional DEPARTMENT monthly Natural Resource Agency meetings to review resource impacts. The CONSULTANT will also attend two additional DEPARTMENT meetings with the NH Division of Historical Resources to discuss scope and findings.

d. Alternatives Development and Evaluation

The effort associated with the evaluation of additional bridge alternatives is included below in Section f, Environmental Impacts of Reasonable Range of Alternatives

f. Environmental Impacts of Reasonable Range of Alternatives

As noted under section b. above additional project area related to BMPs and noise barriers requires additional effort. Additional alternatives at Pennichuck and Baboosic Brooks also required additional effort. Task requiring additional effort are noted below.

v. Noise: For the noise abatement analysis, the original scope of work called for modeling 12 noise barriers. Based on the noise analysis of existing conditions, there are 20 areas requiring barrier modeling and analysis, 8 more than originally assumed. As in the original scope of work, the CONSULTANT will analyze the dimensional, acoustical and cost effectiveness of the abatement measures and determine which measures are feasible and reasonable and which are not. TNM will be used to determine noise barrier heights and lengths. All evaluations will be consistent with the 2011 NHDOT Noise Policy. If noise abatement measures are required, these would be designed during a later project phase. The Noise Study Report (included in the previous scope of work) will incorporate these additional evaluations and findings.

vii. Surface Water Resources: The Pennichuck Brook and Baboosic Brook crossings required substantially more environmental impact analysis than originally assumed. At

Pennichuck Brook, the anticipated alternatives are listed above under the section labeled “Southern Segment, Pennichuck Brook Bridge Alternatives.” For Baboosic Brook, the new alternatives that require study are listed under Section iii, Bridge/Structures Alternatives, Part 4. Each additional alternative requires design sufficient to determine resource impacts, cost estimates, and constructability assessments (construction duration, traffic control and phasing), all of which are addressed in the bridge design scope.

Each additional Pennichuck and Baboosic Brook alternative also includes the following environmental analysis:

- quantifying impacts to resource areas (wetlands, waterways, banks, floodplains);
- determining the ability to meet stream crossing requirements (bankfull width and wildlife accommodation);
- consideration of other impacts, such as vegetated slopes, existing BMPs, water supply intakes, or long-term maintenance requirements;
- calculation of mitigation costs using square footage of impacts and NHDES cost calculator spreadsheet; and
- preparation of presentation plans for resource agency meetings.

All of these tasks are included in this environmental scope and cost estimate.

3. Public Participation

The only change to this task is to make the project compliant with the recently released Americans with Disabilities Act (ADA) website guidelines.

d. Project Website

The project website content outline was reviewed with the DEPARTMENT and the website was developed. Subsequent to this the DEPARTMENT updated/clarified their ADA Standards for website development. The CONSULTANT will update the project website as described in the original scope of work to be ADA-compliant. At the request of the DEPARTMENT, the CONSULTANT has completed the first of a two-part revision process of the FEET website. The first phase consisted of revisions to meet the basic requirements outlined in the ADA guidance for websites. The NH state agencies must adhere to the Web Content Accessibility Guidelines

(WCAG) 2.0 AA standard. The second phase entails converting the FEET website into a fully-compliant ADA website based upon a NHDOT issued website template. This template was issued by NHDOT in early summer of 2017. It is expected the template will require a redesign of portions of the website and revisions to the format of most materials already posted on the website. This will be a one-time effort. Future postings will be developed and uploaded with ADA-compliant formats.

E. WORK SCHEDULE AND PROGRESS REPORTS

During the course of the project based on the DEPARTMENT's review of construction costs and the need to work out base mapping issues the time frame for the preliminary design and environmental documentation will be extended, resulting in an approximate delay in the Public Hearing date from July 2017 to March of 2018. This additional nine months will cause additional effort related to project management and coordination.

1. Project Administration

- c. An additional nine months of coordination of sub-consultants will be required to handle contractual issues, invoicing and general coordination that falls outside of technical interaction.
- d. An additional nine months of coordination of progress reporting and invoicing.

2. Schedule and Project Management

- b. An additional nine months of updates to the project schedule are anticipated.
- d. An additional nine months of coordinate with all team members to update the progress report on a monthly basis is anticipated.
- e. An additional nine months of internal project management meetings, generally on a bi-weekly basis, to facilitate communication between all team members and to ensure progress on forthcoming deliverables and critical issues is anticipated.
- f. An additional nine Project Manager Meetings is anticipated. The CONSULTANT will prepare for, attend and document the monthly Project Manager meetings to discuss major project tasks, upcoming deliverables and critical issues. The

following breakdown of CONSULTANT attendees is assumed for these additional meetings:

- i. CHA – 9 meetings, average of two staff per meeting
- ii. McFarland Johnson – 9 meetings, average of two staff per meeting

G. DATE OF COMPLETION

The current completion date is August 31, 2019. No extension of that date is requested at this time.



**THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION**



**VICTORIA F. SHEEHAN
COMMISSIONER**

**WILLIAM CASS, P.E.
ASSISTANT COMMISSIONER**

Bureau of Highway Design
February 1, 2016

Her Excellency, Governor Margaret Wood Hassan
and the Honorable Council
State House
Concord, New Hampshire 03301

REQUESTED ACTION

Authorize the Department of Transportation to enter into an Agreement with the firm of CHA Consulting, Inc., Keene, NH, Vendor #175302, for an amount not to exceed \$2,114,730.22 for preliminary design engineering services to widen approximately twelve miles of the F. E. Everett Turnpike from Nashua to Bedford, effective upon Governor and Council approval, through March 31, 2019. 100% Turnpike Funds.

Funds to support this request are available in the following account in State FY 2016 and FY 2017 and are anticipated to be available in State FY2018 and 2019 based upon the availability and continued appropriation of funds in the future operating budget, with the ability to adjust encumbrances between State Fiscal Years through the Budget Office, if needed and justified:

	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY2018</u>	<u>FY2019</u>
04-96-96-961017-7507 Central NH Turnpike 046-500463 Eng Consultants Non-Benefits	\$282,000.00	\$846,000.00	\$846,000.00	\$140,730.22

EXPLANATION

The Department requires professional engineering, environmental, and public outreach consultant services to widen approximately twelve (12) miles of the F. E. Everett Turnpike beginning north of Exit 8 (Somerset Pkwy) in the City of Nashua and continuing northerly through Interstate 293/NH Rte.101 interchange in the Town of Bedford. The F.E. Everett Turnpike is the principal arterial linking Manchester and Nashua and as such serves a vital role in the economy of this region and the state. The goals of the Part A preliminary design phase of this project are to select a preferred alternative that is technically feasible, environmentally permissible, and economical; develop an approved Environmental Assessment; and bring the preferred alternative to a Special Committee Public Hearing for layout approval. Assuming a successful Public Hearing, the Department reserves the right to either negotiate a fee for the Part B final design services or terminate the contract. This project is currently included in the State's Ten-Year Transportation Improvement Plan (Nashua-Bedford 13761).

The consultant selection process employed by the Department for this qualifications-based contract is in accordance with RSAs 21-I:22, 21-I:22-c and 21-I:22-d, all applicable Federal laws and the Department's "Consultant Selection and Service Agreement Procedures" dated December 1999. The Department's Consultant Selection Committee is a standing committee that meets regularly to administer the process and make determinations. The Committee is comprised of the Assistant Director of Project Development (Chair), the Chief Project Manager, the Administrators of the Bureaus of Highway Design, Bridge Design, Environment, and Materials and Research, and the Municipal Highways Engineer.

The consultant selection process for this qualifications-based contract was initiated by a solicitation for consultant services for a Nashua-Merrimack-Bedford 13761 F.E. Everett Turnpike widening preliminary design contract. The assignment was listed as a "Possible Action Project" on the Department's website on March 17, 2014 asking for letters of interest from qualified firms. From the list of firms that submitted letters of interest, the Committee prepared a long and then short list of Consultants on May 8, 2014 for consideration and approval by the Assistant Commissioner. Upon receipt of that approval, three shortlisted firms were notified on June 2, 2014 through a

technical "Request for Proposal" (RFP). Committee members individually rated the firms on August 14, 2014 using a written ballot to score each firm on the basis of comprehension of the assignment, clarity of the proposal, capacity to perform in a timely manner, quality and experience of the project manager and the team, previous performance, and overall suitability for the assignment. (A compilation of the completed individual rating ballots and the ranking summary form is attached.) The individual rankings were then totaled to provide an overall ranking of the three firms, and the Committee's ranking was submitted to the Assistant Commissioner for consideration and approval. Upon receipt of that approval, the short listed firms were notified of the results and the highest-ranking firm was asked to submit a fee proposal for negotiations.

The long list of five consultant firms that were considered for this assignment, with the three short-listed firms shown in bold, is as follows:

<u>Consultant Firm</u>	<u>Office Location</u>
AECOM	Manchester, NH
The Louis Berger Group, Inc.	Manchester, NH
CHA Consulting, Inc.	Keene, NH
CLD Consulting Engineers	Manchester, NH
Fay, Spofford & Thorndike, LLC	Bedford, NH

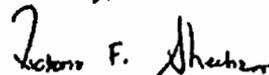
The firm of CHA Consulting, Inc. was recommended for this contract. This firm has an excellent reputation and has demonstrated their capability to perform the required services in previous similar contracts with the Department. Background information on this firm is attached.

CHA Consulting, Inc. has agreed to furnish the professional engineering services for an amount not to exceed \$2,114,730.22.

This Agreement (Nashua-Bedford 13761) has been approved by the Attorney General as to form and execution. The Department has verified that the necessary funds are available. Copies of the fully-executed Agreement are on file at the Secretary of State's Office and the Department of Administrative Services, and subsequent to Governor and Council approval will be on file at the Department of Transportation.

It is respectfully requested that authority be given to enter into an Agreement for consulting services as outlined above.

Sincerely,



Victoria F. Sheehan
Commissioner

Attachments