SOLICITATION FOR:

Design and Engineering services for storm water storage at Nunziato Field
RFP # 16-27

CITY OF SOMERVILLE, MASSACHUSETTS

RELEASE DATE: 09/23/15
QUESTIONS DUE: 10/09/15 by 12PM EST
DUE DATE AND TIME: 10/14/15 by 11AM EST

Anticipated Contract Award	**11/02/15**
Est. Contract Commencement Date	**11/02/15**
Est. Contract Completion Date	**11/01/16**

DELIVER TO:

City of Somerville
Purchasing Department
Attn: Alex Nosnik
Asst. Purchasing Director
anosnik@somervillema.gov
93 Highland Avenue
Somerville, MA 02143

NOTICE TO PROPOSERS

RFP # 16-27

All bids must be in accordance with terms and conditions set forth herein as stated.

SECTION A	Sealed proposals for: **Design and Engineering services for storm water storage at Nunziato Field** The bids will be received at the office of the Purchasing Director, Somerville City Hall, 93 Highland Avenue, Somerville, MA. 02143 no later than **10/14/15 by 11AM EST**
SECTION B.	Forms of price bid, specifications and terms of contract can be obtained at the above office on or after **09/23/15**
SECTION C.	Bid envelopes shall be clearly marked as follows: **Design and Engineering services for storm water storage at Nunziato Field Bid No: RFP # 16-27**
SECTION D.	If **awarded** vendor is a Corporation, vendor must comply with request for "Certificate of Good Standing". See attached instructions.
SECTION E.	**INSURANCE: Awarded Vendor** must comply with insurance requirements as stated in the bid package.
SECTION F.	Living Wage - See Section 5.0
SECTION G.	The requirements in Section **E or F** will be waived if the words "Non-Applicable" **(N/A)** are inserted in the space designated.
SECTION H.	The Purchasing Director reserves the right to accept or reject any or all bids, to waive any informalities, to divide the award, to amend any specifications or to accept any portion of a bid, if in her sole judgment, the best interest of the City of Somerville would be served by so doing.
SECTION I.	The City reserves the right to cancel a contract, if awarded bidder does not respond to all necessary documents and required signature forms within ten (10) working days of receipt of contract.

Signature: _____

Company: _____

By: _____ Title: _____

Date: _____ Tel. No: _____ Fax: _____

CITY OF SOMERVILLE MASSACHUSETTS
SOMERVILLE CITY HALL
93 HIGHLAND AVENUE
SOMERVILLE, MA 02143

BIDDING INSTRUCTIONS FOR
Design and Engineering services for storm water storage at Nunziato Field Bid No. RFP # 16-27

Enclosed you will find a request for proposal for: Design and Engineering services for storm water storage at Nunziato Field

SECTION 1.0
GENERAL INFORMATION ON BID PROCESS

1.1 General

- When submitting proposal, please identify the solicitation title and number clearly on the submitted envelope. All responses must be sealed and delivered to:

  Purchasing Department
  City of Somerville
  93 Highland Avenue
  Somerville, MA 02143.

- Bids submitted must be an original
- **A complete bid consists of all documents listed in Sections 2.0, 4.0, 5.0 and all related appendices. Bids will be considered non-compliant and will be rejected if all required documents are not present.**
- A complete BID must also include a cover letter signed by an official authorized to bind the proposer contractually and contain a statement that the proposal is firm for ninety (90) days. **An unsigned letter or one signed by an individual not authorized to bind the Offeror will be disqualified.**
- The City of Somerville reserves the right to reject any or all proposals, waive minor informalities, and accept the proposal deemed to be in the best interest of the City.
- The successful Offeror must be an Equal Opportunity Employer.
- The signature of the Offeror's authorized official(s) must be provided on all the proposal forms.
- All information in the Offeror's response should be organized and presented in a clear / concise format. Accuracy and completeness are essential. The successful response will be incorporated into a contract as an exhibit; therefore, Offerors should not make claims to which they are not prepared to commit themselves contractually.
- Additional copies of the solicitation may be obtained from the Purchasing Department on and after **09/23/15** between the hours of 8:30 a.m. and 4:30 p.m. Monday – Wednesday, 8:30 a.m. to 7:30 p.m. on Thursdays and 8:30 a.m. to 12:30 p.m. on Fridays.

- The Price Summary Form in Section 4 must be completed. No substitute form will be accepted. Pricing must remain firm for the entire contract period.
- Failure to answer any questions, to complete any form, or to provide the documentation required will be deemed non-responsive and result in disqualification of the bid unless the City determines that such failure constitutes a minor informality, as defined in Chapter 30B.
- Please review and return your sealed bids as sent. Also, ensure that all forms are completed and your bid response is submitted as requested. Use the attached Proposers Checklist to ensure bid documents are complete.

1.2 Submission Instructions
Please submit two sealed envelopes, all within one sealed packaged, with the following contents and marked in the following manner:

Contents of Envelope	Marked As
Envelope 1 Non-Price Technical Proposal: Shall Include (1) original and one (1) copy, and one (1) electronic copy. [Electronic copies are to be submitted on CD-ROM or thumb drives and are to be saved in Adobe Acrobat format. ("Read only" files are acceptable.)]	**To Be Marked:** Non-Price Proposal **Design and Engineering services for storm water storage at Nunziato Field RFP # 16-27**
Envelope 2 Price Proposal: Shall Include one (1) original.	**To Be Marked:** Price Proposal **Design and Engineering services for storm water storage at Nunziato Field RFP # 16-27**
Please send the complete sealed package to the attention of :	**Alex Nosnik** **anosnik@somervillema.gov** Purchasing Department Somerville City Hall 93 Highland Avenue Somerville, MA 02143

(Note: Massachusetts General Laws, Chapter 30B requires that price proposals must be separate from technical proposals. Therefore, please make no reference to pricing in the non-price technical proposal. Failure to adhere to this requirement will result in disqualification. It is the sole responsibility of the Offeror to insure that the proposal arrives on time at the designated place. Late Proposals will not be considered, and will be returned.)

Reference: The Proposer shall list at least three relevant references. The City of Somerville reserves the right to use ourselves as a reference. References shall include the following information.

- The name, address and telephone number of each client listed above.
- A description of the work performed under each contract.
- A description of the nature of the relationship between proposer and the customer.
- The name and telephone number of the person the City may contact as a reference.

- The amount of the contract.
- The volume of the work performed.
- The dates of performance.

1.3 Questions

Questions are due: 10/09/15 by 12PM EST

Questions concerning this solicitation must be mailed or hand delivered in writing to:

Alex Nosnik
Asst. Purchasing Director
Somerville City Hall
Purchasing Department
93 Highland Avenue
Somerville, MA 02143

Or emailed to:

anosnik@somervillema.gov

Or faxed to:

617-625-1344

Answers will be sent via an addendum to all Offerors who received this solicitation through the Purchasing Department. Bidders are encouraged to contact the Purchasing Department to register as a bid document holder to automatically receive addenda as they are issued. It is the responsibility of the Offeror to also monitor the bid portal on the City's website for any updates, addendums, etc. regarding that specific solicitation. The web address is: http://www.somervillema.gov/departments/finance/purchasing/bids.

If any bidders or proposers contact anyone outside of the Purchasing Department regarding this bid/proposal, that bidder/proposer will be disqualified immediately.

1.4 Bidding Schedule

Key dates for this Request for Proposals:

RFP Issued	**09/23/15**
Deadline for Submitting Questions to RFP	**10/09/15 by 12PM EST**
Proposals Due	**10/14/15 by 11AM EST**
Anticipated Contract Award	**11/02/15**
Est. Contract Commencement Date	**11/02/15**
Est. Contract Completion Date	**11/01/16**

Responses must be delivered by 10/14/15 by 11AM EST to:	City of Somerville Purchasing Department Attn: Alex Nosnik 93 Highland Avenue Somerville, MA 02143

SECTION 2.0
SPECIFICATIONS/SCOPE OF SERVICES

Background

The Project's purpose is to engineer and design surface and subsurface stormwater detention based on the recommended Alternatives 3.1 and 3.2 presented in the "Evaluation of Flood Reduction Alternatives in Union Square" report dated July 2013 to reduce flooding and improve level of service (LOS) within the City's combined sewer and drain systems.

The July 2013 report (***attached as Attachment 1***) defined two alternatives that provide a total of 3.6 ac-ft of storm water storage at Nunziato Field for a 10-year, 24-hour NRCS event. Alternative 3.1 provides 1.6 ac-ft of storm water detention in a new bermed area of the field with capacity for infiltration. Alternative 3.2 provides 2.0 ac-ft of storage in a new underground tank equipped with dewatering pumps to receive overflow from the existing Summer Street drain when surcharged. The purpose of this project is to proceed with the concept of Alternatives 3.1 and 3.2 and optimize the design of the surface basin and underground tank for both current and future conditions.

Future phases of the project will also include surface and subsurface improvements within the surrounding Summer Street storm water catchment (92 acres) to capture and convey the total storm water storage volume to the underground tank. These future improvements are conceptualized as follows:

- extension of the Summer Street drain
- sewer separation for Avon Street, Berkeley Street and adjacent areas
- increase of catch basin inlet capacity
- illicit discharge elimination beyond the Summer Street drain

The pre-design phase of the project requires engineering these concepts and other innovative urban storm water management technologies to develop a final design and construction phasing plan measured by its cost effectiveness, hydraulic optimization and community impact.

Project Areas

The Project Areas are depicted in the attached map and includes the following locations:

- Primary Project Area including Nunziato Field and the current extent of the Summer Street drain. This area is the focus of the first phase of design and construction. The Primary Project Area also includes adjacent surface and subsurface infrastructure outside the boundary depicted in the map, but within the Summer Street storm water catchment, as required to capture and convey the total storm water storage volume to the field.
- Sewer Separation Area including Avon and Berkeley Streets. For the first phase, these areas will be the focus of preliminary designs to determine the ultimate design capacity of the Nunziato Field stormwater detention tank. Final design and construction of sewer separation in this area will be completed in a subsequent phase.
- Summer Street Stormwater Catchment Area is the approximate boundary of the area contributing flow to the combined sewer system.

Delineating the location and extent of phased area improvements is a task of the Preliminary Design Phase.

Scope of Services

The following sections outline the minimum scope of services for project management, pre-design, final design and bid support phases.

2.1 Project Management

Perform the following activities as part of a Project Execution Plan (PXP):

a. Health and Safety Plan
Prepare a Project Health and Safety Plan to identify and address potential hazards during the field investigations.

b. Project Schedule
Develop an initial baseline cost-loaded schedule for the design work, establishing activities, sequencing of work activities, major milestones, and deliverable dates for the duration of the project.

c. Project Control
Review and monitor project schedule and budget on a monthly basis, and manage both in-house and subconsultant activities. Allocate resources and make adjustments as needed to meet project objectives. Prepare project schedule updates monthly to reflect the progress of the work and changes to the schedule.

d. Status Reports/Invoices
Prepare monthly status reports and invoices. Status reports (letter format) will provide a brief summary of work accomplished in the previous period, upcoming work, current budget status, and any special issues to be resolved or coordinated with the City.

2.2 Preliminary Design Phase

2.2.1 Existing Conditions Review

Collect and review historical data and plans for all utilities and conditions in the Primary Project and Sewer Separation Areas. Review the City's computerized hydraulic InfoWorks ICM model of major storm water catchments and infrastructure within the City. Gather relevant information concerning any improvements planned by the City in the vicinity of Nunziato Field and tributary areas.

2.2.2 Topographical Survey

Perform an instrument survey in the Primary Project Area, as necessary, to include surface features, above and below grade utilities, and topographic details at a scale of 1 inch = 20. Laser scanner survey will be performed along Summer Street. Besides the traditional contour lines, a 'point cloud' will be provided as the result of this survey. The survey will be referenced to the City's approved coordinate system and vertical datum.

2.2.3 Field Investigations

Perform additional inspections and investigations in the Primary Project and Sewer Separation Areas on the existing sewer, drain and combined system required to calibrate the refined area model and complete the design of the improvements. Record CCTV inspections on a standard Manhole and Pipe Assessment Certification Program (MACP or PACP) form and indicate defect ratings. Inspections shall conform to the National Association of Sewer Service Company's (NASSCo) Pipeline Assessment Certification Program (PACP) standards and indicate defect ratings.

Perform private building inspections and dye testing, as necessary, to confirm service lateral connectivity to existing sewer and drain. Prepare owner notifications and coordinate schedule for building access.

2.2.4 Hydraulic Model Analysis

Refine the City's InfoWorks ICM hydraulic model by adding detail in the Summer Street catchment model area including detailed delineation of storm water sub-catchments and sanitary sewer-sheds. Incorporate the existing condition and field investigation data into the refined model. Calibrate the refined model meeting the Chartered Institution of Water and Environmental Management (CIWEM)'s *Wastewater Planning Users Group (WaPUG) Code of Practice for the Hydraulic Modelling of Sewer Systems* standards.

Use the calibrated model to develop and analyze effectiveness of potential infrastructure configurations and controls to meet or exceed the combined flood reduction and hydraulic level of service values of alternatives 3.1 and 3.2 in the July 2013 report.

2.2.5 Engineering Analysis

Conduct engineering and analysis to confirm feasibility and advance the concepts of the proposed improvements and analyzed configurations. Analysis will include the optimization of the storage tank under interim and future, fully separated conditions.

2.2.6 Geotechnical & OHM Investigation

Conduct a geotechnical, oil and hazardous materials evaluation and investigation program. Prepare a technical memorandum to include the following items as applicable to the Project:

- Recommend foundation subgrade preparation with foundation design criteria including allowable bearing capacity, estimated settlements, lateral earth pressures and other information required for design and preparation of contract drawings and specifications.
- A summary of applicable design parameters for the proposed pipelines and structures as provided by the project Civil and Structural Engineers, including settlement tolerances and special features.
- Soil parameters including coefficient of sliding friction, and soil factor for seismic design.
- Comments on aspects of construction related to soils and subgrade preparation, including soil excavation and filling, dewatering, and special requirements for protecting strength of undisturbed soils or bedrock at design invert level

- Results of the laboratory grain size analyses.
- Recommendations related to the use of on-site material as backfill
- Location plan of subsurface explorations.
- Test boring logs prepared by the test boring Contractor following review.
- Observation well installation and monitoring reports.

2.2.7 Preliminary Report

Prepare a Preliminary Report that documents the findings, analysis and recommendations of the Preliminary Design Phase, including a construction phasing plan, a construction schedule, and a CLASS 4 cost estimate in accordance Association for the Advancement of Cost Engineering (AACE) International guidelines.

2.2.8 Deliverables

Two hard-copies and one electronic-copy of the following deliverables shall be provided to the City. Each deliverable shall be provided as a draft for one round of City review and subsequently revised to address City comments.

- Field Investigation Technical Memorandum
- Geotechnical Technical Memorandum
- Preliminary Report

2.2.9 Meetings

Prepare for and attend meetings to review progress; to present results of investigation, analysis, and design; interface with the public; and to obtain direction on all matters requiring decisions by the City. Project work must be coordinated with the City's landscape architect for improvements to Nunziato Field progressing as a separate project. Prepare agenda and minutes for each meeting, and presentation materials for each working session and public meeting.

2.3 Final Design Phase for Primary Project Area

2.3.1 Bid Documents

Prepare plans and specifications for the following disciplines to show existing conditions and proposed improvements in the Primary Project Area.

- General
- Geotechnical and OHM
- Civil Sewer, Drain and Utility Relocation
- Roadway
- Structural
- Mechanical
- Electrical, Instrumentation & Control
- Traffic Management

The documents will be of sufficient detail to indicate to the contractor the quantity and quality of the proposed work, and be in general conformance with the recommendations of the Preliminary Report. Plans shall be prepared at 1" = 20' scale.

The design shall include a site enabling plan for restoration of Nunziato Field and the associated dog park and to accommodate future park improvements. Landscape design is not a requirement of the Project.

Perform detailed hydraulic modeling and other calculations, as necessary, for final design of the proposed improvements.

Prepare CLASS 3 cost estimate in accordance AACE International guidelines. Cost estimates shall include a recommended construction phase schedule establishing mid-point of construction.

2.3.2 Permits

Identify all permits required for award of the Project to a Construction Contractor and draft and submit associated permit applications to the agencies on behalf of the City. All agency permit fees will be paid by the City.

2.3.3 Deliverables

Two full-size hard-copies and one electronic-copy of the following deliverables shall be provided to the City. Each progress deliverable shall be followed by a written response to City review comments.

- 60% Plans, Specifications and Cost Estimate
- 90% Plans, Specifications and Cost Estimate
- 100% Plans, Specifications and Cost Estimate
- Stamped Bid Documents and Cost Estimate

2.3.4 Meetings

Prepare for and attend the meetings to review progress; to present results of investigation, analysis, and design; interface with the public; and to obtain direction on all matters requiring decisions by the City. Project work must be coordinated with the City's landscape architect for improvements to Nunziato Field progressing as a separate project. Prepare agenda and minutes for each meeting, and updated presentation materials for each workshop and public meeting.

2.4 Bid Support Phase

Prepare for and attend the pre-bid and bid-opening meeting. Prepare agenda and minutes for each meeting.

Review prospective bidder RFIs and recommend a response to the City.

Perform an evaluation of the responding bidders' unit pricing, qualifications and references and prepare a letter to the City with a recommendation for Contract Award.

2.5 Technical Approach

2.51 Project Team

The proposal must identify the individuals proposed as the Project Team and demonstrate that team members have the specific experience outlined in this request. Identify the team organization, provide resumes for each team member, and designate a team leader. The Project Team must demonstrate experience in the following specialty areas, at a minimum:

- Hydraulics and hydrology
- Combined sewer separation
- IDDE and inflow removal
- Storm water pump stations

The following disciplines must be represented in the Project Team: storm water planner experienced in computerized hydraulic modeling; civil engineer; structural engineer; electrical engineer; geotechnical engineer; OHM expert; and topographical survey. Other disciplines may be added as needed. Each team member must demonstrate successful experience within his or her discipline and declare their registration or license to practice professionally within the Commonwealth of Massachusetts.

2.52 Representative Projects

Provide detailed descriptions of representative projects that best illustrate the firm's ability to provide services similar in size and complexity to the Project. Representative projects must have been designed within the last 15 years, or if in design be at least 70% complete.

Each representative project shall identify any Project Team member that participated in the project and explain his or her involvement. Projects completed by a Project Team member while working at a prior firm shall not be utilized as a representative project, but may be listed in the individual's resume.

2.53 Understanding & Methodology

The proposal must convey an understanding of the nature of the work and present the skills, resources and methodology that will be utilized to successfully deliver the scope of services and provide any added value to the City.

