



TOWN OF NATICK MASSACHUSETTS

TO: Natick Select Board
Melissa Malone, Town Administrator
James Errickson Deputy Town Administrator - Operations
James Freas, Director, Natick Community Development
Marianne Iarossi, Open Space Planner and Conservation Agent

FROM: Bryan R. Le Blanc, Procurement Officer

DATE: November 12, 2020

SUBJECT: CONTRACT AWARD
Charles River Environmental Engineering Services

Informal, non-written pricing by DPW reveals that Weston & Sampson Engineers, Inc. is the ideally competitive firm to perform environmental engineering services during the Charles River Flood Modeling project.

State statute exempts the procurement of these types of engineering services from the Uniform Procurement Act, M.G.L. c. 30B. See M.G.L. c. 30B, §1(b) (32A), which exempts the services of architects, engineers, and related professionals. (Parenthetically, the Designer Selection Law, M.G.L. c. 7C, §§44 *et seq.*, does not apply, since no vertical structure is implicated.) Essentially, therefore, there is no statutorily-prescribed procurement process that would govern. Weston & Sampson Engineers, Inc. is an environmental engineering firm that falls within the exemption.

Weston & Sampson Engineers, Inc. is a responsible and responsive firm and has offered what Natick Community Development considers to be a reasonable sum for the purposes.

We respectfully request that Natick Select Board award Weston & Sampson Engineers, Inc., a contract, in the form of the attached, to perform the services outlined in Attachment A1 to the Contract, at the hourly rates for a sum not to exceed \$274,171.00 for such services, plus expenses as outlined therein.

Weston & Sampson Engineers, Inc. will be collaborating and subcontracting with the Charles River Watershed Association, as outlined in the scope of services.

The funding to cover this comes from the following sources:

MVP Grant \$264,171.00

Natick Cash Match \$10,000.00

Total \$274,171.00

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SERVICES DURING THE CHARLES RIVER MODELING PROJECT IN THE TOWN
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This Contract is made this eighteenth day of November, 2020, by and between the Town of Natick, Massachusetts, with an address of Natick Town Hall, 13 East Central Street, Natick, MA 01760, acting by the Natick Board of Selectmen (hereinafter the "Town of Natick," the "Town," or the "Owner"), and Weston & Sampson Engineers, Inc., 55 Walkers Brook Drive, Suite 100, Reading, MA 01867 hereinafter the "Contractor").

The words "he," "him" and "his" in this Contract, as far as they refer to the Contractor, shall so refer whether the Contractor is an individual, partnership or corporation. All prior contracts, if any exist between the Town and the Contractor, regarding the subject matter or partial subject matter of this Contract, are hereby terminated and shall be of no force and effect.

1. Scope

In consideration of the obligations herein contained, The Contractor shall perform the work included in the scope of work in the Contractor's proposal dated November 5, 2020 (the "Project"), which is attached hereto as Attachment A1, and which is incorporated herein by reference.. Any material change to the scope of work, including acceptance of the additional cost for the work, shall be agreed upon by both parties in writing before the work is performed.

The Contractor provides this proposal based on Prevailing wage requirements, if applicable, and all work performed during normal work week (7:00 A.M. to 3:30 P.M. local time), unless otherwise stated in the proposal.

2. Standard of Care

The Contractor shall exercise the degree of skill, care and diligence ordinarily performed by qualified professionals performing the same type of services at the same time under similar conditions and with the applicable professional standards in the Eastern Massachusetts area. The Contractor's services shall be performed as expeditiously as is consistent with such standards, with professional skill and care, and with the orderly progress of the work.

3. Term

The term of this Contract shall commence as of the execution date of this Contract and shall end one (1) year later. At the sole discretion of the Town, this Contract may be renewed for one (1) or two (2) additional one (1)-year terms.

4. Order of Priority of Contract Documents

In the event of any conflict among the Contract Documents, the Documents shall be construed according to the following priorities:

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Highest Priority: Amendments to Contract (if any)
Second Priority: Contract.

5. Payment

In consideration for performance of the work in accordance with the requirements of this Contract, the Town shall pay the hourly rates, on a time and materials basis, and direct expenses as set forth in Attachment A1. This fee is based on Contractor's anticipated scope of work outlined in Attachment A1, which represents Contractor's best judgment at the time of contract execution as to the efforts required to achieve the stated objectives. However, unforeseen conditions, which become evident during the course of the project may alter or increase the scope of work required. Contractor will notify the Town in writing of any conditions requiring an increase in scope and budget for approval prior to Contractor proceeding.

This Contract is a fixed rate/fixed price contract, subject to the above; and, therefore, miscellaneous expenditures associated with the Contractor's work shall not be paid by the Town. However, the Town shall compensate the Contractor for those direct expenses originally contemplated and accounted for in the execution of the professional services associated with this contract. In the event that an unforeseen miscellaneous expense is incurred, the Contractor shall receive the Town's approval in writing prior to incurring the expense, if it will subsequently seek payment of said expense from the Town.

Payment shall be made to the Contractor for work completed in accordance with this Contract. All requests for payment shall be submitted to the Town as an invoice and shall specify all services rendered.

Payment will be due thirty (30) days after receipt of the Contractor's invoice by the Town for services rendered in accordance with this Contract. The Town shall not make payments in advance.

If the Town objects to all or part of any invoice, the Town shall notify the Contractor in writing within two (2) weeks of the date of receipt of the invoice and shall pay that portion of the invoice not in dispute within thirty (30) days after the date of receipt of the invoice.

Should it be necessary for the Contractor to engage the services of a specialized contractor or companies other than those originally proposed in the Contractor, the Contractor shall take such measures only with the Town's prior written approval. Charges for such services, with no mark-up, shall be billed directly to the Town unless otherwise agreed upon by the parties.

Payment of the amounts due under this Contract shall release the Town and its officers,

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employees, boards, commissions, committees, agents and representatives, from any and all claims and liability in any way relating to this Contract or anything done in pursuance thereof.

No payment by the Town to the Contractor shall be deemed to be a waiver of any right of the Town under this Contract or a ratification by the Town of any breach hereof by the Contractor.

6. Warranty

DELETED/NOT APPLICABLE.

7. Compliance with Laws

The Contractor shall comply with all provisions of Federal, Massachusetts and Town of Natick law applicable to his work including, without limitation, statutes, by-laws, rules, regulations, orders and directives, as amended, and including, without limitation, the Williams-Steiger Occupational Safety and Health Act of 1970, as amended, and related regulations, as amended, in effect throughout the term of this Contract and any extension or renewal thereof. Without limitation, the Contractor shall comply with the provisions of Chapter 149, Section 26 to 27D of the Massachusetts General Laws, as amended, and the applicable minimum wage rates as determined by the Massachusetts Commissioner of Labor and Industries. This Contract shall be considered to include in their entirety all terms respecting workers' compensation insurance and other terms required to be included in it by Chapter 152 of the Massachusetts General Laws, as amended, as though such terms were set forth in their entirety herein.

8. Insurance

The Contractor shall provide and maintain throughout the term of the Contract and any extension or renewal thereof the following insurance with companies that are authorized and licensed in the Commonwealth of Massachusetts to issue policies for the coverages and limits so required.

- a. Workers' Compensation Insurance as required by the laws of the Commonwealth of Massachusetts and employer's liability insurance in the amount of \$1,000,000/\$1,000,000/\$1,000,000.
- b. Commercial General Liability Insurance, \$1,000,000 each occurrence and \$2,000,000 aggregate limit. Commercial General Liability insurance shall include personal injury liability, broad form property damage liability, products/completed operations liability and broad form contractual liability.