2.54 Construction Phase Capacity

Construction phase services are not included in this RFP, but proposals must demonstrate the capacity to perform all aspects of construction phase engineering, management and administration should the City choose to amend the design phase contract to add these services.

The proposal must establish a design and construction phase approach to complete all work in Nunziato Field as efficiently as possible in an effort to advance the City's park and recreation planning efforts. The project delivery method shall be design-bid-build.

REGULATIONS

The project design must comply with all applicable federal and state laws and City ordinances and regulations.

The Project Team's recommendations should be informed by requirements in the Americans with Disabilities Act of 1990 (42 U.S.C. § 1210 et seq), Section 504 of the Rehabilitation Act of 1973 (29
U.S.C. §791 et seq), and the Massachusetts Architectural Access Board (M.G. L. c. 22 § 13A).

2.61 COMPARATIVE EVALUATION CRITERIA

The Comparative Evaluation Criteria set forth in this section of the RFP shall be used to evaluate responsible and responsive proposals. The Comparative Evaluation Criteria are:

1. Offeror has prepared a complete submission addressing all required points in RFP	
Highly Advantageous ☐	Offeror has prepared a more than acceptable submission including all requirements.
Advantageous ☐	Offeror has prepared an acceptable submission including all requirements.
Not Advantageous ☐	Offeror has prepared a less than acceptable submission not including all requirements.

2. What is the Quality of the previous work scopes included with the RFP Submission?	
Highly Advantageous ☐	The Quality of the previous work scopes included in the RFP submission, showing the consultant‟s experience, is more than acceptable.
Advantageous ☐	The Quality of the previous work scopes included in the RFP submission, showing the consultant‟s experience, is acceptable.
Not Advantageous ☐	The Quality of the previous work scopes included in the RFP submission, showing the consultant‟s experience, is less than acceptable.

3. Review of references.	
Highly Advantageous ☐	Positive response from three or more references
Advantageous ☐	Positive response from two references that are generally good
Not Advantageous ☐	One negative response from a reference

4. Experience of Staff and Key Individuals.	
Highly Advantageous ☐	Key Personnel assigned to project have at least 10+ years experience.
Advantageous ☐	Key Personnel assigned to project have at least 6-10 years experience.
Not Advantageous ☐	Key Personnel assigned to project have at least 5 years' experience.

All proposals will be reviewed by an evaluation committee composed of employees of the City. Final selection will be based upon and the evaluators' analysis of the information and materials required under the RFP and provided by the proposing vendors in their submissions. The City reserves the right to involve an outside consultant in the selection process. Proposals that meet the minimum quality requirements will be reviewed for responses to the comparative evaluation criteria. The evaluation committee will assign a rating of Highly Advantageous, Advantageous, Not Advantageous or Unacceptable to the comparative evaluation criteria.

The City will only award a contract to a responsive and responsible Proposer. Before awarding the contract(s), the City may request additional information from the Proposer to insure that the Proposer has the resources necessary to perform the required services. The City reserves the right to reject any and all proposals if it determines that the criteria set forth have not been met.

2.62 Quality Requirements

Quality requirements, or basic business requirements, are the minimum set of standards that an entity must meet and certify to be considered responsible and responsive. **Please complete the Quality Requirements form, below, and submit it with your completed bid.** The City of Somerville will disqualify any response that does not meet the minimum quality requirements. A "No Response" to items 1-8, or a failure to respond to any of the following minimum standards will result in disqualification of your bid.

	QUALITY REQUIREMENTS	YES	NO
1.	As a Vendor are you capable of providing the Consultant Services for the Nunziato Field Storm Water Storage Design, as described in the project summary?		
2.	Have you identified your Project Team, with a list of members and included their resumes?		
3.	Has the Vendor five (5) or more years of experience in providing similar Consultant services to other communities?		
4.	Are you able to meet the requirements of the Public Process, as specified in the RFP?		
5.	Are you able to accommodate the deadlines as outlined in the specifications?		
6.	Are you able to provide a report both in hard copy and electronic format, as requested?		
7.	Has the Vendor supplied a reference form with three entities, of which at least two are in the public sector, where they conducted similar consultant services?		
8.	As a Vendor are you capable of providing the Consultant Services for the Nunziato Field Storm Water Storage Design, as described in the project summary?		
9.	Optional: Are you a Mass. Supplier Diversity Office MBE/WBE certified minority or woman owned business?		

In order to provide verification of affirmative responses to items 1-8 under the quality requirements listed in the Quality Requirements Form, proposers must submit written information that details the general background, experience, and qualifications of the organization. Subcontractors, if applicable, must be also included.

2.7 Period of Performance

The period of performance for this contract begins on **11/02/15** and ends on **11/01/16**.

2.8 Place of Performance

All services, delivery and other required support shall be conducted in Somerville and other locations designated by the Department POC. Meetings between the Vendor and City personnel shall be held at the City of Somerville, Massachusetts.

2.9 Vendor Conduct

The Vendor's employees shall comply with all City regulations, policies and procedures. The vendor shall ensure that their employees present professional work attire at all times. The authorized contracting body of the City may, at his/her sole discretion, direct the vendor to remove any vendor employee from city facilities for misconduct or safety reasons. Such rule does not relieve the vendor of their responsibility to provide sufficient and timely service. The City will provide the vendor with immediate written rationale notice for removal of employee through the Purchasing Department. Vendors must be knowledgeable of the conflict of interest law found on the Commonwealth's website http://www.mass.gov/ethics/laws-and-regulations-/conflict-of-interest-information/conflict-of-interest-law.html. Vendors may be required to take the Conflict of Interest exam.

2.10 Vendor Personnel

The proposer shall clearly state who will staff the project as project manager, and the staff must demonstrate the ability to carry out the requirements of this contract. The Evaluation Committee will evaluate the number of full time equivalents with demonstrated ability to carry out this project and the reasonableness and distribution of personnel expertise.

2.11 Confidentiality

The Vendor agrees that it will ensure that its employees and others performing services under this contract will not use or disclose any non-public information unless authorized by the Purchasing Department. That includes confidential reports, information, discussions, procedures, and any other data that are collected, generated or results from the performance of this SOW.

All documents, photocopies, computer data and any other information of any kind collected or received by the Vendor in connection with the contract work shall be provided to the Purchasing Department upon request at the termination of the contract (i.e., the date on which final payment is made on the contract or at such other time as may be requested by the Purchasing Director or as otherwise agreed by Purchasing Director and the Vendor).

The Contractor may not discuss the contract work in progress with any outside party, including responding to media and press inquiries, without the prior written permission of the Purchasing Department. In addition, the Vendor may not issue news releases or similar items regarding

contract award, any subsequent contract modifications, or any other contract-related matter without the prior written approval of the Purchasing Director. Requests to make such disclosure should be addressed in writing to the Purchasing Director.

2.12 Deliverables

Vendor shall provide for all day-to-day supervision, inspection and monitoring of all work performed to ensure compliance with the contract requirements. The contractor shall follow through to assure that all City and Contractor identified defects or omissions in the contract requirements are corrected.

SECTION 3.0
RULE FOR AWARD

The contract shall be awarded to the responsible and responsive proposer submitting the most advantageous proposal response, taking into consideration all evaluation criteria as well as price. The contract will be awarded within ninety (90) days after the bid opening. The time for award may be extended for up to 45 additional days by mutual agreement between the City and the apparent lowest responsive and responsible bidder (or, for a contract requiring payment to the City, the apparent highest responsive and responsible bidder).

SECTION 4.0
PRICING

The undersigned proposes to supply and deliver the materials and services specified below in full accordance with the Contract Documents supplied by the City of Somerville entitled:

RFP # 16-27 Design and Engineering services for storm water storage at Nunziato Field

The Offeror proposes to furnish and deliver the services specified at the following prices that include delivery, the cost of fuel, the cost of labor and all other charges related to successful completion of trips. Prices are to remain the same for the entire contract period.

TO BE ENCLOSED IN SEPARATELY SEALED ENVELOPE

Please provide Unit Price for the following and include any additional fees not listed:

Fee Breakdown

2015 - 2016 Fee

Estimated Total for Scope of Services	$ _____

2015 - 2016 Hourly Rate Schedule

Principal-In-Charge	$ _____
Project Manager / Technical Manager	$ _____
Supervising Hydraulic Modeler	$ _____
Project Hydraulic Modeler	$ _____
Supervising Engineer	$ _____
Project Engineer	$ _____
LSP	$ _____
Other	$ _____
Other	$ _____

NAME OF COMPANY / INDIVIDUAL: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

TELEPHONE/FAX/EMAIL: _____

SIGNATURE OF AUTHORIZED INDIVIDUAL: _____

Please acknowledge receipt of any and all Addendums (if applicable) by signing below and including this form in your proposal package. Failure to do so may subject the proposer to disqualification.

ACKNOWLEDGEMENT OF ADDENDUMS:

Addendum #1 _____ #2 _____ #3_____ #4 _____

SECTION 5.0
FORMS

Design and Engineering services for storm water storage at Nunziato Field
RFP # 16-27
PROPOSERS' CHECKLIST

Please ensure all documents listed on this checklist are included with your bid. Failure to do so may subject the proposer to disqualification.

Non-Price Proposal

____ Cover Letter

____ Bidder's Checklist

____ Notice to Proposers (found at the beginning of this document)

____ Acknowledgement of Addenda (if applicable and non-price related)

____ Quality Requirements/Minimum Selection Criteria

____ Somerville Living Wage Form

____ Certificate of Non-Collusion and Tax Compliance

_____ Certificate of Signature Authority

_____ Certificate of Good Standing (will be required of awarded Vendor; please furnish with bid if available)

_____ Insurance Specifications (bidders to review and include in bid package; furnish sample certificate with bid if possible)

_____ Reference Form (or equivalent may be attached)

_____ Vendor Certification Form

Price Proposal

____ Acknowledgement of Addenda (if applicable and price related)

_____ Price Summary Page

Non-Collusion Form and Tax Compliance Certification

Instructions: Complete each part of this two-part form and sign and date where indicated below.

A. NON-COLLUSION FORM

I, the undersigned, hereby certify under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other 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.

Signature: _____
(Individual Submitted Bid or Proposal)
Duly Authorized

Name of Business or Entity:_____

Date: _____

B. TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, §49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support, as well as paid all contributions and payments in lieu of contributions pursuant to MGL 151A, §19A(b).

Signature: _____
(Duly Authorized Representative of Vendor)

Name of Business or Entity:_____

Social Security Number or Federal Tax ID#:_____

Date: _____

Certificate of Authority
(Corporations Only)

Instructions: Complete this form and sign and date where indicated below.

1. I hereby certify that I, the undersigned, am the duly elected Clerk/Secretary of

_____.
(Insert Full Name of Corporation)

2. I hereby certify that the following individual _____
(Insert the Name of Officer who Signed the Contract and Bonds)

is the duly elected_____ of said Corporation.
(Insert the Title of the Officer in Line 2)

3. I hereby certify that on _____
(Insert Date: Must be *on or before* Date Officer Signed Contract/Bonds)

at a duly authorized meeting of the Board of Directors of said corporation, at which a quorum was present, it was voted that

_____ _____
(Insert Name of Officer from Line 2) (Insert Title of Officer from Line 2)

of this corporation be and hereby is authorized to make, enter into, execute, and deliver contracts and bonds in the name and on behalf of said corporation, and affix its Corporate Seal thereto, and such execution of any contract of obligation in this corporation's name and on its behalf, with or without the Corporate Seal, shall be valid and binding upon this corporation; and that the above vote has not been amended or rescinded and remains in full force and effect as of the date set forth below.

4. **ATTEST**:
Signature: _____ ***AFFIX CORPORATE SEAL HERE***
(**Clerk or Secretary)**
Printed Name: _____

Printed Title:_____

Date: _____
(Date Must Be *on or after* Date Officer Signed Contract/Bonds)

Certificate of Authority
(Limited Liability Companies Only)

Instructions: Complete this form and sign and date where indicated below.

1. I, the undersigned, being a member or manager of

_____,
(Complete Name of Limited Liability Company)

a limited liability company (LLC) hereby certify as to the contents of this form for the purpose of contracting with the City of Somerville.

2. The LLC is organized under the laws of the state of: _____.

3. The LLC is managed by **(check one)** a ☐ Manager or by its ☐ Members.

4. I hereby certify that each of the following individual(s) is:
   - a member/manager of the LLC;
   - duly authorized to execute and deliver this contract, agreement, and/or other legally binding documents relating to any contract and/or agreement on behalf of the LLC;
   - duly authorized to do and perform all acts and things necessary or appropriate to carry out the terms of this contract or agreement on behalf of the LLC; and
   - that no resolution, vote, or other document or action is necessary to establish such authority.

Name	Title

5. **Signature**:_____

Printed Name: _____

Printed Title:_____

Date: _____

SOMERVILLE LIVING WAGE ORDINANCE CERTIFICATION FORM

CITY OF SOMERVILLE CODE OF ORDINANCES SECTION 2-397 et seq[*].

Instructions: This form shall be included in all Invitations for Bids and Requests for Proposals which involve the furnishing of labor, time or effort (with no end product other than reports) by vendors contracting or subcontracting with the City of Somerville, where the contract price meets or exceeds the following dollar threshold: $10,000. If the undersigned is selected, this form will be attached to the contract or subcontract and the certifications made herein shall be incorporated as part of such contract or subcontract. **Complete this form and sign and date where indicated below on page 2.**

Purpose: The purpose of this form is to ensure that such vendors pay a "Living Wage" (defined below) to all covered employees (i.e., all employees except individuals in a city, state or federally funded youth program). In the case of bids, the City will award the contract to the lowest responsive and responsible bidder paying a Living Wage. In the case of RFP's, the City will select the most advantageous proposal from a responsive and responsible offeror paying a Living Wage. In neither case, however, shall the City be under any obligation to select a bid or proposal that exceeds the funds available for the contract.

Definition of "Living Wage": For this contract or subcontract, as of **7/1/2015** "Living Wage" shall be deemed to be an hourly wage of no less than **$12.24** per hour. From time to time, the Living Wage may be upwardly adjusted and amendments, if any, to the contract or subcontract may require the payment of a higher hourly rate if a higher rate is then in effect.

CERTIFICATIONS

1. The undersigned shall pay no less than the Living Wage to all covered employees who directly expend their time on the contract or subcontract with the City of Somerville.

2. The undersigned shall post a notice, (copy enclosed), to be furnished by the contracting City Department, informing covered employees of the protections and obligations provided for in the Somerville Living Wage Ordinance, and that for assistance and information, including copies of the Ordinance, employees should contact the contracting City Department. Such notice shall be posted in each location where services are performed by covered employees, in a conspicuous place where notices to employees are customarily posted.

3. The undersigned shall maintain payrolls for all covered employees and basic records relating hereto and shall preserve them for a period of three years. The records shall contain the name and address of each employee, the number of hours worked, the gross wages, a copy of the social

[*] Copies of the Ordinance are available upon request to the Purchasing Department.

security returns, and evidence of payment thereof and such other data as may be required by the contracting City Department from time to time.

4. The undersigned shall submit payroll records to the City upon request and, if the City receives information of possible noncompliance with the provisions the Somerville Living Wage Ordinance, the undersigned shall permit City representatives to observe work being performed at the work site, to interview employees, and to examine the books and records relating to the payrolls being investigated to determine payment of wages.

5. The undersigned shall not fund wage increases required by the Somerville Living Wage Ordinance by reducing the health insurance benefits of any of its employees.

6. The undersigned agrees that the penalties and relief set forth in the Somerville Living Wage Ordinance shall be in addition to the rights and remedies set forth in the contract and/or subcontract.

CERTIFIED BY:

Signature: _____
(Duly Authorized Representative of Vendor)

Title: _____

Name of Vendor:_____

Date: _____

INSTRUCTIONS: PLEASE POST

NOTICE TO ALL EMPLOYEES
REGARDING PAYMENT OF LIVING WAGE

Under the Somerville, Massachusetts' Living Wage Ordinance (Ordinance No. 1999-1), any person or entity who has entered into a contract with the City of Somerville is required to pay its employees who are involved in providing services to the City of Somerville no less than a "Living Wage".

The Living Wage as of **7/1/2015** is **$12.24** per hour. The only employees who are not covered by the Living Wage Ordinance are individuals in a Youth Program. "Youth Program" as defined in the Ordinance, "means any city, state or federally funded program which employs youth, as defined by city, state or federal guidelines, during the summer, or as part of a school to work program, or in any other related seasonal or part-time program."

For assistance and information regarding the protections and obligations provided for in the Living Wage Ordinance and/or a copy of the Living Wage Ordinance, all employees should contact the City of Somerville's Purchasing Department directly.

Form **W-9**
(Rev. December 2014)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Print or type
See **Specific Instructions** on page 2.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification; check only **one** of the following seven boxes:

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____

Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.)

Requester's name and address (optional)

6 City, state, and ZIP code

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

Social security number

			–			–				

or

Employer identification number

		–							

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here	**Signature of U.S. person** ▶	**Date** ▶

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at *www.irs.gov/fw9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See *What is backup withholding?* on page 2.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

INSURANCE SPECIFICATIONS
INSURANCE REQUIREMENTS FOR AWARDED VENDOR ONLY:

Prior to commencing performance of any work or supplying materials or equipment covered by these specifications, the contractor shall furnish to the Office of the Purchasing Director a Certificate of Insurance evidencing the following:

A. GENERAL LIABILITY - Comprehensive Form

Bodily Injury Liability.....….....$ One Million

Property Damage Liability.....$ One Million

B. COVERAGE FOR PAYMENT OF WORKER'S COMPENSATION BENEFIT PURSUANT TO CHAPTER 152 OF THE MASSACHUSETTS GENERAL LAWS IN THE AMOUNT AS LISTED BELOW:

WORKER'S COMPENSATION.….....$Statutory

EMPLOYERS' LIABILITY..….....…….$ Statutory

C. AUTOMOBILE LIABILITY INSURANCE AS LISTED BELOW:

BODILY INJURY LIABILITY.....$ STATUTORY

l. A contract will not be executed unless a certificate (s) of insurance evidencing above-described coverage is attached.

2. Failure to have the above-described coverage in effect during the entire period of the contract shall be deemed to be a breach of the contract.

3. All applicable insurance policies shall read:
"CITY OF SOMERVILLE" as a certificate holder and as an additional insured for general liability only along with a description of operation in the space provided on the certificate.