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- c. Automobile Liability Insurance, covering all leased, owned, non-owned, and hired vehicles - Combined single limit of \$1,000,000.
- d. Excess Liability Insurance, Umbrella Form - \$1,000,000 each occurrence and \$2,000,000 aggregate, which shall be following form, providing coverage over commercial general liability insurance, automobile liability insurance, and employer's liability under workers' compensation insurance.
- e. Professional Liability Insurance - \$1,000,000 each occurrence and \$2,000,000 aggregate limit. If written on a "claims made" basis, each such policy of insurance shall remain in effect for at least six (6) years following the termination of this Contract.
- f. The Town shall be named as an additional insured on each such policy of Commercial General Liability Insurance, Excess Liability Insurance, Umbrella Form, and Automobile Liability Insurance.
- g. All certificates and policies shall contain the following provision:

"Notwithstanding any other provision herein, should any of the above policies be cancelled or materially amended before the expiration date thereof, the issuing company or the Contractor will mail thirty (30) days prior written notice thereof to the named certificate holder and to the Natick Town Administrator, Natick Town Hall, 13 East Central Street, Natick, MA 01760 before such cancellation or amendment shall take place."
- h. Certificates evidencing such insurance in five (5) copies shall be furnished to the Town at the execution of this Contract. Such certificates shall not merely name the types of policy provided, but shall specifically refer to this Contract and shall state that such insurance is as required by this Contract. The Contractor shall make no claims against the Town or its officers for any injury to any of its officers or employees or for damage to its equipment arising out of work contemplated by the Contract.
- i. The Contractor shall also be required to provide to the Town with its proof of insurance coverage endorsements or riders to the policies of commercial general liability insurance, automobile liability insurance, and excess liability insurance, umbrella form, which indicate that the Town is named as an additional insured on each such policy.
- j. No insurance shall be obtained from an insurer which:

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- (1) is not licensed to sell insurance in the Commonwealth of Massachusetts; or
- (2) is not authorized to provide insurance as an excess or surplus lines insurer, and does not have a current Best's rating of A or better.

k. Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of this Contract and shall operate as an immediate termination thereof.

9. Indemnification

To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Town and all of its officers, employees, boards, commissions, committees, agents and representatives from and against all claims, causes of action, suits, costs, damages, and liability to the extent caused by breach by the Contractor of its obligations under this Contract, or to the extent caused by the willful misconduct or negligent act or omission of the Contractor, its subcontractors, or their officers, employees, agents and representatives or anyone directly or indirectly employed by them, or anyone for whose willful misconduct or negligent acts or omissions they may be liable, regarding the work to be performed by the Contractor under the Contract, or which arise out of the violation of any federal, Massachusetts or Town of Natick statute, by-law, rule, regulation, order or directive, or which relate to personal injury or property damage suffered by the Contractor or any of its officers or employees regarding the subject matter of this Contract. Said costs shall include, without limitation, reasonable legal costs, collections fees, and counsel fees incurred in any claim or suit that may be brought against the Town and any judgment that may be obtained in any such claim or suit and pursuant to the indemnity obligations herein.

10. No Personal Liability

Neither party, nor its officers, employees, boards, committees, commissions, agents and representatives shall be under any personal obligation or incur any personal liability by reason of this Contract, the execution thereof or anything relating thereto which arises out of the breach or violation of any provision of this Contract, or the violation of any Federal, Massachusetts or Town of Natick statute, by-law, rule, regulation, order or directive, or which relates to personal injury or property damage suffered by either party or its employees, regarding the subject matter of this Contract.

11. Familiarity with Area of Work

By signing this Contract, the Contractor acknowledges that it has examined the area of work which is the subject matter of this Contract and that it is familiar with all conditions of this Contract. The Contractor has entered into this Contract in reliance on its own examinations

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and estimates as to the amount and character of its work, and conditions which may be encountered in the performance thereof, and shall assume all risks and bear all losses pertaining thereto.

12. Performance Bond

DELETED – NOT APPLICABLE.

13. Labor and Materials Payment Bond

DELETED – NOT APPLICABLE.

14. Independent Contractor Status

The Contractor shall provide services under this Contract as an independent contractor with the Town and not as an employee of the Town. No employee, agent or representative of the Contractor shall be entitled to receive any benefits of employment with the Town, including without limitation salary, overtime, vacation pay, holiday pay, sick leave, health insurance, life insurance, pension or deferred compensation.

15. Use of Alcohol and Controlled and/or Controlled and/or Mood Altering Substances Prohibited

The Contractor hereby acknowledges that the use of alcoholic beverages, narcotics, and controlled and/or mood altering substances, except for current valid, legal prescriptions, by any officer, employee, agent, or representative of the Contractor is prohibited on Town property which is the subject matter of this Contract and during all hours of work under this Contract. If any officer, employee, agent, or representative of the Contractor violates the foregoing provision, the Town shall have the right to order that such officer, employee, agent, or representative of the Contractor shall not be permitted to return to work on this Contract. Under such circumstances, the Contractor shall promptly remove the subject officer, employee, agent, or representative from the job site and shall not permit the subject officer, employee, agent, or representative to perform further work in conjunction with this Contract.

16. No Smoking

Pursuant to Massachusetts General Laws (M.G.L.) c. 270, §22, the Commonwealth of Massachusetts Smokefree Workplace Law, the Contractor, its officers, employees, agents, and representatives shall refrain from smoking and from using tobacco products in any public building in the Town.

17. Criminal Background Screening

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For each employee of the Contractor who is performing services under this Contract, the Contractor shall, subject to its confidentiality and privacy obligations owing to its employees and third parties, if requested by the Town, provide a written confirmation to the Town that such employee passed the Contractor's pre-employment criminal background screen. In the event that any employee refuses to permit the Contractor to provide such information to the Town, the Contractor shall not assign such employee to perform services for the Town, and such employee shall not be authorized to perform services for the Town. The Town shall be permitted to keep such information in its files.

18. *Delays/Force Majeure*

Except as specifically set forth in this Contract, neither party shall hold the other responsible or liable for damages or delays in performance caused by acts of God, interruptions in the availability of labor, or other events beyond the control of the other party, or that could not have been reasonably foreseen or prevented. For this purpose, such acts or events shall include unusually severe weather affecting performance of services, floods, epidemics, wars, riots, strikes, lockouts, or other industrial disturbances, protest demonstrations, and project site conditions which could not have been reasonably anticipated. Should such acts or events occur, both parties shall use their best efforts to overcome the difficulties arising and to resume as soon as reasonably possible the normal pursuit of performance.

19. *Termination*

- a. If the Contractor shall breach any provision of this Contract, which breach is not cured within twenty-one (21) days or such longer period agreed to by both Parties, of written notice thereof from the Town to the Contractor, the Town shall have the right to terminate this Contract upon written notice to the Contractor.
- b. If any assignment shall be made by the Contractor or by any guarantor of the Contractor for the benefit of creditors, or if a petition is filed by the Contractor or by any guarantor of the Contractor for adjudication as a bankrupt, or for reorganization or an arrangement under any provision of the Bankruptcy Act as then in force and effect, or if an involuntary petition under any of the provisions of the Bankruptcy Act is filed against the Contractor and such involuntary petition is not discharged within ninety (90) days thereafter, in any event, the Town may terminate this Contract upon written notice to the Contractor.
- c. The award of this Contract and the continued operation of this Contract are contingent upon appropriation by Natick Town Meeting of sufficient money to fund the Contract. Should Natick Town Meeting fail to appropriate necessary funds therefor, the Town shall no longer be under any obligation to tender performance, including payment, under the terms of this Contract. In that event, the Town may

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terminate this Contract upon written notice to the Contractor.