Certificate Should Be Made Out To:
City Of Somerville
Purchasing Department
93 Highland Avenue
Somerville, Ma. 02143

Note: If your insurance expires during the life of this contract, you shall be responsible to submit a new certificate(s) covering the period of the contract. No payment will be made on a contract with an expired insurance certificate.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

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 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	CONTACT NAME:	
	PHONE (A/C, No, Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
INSURED	INSURER A :	
	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

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 INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
	☐ CLAIMS-MADE ☐ OCCUR						MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
							GENERAL AGGREGATE	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG	$
	☐ POLICY ☐ PRO-JECT ☐ LOC							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ☐ NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
	☐ **UMBRELLA LIAB** ☐ OCCUR						EACH OCCURRENCE	$
	☐ **EXCESS LIAB** ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						☐ WC STATU-TORY LIMITS ☐ OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ **(Mandatory in NH)**	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

ADD "X" HERETO CERTIFY THAT THE CITY OF SOMERVILLE IS AN ADDITIONAL INSURED

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

DESCRIPTION OF PROJECT, SOLICITATION NUMBER AND THAT THE CITY OF SOMERVILLE IS A CERTIFICATE HOLDER AND ADDITIONAL INSURED

CERTIFICATE HOLDER

CERTIFICATES SHOULD BE MADE OUT TO:

CITY OF SOMERVILLE
c/o PURCHASING DEPARTMENT
93 HIGHLAND AVE
SOMERVILLE, MA 02143

CANCELLATION

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

CERTIFICATE OF GOOD STANDING

TO: Vendor

FROM: Purchasing Department

RE: **CERTIFICATE OF GOOD STANDING**

The **Awarded Vendor** must comply with our request for a **CURRENT "Certificate of Good Standing".**

If you require information on how to obtain the "Certificate of Good Standing" or Certificate of Registration (Foreign Corporations) from the Commonwealth of Massachusetts, please call the Secretary of State's Office at (617) 727-2850 (Press #1) located at One (1) Ashburton Place, 17th Floor, Boston, MA 02133 or you may access their web site at: http://corp.sec.state.ma.us/CorpWeb/Certificates/CertificateOrderForm.aspx

If your company is incorporated outside of Massachusetts and therefore is a "foreign corporation", but is registered to do business in Massachusetts, please comply with our request for the Certificate of Registration from the Commonwealth of Massachusetts. If your company is a foreign corporation, but is not registered to do business in Massachusetts, please provide the Certificate of Good Standing from your state of incorporation.

Please note that without the above certificate (s), the City of Somerville cannot execute your contract.

IMPORTANT NOTICE

Requests for Certificates of Good Standing by mail may take a substantial amount of time. A certificate may be obtained immediately in person at the Secretary's Office at the address above. Also, at this time, the Secretary of State's Office may not have your current annual report recorded. If this is the case, and you are therefore unable to obtain the Certificate of Good Standing, please forward a copy of your annual report filing fee check with your signed contracts. Please forward your original Certificate of Good Standing to the Purchasing Department upon receipt.

Thank You,

Purchasing Director

SECTION 6.0

INSTRUCTIONS TO OFFEROR

6.1 General Information & Submission Instructions

6.1.1 Bid Delivery

Responses must be delivered by 10/14/15 by 11AM EST to:	City of Somerville Purchasing Department Attn: Alex Nosnik93 Highland Avenue Somerville, MA 02143

One (1) proposal package (including two sealed envelopes) should be submitted. Responses must be sealed and marked with the solicitation tile and number. All bids must include a forms listed in the Proposers Checklist

6.1.2 Evaluation Methodology

All responses will be reviewed by an evaluation committee composed of employees of the City. However, the City reserves the right to involve an outside consultant in the selection process. Final selection will be based upon the evaluators' analysis of the information and materials provided by the proposing vendors in their technical submissions compared to both the Quality Requirements & Comparative Evaluation Criteria of the solicitation. Responses that meet the minimum Quality Requirements will then be reviewed for responses to the Comparative Evaluation Criteria. The evaluation committee will assign a rating of Highly Advantageous, Advantageous, Not Advantageous or Unacceptable to the Comparative Evaluation Criteria.

The City will award the contract to the most responsive and responsible Offeror who demonstrates best value to the city, technical and price considered. Before awarding the contract(s), the City may request additional information from the Offeror to insure that the Offeror has the necessary resources to perform the required services. The City reserves the right to reject any and all proposals if it determines that the criteria set forth have not been met.

6.2 Non-Price (Technical) Proposal Format

Responses must be submitted in accordance with the requirements set forth in this solicitation. These requirements were developed to standardize the preparation of responses while helping to assure consistency in format and content. This process will reduce the time required to prepare a response and will simplify the review process by City staff. Results of the proposal review process will be utilized to establish a preliminary ranking of the proposers. The City may interview the top ranked candidates as part of the evaluation process. All information in the

technical proposal should be organized and presented as directed below. Your Non-Price Proposal response should contain all forms outlined in the Proposers Checklist in the order that they appear.

Responses shall be prepared on standard 8.5 x 11 inch paper (charts may be landscaped but must be on 8.5 x 11 inch paper) and shall be in a legible font size (12). All pages of each response shall be appropriately numbered, and identified with the solicitation number. For ease of reference, consecutive page numbering with tabs is required.

Elaborate format and binding are neither necessary nor desirable. All binders will be capable of lying flat when opened. The cover and spine of each binder will clearly identify the Offeror's name, solicitation number, formal solicitation title and copy number, (e.g. copy 2 of 3). The original for each volume will be clearly identified on the cover and the spine. All binders will allow for easy removal and replacement of pages.

6.2.1 Cover Letter

Include a cover letter will summarize, in a brief and concise manner that the Offeror understands of the requested services. Please include the official name of the firm submitting the proposal, mailing address, e-mail address, telephone number, fax number and contact name. The letter must be signed by an official authorized to bind the proposer contractually and contain a statement that the proposal is firm for ninety (90) days. An unsigned letter or one signed by an individual not authorized to bind the Offeror will be disqualified.

6.2.2 Qualifications & Experience

The proposer shall include qualifications and experience of the firm (or sole proprietor). The proposer shall identify the year the firm was established, the total number of employees currently employed, and the number of employees focused on this engagement. This section should also generally describe work which is similar in scope and complexity which the Offeror has undertaken in the past. A discussion of the challenges faced, and solutions developed are highly recommended. The proposer may include any additional literature and product brochures.

6.2.3 Quality Requirements Form

The Quality Requirements Form, or set of basic business standards, must be addressed by each offeror and presented within the technical proposal documentation.

6.3 Price Proposal Format

6.3.1 Cover Letter

Include a cover letter to summarize, in a brief and concise manner, that the Offeror understands that their offer will bid the firm to the price submitted with their response. Please include the official name of the firm submitting the proposal, mailing address, e-mail address, telephone number, fax number and contact name. The letter must be signed by an official authorized to bind

the proposer contractually and contain a statement that the pricing is firm for ninety (90) days. An unsigned letter or one signed by an individual not authorized to bind the Offeror will be disqualified.

6.3.2 Price Summary Page

See Section 4.0.

6.3.3 Bid Prices to Remain Firm

All bid prices submitted in response to this solicitation must remain firm for 90 days following the bid opening.

6.3.4 Price Submission

All prices must contain the unit rate as requested on the bid price form in this solicitation. All prices are to include delivery, the cost of fuel, the cost of labor and all other charges related to the products or services listed. Prices are to remain fixed for the contract period of performance.

6.3.5 Estimated Quantities

The City of Somerville has provided estimated quantities for services over the course of the contract period. These estimates are estimates only and not guaranteed.

6.4 Bid Signature

A response must be signed as follows: 1) if the Offeror is an individual, by her/him personally; 2) if the Offeror is a partnership, by the name of the partnership, followed by the signature of each general partner; and 3) if the Offeror is a corporation, by the authorized officer, whose signature must be attested to by the clerk/secretary of the corporation, and with the corporate seal affixed.

6.5 Time for Bid Acceptance

The contract will be awarded within 60 days after the bid opening. The time for award may be extended for up to 45 additional days by mutual agreement between the City of Somerville and the apparent lowest responsive and responsible bidder (or, for a contract requiring payment, the apparent highest responsive and responsible bidder.)

The Offeror's submission will remain in effect for a period of 90 days from the response deadline or until it is formally withdrawn, a contract is executed or this solicitation is canceled, whichever occurs first.

6.6 Hours of Operation

The awarded Vendor shall schedule his working hours to coincide with the working hours of the City. The normal working hours are 8:30 a.m. and 4:30 p.m. Monday – Wednesday, 8:30 a.m. to

7:30 p.m. on Thursdays and 8:30 a.m. to 12:30 p.m. on Fridays.

6.6.1 Holidays are as follows:

New Year's Day	Memorial Day	Columbus Day
Martin Luther King Day	Bunker Hill Day	Veterans' Day
Presidents' Day	Independence Day	Thanksgiving Day
Patriots' Day	Labor Day	Thanksgiving Friday
Christmas Eve (half day)	Christmas Day	

Please visit http://www.somervillema.gov/ for the City's most recent calendar.
*Under State Law, all holidays falling on Sunday must be observed on Monday.

If the awarded Vendor for their convenience desires to perform work during other than normal working hours or on other than normal work days, or if the Vendor is required to perform work at such times, the Vendor shall reimburse the City for any additional expense occasioned the City, thereby, such as, but not limited to, overtime pay for City employees, utilities service, etc.

UNLESS otherwise specified in these provisions, services will be performed during normal work hours. When required services occur on holidays, work will be performed on either the previous or following work day, unless specified otherwise.

6.6.2 Inclement Weather Days

In the event of inclement weather, the Vendor is responsible for listening to the public media to determine if the City has been closed because of the weather. The Vendor is encouraged to coordinate work schedules with the City POC to accommodate support requirements, other personnel availability, meeting schedules and vacation schedules.

6.6.3 Unforeseen Office Closure

If, at the time of the scheduled bid opening, Purchasing Department is closed due to uncontrolled events such as fire, snow, ice, wind, or building evacuation, the bid opening will be postponed until 2:00 p.m. on the next normal business day. Bids will be accepted until that date and time.

6.7 Changes & Addenda

If any changes are made to this solicitation, an addendum will be issued. Addenda will be emailed or faxed to all bidders on record as having picked up the solicitation. The City will also post addendums on its website (http://www.somervillema.gov/departments/finance/purchasing/bids). No changes may be made to the solicitation documents by the Offerors without written authorization and/or an addendum from the Purchasing Department.

6.8 Modification or Withdrawal of Bids, Mistakes, and Minor Informalities

An Offeror may correct, modify, or withdraw a bid by written notice received by the City of Somerville prior to the time and date set for the bid opening. Bid modifications must be submitted in a sealed envelope clearly labeled "Modification No.__" to the address listed in part

one of this section. Each modification must be numbered in sequence, and must reference the original solicitation.

After the bid opening, an Offeror may not change any provision of the bid in a manner prejudicial to the interests of the City or fair competition. Minor informalities will be waived or the bidder will be allowed to correct them. If a mistake and the intended bid are clearly evident on the face of the bid document, the mistake will be corrected to reflect the intended correct bid, and the bidder will be notified in writing; the bidder may not withdraw the bid. A bidder may withdraw a bid if a mistake is clearly evident on the face of the bid document, but the intended correct bid is not similarly evident.

6.9 Right to Cancel/Reject Bids
The City of Somerville may cancel this solicitation, or reject in whole or in part any and all bids, if the City determines that cancellation or rejection serves the best interests of the City.

6.10 Unbalanced Bids
The City reserves the right to reject unbalanced, front-loaded and conditional bids.

6.11 Brand Name "or Equal"
Any references to any brand name or proprietary product in the specifications shall require the acceptance of an equal or better brand. The City has the right to make the final determination as to whether an alternate brand is equal to the brand specified.

6.12 Warranty
The Offeror warrants that (1) the Supplies sold are merchantable, (2) that they are fit for the purpose for which they are being purchased, (3) that they are absent any latent defects and (4) that they are in conformity with any sample which may have been presented to the City. The bidder guarantees that upon inspection, any defective or inferior Supplies shall be replaced without additional cost to the City. The Vendor will assume any additional cost accrued by the City due to the defective or inferior Supplies. The bidder guarantees all Supplies for a period of one (1) year, or as otherwise specified herein.

6.13 Invoicing
The Vendor will mail an invoice to the ordering Department after completion of the service and be authorized by a work order. All invoice submissions must include a Vendor Work Order which was signed by the Department Head, or his/her designee authorizing the work to be performed on a City Building. Any Invoices that are presented for payment, that do not have a signed work order backup, by a City designee, will not be paid by the City.

6.14 Electronic Funds Transfer (EFT)
For Electronic Funds Transfer payment, the following information shall be submitted with

invoices to the office / individuals address listed in Section III:

- Contract/Order number.
- Contractor's name & address as stated in the contract/order number.
- The signature (manual or electronic, as appropriate) title, and telephone number of the Vendor's representative authorized to provide sensitive information.
- Name of financial institution.
- Financial institution nine (9) digit routing transit number.
- Vendor's account number.
- Type of account, i.e., checking or saving.

6.15 Cancellation

The City reserves the right to cancel this contract at any time on any grounds, including the vendor's failure to comply with the Scope of Work (SOW) provided herein.

6.16 Questions About the Solicitation

Questions are due: 10/09/15 by 12PM EST

Questions concerning this solicitation must be mailed or hand delivered in writing to:

Alex Nosnik
Asst. Purchasing Director

Somerville City Hall
Purchasing Department
93 Highland Avenue
Somerville, MA 02143

Or emailed to:

anosnik@somervillema.gov

Or faxed to:

617-625-1344

Written responses will be mailed or faxed to all bidders on record as having picked up the RFP.

If any bidders or proposers contact anyone outside of the Purchasing Department regarding this bid/proposal, that bidder/proposer will be disqualified immediately.

SECTION 7.0
GENERAL TERMS & CONDITIONS

7.1 Taxes
Purchases incurred by the City are exempt from Federal Excise Taxes, Massachusetts Sales Tax, and solicitation prices must exclude any such taxes. Tax Exemption Certificates will be furnished upon request. City of Somerville's Massachusetts Tax Exempt Number is M046 001 414.

7.2 Freight on Board (FOB)
All prices are to be firm F.O.B. delivered destination (Somerville, MA), to the address specified on the "Notice to Proposers" or any other department location doing business for the City of Somerville in need of such services.

7.3 Unit Price
In case of error in extension of prices quoted herein, the unit price will govern.

7.4 Price Reduction
It is understood and agreed that should any price reductions occur between the opening of this RFP and completion of this delivery. The benefits of all such reductions will be extended.

7.5 Guarantees
The proposer to whom a contract is awarded, guarantees to the City of Somerville all supplies, equipment, related services/maintenance, and labor for a period of at least one (1) year. Upon inspection, any defective or inferior equipment, supplies/materials shall be replaced without additional cost to the City. The contractor will assume any additional cost accrued by the City.

7.6 Indemnification
The vendor agrees to take all necessary precautions to prevent injury to any persons or damage to property during the term of this agreement and shall indemnify and save the City of Somerville harmless against all loss and expense resulting in any way, from any negligent or willful act or omission on the part of the Vendor, it's agents, employees, or sub-contractors or resulting directly or indirectly from Vendor's performance under this Agreement.

7.7 Insurance
Vendor's liability insurance shall be purchased and maintained by the Vendor to protect him from claims under Worker's Compensation Acts and other employee benefits acts, claims from damages because of bodily injury, including death, and from claims for damages, other than to the work itself, to property which may arise out of or result from the Vendor's operation under this agreement, whether such operation by himself or anyone employed by them. This insurance shall be written for not less than any limits of law, whichever is the greater and shall include

contractual liability applicable to Vendor's obligations. The Vendor shall deposit with the City of Somerville standard certificates of insurance thereof for any insurance about to expire at least ten (10) days before such expiration. All such insurance policies shall contain an endorsement or provision requiring thirty (30) days written notice to the City of Somerville prior to cancellations or material change in coverage, scope, or amount of any such policy or policies. Compliance by Vendor with the insurance requirement, however, shall not relieve Vendor from liability under the indemnity provisions. Vendor shall require subcontractors to provide and maintain the required insurance at subcontractors' expense. Subcontractors shall list the City of Somerville and Contractor as additional insured where applicable.

7.8 Independent Contractor
Vendor is not an agent or employee of the City of Somerville and is not authorized to act on behalf of the City of Somerville.

7.9 Complete Agreement
This agreement supersedes all prior agreements and understandings between the parties and may not be changed unless mutually agreed upon in writing by both parties.

7.10 Assignment
Vendor shall not assign the Agreement, or any interest therein, without prior written consent of the City of Somerville.

7.11 Subcontractors
Vendor shall not engage any other company, sub-contractor or individual to perform any obligation hereunder, without the prior written consent of the City of Somerville.

7.12 Governing Law
The Bidding procedures shall be in accordance with M.G.L. c. 30B, as most recently amended and all other applicable laws. The contractor shall comply with all Federal, State and Local laws regulations and ordinances governing this type of work.

7.13 Enforceability
In the event any provision of this Agreement is found to be legally unenforceable, such unenforceability shall not prevent enforcement of any other provision of the Agreement.

7.14 Conflict of Interest
The Proposer certifies that no official or employee of the City of Somerville has a financial interest in this proposal or in the contract which the proposer offers to execute or in the expected profits to arise there from, unless there has been compliance with provisions of Massachusetts General Laws Chapter 43, sec. 27 (Interest in Public Contract by Public Employees), and Massachusetts General Laws, Chapter 268A, sec. 20 (Conflict of Interest), and that this proposal

is made in good faith without fraud or collusion or connection with any other person submitting a proposal.

7.15 Termination

7.15.1 For Cause

The City of Somerville shall have the right to terminate this agreement if (i) Vendor neglects or fails to perform or observe any of these obligations hereunder and a cure is not affected by Vendor within fifteen (15) days next following its receipt of a termination notice issued by the City of Somerville, or (ii) if a judgment or decree is entered against Vendor approving a petition for any arrangement, liquidations, dissolution or similar relief relating to bankruptcy or insolvency and such judgment or decree remains unvacated for thirty (30) days; or (iii) immediately if Vendor shall file a voluntary petition in bankruptcy or any petition or answer seeking any arrangement, liquidation or dissolution relating to bankruptcy, insolvency or other relief or debtors shall seek or consent or acquiesce an appointment of any trustee, receiver of liquidation of any of Vendor's property; or (iv) funds are not appropriated or otherwise made available to support continuation of performance in any fiscal year succeeding the first year of this Agreement. The City of Somerville shall pay all reasonable and supportable costs incurred prior to termination, which payment shall not exceed the value of service provided.