- d. The Town may terminate this Contract upon written notice to the Contractor if a source of money to fund the Contract is lost during the Contract term. In the alternative, the parties may agree in writing to amend the Contract to provide for a Contract price which represents a reduced appropriation for the Contract term.
- e. The Town may also terminate this Contract for convenience upon thirty (30) days' written notice to the Contractor.

In the event of termination, the Contractor shall be entitled to be paid for services rendered in accordance with this Contract prior to termination.

20. Notices

- . Except as otherwise provided in this Contract, all notices required or permitted to be given hereunder shall be in writing and shall be delivered by certified mail or registered mail, return receipt requested, to the parties at the following address or such other address or addresses as to which a party shall have notified the other party in accordance with this Section 20.

If to the Town: James Errickson
Deputy Town Administrator - Operations
Natick Town Hall
13 East Central Street
Natick, MA 01760

With copies to: Karis L. North, Esq.
Murphy, Hesse, Toomey & Lehane, LLP
300 Crown Colony Drive, Suite 410
Quincy, MA 02169

If to the Contractor: President
Weston & Sampson Engineers, Inc.
55 Walkers Brook Drive, Suite 100
Reading, MA 01867

21. Miscellaneous Provisions

- a. Any action at law or suit in equity instituted by the Contractor as a result of the performance, non-performance or alleged breach of this Contract shall be filed in the Superior Court of the Commonwealth of Massachusetts for Middlesex County, MA, and in no other court or jurisdiction.

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- b. No action or failure to act by the Town shall constitute a waiver of a right or duty afforded to the Town under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing. No forbearance or indulgence in any form or manner by the Town shall be construed as a waiver or in any way limit the legal or equitable remedies available to the Town. No waiver by the Town of any default or breach by the Contractor shall constitute a waiver of any subsequent default or breach.
- c. If the Contractor discovers or is informed of any discrepancy or inconsistency in the Contract Documents in relation to any law, statute, ordinance, by-law, decree, code, rule, regulation, or order, the Contractor shall promptly, before commencing performance under this Contract, report the same to the Town in writing.
- d. The Contractor acknowledges that it has not been influenced to enter into this Contract, nor has the Contractor relied upon any warranties or representations not set forth in this instrument.
- e. The Contractor shall maintain the confidentiality of information designated by the Town as confidential, unless withholding such information would violate the law or create a risk of significant harm to the public, or unless the Contractor has been required to release such information by final judgment or order of a court of competent jurisdiction, or unless the Town has expressly waived such confidentiality in advance in writing.
- f. The Contractor shall not represent or purport to represent that it speaks for the Town vis-à-vis the media or the public at-large without the Town's express, written consent in advance.
- g. Prior to commencing performance under this Contract, the Contractor shall furnish the Town, in writing, the names, addresses and telephone numbers of not fewer than two (2) principal employees of his business who are to be contacted in the event of an after-hours emergency.
- h. By entering into this Contract, the Contractor certifies under penalties of perjury that its entry was made and submitted in good faith and without collusion or fraud with any person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.
- i. By entering into this Contract, the Contractor certifies under the penalties of perjury, pursuant to M.G.L. c.62C, Section 49A(b), that it has complied with all laws of the Commonwealth relating to taxes, to reporting of employees and

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contractors, and to withholding and remitting child support.

- j. The Contractor understands that the Massachusetts Conflict of Interest Law, Chapter 268A of the Massachusetts General Laws, applies to the Contractor with respect to the services required to be provided under this Contract. The Contractor and its officers, employees, agents, subcontractors and affiliated agencies shall not participate in any activity which constitutes a violation of the Massachusetts Conflict of Interest Law or which creates an appearance of a violation of the Massachusetts Conflict of Interest Law.
- k. The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, color, religious creed, national origin, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object), age, genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap. The previous sentence shall include, but not be limited to, the following: advertising, recruitment; hiring; rates of pay or other forms of compensation; terms; conditions or privileges of employment; employment upgrading; transfer; demotion; layoff; and termination. The Contractor shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, color, religious creed, national origin, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object), age, genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap.
- l. **To the extent that any of the foregoing sections required by Massachusetts law are inconsistent with other, non-statutory sections in this Contract, any statutorily-mandated provisions contained herein shall control.**
- m. The Contractor shall not assign or subcontract in whole or in part this Contract or in any way transfer any interest in this Contract without the prior express written approval of the Town.
- n. The Contractor shall not assign any money due or to become due to the Contractor unless the Town shall have received prior written notice of such assignment. No such assignment shall relieve the Contractor of its obligations under this Contract.
- o. This Contract may be amended only by written consent of the parties.
- p. This Contract constitutes the entire agreement of the parties and any other agreement, written or oral, that may exist is excluded from this Contract. When

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executed, this Contract supersedes any prior agreement between the parties in connection with the transaction contemplated.

- q. The parties agree that the traditional canon of contract interpretation, resolving ambiguities against the drafter of the particular instrument, shall not be employed in construing provisions of this Contract.
- r. If any provision, or portion thereof, of this Contract shall be adjudged to be invalid or unenforceable by final judgment or order of a court of competent jurisdiction the remaining provisions shall continue in effect to the extent permitted by law.
- s. The provisions of this Contract shall be binding upon and shall inure to the benefit of the heirs, assigns and successors in interest of the parties.
- t. This Contract shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts, regardless of choice of law issues or principles.
- u. This Contract is executed in triplicate as a sealed instrument.

22. Limitation of Damages

Neither the Town nor the Contractor shall be liable to the other or shall make any claim for incidental, indirect or consequential damages arising out of or connected to this Contract or the performance of the services on this Project. This mutual waiver includes, but is not limited to damages related to loss of use, loss of profits, loss of income, unrealized energy savings, diminution of property value or loss of reimbursement or credits from governmental or other agencies.

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The Town of Natick, Massachusetts

Weston & Samspon Engineers, Inc.

by: the Natick Board of Selectmen

by:

Jonathan H. Freedman, Chairman

Signature

Karen Adelman-Foster, Vice Chairman

Printed Name

Richard P. Jennett, Jr., Clerk

Printed Title

Michael J. Hickey, Jr.

Susan G. Salamoff

Dated: _____

Dated: _____

APPROVED AS TO AVAILABILITY OF APPROPRIATION:

In accordance with the requirements of M.G.L. Chapter 44, Section 31, this is to certify that an appropriation in the amount of this Contract is available therefor, and that the Natick Board of Selectmen is authorized to execute this Contract and to approve all requisitions and execute change orders.

Arti P. Mehta
Comptroller, Town of Natick

Dated: _____

APPROVED AS TO FORM ONLY, AND NOT AS TO SUBSTANCE:

Karis L. North, Esq.

Dated: _____

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CERTIFICATE OF VOTE

I, _____, hereby certify
(Clerk/Secretary)

that I am the duly qualified and acting _____ of _____

(Title) (Corporation Name)

and I further certify that at a meeting of the Directors of said Corporation duly called and held on _____ 20 ____, at which meeting all Directors were present and voting, the following vote was unanimously passed:

VOTED: To authorize and empower either

_____, _____;
(Name) (Title)
_____, _____; or
(Name) (Title)
_____, _____
(Name) (Title),

any one acting singly, to execute all contracts and bonds on behalf of the Corporation.

I, further certify that the above vote is still in effect on this the ____ day of _____, 20____
and has not been changed or modified in any respect.

Signature

Printed Name

Printed Title

The certification contained hereabove shall be executed by CONTRACTOR or copy of current "certification of authority to sign for the Corporation" shall be attached.)

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ATTACHMENT A -1.

The Contractor shall furnish services to the Town of Natick, Massachusetts as follows:

Exhibit A: Building Resilience Across the Charles River Watershed

Weston and Sampson Engineers, Inc.
Scope of work
November 5, 2020

The following represents the scope of work for the Weston & Sampson part of the Technical Team for the FY21 MVP Action Grant awarded to Natick to develop a Charles River watershed regional model. Many of the tasks and deliverables represent a collaboration between Weston & Sampson Engineers, Charles River Watershed Association, and participants from the watershed towns. Attached is the CWRA Scope of services that will be conducted as a subcontractor to Weston & Sampson

Task 1: Model Design

Sub-Task 1.1 Review Existing Data/Models

As part of Subtask 1.1, Weston & Sampson working with CRWA, referred to as the Technical Team will request and review existing models, data and reports from watershed communities, Massachusetts Water Resources Authority (MWRA) and the Department of Conservation and Recreation (DCR). Existing modeling and data evaluation efforts will be utilized and built upon to the maximum extent feasible. Due to the tight project timeline and budget constraints the Technical Team intends to utilize previous efforts to the maximum extent practicable and not duplicate prior work. These models, reports and data may include but not limited to:

- Model developed by Dr. Ellen Douglas to assess the current and future flooding along the Charles River as part of the project funded by State of Massachusetts Environmental Bond Bill FY2015, introduced by Massachusetts Senator Will Brownsberger
- Model under development by MIT to simulate Charles River flooding under tropical storms
- Model developed for the Upper and Lower Charles River Basin as part of the City of Cambridge Climate Change and Vulnerability Assessment

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- Citywide inundation model developed by Boston Water & Sewer Commission for the City of Boston
- Municipal MVP plan and/or Hazard Mitigation Plan maps showing key community resources and localized flooding hotspots for the project communities
- Stormwater infrastructure (e.g., pipe network, catch basins, existing stormwater practices)
- Site conditions (e.g., surficial geology, soils, land use, contamination, impervious area, topography, drainage, non-stormwater infrastructure)
- Consideration of road and park projects in 5-year capital plans, wide roads that could be narrowed and other opportunities (e.g., current TIGER grant awards)
- Areas of ecological concern and other habitat core areas
- Open-space plans, parcel data size, vacant lots, and land ownership
- 2016 Charles River bathymetry by MIT's Sea Grant program.
- United States Geologic Survey (USGS) bathymetry data
- Plans/as-builts of dams/bridges/culvert crossings along the Charles River
- GIS layers beyond MassGIS, such as LiDAR, elevation spot checks, shapefiles (with elevation data) of berms, walls, and building and roadway layers
- NASA Develop Charles River study
- Dam inspection reports for dams along the Charles River
- Dredging or other reports on maintenance activities; and
- Available water quality testing through the MS4 permit program.

Deliverables

- Project Team and Executive Office of Energy and Environmental Affairs kick off meetings
- Compilation of data from existing models, reports and studies of the Charles River watershed
- Summary memo highlighting data gaps identified from review of existing resources

Sub-Task 1.2 Engage participating communities in design input workshop

Weston & Sampson as part of the Technical Team will assist in holding a workshop to engage project communities in discussion of the following:

- review of existing models/data/reports to date that summarize some of the key flooding issues in the watershed

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- identify high-priority flood-prone area(s) in the respective communities that have experienced significant flooding from past historic events
- identify gaps and limitations of studies/projects that have been conducted to date and explain how these will be addressed in the current project
- gather input and build consensus on future climate scenarios, including planning horizons, design storm types and frequency to be evaluated using the watershed model; follow-up with survey
- Initial input from municipalities on types of nature-based solutions that they would like to be evaluated using the watershed model; follow-up with survey

Deliverables

- Attend Workshop 1 with project team communities
- Review post-workshop in depth survey to receive input from watershed communities on climate scenarios and types of nature-based solutions to be evaluated using the watershed model
- Participate in live webinar to introduce project to watershed residents and community groups
- Review post-workshop brief survey to receive input from watershed residents to be circulated by the project team

Sub-Task 1.3 Finalize future climate scenarios

After reviewing input received at the workshop and following the workshop from the surveys, Weston & Sampson will assess the scenarios that received majority consensus among the project team communities. The latest available climate change projections for precipitation data for the Charles River watershed will be evaluated as part of this task. Climate change projections in Massachusetts are available for 2030, 2050, 2070 and 2100 planning horizons. Appropriate projections will be used for planning horizons by considering the useful service life of the existing stormwater infrastructure and any proposed green infrastructure; appropriate timelines may be 2050, 2070 and/or 2100. As part of ongoing regional resiliency efforts in the greater Boston area, climate change projections, in terms of future design storms, are available for the 10-, 25- and 100-year, 24-hour design storms. This task will involve selecting appropriate design storms and their associated temporal distribution to determine appropriate rainfall intensities and durations for design. These climate change projections will be used to support development of a hydrologic and hydraulic model and subsequent assessments of green infrastructure, LID, upstream flood storage potential, and culvert designs.

Deliverables

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- Technical memorandum summarizing future climate scenarios (planning horizons, design storm duration and frequency)
- Project team call to finalize the future climate scenarios for model runs

Task 2. Model Development

Sub-Task 2.1 Develop watershed-wide Hydrologic/Hydraulic (H/H) Model

Weston & Sampson as part of the Technical Team will develop a hydrologic and hydraulic (H&H) model of the watershed based on existing models and available data reviewed in Task 1.1. This model will serve as a tool to evaluate present and future flood risks at the watershed scale, understand potential hydraulic limitations that are causing the flooding, as well as help identify flood mitigation projects using green and gray infrastructure that can have significant flood mitigation benefits in the watershed. The H&H model will be developed using PCSWMM which is based on EPA's Storm Water Management Model (SWMM) software, v. 5.0.013 or later.

The input parameters used to define subcatchments within the watershed will be updated based on latest publicly available datasets, including aerial imagery, Light Detection and Ranging (LiDAR) elevation data, the National Hydrography Dataset, the SSURGO soil database, and the National Land Cover Database (NLCD) among others. The model update will include adding major ponds, reservoirs and updated impoundments in the watershed that may not be included in existing models. Major stormwater conduits (e.g. greater than 24 inches in diameter) and corresponding nodes for the communities where this information is available as GIS data will be incorporated into the model, which represent some of the major existing storm drains, manholes, and outfalls in the watershed. In addition, a 2D terrain to directly simulate overbank flooding will be developed in select areas of the watershed. This task will also identify data gaps in the model that need to be field verified and checked in Task 2.3.

Deliverables

- Initial watershed wide stormwater flood model
- List of structures/areas in the model that need to be further field-verified

Sub-Task 2.2 Field verification/reconnaissance of select sites/structures

In conjunction with data collected in Task 1, field reconnaissance will enhance the refinement of the watershed model. Weston & Sampson members from the Technical Team will conduct a walking survey at locations identified to have data gaps as part of Task 2.2.

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The field survey will include a cursory inspection of select sites, inlet and outlet structures, and impoundments visible from the waterline. No dive surveys will be performed. Inspection of select sites and structures will be limited to size, relative elevation, condition, and headwall orientation. This cursory inspection will include a review of any potential maintenance issues such as fallen trees or accumulated debris, erosion or other sediment deposition patterns that are restricting flow, and any structural deficiencies at the inlet/outlet works. The field investigation will include a windshield survey of the Charles River watershed to identify potential opportunities for LID and for green infrastructure in public places like roadways, parks, schools, and public utilities.