7.15.2 Termination for Convenience

The City may terminate this Contract without cause, at any time, effective upon the date of termination specified by written notice to the Contractor, in which case, the Contractor shall be compensated for: (1) sums due under this Contract incurred up to the date of termination for all Work performed and accepted by the City up to the termination date, calculated on a percentage completion basis covering the period of time between the last approved application for payment and the date of termination using the progress schedule and schedule of values. The Contractor shall use its best efforts to mitigate any expenses and shall in no event incur any new obligations after the date of termination.

7.15.3 Payment by the City

Payment by the City as provided in this section shall be deemed to fully compensate the Contractor for all expenses and those of any consultants, subcontractors and suppliers, directly or indirectly attributable to the termination. Lost profits shall not be payable. Any such termination shall not give rise to any cause of action for damages against the City.

7.15.4 Contractor's Duties Upon Termination For Convenience

Upon termination of this Contract without cause, the Contractor shall: (1) immediately stop the Work; (2) stop placing orders and Subcontracts in connection with this Contract; (3) cancel all

existing orders and Subcontracts; (4) surrender the site to City in a safe condition; and (5) promptly transfer to City all materials, supplies, work in process, appliances, facilities, equipment and machinery of this Contract, and all work product, plans, drawings, specifications and other information and documents used in connection with Services performed under this Contract. Failure by the Contractor to comply with said duties shall relieve the City of its obligation to compensate the Contractor, as provided for under this section.

7.16 Discrimination
It is understood and agreed that it shall be a material breach of any contract resulting from this RFP for the contractor to engage in any practice which shall violate any provision of Massachusetts General Laws, Chapter 151B, relative to discrimination in hiring, discharge, compensation, or terms, conditions or privileges of employment because of race, color, religion, creed, national origin, sex, or ancestry.

7.17 Withdrawal or Modification of Bid Response
To withdraw, cancel or modify a response at any time prior to the solicitation opening date, an Offeror must submit such request in writing to the Purchasing Director. Correction or modifications must be sealed when submitted and must indicate on the outside of the envelope whether the correction or modification pertains to the price proposal or the non-price proposal.

7.18 Samples
All qualified proposers may be requested to submit samples.

7.19 Financial and Operational Information
By submitting a proposal, the proposer authorized the City of Somerville to contact any and all parties referenced by the proposer regarding financial and operational information.

7.20 Payment
The City of Somerville shall make no payment for a supply or service rendered prior to the execution of the contract.

7.21 Extension of Contract
The City reserves the right to extend the time of any contract resulting from the bid as needed and/or to increase the value by 25% at the sole discretion of the Purchasing Director.

a. The Offeror's submission will remain in effect for a period of 90 days from the response deadline or until it is formally withdrawn, a contract is executed or this solicitation is canceled, whichever occurs first.
b. The City will have the option to cancel the contract provided that written notice is given 90 days prior to the effective termination date.

The Procurement Officer shall cancel the contract if funds are not appropriated or otherwise made available to support continuation of performance in any fiscal year succeeding the first year.

7.22 Sales Tax Exemption

Materials, equipment, and supplies for this project are exempt from sales tax in accordance with M.G.L. Chapter 64H, Section 6 (d). The City will furnish the successful bidder with its sales tax exemption number.

ATTACHMENT A
July 2013 Report, MWH
"Evaluation of Flood Reduction Alternatives in Union Square"

Somerville, Massachusetts

Evaluation of Flood Reduction Alternatives in Union Square

July 2013

Final Report

Executive Summary

This report evaluates potential alternatives to reduce flooding and improve level of service (LOS) in Union Square in Somerville, MA during the 10-year, 24-hour NRCS storm event, which was used as the decision basis. LOS is defined as the difference between ground elevation and the peak hydraulic grade line (HGL) during a specific storm event. Even though the 10-year, 24-hour NRCS storm event was used as the target design storm, the impact of larger or more intense events (i.e. the 25-year, 24-hour NRCS event and the July 10th, 2010 event) is also reported herein.

The hydraulic model used in this analysis only includes major flow conveyors within the City of Somerville (18 inches or larger). Local drainage networks are represented by large catchment areas loaded into these main conveyors. Consequently, this hydraulic model is only appropriate for the identification of improvement options but a more detailed network is necessary in order to determine the final, detailed configuration of proposed hydraulic structures should the City pursue the execution of any of the selected alternatives.

With this highly simplified network, using 1-hour time increments hyetographs was deemed too optimistic as local flooding normally occurring in local drainage networks with small pipe sizes is absorbed by the large diameter flow conveyors. On the other hand, 15-minute time increments hyetographs were deemed too pessimistic as peak intensities for the same design storm event become much larger with shorter time increments and could lead to oversized infrastructure. Traditionally, 15-minute time increments are used when the cost of potential damage to affected properties is very high. For this reason, the 30-minute time increment hyetograph for the 10-year, 24-hour NRCS event was selected and used for the basis of decision. However, flooding results using the 15-minute hyetographs for the 10- and 25-year storms are also reported herein.

A total of eight stormwater management and/or detention storage opportunities were identified throughout the Union Square watershed. All proposed storage opportunities involved the capture of clean stormwater with no sanitary contamination. Necessary infrastructure and work to achieve this was identified and included in the project costs. Projects involving sewer separation were not considered in this study because it was deemed cost prohibitive and too disruptive to residents per the CDM's *Sewer Assessment Report* of February 2009 as the Union Square system has no natural outlet. The Union Square watershed currently discharges its dry and wet weather flows to the MWRA system. Dry weather flows and some wet weather flows enter the MWRA's Cambridge Branch Sewer (also known as Cardinal Medeiros Interceptor or CMI) near the McGrath Highway connection via a 28-inch pipe. The CMI's capacity is very limited due to dry and wet weather contributions from East Cambridge as well as limited pumping capacity at the DeLauri pump station in Everett, MA. Excess flows from Somerville exceeding the CMI's capacity overtop the SOM009 CSO structure and are conveyed to the MWRA's Prison Point CSO facility to discharge into the Boston Harbor. This limitation causes severe flooding in Union Square, which is near the connection to the CMI.

In order to alleviate these flooding issues, eight alternatives were evaluated and ranked based on three criteria listed below:

1. Overall flood reduction in the Union Square area with respect to existing conditions.

2. Cost-effectiveness of flood reduction. This was determined using an index calculated as the ratio between percent flood reduction versus millions of dollars spent in construction and design.

3. Impact on the receiving MWRA's CMI located near the Somerville Ave and McGrath Highway intersection as any significant flow increase going into it may impact other CMI communities such as Cambridge.

Model results indicated that only projects geographically close to Union Square would yield significant flood reduction. It also became apparent that underground storage is necessary to achieve substantial flood reduction and improvement in LOS. Two alternatives, one consisting of extending the Somerville Ave drain and installing a tank near the CMI and one consisting of constructing a tank in the Vinal Ave/Summer Street ball field, were the most beneficial from a flood reduction and LOS prospective. However, building a tank near the CMI connection was not as cost-effective and it increased flows into the CMI during the peak of the storm due to increased conveyance capacity from the extension of the Somerville Ave drain with the subsequent impact to other tributary communities.

Similar results were obtained when tank alternatives were combined with no-tank alternatives. Extending the Somerville Ave drain and building a tank near the CMI connection in combination with surface storage in the Vinal Ave/Summer Street field provided the largest flood reduction and LOS improvement. However, the cost and impact to the CMI made it a less desirable option. On the other hand, combining an underground storage tank with surface storage in the Vinal Ave/Summer Street ball field provided substantial flood reduction and LOS improvement and did not affect the CMI negatively. Additionally, this was the most cost-effective combination of alternatives and it was, therefore, selected as the optimum solution.

Contents

1 Background

Union Square in Somerville and its neighboring tributary areas such as Washington Street or Somerville Avenue are vulnerable to flooding during large storm events. Union Square is the point where three large drainage systems converge and its drainage capacity is greatly limited by the receiving MWRA network, which is heavily surcharged. The first major converging system includes catchments tributary to the Washington and Beacon Street combined sewer, which expands to areas in the Davis and Teele Square neighborhoods not directly tributary to the Tannery Brook drain. This tributary area ranges between 600 and 700 acres in size, approximately. The second major converging system is the Somerville Avenue storm drain and combined sewer, which collect sanitary and storm flows from most of the Spring Hill area as well as a small area to the south of Somerville Avenue. This area has been estimated at 170 acres, approximately. The third major converging system is the Summer Street storm drain and combined sewer, which collect sanitary and storm flows from the northern side of Spring Hill and the western side of Prospect Hill and accounts for approximately 100 acres.

Besides being a point of hydraulic convergence, drainage in the Union Square system is greatly conditioned by the limited available capacity of the receiving MWRA's CMI located near the Somerville Ave and McGrath Highway intersection. The CMI takes all sewage (dry and wet weather flows) from the entirety of East Cambridge. The catchment area of this portion of Cambridge extends east of Central Square and north of Main Street up into Somerville. It is noted in Cambridge at Warren Street (boundary between Cambridge and Somerville and site of a MWRA metering station) that this pipe severely surcharges even for small storms with return periods as small as 6 months to 1 year. The central, limiting problem is the limited maximum pumping capacity at MWRA's DeLauri pumping station in Everett. Reverse flow from Somerville and other upstream communities into Cambridge is noted at the Warren Street flow monitoring station during large storms. As a result, upstream sanitary flooding in East Cambridge is severe.

In order to mitigate flooding in Union Square, different alternatives involving surface runoff management and underground stormwater detention storage were identified throughout the entire watershed. Flood volume reductions and level of service improvements in the Union Square area were quantified for each scenario. Probable construction costs were calculated for each alternative and used to rank the cost-effectiveness of design and construction for the 10-year, 24-hour NRCS event. Subsequently, combinations of top alternatives were modeled and ranked based on total flood reductions and cost-effectiveness of the work being proposed.

2 Description of Proposed Alternatives

A total of eight stormwater management alternatives, some of which include sub-alternatives, were identified throughout the City of Somerville to mitigate flooding in the Union Square area. These alternatives do not include any sewer separation work as this was deemed unfeasible and cost prohibitive in the *Sewer Assessment Report* of February of 2009 by CDM. These alternatives were evaluated for cost-effectiveness and hydraulic benefit to the Union Square area. Figure 1 shows the project areas for each of these alternatives.

A brief description of these alternatives is provided below.

Alternative 1: Spring Hill Surface Runoff Management

This project would consist of the following:

1. Removing all existing cross-connections between the old combined sewer and the new storm drain along Somerville Avenue.
2. Installing a flap valve at the downstream end of the Somerville Ave drain before the junction with the Washington Street combined sewer.
3. Throttling catch basins along Spring Hill side streets to allow 30% of the generated surface runoff to reach the Somerville Ave corridor via surface flow.
4. Increasing catch basin capacity along the Somerville Ave corridor to allow capture of new runoff from the Spring Hill area. New catch basins would be of the infiltrating type and located on side streets at intersections with Somerville Ave.

Alternative 2: Spring Hill Surface Runoff Management and Conway Park Stormwater Tank

This project would include the following:

1. Removing all existing cross-connections between the old combined sewer and the new storm drain along Somerville Avenue.
2. Installing a flap valve at the downstream end of the Somerville Ave drain before the junction with the Washington Street combined sewer.
3. Install a 20MGD throttle (e.g. a Hydroslide or orifice) in the Somerville Ave drain near the Somerville Ave/Bow Street intersection and upstream of the flap valve in point 2.
4. Throttling catch basins in Spring Hill side streets to allow 60% of the generated surface runoff to reach the Somerville Ave corridor via surface flow.
5. Increasing catch basin capacity along the Somerville Ave corridor to allow capture of new runoff from the Spring Hill area. New catch basins would be of the infiltrating type and located on side streets at intersections with Somerville Ave.
6. Installing a 2.0 ac-ft (0.65MG) stormwater tank in the Conway Park baseball field connected to the Somerville Ave drain via a static, inlet weir with a crest elevation of approximately 117MDC and a flap valve.

Alternative 3: Summer Street Catchment Surface Runoff Management and Storage

For Alternative 3, two storage options (above and below ground) in the Vinal Ave/Summer Street field were considered and described below:

Sub-Alternative 3.1: Surface storage in the Vinal Ave/Summer Street field

This project would include the following:

1. Throttling catch basins in the Summer Street catchment (92 acres) to allow 30% of surface runoff to move on the surface towards the Summer Street and Vinal Avenue intersection.
2. Regrade local roads and construct up to eight raised cross-walks to direct surface flows to the storage area.
3. Construction of a 1.6 ac-ft (0.5MG) surface storage area in the existing field by building a 2-foot high berm around the perimeter and lowering its ground elevation as necessary.
4. Install a gravel base to allow for storage and high infiltration in the field area.
5. Increasing curb reveal at critical locations to avoid overtopping due to increase in surface runoff in vulnerable spots within the catchment area.

Sub-Alternative 3.2: Underground storage in the Vinal Ave/Summer Street field.

This project would include the following items:

1. Extending the existing Summer Street drain up to the Summer Street/Benton Rd intersection.
2. Providing enough catch basin inlet capacity to increase surface runoff capture within the Summer Street catchment into new/existing drain.
3. Construction of a 2.0 ac-ft, underground, stormwater tank in the Vinal Ave field with a static, inlet weir with a crest elevation of approximately 117 feet MDC and a flap valve.
4. Reconnect building sanitary connections to the existing storm drain (if any) to the adjacent combined sewer in Summer Street.

Alternative 4: Tufts University Area Flow Management

The flow management area around Tufts University was divided in three sub-areas based on current drainage conditions (Figure 2). Alternative 4's main goal is to achieve that at least 40% of the stormwater runoff enters the drains going towards Medford or the Tannery Brook drains using favorable topography of the area. The flow management sub-areas are described as follows:

1. Separated area: This is a 33.5 acre area between Broadway, Powder House Blvd (from Broadway to Leonard Street intersection), the intersection between Sawyer Ave and College Ave and the Medford line. This area is considered fully separated and therefore, no improvements were deemed necessary.

2. Partially separated area with a dedicated storm drain: This 38-acre area is bound by the Powder House Blvd. (between Leonard St. and Packard Ave), Packard Ave and the Medford line. This area also includes Leonard St.
3. Non-separated area: this area is 41.5 acres in size and is bounded by Packard Ave, Curtis St., and Electric Ave as well as the area between Burnham Street, Packard Ave, Powder House Blvd, and Electric Ave. Other smaller sub-areas are also part of this non-separated area as shown in Figure 2.

Proposed improvements in the partially separated and non-separated area above (79 acres in total) are described as follows:

1. Removal and replacement of existing catch basins tied to existing drains as they may need to increase capacity due to larger runoff volumes. It was assumed that 50% of these new catch basins should be double, infiltration catch basins. These catch basins would be located at the bottom of the hill in Powder House Blvd capturing surface runoff deflected away from the combined system.
2. Extension of the existing storm drain along Powder House Blvd. from Packard Ave to Curtis St.
3. Install new catch basins for this portion of extended storm drain.
4. Throttle catch basins in the non-separated or partially separated areas (79 acres) to allow 40% of surface runoff to move on the surface towards Powder House Blvd.
5. Regrade local roads and construct up to five raised cross-walks where necessary to direct surface flows.
6. Increase curb reveal at critical locations to avoid overtopping due to increase in surface runoff in vulnerable spots within the catchment area.

Alternative 5: Minuteman Area Flow Management

For Alternative 5, two different options were considered in the vicinity of the Minuteman Trail area and described below.

Sub-Alternative 5.1 Upper Minuteman Flow Management

This sub-alternative consists of redirecting 50% of the stormwater runoff generated in the Upper Minuteman Trail area (114 acres) to the Tannery Brook drain instead of the combined sewer system going to the Union Square area (Figure 1). Based on the hydraulic model from CDM, it was assumed that out of these 114 acres, 40 acres of the upper catchment currently drain to the Tannery Brook drain. This project would include the following:

1. Installation of up to thirty, new single catch basins and ten double catch basins will be needed.
2. Throttling of up to twenty-five existing catch basins.
3. Installation, extension, and/or replacement of storm drains to collect new flows.
4. Increasing curb reveal at critical locations to avoid overtopping due to increase in surface runoff in vulnerable locations within the catchment area.
5. Regrade local roads and construct up to four raised cross-walks where necessary to direct surface flows to the Tannery Brook drain.

Sub-Alternative 5.2. Upper and Lower Minuteman Flow Management and Storage Tank

This second sub-alternative consists of deflecting 50% of the surface runoff in the Upper (114 acres) and Lower (41 acres) Minuteman areas to the Tannery Brook drain and installing a 1.0 ac-ft retention tank in an existing public parking lot. Like in Sub-Alternative 5.1, it was assumed that out of the 114 acres of the Upper Minuteman Area, 40 drain to the Tannery Brook drain. This project would include the following:

1. Installation of a 1.0 ac-ft underground storage tank in a public parking lot in Highland Avenue near Davis Square connected to the Tannery Brook, 24-inch, brick drain via a static, inlet weir with a crest elevation of 125 ft-MDC, approximately.
2. Flow management in this area will involve installation of new storm drain pipe and catch basins. It was assumed that 2,400LF of new pipe and thirty, new single catch basins will be necessary.
3. Throttling of twenty existing catch basins currently connected to the Union Square combined sewer.
4. Regrade local roads and construction of up to two raised cross-walks to redirect surface flows.
5. Increase curb reveal at critical locations to avoid overtopping due to increase in surface runoff in vulnerable spots within the catchment area.
6. CCTV of the Tannery Brook, 24-inch, brick drain.

Alternative 6: Broadway/Holland Street/Lower Minuteman/Davis Square Flow Management

For Alternative 6, two different options were considered in the vicinity of the Davis Square area and described below.

Sub-Alternative 6.1: Teele Square/Broadway/Holland Street Flow Management

This sub-alternative consists of redirecting 50% of the stormwater runoff generated in this 62-acre catchment area (see Figure 1) to the Tannery Brook drain instead of the combined sewer system going to the Union Square area. This would be accomplished by increasing the inflow in the existing Broadway and Paulina Street drains connected to the Tannery Brook drain. This project would consist of the following:

1. Throttle up to thirty catch basins currently connected to the Union Square combined sewer.
2. Installation of up to twenty new, single catch basins
3. Regrade local roads and construction of up to two raised cross-walks to redirect surface flows.
4. Increase curb reveal at critical locations to avoid overtopping due to increase in surface runoff in vulnerable spots within the catchment area.