Flood prone areas, as identified by municipal staff and residents from the Workshop 1, will also be evaluated to gain a better understanding of potential improvements required to mitigate flooding issues. Site visits will be conducted at select flood prone areas to document existing conditions and identify potential solutions. This may also include meeting with impacted residents to gain a better understanding of flooding issues that directly impact them. At some locations, the solution may require a phased approach that includes evaluation, design and construction phases.

Deliverables

- Field visits (up to 3 days) at select sites/structures/flood prone areas

Sub-Task 2.3 Calibrate/Validate H/H Model with best available data

The data collected from the field visits will be integrated into the watershed stormwater model to reflect latest site conditions, existing drainage infrastructure and to fill any data gaps that were identified in Task 2.1. The model will be calibrated/validated against any field measurements and anecdotal information regarding historical flood events as well as any flow data gathered in support of MS4 permits. If no historical flow data is available, simulated discharge rates will be verified against at least one other simplistic method (e.g. USGS StreamStats) to ensure appropriate design flows are used for the project.

Deliverables

- Updated watershed wide stormwater model
- Technical memorandum summarizing model development, field verification activities and results of model calibration/validation

Task 3. Model Selected Scenarios

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Sub-Task 3.1 Run H/H model for future climate scenarios

Weston & Sampson will run future climate scenarios in the model. The calibrated model will be run for future extreme precipitation scenarios that were determined by consensus among the participating communities in Task 1.2. Results will be produced initially as static maps and GIS files that show the extents and depth of flooding, under the various scenarios. Results will also include tables that show peak flood elevations at certain key locations along the Charles River. The flooding maps will eventually be displayed in an interactive online tool (See Task 6).

Deliverables

- Flood maps and GIS data of model results at watershed scale for future climate scenario runs
- Peak flood elevations at certain key locations along the river reaches for future climate scenario runs
-

Task 4. Select Priority Watershed Scale Climate Adaptation Strategies

Sub-Task 4.1 Identify Priority Actions

Concurrent with Tasks 2 and 3, the Weston & Sampson members of the Technical Team, working with a few community partners who are able to dedicate more time to the project will identify specific mitigation strategies within the broad categories already identified by the group:

- Upstream flood storage assessment for priority areas
- Green infrastructure interventions for priority areas
- Land conservation / land use change strategies
- Floodplain restoration strategies

The flood mitigation strategies that will be evaluated can be a combination of watershed wide strategies and site-specific strategies. Examples of watershed-wide strategies include reducing directly connected impervious areas by 10-25% in upstream areas of the watershed, evaluating opportunities to restore a certain percentage of floodplains for flood storage, etc. Examples of site-specific strategies include evaluating large publicly or privately owned open spaces for implementing large scale green infrastructure interventions, such as constructed wetlands, dredging of certain upstream reservoirs or optimizing their operations to increase flood storage.

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Once modeled results of future flood risks in the watershed are available, the small group will identify priority areas for developing flood mitigation alternatives based on severity (extent and depth) of flooding impact and impact to vulnerable communities. The project team will also engage directly with partner organizations working on climate equity issues for input on identifying and selecting priority actions.

Deliverables

- Initial list of watershed-wide and site-specific flood mitigation strategies;
- Engagement with partner organizations working on climate equity issues for input on identifying and selecting priority actions

Sub-Task Task 4.2 Select Priority Actions

Weston & Sampson will participate in a second full project team workshop that will be held to identify and prioritize watershed scale flood mitigation strategies to assess in Phase I. The workshop will consist of an in-person or online presentation and discussion of the existing conditions/future climate model results, including initial quantification of the impacts to communities and property. The project team will also review responses from the community survey administered in Task 1 which include some input on residents' preferences or concerns for flood mitigation approaches. Weston & Sampson will assist the project team will select the priority actions through discussion and voting.

Deliverables

- Workshop 2 with project team communities
- Selection of prioritized list of flood mitigation strategies with maximum potential of flood reduction at the watershed scale

Task 5. Watershed Scale Adaptation Recommendations

Sub-Task 5.1 Assess Priority Mitigation Measures using H/H model

Weston & Sampson will run H/H model for future climate scenarios and multiple broad scale adaptation strategies identified in Task 4. The project team will use the H/H model to evaluate combinations of flood mitigation strategies and potential alternatives (both watershed-wide and site-specific strategies) identified in Task 4. Potential alternatives, such as dredging accumulated sediments or changing the normal water level in one or more upstream reservoir locations to increase flood storage; evaluating large scale green infrastructure opportunities, such as constructed wetlands; analyzing potential for reduction of impervious areas in the watershed using land conservation/land acquisition

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strategies; and floodplain restoration strategies will be evaluated using the H/H model. The model will be used to evaluate the efficacy of these alternatives under the future climate scenarios.

Deliverables

- Flood maps and GIS data of the flood mitigation measures model results at watershed scale for future climate scenario runs
- Peak flood elevations at certain key locations along the river reaches using the flood mitigation measures for future climate scenario runs

Sub-Task 5.2 Evaluate Co-Benefits of Nature Based Solutions

For each priority adaptation strategy identified in Task 4 and assessed in Task 5, Weston & Sampson will assist the Technical Team will qualitatively and/or quantitatively evaluate the co-benefits of each strategy using the co-benefits described in response 9.2 as a guide.

Deliverables

- List of co-benefits of the nature-based flood mitigation measures evaluated in Task 5.1

Sub-Task 5.3 Prioritization of flood mitigation alternatives

Weston & Sampson will assist the Technical Team to present the results of tasks 5.1 and 5.2 to the project team at an online meeting. Following the meeting, participating communities will submit feedback using an online survey, one response per community, to rank priorities for both near and long-term implementation. Results of Task 5.1 and 5.2 will also be shared at a Charles River Climate Compact meeting, to engage the small number of CRCC communities that do not have the resources to fully participate in the proposed project.

Deliverables

- Online meeting with project team to present results of Tasks 5.1 and 5.2
- Review online survey results for participating communities to submit feedback and rank priorities for implementation
- Present results at a Charles River Climate Compact meeting

Task 6. Communications and Outreach

Sub-Task 6.1 Project Website Review

Weston & Sampson will review of the development of a project website at the start of the project to serve as the primary repository for information about the project. Input forms or

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surveys will be hosted on the websites and results of surveys will be shared there too. Project team contact information will be available and posted on the webpage.

Deliverables

- Project website review

Sub-Task 6.2 Engage Stakeholders Assistance

Weston & Sampson will provide input and review of materials to engage with stakeholders. As described in response 9.4 of the MVP Action Grant Application, beyond the project team, a few key project stakeholders have been identified namely watershed residents, and community and regional groups working on climate justice issues. These stakeholders will be engaged throughout the project using the strategies detailed in response 9.4, including development of print materials in multiple languages as translated by the state, direct calls and meetings, project team attendance at existing meetings, and a partnership with the eighth grade at Natick's Wilson Elementary School. Additionally, Communities Responding to Extreme Weather (CREW) will assist with engaging local residents working in climate preparedness and climate equity to participate in the project. CREW will focus on engaging their partners in communities with high Environmental Justice populations. CREW team members who work on climate equity issues will also provide input on the project.

Finally, the project team will also provide a webinar or presentation at a regional conference (such as the Massachusetts Municipal Association or Massachusetts Ecosystem Climate Adaptation Network annual conferences) to inform representatives from communities across the state about the project methods and results.

Deliverables

- Assistance to engage with stakeholders beyond the project team at various decisions points as detailed in Tasks 1-5
- Review/participation in Webinar/presentation at a regional conference on the project findings

Sub-Task 6.3 Develop GIS maps and data for online application

Weston & Sampson will produce online maps displaying the modeling results. All model results will be displayed using a simple web interface that will ultimately be hosted on the project web page. The interface will follow the model of previous climate data viewers such

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as Climate Ready Boston, allowing users to turn certain layers on and off to explore based on their interest and geographic location.

Deliverables

- Online GIS flood maps for present and future climate scenarios under existing conditions (no-action scenarios)
- Online GIS flood maps for present and future climate scenarios with flood mitigation strategies modeled in Task 5.1 (interventions scenarios)

Sub-Task 6.4 Communicate Results Assistance

Weston & Sampson will assist the Technical Team to communicate results. A standardized community communications kit will be developed for participating communities to use to present project results to their residents. The communications kit will include at a minimum a PowerPoint presentation, a press release, and information sheet on the project promoting the project website that includes information in three languages. Each community will have the opportunity to customize these materials in order to present them to their residents in the most appropriate manner. The communications kit will include information about how to be involved in Phase II of the project.

The project team will have a planning call to guide the development of the communications kit in the spring of 2021. Once the communications kit is available the project team will host the final project workshop to present it. This workshop will also include a training by an experienced professional about engaging diverse and minority communities in climate planning to support communities in reaching out to these residents as they move forward with their own climate planning or begin to develop regulations based on the flood model, and as the group plans for Phase II of watershed scale work and ultimately implementation of flood mitigation strategies.

Project community partners will use the standardized materials to communicate project results and discuss next steps with their residents.

Deliverables

- Standardized community communications kit for participating communities in the Watershed
- Final Project Workshop (Workshop 3) to present communications kit and training for communities on how to engage diverse and minority population groups throughout implementation of climate planning in their respective communities

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- Discuss next steps on which flood mitigation strategies/projects will advance to implementation

Task 7. Project Management

Sub-Task 7.1 Monthly reports to EEA

Weston & Sampson will contribute to monthly reports for the Town of Natick to submit.

Deliverables

- Monthly progress reports

Sub-Task 7.2 Prepare Case Study Draft

Using the provided template Weston and Sampson will assist the Technical Team to prepare a draft case study for review by MVP program staff.

Deliverables

- Draft case study report, 1-2 PowerPoint slides with project photos

Sub-Task 7.3 Prepare Final Case Study

Using the provided template the Technical Team will incorporate MVP staff feedback and prepare a final case study.

Deliverables

- Final case study report, 1-2 PowerPoint slides with project photos

Sub-Task 7.4 Financial management and tracking

Weston & Sampson will assist CRWA to support the Town of Natick in financial management of the grant.

Deliverables

- Project invoices

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Project Timeline

Task	2020					2021					
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Task 0: Kick-off meeting with Town, EEA, and Consultant											
Task 1: Model Design											
Sub-task 1.1 Review Existing Data/Models											
Sub-task 1.2 Engage participating communities in design input workshop											
Sub-task 1.3 Finalize future climate scenarios											
Task 2: Model Development											
Sub-task 2.1 Develop watershed-wide Hydrologic/Hydraulic (H/H) Model											
Sub-task 2.2 Field verification/reconnaissance of select sites/structures											
Sub-task 2.3 Calibrate/Validate H/H Model											
Task 3: Model Selected Scenarios											
Sub-Task 3.1 Run H/H model for future climate scenarios											
Task 4: Select Priority Watershed Scale Climate Adaptation Strategies											
Sub-task 4.1 Identify Priority Actions											
Sub-task 4.2 Select Priority Actions											
Task 5: Watershed Scale Adaptation Recommendations											
Sub-task 5.1 Assess Priority Mitigation Measures using H/H model											
Sub-task 5.2 Evaluate Co-Benefits of Nature Based Solutions											
Sub-task 5.3 Prioritization of flood mitigation alternatives											
Task 6: Communications and Outreach											
Sub-task 6.1 Project website											
Sub-task 6.2 Engage Stakeholders											
Sub-task 6.3 Develop GIS maps and data for online application											
Sub-task 6.4 Communicate Results											
Task 7:											
Sub-Task 7.1 Monthly reports to EEA											
Sub-task 7.2 Prepare Case Study Draft											
Sub-task 7.3 Prepare Final Case Study											
Sub-task 7.4 Financial management and tracking											

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Total Budget Weston & Sampson and Charles River Watershed Association
(Subcontractor)

Task	MVP Grant	Natick Cash Match	Total
Task 1: Model Design			
<u>Sub-Task 1.1 Review Existing Data/Models</u>	\$14,450.00		\$14,450.00
<u>Sub-Task 1.2 Engage participating communities in design input workshop</u>	\$12,210.00		\$12,210.00
<u>Sub-Task 1.3 Finalize future climate scenarios</u>	\$6,448.00		\$6,448.00
Total Task 1 Cost			\$33,108
Task 2. Model Development			
<u>Sub-Task 2.1 Develop watershed-wide Hydrologic/Hydraulic (H/H) Model</u>	\$21,250.00		\$21,250.00
<u>Sub-Task 2.2 Field verification/reconnaissance of select sites/structures</u>	\$20,567.50		\$20,567.50
<u>Sub-Task 2.3 Calibrate/Validate H/H Model with best available data</u>	\$13,590.00		\$13,590.00
Total Task 2 Cost			\$55,407.50
Task 3. Model Selected Scenarios			

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<u>Sub-Task 3.1 Run H/H model for future climate scenarios</u>	\$1,935.00	\$10,000	\$11,935
Total Task 3 Cost			\$11,935
Task 4. Select Priority Watershed Scale Climate Adaptation Strategies			
<u>Sub-Task 4.1 Identify Priority Actions</u>	\$14,615.00		\$14,615.00
<u>Sub-Task Task 4.2 Select Priority Actions</u>	\$12,773.00		\$12,773.00
Total Task 4 Cost			\$27,388.00
Task 5. Watershed Scale Adaptation Recommendations			
<u>Sub-Task 5.1 Assess Priority Mitigation Measures using H/H model</u>	\$19,109.00		\$19,109.00
<u>Sub-Task 5.2 Evaluate Co-Benefits of Nature Based Solutions</u>	\$13,600.00		\$13,600.00
<u>Sub-Task 5.3 Prioritization of flood mitigation alternatives</u>	\$15,820.00		\$15,820.00
Total Task 5 Cost			\$48,529.00

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Task 6. Communications and Outreach			
<u>Sub-Task 6.1 Project Website Review</u>	\$7,425.00		\$7,425.00
<u>Sub-Task 6.2 Engage Stakeholders Assistance</u>	\$25,005		\$25,005
<u>Sub-Task 6.3 Develop GIS maps and data for online application</u>	\$9,635.00		\$9,635.00
<u>Sub-Task 6.4 Communicate Results Assistance</u>	\$11,643		\$11,643
Total Task 6 Cost			\$53,708.50
Task 7. Project Management			
<u>Sub-Task 7.1 Monthly reports to EEA</u>	\$2,990.00		\$2,990.00
<u>Sub-Task 7.2 Prepare Case Study Draft</u>	\$21,715.00		\$21,715.00
<u>Sub-Task 7.3 Prepare Final Case Study</u>	\$14,080.00		\$14,080.00
<u>Sub-Task 7.4 Financial management and tracking</u>	\$5,310.00		\$5,310.00

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Total Task 7 Cost			\$44,095.00
<u>Total</u>	\$264,171.00	\$10,000	\$274,171

Weston & Sampson will work with the Charles River Watershed Association, under a subcontract, as follows:

Attachment I: SCOPE OF SERVICES AND TERMS

Charles River Watershed Association
Building Resilience Across the Charles River Watershed

I. Project Summary

The Charles River Climate Compact (CRCC) is collaborating to develop a Charles River watershed model. This initiative will produce both much needed technical information about where and when precipitation driven flood-risk in the watershed is expected to be exacerbated by climate change, and bring consistency across our watershed communities in regards to how we are planning and governing for expected climate impacts, thus promoting a more comprehensive and synergistic approach.