Sub-Alternative 6.2: Holland Street Stormwater Storage Tank

This sub-alternative consists of redirecting 75% of the stormwater runoff generated in this 58-acre catchment area to the Tannery Brook drain instead of the combined sewer system going to the Union Square area. Additionally, a 3.0 ac-ft, stormwater, detention tank is proposed in the Holland Street field between Paulina Street and Simpson Ave (Figure 1). This project would consist of the following:

1. Construction of a 3.0 ac-ft (1MG) underground storage tank in the Holland Street field. The tank would have two inlet pipes tied to the inlet structure: The existing 30-inch RCP drain on Paulina Street and the 12inch pipe on Simpson Ave. The inlet, static weir was modeled at a crest elevation of 121 ft-MDC.
2. Installation of a flap valve in the existing 30-inch drain in Paulina Street in order to prevent backflows from the downstream, overflow structure at Gorham at Holland junction.
3. Throttling up to thirty catch basins currently connected to the Union Square combined sewer.
4. Installation of up to twenty, new single catch basins.
5. Regrade local roads and construction of up to two raised cross-walks to redirect surface flows.
6. Increase curb reveal at critical locations to avoid overtopping due to increase in surface runoff in vulnerable spots within the catchment area.

Alternative 7: Lincoln Park Neighborhood Flow Management

This project would consist of the following:

1. Regrade local roads and construct up to four raised cross-walks to redirect surface flows towards Lincoln Park.
2. Throttle up to fifteen catch basins connected to the combined sewer to redirect 75% of the surface runoff towards Lincoln Park.
3. Increase curb reveal at critical locations to avoid overtopping due to increase in surface runoff in vulnerable spots within the catchment area.
4. Reengineer a section of the park's grassy area (up to 1 acre) to enhance infiltration of the re-routed runoff and create storage.

Alternative 8: Somerville Ave Drain Line Extension and End-Of-Line Stormwater Storage Tank

This project would consist of the following:

1. Construction of a 2.0 ac-ft tank at a private parking lot along Somerville Ave between Prospect St. and Medford St. The inlet weir was modeled as a 6-foot wide, static, inlet weir with a crest elevation of 111 ft-MDC and a flap valve.
2. Extension of the 66-inch, RCP drain along Somerville Ave to the existing combined sewer connection to the CMI and install a flap valve in the downstream end.
3. Perform catch basin inlet control (40% control) in the Spring Hill area (137 acres) to allow runoff to flow on surface by gravity to the Somerville Ave corridor.

4. Increase catch basin inlet capacity in Somerville Ave corridor to accommodate new surface runoff flows from the Spring Hill area.
5. Perform catch basin inlet control in Summer Street catchment (92 acres) to allow 40% of the surface runoff to flow on surface by gravity down Summer Street.
6. Extend existing Summer Street drain up to Summer/Benton Rd intersection.
7. Provide enough inlet capacity (catch basins) to capture all flows from Summer Street catchment into new/existing drain on this street.
8. CCTV and clean existing drains in Summer Street area.
9. Relocation of building laterals to existing combined sewer, if necessary.
10. Perform catch basin inlet control in the Prospect Hill area (100 acres) to allow 40% of surface runoff to flow on surface by gravity to Somerville Ave.
11. Construction of new drain lines in some side streets in Prospect Hill may become necessary to capture and convey surface runoff to the Somerville Ave drain.
12. Local regrading and repaving as necessary.
13. Increase curb reveal at critical locations to avoid overtopping due to increase in surface runoff in vulnerable spots within the catchment area.
14. Installation of up to seventy (70) new catch basins.
15. Raise cross-walks at up to fifteen different locations to allow strategic conveyance of surface runoff.

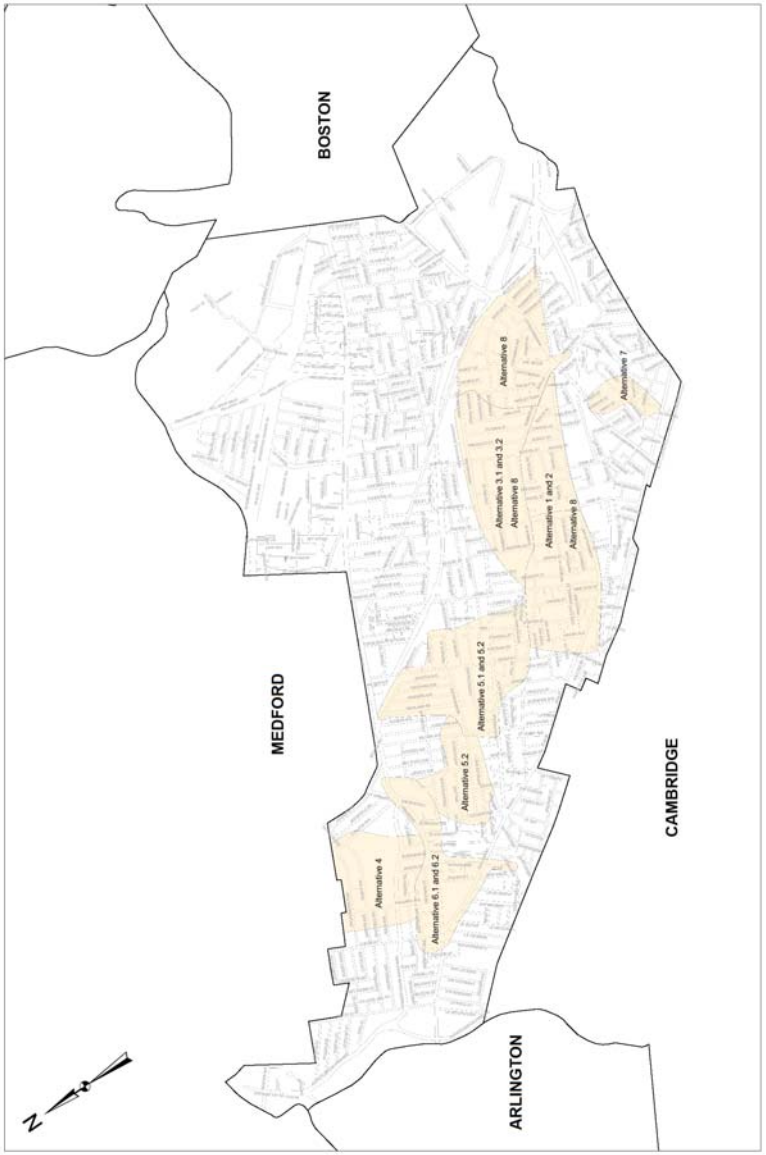

Figure 1. Project area/s for each of the selected improvement alternatives

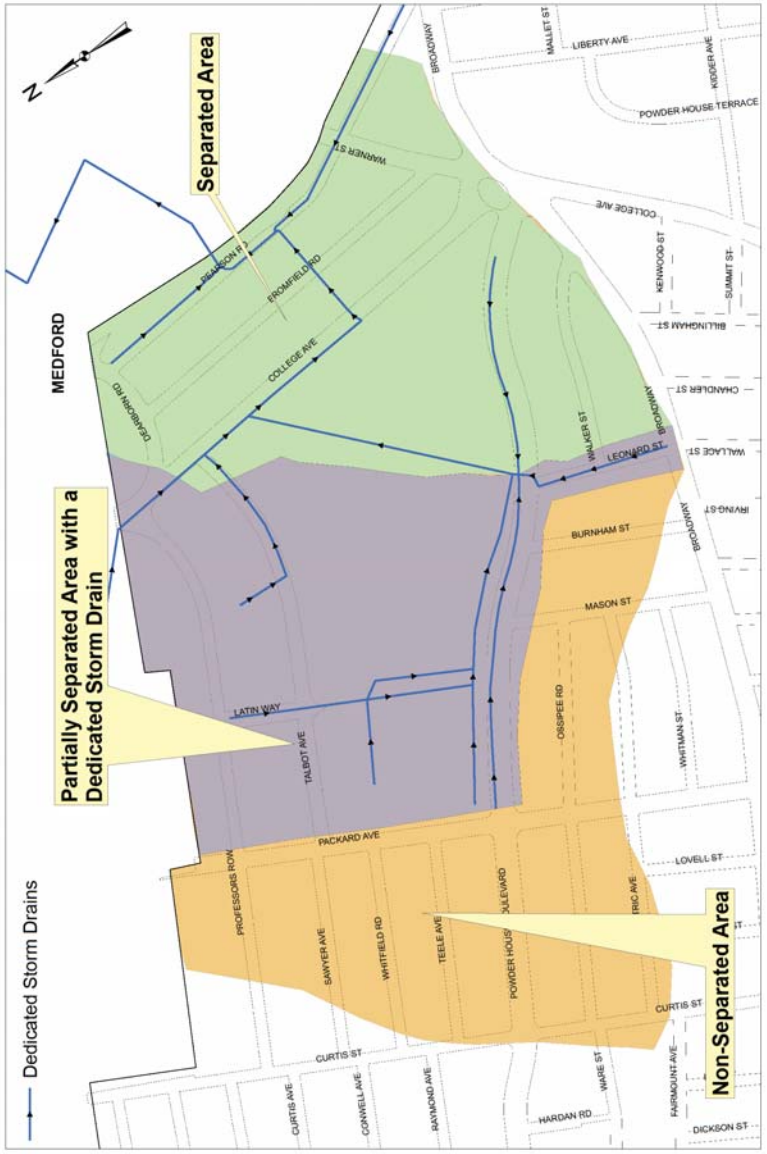

Figure 2. Flow management sub-areas in the Tufts University area

3 Estimates of Probable Cost of Alternatives

Opinion of probable construction, engineering, and management costs are provided in Table 1. The 30-minute time increment hyetograph for the 10-year, 24-hour NRCS storm was used to size the proposed infrastructure and project costs were then estimated accordingly. More detailed cost breakdowns for each project are provided in Attachment 1.

Table 1. Probable Construction, Engineering, and Management Costs for the Proposed Alternatives

Alternative	Probable Construction Cost	Probable Engineering & Management Cost	Total Cost*
Alt. 1	$526,300	$181,000	$710,000
Alt. 2	$4,204,500	$1,424,000	$5,600,000
Alt. 3.1	$856,300	$288,000	$1,100,000
Alt. 3.2	$3,976,200	$1,355,000	$5,300,000
Alt. 4	$742,000	$253,000	$1,000,000
Alt. 5.1	$1,344,800	$456,000	$1,800,000
Alt. 5.2	$4,036,000	$1,435,000	$5,400,000
Alt. 6.1	$510,000	$180,000	$700,000
Alt. 6.2	$4,246,000	$1,435,000	$5,700,000
Alt. 7	$446,700	$149,000	$600,000
Alt. 8**	$10,516,700	$3,580,000	$14,100,000

*Rounded to the nearest $10,000 (projects with a total cost between $100k and 1M) or to the nearest $100,000 (projects with a total cost greater than $1M).

**Costs include the extension of the Somerville Ave drain. If this work were to be executed under the Union Square Revitalization Project, the total cost of Alternative 8 would range between $6M and $7M, approximately.

4 Hydraulic Analysis and Alternative Ranking

4.1 Model Development and Calibration

The Somerville model used by MWH in the development of the *CAM017 Facilities Report* of 2006 was kept as the baseline for this analysis as its calibration seemed to provide more accurate results than the network provided by CDM. Further changes in the initial model consisted of incorporating the most up to date, existing conditions model for East Cambridge, updating the configuration of the SOM009 overflow structure, modifying the operation of the Prison Point CSO facility during extreme storm events, and including the latest model update in the Somerville's Marginal network per the 2009 calibration described in the *Sewer Assessment Report* of February 2009 by CDM. The most significant system differences between the new MWH hydraulic model used in this analysis and the model provided by CDM are listed in Table 2. For calibration, four different storms from 2003 were used, one of which was almost equivalent to a 2-year, 24-hour NRCS storm. Calibration plots and rainfall characteristics for each storm are provided in Attachment 2.

Table 2. Main differences between the CDM and the MWH hydraulic models

	CDM Model	MWH Model
SOM009 Overflow Weir Elevation (ft-MDC)	104.7	103.2*
Somerville Ave drain	Not included	Included
East Cambridge	Simplified, outdated network	Detailed, 2013 updated network
Prison Point operation	Inlet sluices open with 12 feet of head in the intake chamber	Inlet sluices open with 10 feet of head in the intake chamber
Total area tributary to the CMI (acres)**	1,527	1,262

*The weir at SOM009 was lowered to 103.2 ft-MDC after the July 10th, 2010 storm per correspondence with MWRA's David Kubiak.
**Estimated tributary catchment size using GIS is 1,360 acres. MWH model does not include a 66-acre catchment directly tributary to the Tannery Brook in the most recent CDM calibration (it was deemed irrelevant to the Union Square area).

4.2 Hydraulic Benefit of Alternatives Evaluated Individually

The overall benefit of alternatives was evaluated and ranked by looking at the provided flood relief, their total cost and cost-effectiveness, as well as their improvement in LOS. Impact to the receiving MWRA's CMI was subsequently evaluated for the top alternatives.

Flood volumes for the proposed alternatives during the 10- and 25-year, 24-hour NRCS design storms as well as the July 10th, 2010 storm (short, very intense storm that caused major flooding throughout the City) are reported in Table 3 (15-minute hyetographs) and Table 4 (30-minute hyetographs).

Flood volumes for each alternative were quantified in five major system areas: (1) the Union Square Area, (2) Beacon Street, (3) Somerville Ave corridor between Elm Street and the first intersection with Bow Street moving easterly, (4) Upper Union Square system, and (5) the

Tannery Brook system. At the same time, the Union Square area was sub-divided in three smaller areas: Union Square proper, Washington Street, and the Somerville Ave corridor between Union Square and the MWRA's CMI. The different reporting areas are depicted in Figure 3.

Ten and twenty-five year LOS plots (using 30-minute increment hyetographs) for the three alternatives with the least amount of flooding in the Union Square area (Alternative 8, Alternative 3.2, and Alternative 2) are presented in Figures 4 through 11.

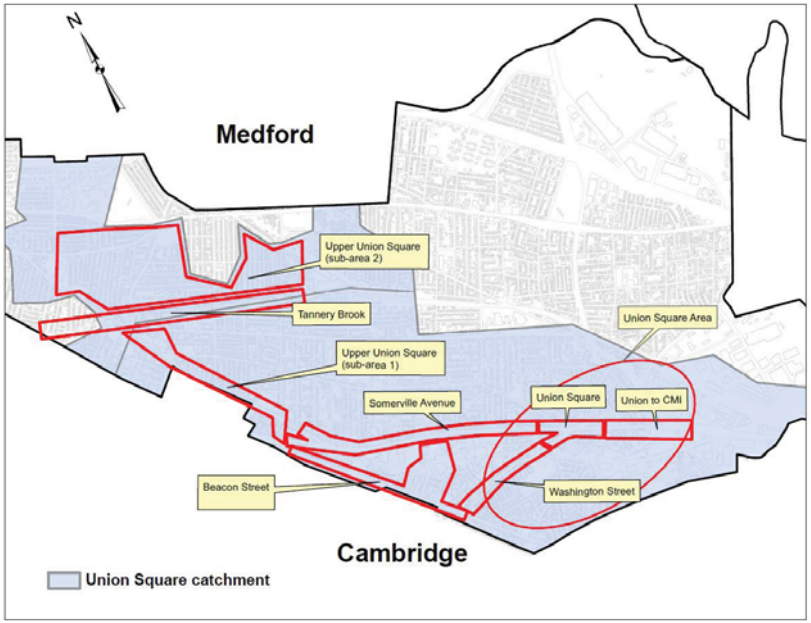

Figure 3. Flood reporting areas in the Union Square's tributary catchment area

Table 3. Flood volumes (in MG) using 15-minute time increment hyetographs for the 10- and 25-year 24-hour NRCS and the July 10th, 2010 storm events

	Union square Area			TOTAL UNION SQUARE	Beacon Street	Somerville Avenue	Upper Union Square	Tannery Brook	TOTAL OVERALL
	Union Square	Union Sq. to CMI	Washington Street						
10Y-24H Storm (15-min increments)									
Existing Conditions	0.132	0.007	0.137	**0.276**	0.083	0.021	0.466	0.183	**1.029**
Alt. 1	0.157	0.007	0.160	**0.324**	0.075	0.008	0.466	0.183	**1.056**
Alt. 2	0.067	0.006	0.079	**0.152**	0.060	0.005	0.465	0.182	**0.864**
Alt. 3.1	0.092	0.006	0.108	**0.206**	0.076	0.019	0.466	0.183	**0.950**
Alt. 3.2	0.043	0.004	0.059	**0.106**	0.064	0.017	0.465	0.183	**0.835**
Alt. 4	0.131	0.007	0.136	**0.274**	0.082	0.021	0.309	0.182	**0.868**
Alt. 5.1	0.132	0.007	0.137	**0.276**	0.082	0.021	0.447	0.209	**1.035**
Alt. 5.2	0.131	0.007	0.136	**0.274**	0.080	0.021	0.378	0.175	**0.928**
Alt. 6.1	0.132	0.007	0.137	**0.276**	0.082	0.021	0.280	0.275	**0.934**
Alt. 6.2	0.131	0.007	0.137	**0.275**	0.082	0.021	0.174	0.165	**0.717**
Alt. 7	0.110	0.006	0.126	**0.242**	0.080	0.020	0.465	0.183	**0.990**
Alt. 8	0.018	0.009	0.028	**0.055**	0.049	0.003	0.465	0.183	**0.755**
25Y-24H Storm (15-min increments)									
Existing Conditions	0.384	0.061	0.316	**0.761**	0.235	0.059	1.200	0.485	**2.740**
Alt. 1	0.535	0.064	0.355	**0.954**	0.237	0.028	1.210	0.485	**2.914**
Alt. 2	0.287	0.062	0.268	**0.617**	0.194	0.251	1.205	0.485	**2.752**
Alt. 3.1	0.276	0.060	0.255	**0.591**	0.213	0.055	1.200	0.485	**2.544**
Alt. 3.2	0.187	0.057	0.189	**0.433**	0.190	0.051	1.200	0.485	**2.359**
Alt. 4	0.384	0.063	0.316	**0.763**	0.235	0.059	0.900	0.485	**2.442**
Alt. 5.1	0.384	0.063	0.315	**0.762**	0.234	0.059	1.110	0.540	**2.705**
Alt. 5.2	0.382	0.063	0.315	**0.760**	0.234	0.059	1.003	0.520	**2.576**
Alt. 6.1	0.383	0.063	0.316	**0.762**	0.232	0.059	0.876	0.706	**2.635**
Alt. 6.2	0.383	0.063	0.316	**0.762**	0.232	0.059	0.656	0.499	**2.208**
Alt. 7	0.353	0.061	0.300	**0.714**	0.228	0.058	1.200	0.485	**2.685**
Alt. 8	0.092	0.220	0.007	**0.422**	0.156	0.085	1.200	0.486	**2.246**
July 10th, 2010 Storm									
Existing Conditions	1.656	0.249	0.719	**2.624**	0.986	0.287	3.840	1.499	**9.236**
Alt. 1	2.120	0.258	0.788	**3.166**	1.004	0.280	3.846	1.500	**9.796**
Alt. 2	1.317	0.254	0.716	**2.287**	0.929	0.886	3.842	1.500	**9.444**
Alt. 3.1	1.302	0.246	0.622	**2.170**	0.920	0.272	3.840	1.500	**8.702**
Alt. 3.2	1.128	0.243	0.582	**1.953**	0.890	0.264	3.840	1.500	**8.447**
Alt. 4	1.656	0.254	0.719	**2.629**	0.986	0.287	3.230	1.499	**8.631**
Alt. 5.1	1.630	0.253	0.728	**2.611**	0.991	0.286	3.399	1.610	**8.897**
Alt. 5.2	1.624	0.252	0.727	**2.603**	0.987	0.285	3.113	1.666	**8.654**
Alt. 6.1	1.629	0.254	0.719	**2.602**	0.986	0.286	3.234	1.992	**9.100**
Alt. 6.2	1.630	0.254	0.719	**2.603**	0.986	0.286	2.830	1.860	**8.565**
Alt. 7	1.530	0.249	0.707	**2.486**	0.976	0.284	3.601	1.500	**8.847**
Alt. 8	0.808	0.787	0.500	**2.095**	0.807	0.084	3.860	1.500	**8.346**

*Reported flood volumes are obtained from the available hydraulic model which only includes the main conveyance pipes in the Somerville system. Potential, localized flooding in side streets with smaller size pipes is not reflected in this model.