The watershed model will forecast expected flooding scenarios and test watershed scale adaptation strategies, serving as a tool to assist municipal staff in protecting their citizens, especially vulnerable populations, and to engage residents and businesses in enhancing climate preparedness and resilience.

II. Scope of Services

The scope of services will be performed by CRWA under subcontract to Weston and Sampson (W&S) to the Town of Natick/Charles River Climate Compact Action Grant award from the State of Massachusetts commencing October 15, 2020. The Scope of Services shall consist of the tasks and deliverables as outlined below and in Attachment 2 (budget), above:

Task 1: Model Design

Sub-Task 1.1 Review Existing Data/Models

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In coordination with Weston & Sampson, CRWA will draft a standard request letter to be shared with relevant contacts. CRWA will support W&S in compiling the models, reports and data listed below, to the extent that it is available:

- Model developed by Dr. Ellen Douglas to assess the current and future flooding along the Charles River as part of the project funded by State of Massachusetts Environmental Bond Bill FY2015, introduced by Massachusetts Senator Will Brownsberger
- Model under development by MIT to simulate Charles River flooding under tropical storms
- Model developed for the Upper and Lower Charles River Basin as part of the City of Cambridge Climate Change and Vulnerability Assessment
- Citywide inundation model developed by Boston Water & Sewer Commission for the City of Boston
- Municipal MVP plan and/or Hazard Mitigation Plan maps showing key community resources and localized flooding hotspots for the project communities
- Stormwater infrastructure (e.g., pipe network, catch basins, existing stormwater practices)
- Site conditions (e.g., surficial geology, soils, land use, contamination, impervious area, topography, drainage, non-stormwater infrastructure)
- Consideration of road and park projects in 5-year capital plans, wide roads that could be narrowed and other opportunities (e.g., current TIGER grant awards)
- Areas of ecological concern and other habitat core areas
- Open-space plans, parcel data size, vacant lots, and land ownership
- 2016 Charles River bathymetry by MIT's Sea Grant program.
- United States Geologic Survey (USGS) bathymetry data
- Plans/as-builts of dams/bridges/culvert crossings along the Charles River
- GIS layers beyond MassGIS, such as LiDAR, elevation spot checks, shapefiles (with elevation data) of berms, walls, and building and roadway layers
- NASA Develop Charles River study
- Dam inspection reports for dams along the Charles River
- Dredging or other reports on maintenance activities; and
- Available water quality testing through the MS4 permit program.

Deliverables

- Project Team and Executive Office of Energy and Environmental Affairs kick off meetings

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- Compilation of data from existing models, reports and studies of the Charles River watershed

Sub-Task 1.2 Engage participating communities in design input workshop

CRWA will plan and facilitate a Zoom workshop in December 2020, to engage project communities in discussion of the following:

- review of existing models/data/reports to date that summarize some of the key flooding issues in the watershed
- identify high-priority flood-prone area(s) in the respective communities that have experienced significant flooding from past historic events
- identify gaps and limitations of studies/projects that have been conducted to date and explain how these will be addressed in the current project
- gather input and build consensus on future climate scenarios, including planning horizons, design storm types and frequency to be evaluated using the watershed model; follow-up with survey
- Initial input from municipalities on types of nature-based solutions that they would like to see be evaluated using the watershed model; follow-up with survey

CRWA, with input from W&S and feedback received at the initial workshop, will also develop two surveys, most likely using Google Forms:

- An in depth follow up survey to obtain additional input from participating communities on climate scenarios and types of nature-based solutions to be evaluated using the watershed model
- A brief survey to obtain input from all thirty-five communities in the watershed.

CRWA will distribute the survey with assistance from the project team and will compile the results.

Finally, CRWA will present a summary of the project at one of our “virtual events” in November or December.

Deliverables

- Workshop 1 with project team communities
- Post-workshop in depth survey to receive input from watershed communities on climate scenarios and types of/location for nature-based solutions to be evaluated using the watershed model

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- Live webinar to introduce project to watershed residents and community groups
- Post-workshop brief survey to receive input from watershed residents to be circulated by the project team

Sub-Task 1.3 Finalize future climate scenarios

CRWA will:

- Support W&S in compiling possible rainfall scenarios to be used for the project based on CRWA's involvement in other planning processes (local planning initiatives, RMAT, MassDEP, etc.)
- Summarize relevant input received at the workshop and following the workshop from the surveys
- Facilitate project team call, including engagement of interested municipal representatives, to select future climate scenarios to be used for planning purposes

Deliverables

- Project team call

Task 2. Model Development

Sub-Task 2.1 Develop watershed-wide Hydrologic/Hydraulic (H/H) Model

- N/A

Sub-Task 2.2 Field verification/reconnaissance of select sites/structures

CRWA staff will conduct 12 days in the field (4 staff x 3 field days each) and an additional 1 day compiling and organizing data into the format requested by W&S.

Flood prone areas, as identified by municipal staff and residents from the Workshop 1, will also be evaluated to gain a better understanding of potential improvements required to mitigate flooding issues. Site visits will be conducted at select flood prone areas to document existing conditions and identify potential solutions.

Deliverables

- Field visits (up to 3 days, by up to 4 staff) at select sites/structures/flood prone areas
- Compiled field notes/data

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Sub-Task 2.3 Calibrate/Validate H/H Model with best available data

- N/A

Task 3. Model Selected Scenarios

Sub-Task 3.1 Run H/H model for future climate scenarios

- N/A

Task 4. Select Priority Watershed Scale Climate Adaptation Strategies

Sub-Task 4.1 Identify Priority Actions

CRWA will identify and engage a few community partners who are able to dedicate more time to the project as a priority action subgroup of the project team.

Based on feedback received in Task 1 and input from the subgroup, CRWA will develop a database of priority flood mitigation strategies/actions including but not limited to:

- Upstream flood storage assessment for priority areas
- Green infrastructure interventions for priority areas
- Land conservation / land use change strategies
- Floodplain restoration strategies

The flood mitigation strategies that will be evaluated can be a combination of watershed wide strategies and site-specific strategies. Examples of watershed-wide strategies include reducing directly connected impervious areas by 10-25% in upstream areas of the watershed, evaluating opportunities to restore a certain percentage of floodplains for flood storage, etc. Examples of site-specific strategies include evaluating large publicly or privately owned open spaces for implementing large scale green infrastructure interventions, such as constructed wetlands, dredging of certain upstream reservoirs or optimizing their operations to increase flood storage.

CRWA will engage the subgroup to develop a relatively simple methodology to rank actions/strategies for developing flood mitigation alternatives based on severity (extent and depth) of flooding impact, impact to vulnerable communities, and other parameters identified by the team.

CRWA will include Communities Responding to Extreme Weather (CREW) in the subgroup discussions to provide input on climate equity issues (included in Task 6).

Deliverables

- Database of watershed-wide and site-specific flood mitigation strategies;

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- List of priority strategies/actions
- Facilitation of subgroup

Sub-Task Task 4.2 Select Priority Actions

CRWA will facilitate a second full project team workshop before April 30, 2021 to identify priority watershed scale flood mitigation strategies to assess in Phase I. The workshop (or series of online meetings) will consist of:

- W&S presentation of the existing conditions/future climate model results, including initial quantification of the impacts to communities and property.
- CRWA summary of responses from the community survey administered in Task 1 (which include some input on residents' preferences or concerns for flood mitigation approaches), database of possible restoration strategies/projects and presentation on initial ranking methodology.
- Selection of priority actions through discussion and voting.

Deliverables

- Workshop 2 with project team communities
- Selection of prioritized list of flood mitigation strategies with maximum potential of flood reduction at the watershed scale

Task 5. Watershed Scale Adaptation Recommendations

Sub-Task 5.1 Assess Priority Mitigation Measures using H/H model

- Provide details, as needed, on priority mitigation measures to be incorporated into the model.
- Advise and provide feedback on model runs.

Sub-Task 5.2 Evaluate Co-Benefits of Nature Based Solutions

- Calculate water quality and water recharge co-benefits of selected priority actions

Deliverables

- List of co-benefits of the nature-based flood mitigation measures evaluated in Task 5.1

Sub-Task 5.3 Prioritization of flood mitigation alternatives

- CRWA will facilitate a meeting in May 2021, to present the results of tasks 5.1 and 5.2 to the project team.

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- Following the meeting, CRWA will administer an online survey to participating communities, requesting one response per community, to rank priorities for both near and long-term implementation.
- CRWA will present project results to the full Charles River Climate Compact in June 2021.

Deliverables

- Online meeting with project team to present results of Tasks 5.1 and 5.2
- Online survey for participating communities to submit feedback and rank priorities for implementation
- Present results at a Charles River Climate Compact meeting

Task 6. Communications and Outreach

Sub-Task 6.1 Project Website

CRWA will develop and host a project website to serve as the primary repository for information about the project. Input forms or surveys will be hosted on the websites and results of surveys will be shared there too. Project team contact information will be available and posted on the webpage.

Deliverables

- Project website live in November 2020

Sub-Task 6.2 Engage Stakeholders

During project development the team identified a few key project stakeholders outside of the 15 participating communities:

- watershed residents
- community and regional groups working on climate justice issues

CRWA will serve as the primary contact with these groups both to engage input and provide project updates. To fulfil all outreach tasks detailed in the table in Section 9.4 of the grant application CRWA will:

- Develop a flyer or brochure about the project and results to be shared by participating communities (See Task 6.4). CRWA will produce the flyer in English and have it translated into two additional languages based on available census data of languages spoken across the watershed.
- Present and record a virtual event describing the project in November or December, post the recording to YouTube and link to the project webpage
- Online survey to obtain resident input available in English and two other languages (CREW will assist with distribution; see Task 1)
- Integrate the web mapping interface into the project web page

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- Develop and post at least three social media posts throughout the project that municipal partners can also use.
- Write three e-news updates about the project, available in two additional languages.
- Project presentation at 5-6 CREW meetings
- Present or provide project materials to 8th grade teachers and/or students (based on availability and safety) at Wilson Middle School
- Virtual event on project results

These stakeholders will be engaged throughout the project using the strategies detailed in response 9.4, including development of print materials in multiple languages as translated by the state, direct calls and meetings, project team attendance at existing meetings, and a partnership with the eighth grade at Natick's Wilson Elementary School. Additionally, CREW will assist with engaging local residents working in climate preparedness and climate equity to participate in the project. CREW will focus on engaging their partners in communities with high Environmental Justice populations. CREW team members who work on climate equity issues will also provide input on the project.

Finally, the project team will also provide a webinar or presentation at a regional conference (such as the Massachusetts Municipal Association or Massachusetts Ecosystem Climate Adaptation Network annual conferences) to inform representatives from communities across the state about the project methods and results.

Deliverables

- Engage with stakeholders beyond the project team at various decisions points as detailed in Tasks 1-5
- Webinar/presentation at a regional conference on the project findings

Sub-Task 6.3 Develop GIS maps and data for online application

CRWA will work with the technical team at W&S to integrate the online mapping tool into the project webpage, or standalone web page.

Deliverables

- Online GIS flood maps integrated into project webpage

Sub-Task 6.4 Communicate Results

CRWA will facilitate a planning call to guide the development of the communications kit in the spring of 2021.

CRWA will compile project materials into a standardized community communications kit for use by participating communities to present project results to their residents. W&S will provide a minimal number of PowerPoint slides on the technical modeling aspects of the project including project results, designed for a lay audience, to be included in the kit.

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CRWA will develop:

- Additional PowerPoint slides as needed
- A customizable press release
- A flyer or brochure on the project promoting the project website available in three languages (translation provided by the state).
- Information about project next steps for communities and residents

CRWA will facilitate the final project workshop in June 2021. This workshop will consist of:

- Presentation of the communications kit
- Training by an experienced professional about engaging diverse and minority communities in climate planning to support communities in reaching out to these residents as they move forward with their own climate planning (unless the group decides to do this earlier in the project)

Deliverables

- Standardized community communications kit for participating communities in the watershed
- Final Project Workshop (Workshop 3) to present communications kit and training for communities on how to engage diverse and minority population groups throughout implementation of climate planning in their respective communities
- Discuss next steps on which flood mitigation strategies/projects will advance to implementation

Task 7. Project Management

Sub-Task 7.1 Monthly reports to EEA

CRWA will provide information to W&S to prepare monthly reports for the Town of Natick to submit.

Deliverables

- Monthly progress reports

Sub-Task 7.2 Prepare Final Report Draft

CRWA will compile all project deliverables from Tasks 1-6 into a final report for review by MVP program staff in June 2021. Most, if not all, project deliverables will have been submitted to EEA before May 31, 2021.

Deliverables

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- Draft final report to EEA for review

Sub-Task 7.3 Prepare Final Case Study

Incorporate MVP staff feedback and prepare a final report.

Deliverables

- Final project report

Sub-Task 7.4 Financial management and tracking

CRWA will submit invoices by task (but not subtask) to W&S based on the following schedule:

- Project start – 12/31: January 15th
- 1/1-3/31: April 15th
- 4/1-6/30: June 30th

Deliverables

- Project invoices

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Project Timeline

Task	2020					2021					
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Task 0: Kick-off meeting with Town, EEA, and Consultant											
Task 1: Model Design											
Sub-task 1.1 Review Existing Data/Models											
Sub-task 1.2 Engage participating communities in design input workshop											
Sub-task 1.3 Finalize future climate scenarios											
Task 2: Model Development											
Sub-task 2.1 Develop watershed-wide Hydrologic/Hydraulic (H/H) Model											
Sub-task 2.2 Field verification/reconnaissance of select sites/structures											
Sub-task 2.3 Calibrate/Validate H/H Model											
Task 3: Model Selected Scenarios											
Sub-Task 3.1 Run H/H model for future climate scenarios											
Task 4: Select Priority Watershed Scale Climate Adaptation Strategies											
Sub-task 4.1 Identify Priority Actions											
Sub-task 4.2 Select Priority Actions											
Task 5: Watershed Scale Adaptation Recommendations											
Sub-task 5.1 Assess Priority Mitigation Measures using H/H model											
Sub-task 5.2 Evaluate Co-Benefits of Nature Based Solutions											
Sub-task 5.3 Prioritization of flood mitigation alternatives											
Task 6: Communications and Outreach											
Sub-task 6.1 Project website											
Sub-task 6.2 Engage Stakeholders											
Sub-task 6.3 Develop GIS maps and data for online application											
Sub-task 6.4 Communicate Results											
Task 7:											
Sub-Task 7.1 Monthly reports to EEA											
Sub-task 7.2 Prepare Case Study Draft											
Sub-task 7.3 Prepare Final Case Study											
Sub-task 7.4 Financial management and tracking											