Table 4. Flood volumes (in MG) using 30-minute time increment hyetographs for the 10- and 25-year 24-hour NRCS storm events

	Union Square Area			TOTAL UNION SQUARE	Beacon Street	Somerville Avenue	Upper Union Square	Tannery Brook	TOTAL OVERALL
	Union Square	Union Sq. to CMI	Washington Street						
10Y-24H Storm (30-min increments)									
Existing Conditions	0.054	0.001	0.064	**0.119**	0.042	0.007	0.138	0.082	**0.388**
Alt. 1	0.094	0.001	0.099	**0.194**	0.048	0.003	0.138	0.082	**0.466**
Alt. 2	0.035	0.001	0.044	**0.080**	0.024	0.000	0.137	0.082	**0.323**
Alt. 3.1	0.043	0.001	0.057	**0.101**	0.040	0.007	0.138	0.082	**0.367**
Alt. 3.2	0.013	0.000	0.020	**0.033**	0.028	0.033	0.138	0.082	**0.315**
Alt. 4	0.054	0.001	0.063	**0.118**	0.042	0.007	0.077	0.082	**0.326**
Alt. 5.1	0.054	0.001	0.064	**0.118**	0.042	0.007	0.126	0.088	**0.381**
Alt. 5.2	0.054	0.001	0.063	**0.118**	0.042	0.007	0.112	0.076	**0.355**
Alt. 6.1	0.054	0.001	0.064	**0.118**	0.042	0.007	0.052	0.118	**0.337**
Alt. 6.2	0.054	0.001	0.063	**0.118**	0.041	0.007	0.026	0.077	**0.269**
Alt. 7	0.048	0.001	0.057	**0.105**	0.041	0.007	0.138	0.082	**0.373**
Alt. 8	0.006	0.006	0.010	**0.022**	0.020	0.000	0.138	0.082	**0.261**
25Y-24H Storm (30-min increments)									
Existing Conditions	0.256	0.038	0.234	**0.528**	0.165	0.032	0.642	0.271	**1.638**
Alt. 1	0.398	0.041	0.297	**0.736**	0.178	0.017	0.641	0.271	**1.843**
Alt. 2	0.217	0.037	0.216	**0.470**	0.130	0.052	0.639	0.271	**1.562**
Alt. 3.1	0.195	0.037	0.126	**0.428**	0.154	0.029	0.641	0.271	**1.453**
Alt. 3.2	0.112	0.033	0.129	**0.366**	0.129	0.026	0.640	0.271	**1.432**
Alt. 4	0.256	0.038	0.234	**0.528**	0.165	0.032	0.442	0.270	**1.437**
Alt. 5.1	0.255	0.038	0.233	**0.526**	0.164	0.031	0.603	0.293	**1.618**
Alt. 5.2	0.255	0.038	0.233	**0.526**	0.164	0.031	0.559	0.294	**1.575**
Alt. 6.1	0.255	0.038	0.233	**0.526**	0.162	0.031	0.392	0.393	**1.505**
Alt. 6.2	0.254	0.038	0.233	**0.525**	0.158	0.031	0.270	0.334	**1.318**
Alt. 7	0.234	0.037	0.219	**0.490**	0.160	0.031	0.608	0.199	**1.488**
Alt. 8	0.070	0.211	0.080	**0.361**	0.103	0.007	0.641	0.271	**1.382**

*Reported flood volumes are obtained from the available hydraulic model which only includes the main conveyance pipes in the Somerville system. Potential, localized flooding in side streets with smaller size pipes is not reflected in this model.

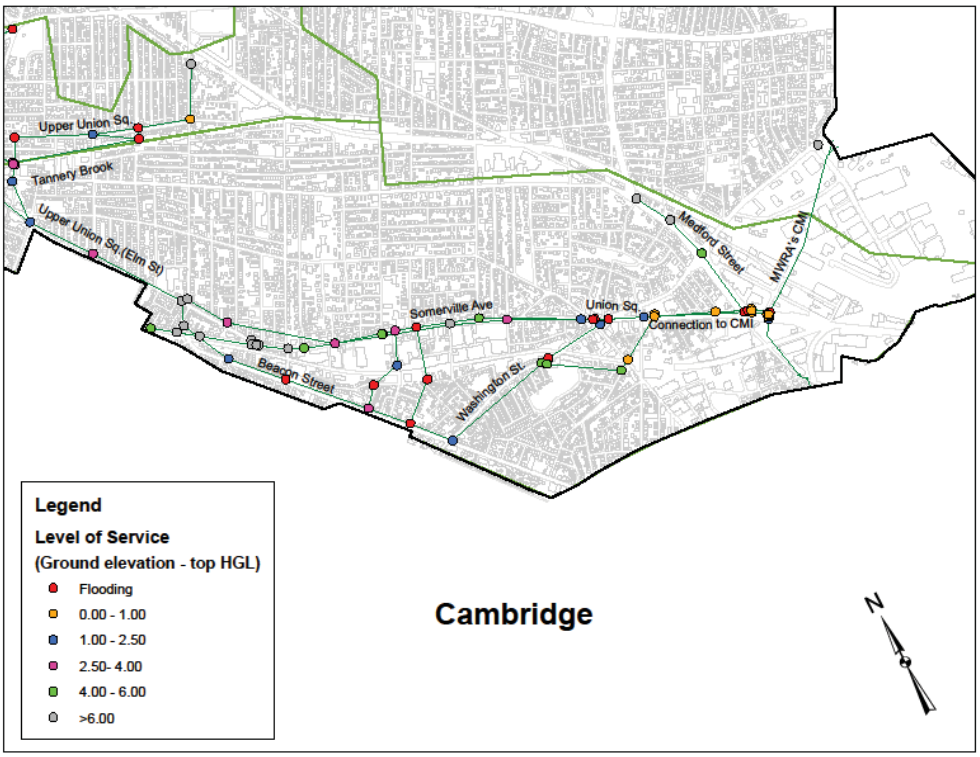

Figure 4. LOS in the Union Square and Somerville Ave areas in existing conditions during the 10-year, 24-hour NRCS storm

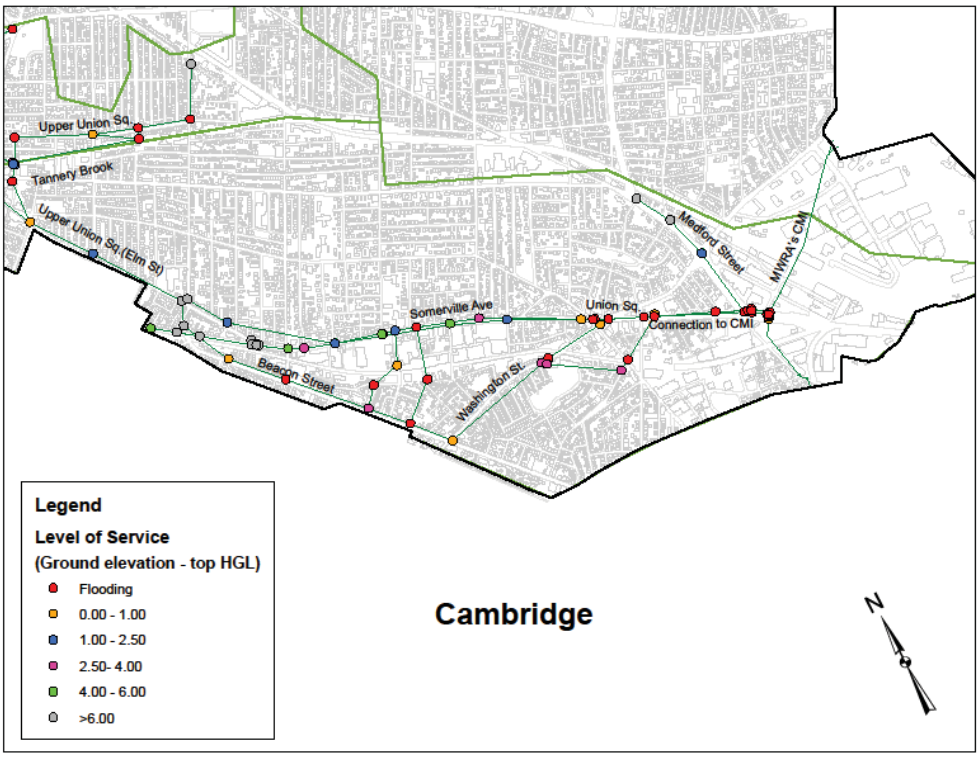

Figure 5. LOS in the Union Square and Somerville Ave areas in existing conditions during the 25-year, 24-hour NRCS storm

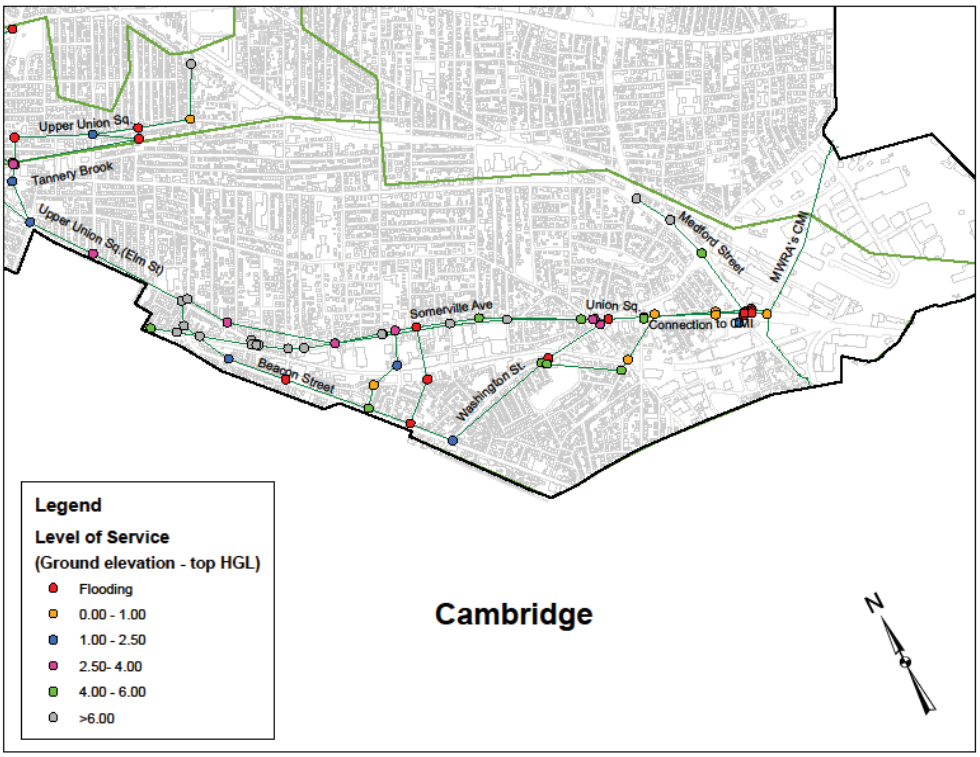

Figure 6. LOS in the Union Square and Somerville Ave areas with Alternative 8 during the 10-year, 24-hour NRCS storm

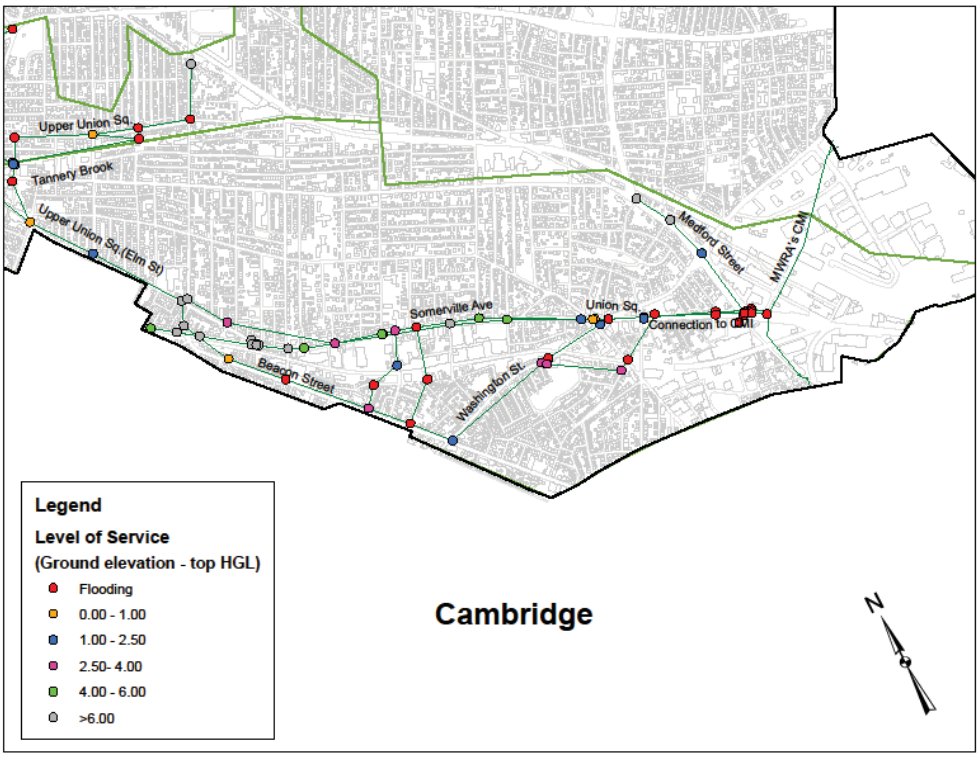

Figure 7. LOS in the Union Square and Somerville Ave areas with Alternative 8 during the 25-year, 24-hour NRCS storm

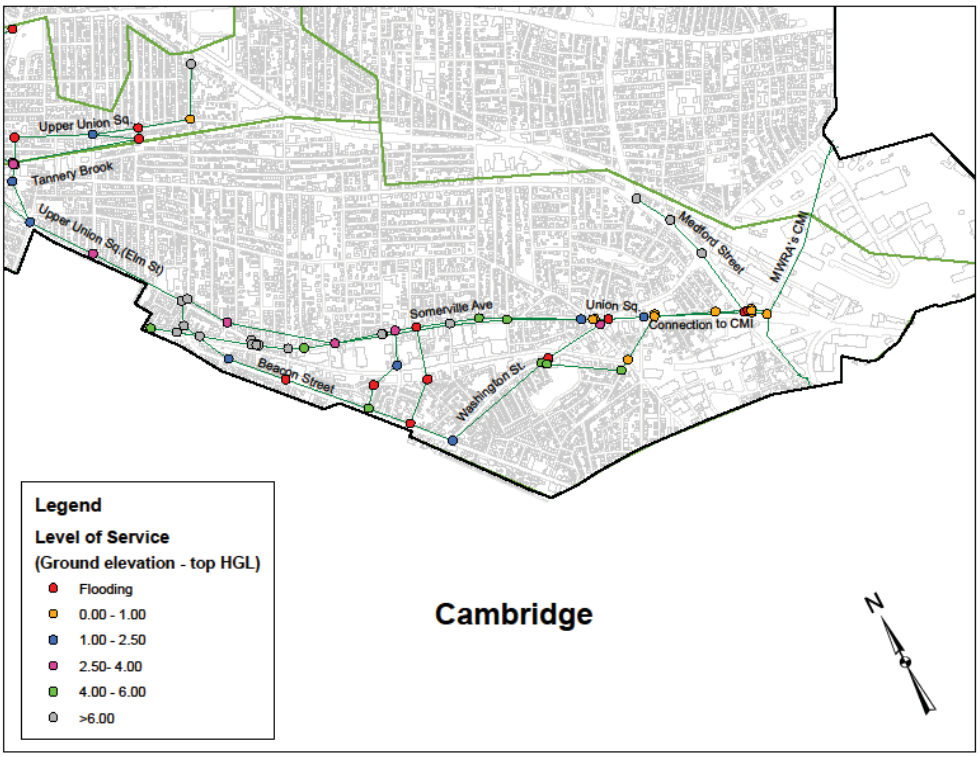

Figure 8. LOS in the Union Square and Somerville Ave areas with Alternative 3.2 during the 10-year, 24-hour NRCS storm

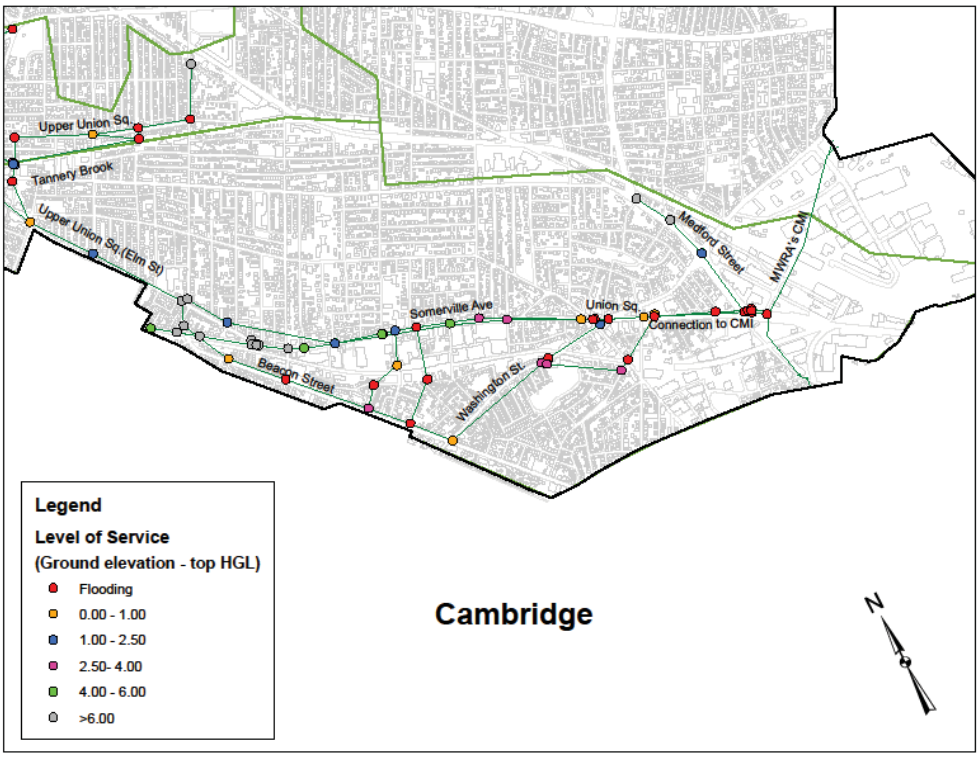

Figure 9. LOS in the Union Square and Somerville Ave areas with Alternative 3.2 during the 25-year, 24-hour NRCS storm

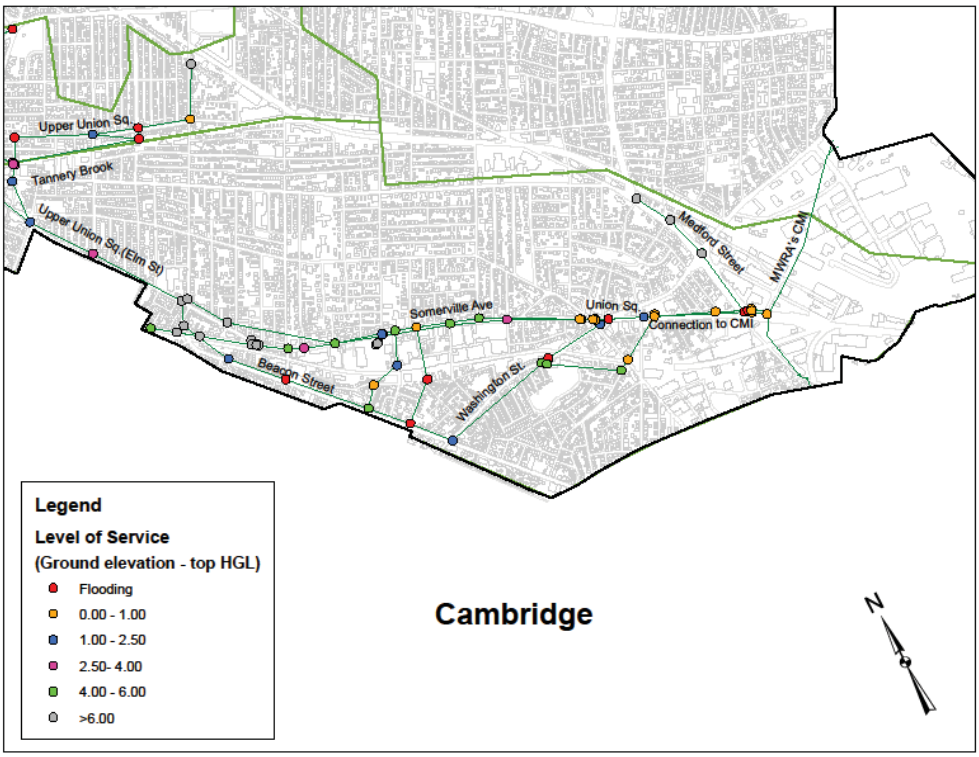

Figure 10. LOS in the Union Square and Somerville Ave areas with Alternative 2 during the 10-year, 24-hour NRCS storm

[21]

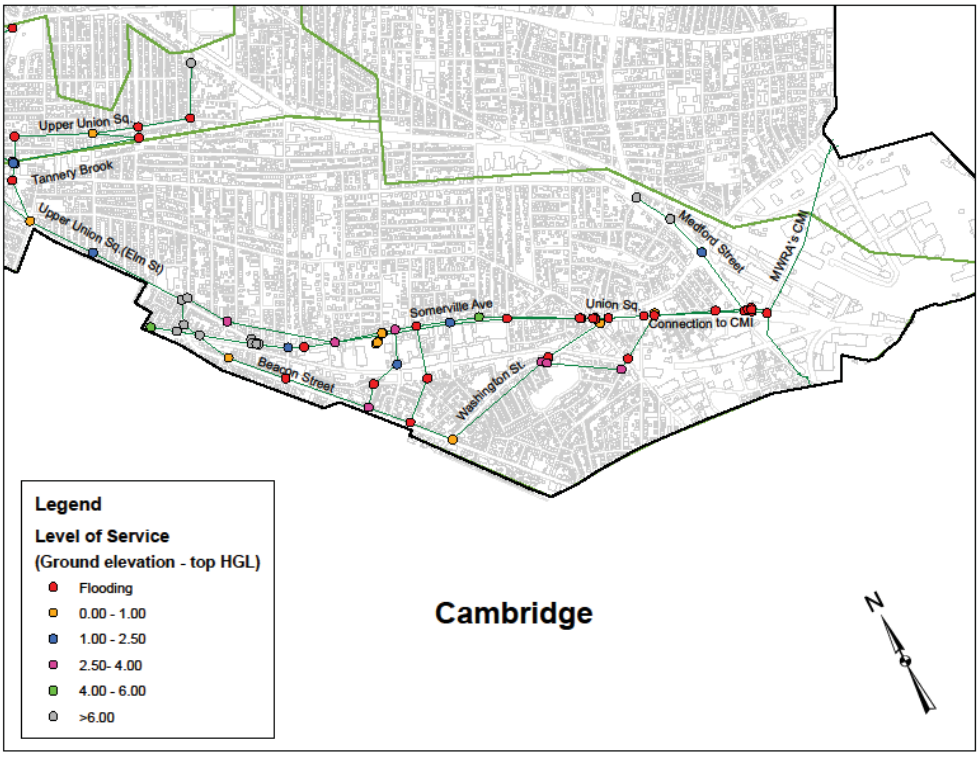

Figure 11. LOS in the Union Square and Somerville Ave areas with Alternative 2 during the 25-year, 24-hour NRCS storm

[22]

4.3 Ranking of Alternatives Evaluated Individually

Projects or alternatives were ranked based on flood reduction and cost-effectiveness criteria described below. Results are provided in Table 5.

(1) Flood reduction in the Union Square area during the 10-year, 24-hour NRCS event using 30-minute time increments (see Figure 3 for Union Square area boundaries).

(2) Cost-effectiveness of flood reduction alternatives in the Union Square area (calculated as % flooding removed per $M spent) during the 10-year, 24-hour event (with 30-minute time increments).

Table 5. Alternative ranking based on the flood reduction and cost-effectiveness criteria for the 10-year, 24-hour storm event

Flood Reduction		Cost-Effectiveness	
Alternative	**Flood Reduction (MG) [%]**	**Alternative**	**Cost-Effectiveness Index***
Alt. 8	0.0973 [81.8%]	Alt. 7	19.0
Alt. 3.2	0.0857 [71.2%]	Alt. 3.1	13.9
Alt. 2	0.0394 [33.1%]	Alt. 3.2	13.4
Alt. 3.1	0.0182 [15.3%]	Alt. 2	5.9
Alt. 7	0.0135 [11.4%]	Alt. 8	5.8
Alt. 6.2	Negligible reduction	Alt. 6.1	Negligible benefit
Alt. 5.2	Negligible reduction	Alt. 4	Negligible benefit
Alt. 4	Negligible reduction	Alt. 5.1	Negligible benefit
Alt. 6.1	Negligible reduction	Alt. 6.2	Negligible benefit
Alt. 5.1	Negligible reduction	Alt. 5.2	Negligible benefit
Alt. 1	Negligible reduction	Alt. 1	No benefit

* Calculated as percent of flooding removed per million dollars spent using the 30-minute, 10- year, 24-hour NRCS hyetograph.

4.4 Hydraulic Benefit of Combinations of Best Alternatives

Based on the flood reduction and cost-effectiveness results shown in Table 5, each of the tank alternatives that provided substantial flood reduction (i.e. Alternative 8, 3.2, and 2) were combined with relevant no-tank alternatives (i.e. Alternatives 7 and 3.1). Resulting flood volumes are provided below in Table 6. Level of service plots for the top two combinations with regard to flood reduction in the Union Square area (i.e. Alternative 3.2 or Alternative 8 combined with Alternative 3.1, see Table 6) are provided in Figures 12 to 15.

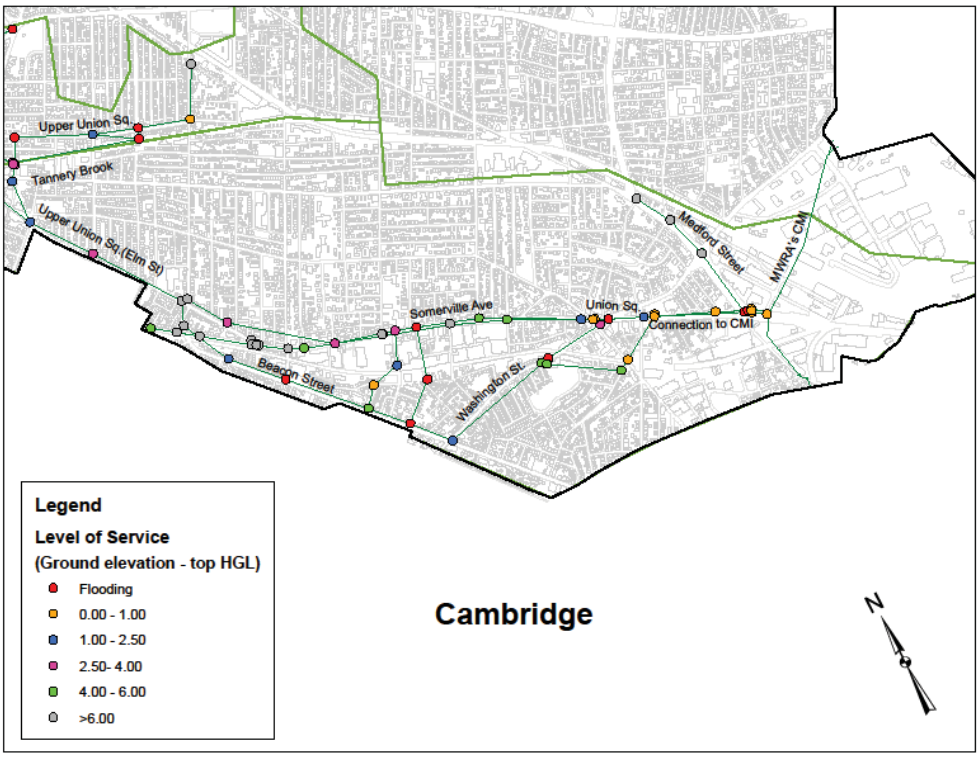

Figure 12. LOS in the Union Square and Somerville Ave areas with Alternatives 3.2 and Alternative 3.1during the 10-year, 24-hour NRCS storm

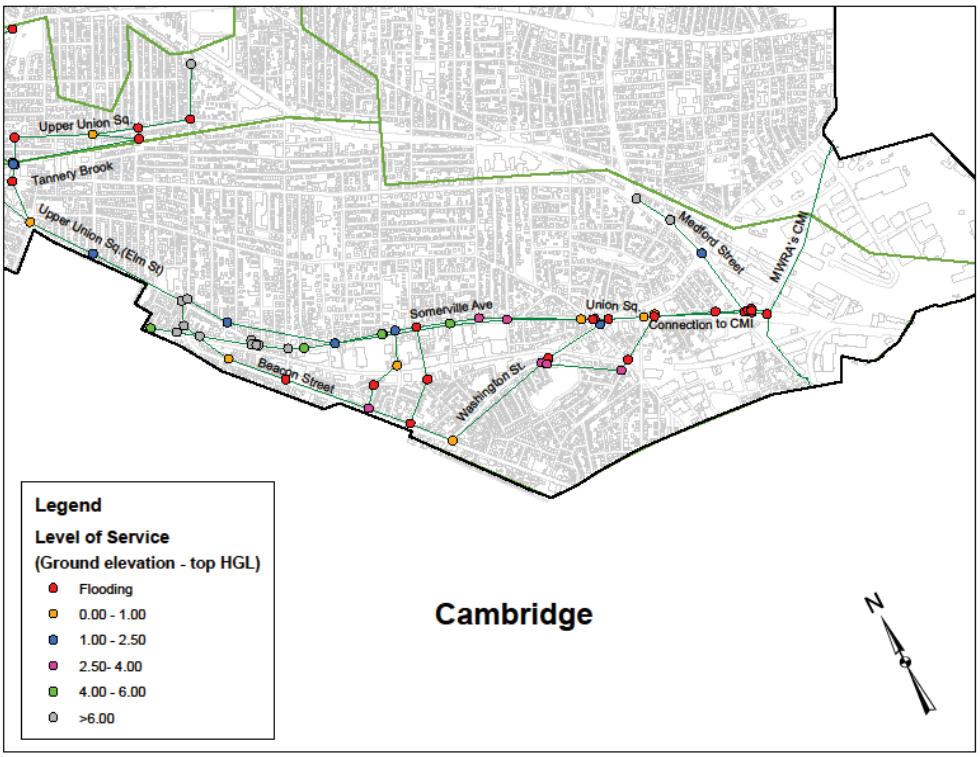

Figure 13. LOS in the Union Square and Somerville Ave areas with Alternatives 3.2 and Alternative 3.1during the 25-year, 24-hour NRCS storm

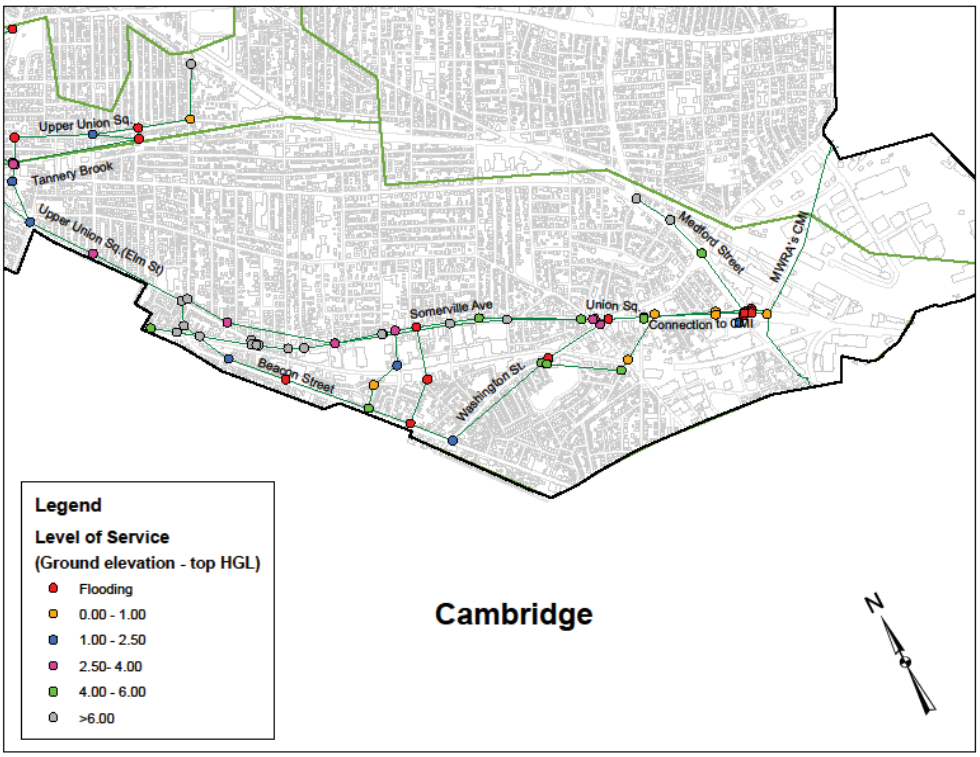

Figure 14. LOS in the Union Square and Somerville Ave areas with Alternatives 8 and Alternative 3.1during the 10-year, 24-hour NRCS storm

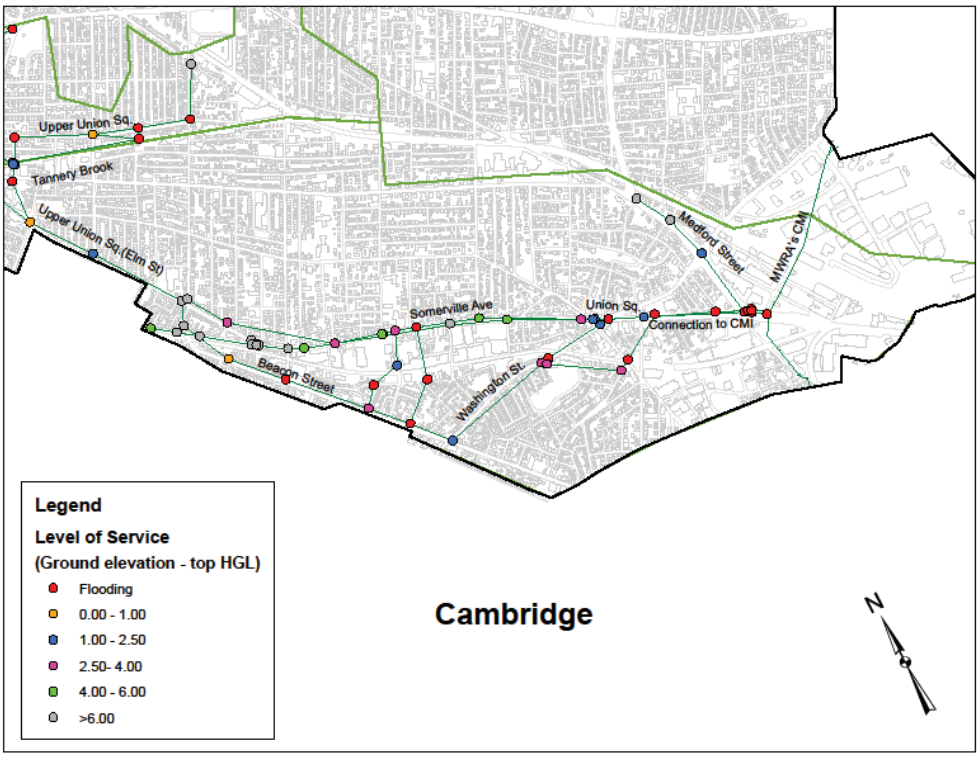

Figure 15. LOS in the Union Square and Somerville Ave areas with Alternatives 8 and Alternative 3.1during the 25-year, 24-hour NRCS storm

Table 6. Flood volumes (in MG) using 30-minute time increment hyetographs for the 10- and 25-year 24-hour NRCS storm events for different combinations of alternatives

	Union Square Area			TOTAL UNION SQUARE	Beacon Street	Somerville Avenue	Upper Union Square	Tannery Brook	TOTAL OVERALL
	Union Square	Union Sq. to CMI	Washington Street						
10Y-24H Storm (30-min increments)									
Existing Conditions	0.054	0.001	0.064	**0.119**	0.042	0.007	0.138	0.082	**0.388**
Alt3.2+Alt 7	0.014	0.000	0.022	**0.036**	0.029	0.005	0.137	0.082	**0.289**
Alt 3.2+Alt 3.1	0.010	0.000	0.017	**0.027**	0.027	0.005	0.137	0.082	**0.277**
Alt 8 + Alt 7	0.004	0.005	0.006	**0.015**	0.017	0.000	0.127	0.082	**0.241**
Alt 8+ Alt 3.1	0.002	0.002	0.005	**0.009**	0.017	0.000	0.127	0.082	**0.235**
Alt 2 + Alt 7	0.029	0.000	0.037	**0.067**	0.025	0.000	0.137	0.082	**0.311**
Alt 2 + Alt 3.1	0.032	0.000	0.045	**0.077**	0.026	0.000	0.137	0.082	**0.322**
25Y-24H Storm (30-min increments)									
Existing Conditions	0.256	0.038	0.234	**0.528**	0.165	0.032	0.642	0.271	**1.638**
Alt3.2+Alt 7	0.144	0.034	0.158	**0.336**	0.133	0.026	0.640	0.271	**1.406**
Alt 3.2+Alt 3.1	0.133	0.034	0.146	**0.312**	0.128	0.025	0.640	0.271	**1.248**
Alt 8 + Alt 7	0.060	0.208	0.065	**0.333**	0.096	0.006	0.641	0.271	**1.347**
Alt 8+ Alt 3.1	0.052	0.187	0.064	**0.303**	0.096	0.006	0.641	0.271	**1.317**
Alt 2 + Alt 7	0.200	0.036	0.203	**0.439**	0.135	0.260	0.640	0.271	**1.744**
Alt 2 + Alt 3.1	0.171	0.036	0.180	**0.387**	0.130	0.289	0.639	0.271	**1.716**

4.5 Ranking of Combinations of Alternatives

Similar to the individual alternatives, combinations of alternatives were ranked using the flood reduction and the cost-effectiveness criteria. For the cost-effectiveness of combinations of alternatives, the size of the tanks and other proposed drainage infrastructure was left the same as in the individual alternatives. However, tank size reductions are likely when alternatives are combined to prevent or reduce flooding during the 10-year design event (e.g. 11% of Alternative 3.2's tank capacity remains unused during the 10-year design event when in combination with Alternative 3.1). Table 7 presents the ranking of combinations of alternatives.

Table 7. Combination of alternatives ranking based on the flood reduction and the cost-effectiveness criteria with the 10-year, 24-hour storm event

Flood Reduction		Cost-Effectiveness	
Combination	Flood Reduction (MG) [%]	Alternative	Cost-Effectiveness Index*
Alt. 8+ Alt. 3.1	0.110 [92.7%]	Alt. 3.2 + Alt. 3.1	12.1
Alt. 8 + Alt. 7	0.104 [87.5%]	Alt. 3.2 + Alt. 7	11.8
Alt. 3.2 + Alt. 3.1	0.092 [77.3%]	Alt. 2 + Alt. 7	7.0
Alt. 3.2 + Alt. 7	0.083 [69.6%]	Alt. 8 + Alt. 3.1	6.1
Alt. 2 + Alt. 7	0.052 [43.7%]	Alt. 8 + Alt. 7	5.9
Alt. 2 + Alt. 3.1	0.042 [35.0%]	Alt. 2 + Alt. 3.1	5.2

* Calculated as percent of flooding removed per million dollars spent using the 30-minute, 10- year, 24-hour NRCS hyetograph.

4.6 Effect of Best Alternatives to the MWRA's CMI

The impact that would result from implementing the best alternatives or combinations of alternatives to the CMI was evaluated at three different locations : (1) at the 28-inch pipe connecting the 84-inch combined sewer in Somerville Avenue to the CMI, (2) at the pipe immediately downstream of the SOM009 overflow, and (3) at the last CMI reach within Cambridge (Warren Street). Hydrographs for the 10-year, 24-hour storm for the selected scenarios are provided in Figures 16 through 18.

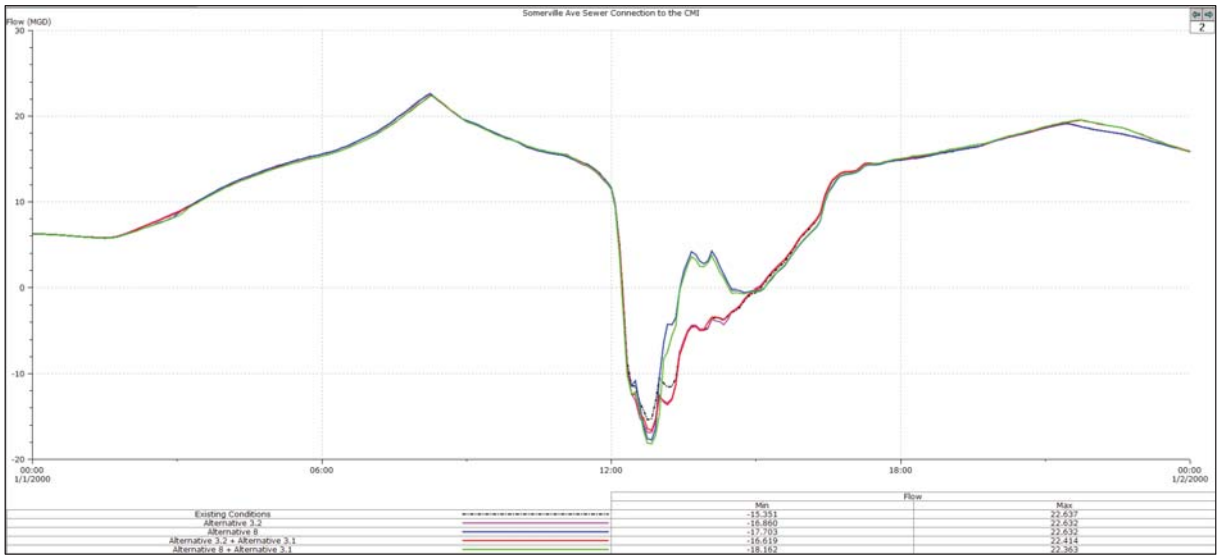

Figure 16. Flow contributions from the Union Square watershed to the CMI during the 10-year, 24-hour storm under different alternative scenarios.

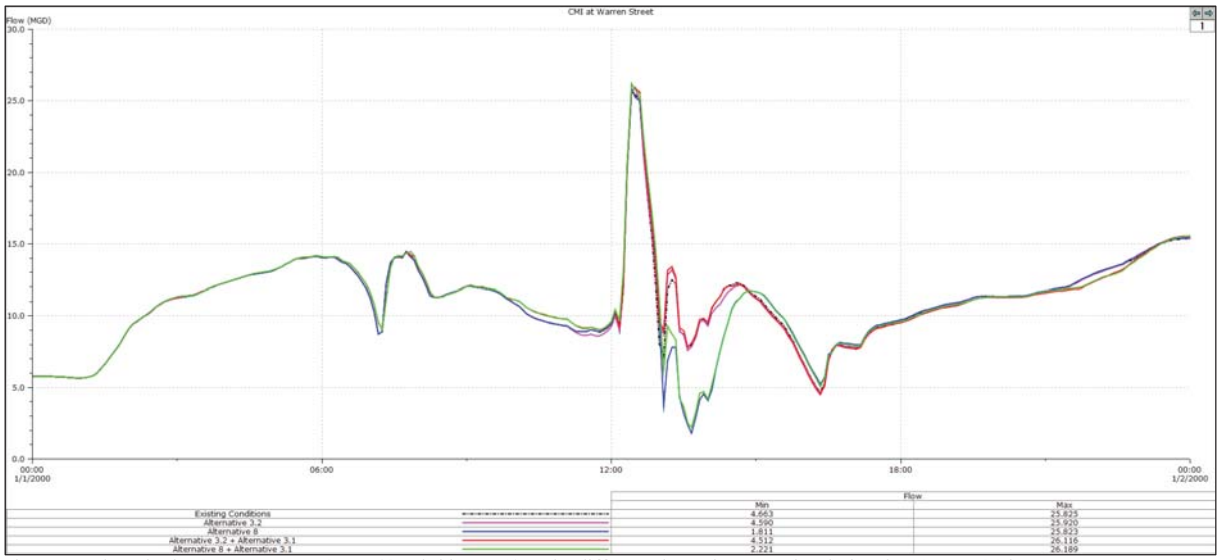

Figure 17. Flows in the CMI at Warren Street (Cambridge, MA) under different alternative scenarios during the 10-year, 24-hour storm

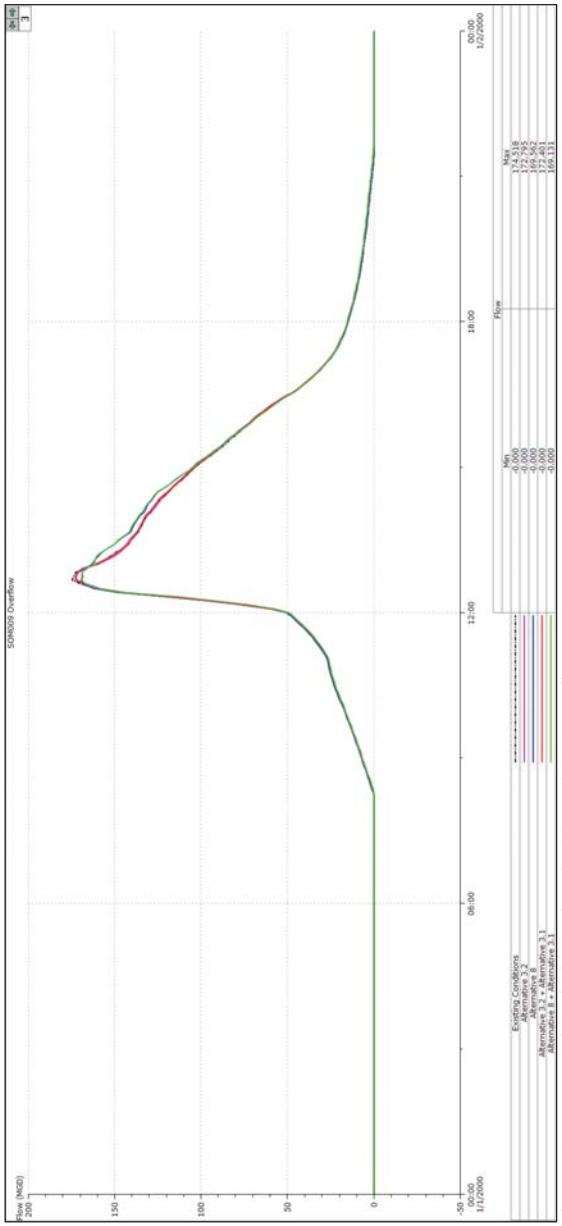

Figure 18. 10-year, 24-hour hydrograph at the SOM009 CSO overflow

5 Discussion

The hydraulic model results indicated that only projects in areas geographically close to Union Square have a significant impact with regards to flood reduction in the Union Square area depicted in Figure 3. Projects in the upper Union Square watershed such as those in alternatives 4, 5.1, 5.2, 6.1, and 6.2 do not bring any flood reduction benefit to this area, most likely because of their great distance to the area of interest. Flooding in Union Square is caused for the most part by large, rapid peak flows generated by three major systems that converge into a 66-inch, RCP pipe in Union Square. The three converging systems are the Summer Street catchment drain and combined sewer (92 acres), the Somerville Avenue drain and combined sewer (137 acres) and the Washington Street combined sewer pipe that conveys flows from the rest of the Union Square watershed. The Summer Street and Somerville Ave watersheds are relatively close to Union Square and have rapid peak flows due to proximity and steep topography (Spring Hill and part of Prospect Hill). The Washington Street pipe is a major flow conveyor and merges with these two systems near Union Square competing for the available capacity in the existing 66-inch pipe. The conveyance capacity of this pipe is limited and currently insufficient to absorb the peak flows generated during large storms and is aggravated by the limited capacity of the receiving MWRA's CMI. This problem becomes more acute with high intensity storms as indicated by the differences in flood volumes between the 15- and 30-minute hyetographs (Table 3 and 4, respectively) as well as the flood volumes generated by the storm July 10th, 2010 storm (Table 3).

Consequently, alternatives with project areas far from Union Square may have a significant flood reduction benefit in upper regions but do not seem to bring any local benefit in the area of interest. Alternatives involving construction of underground storage tanks in the vicinity of Union Square (i.e. Alternatives 8, Alternative 3.2, and Alternative 2) provide the most significant flood reductions during the 10-year storm (0.10, 0.09, and 0.07MG, respectively, Table 5).

With respect to level of service, none of the alternatives alone is able to totally eliminate flooding in the Union Square area (different degrees of flooding always occur in one of the Union Square junction manholes, in Washington Street and near the CMI connection in all scenarios) (Figures 4 through 11). However, Alternative 8, which includes extension of the Somerville Ave drain and construction of a 2.0 ac-ft tank near the CMI connection seems to provide the most significant improvement in level of service in the vicinity of Union Square with respect to the rest of best alternatives (Figure 6 and 7). It is important to keep in mind that this is a rather basic hydraulic model with only the main trunk lines represented in the network. Consequently, main points of convergence such as the Union Square junction manhole may overestimate flooding at that location as local pipe networks are not represented in the model and loaded directly onto manholes as large catchment areas. In reality, catchment loadings are distributed more evenly, which spreads flooding throughout the network, which would include small diameter pipes.

If alternatives are ranked based on cost-effectiveness of flood reduction, it becomes apparent that no-tank alternatives provide the most benefit per dollar spent but are not able to provide substantial flood reduction by themselves (15.3% and 11.4% for Alternatives 3.1 and Alternative 7, respectively; see Table 5). Surface runoff management in the Lincoln Park neighborhood

(Alternative 7) is the most cost-effective but only ranks fifth in total flood reduction (Table 5). Alternative 3.1 (surface storage in the Vinal Ave/Summer St. ball field) is the second most cost-effective alternative but only ranks fourth in flood reduction (Table 5).

As for tank options, Alternative 3.2 at Vinal Ave and Summer St. is the most balanced alternative. It is able to provide a 71% flood reduction during the 10-year storm event and is more cost-effective than Alternative 8 and Alternative 2, which would locate the tanks near the connection to the CMI and at Conway Park in Somerville Ave, respectively (Table 5).

Because of the differences between alternative ranking using the flood reduction and the cost-effectiveness criteria, combinations of tank and no-tank alternatives were evaluated. Flood reduction results of combinations of alternatives (Table 6) are consistent with the individual results with Alternative 8 combinations leading the ranking (up to 93% flood reduction) followed by alternative 3.2 and 2 combinations (up to 77% and 44% flood reduction, respectively; Table 7). However, the cost-effectiveness ranking of combinations of alternatives is clearly led by configurations including Alternative 3.2 (Table 7). Cost-effectiveness of combinations including alternatives 2 and 8 is approximately half of that of Alternative 3.2's (Table 7).

When evaluating the different alternatives individually and in combination, it was assumed that Alternative 8 would need to be executed in full. However, it is MWH's understanding that there is a possibility that the extension of the Somerville Ave drain from Union Square to a location near the connection to the CMI will most likely be executed as part of the Union Square Revitalization Project. The cost of such work, which was included in the total cost for Alternative 8, was estimated approximately at $7M to $8M, which leaves approximately another $6M to $7M for full execution of Alternative 8. If the extension of the Somerville Avenue drain proceeds under that project, the cost effectiveness of Alternative 8 would increase significantly reaching an index between 13.6 and 11.7, very similar to that of Alternative 3.2 (Table 5). If the remaining work of Alternative 8 is then combined with Alternative 3.1 to achieve the largest possible flood reduction (93%, Table 7), the cost –effectiveness index would range between 13 and 11.4, which is very close to the cost-effectiveness index values of Alternative 3.2 combinations (Table 7).

Implementation of tank alternatives 8 or 3.2 would result in an increase of negative flows from the CMI into the Somerville system as the proposed storage tanks would free up space that would fill back up by backflows from the CMI, which is heavily surcharged (Figure 16). This increase in backflows would be mostly relieved by the SOM009 overflow structure during the 10-year event. The resulting increase in backflows would translate into a slight increase of peak HGLs near the CMI connection with Alternative 8 (~ 0.1 feet) or a net decrease with Alternative 3.2 (~ 0.25 feet).

Implementation of Alternative 8 alone or in combination with Alternative 3.1 results in a net increase of volume entering the CMI (Figure 16), which translates in reduced ability for upstream systems (i.e. East Cambridge) to push flow as less capacity is available in the CMI (Figure 17). Conversely, Alternative 3.2 alone or in combination doesn't substantially change the hydraulics in the MWRA system or exacerbate draining issues in upstream communities (Figure

17). With respect to overflows over SOM009, none of the proposed alternatives significantly alters the flow volume reaching Prison Point during the 10-year storm (Figure 18).

6 Conclusions

- The hydraulic model indicated that significant flood reduction in the vicinity of Union Square can be achieved by executing mitigation projects that are physically close to the problem area. Projects in the Upper Union Square catchment bring negligible or no benefit to Union Square in terms of flood reduction.

- Significant flood reduction in Union Square by a single alternative alone can only be achieved using detention storage tanks. Alternative 8 and 3.2 are the top two alternatives with 82% (0.1MG) and 77% (0.09MG) of flood reduction during the 10-year, 24-hour event, respectively.

- The proposed no-tank alternatives alone provided modest flood reductions (up to 15%) but were the most cost-effective.

- Alternative 8 provides the most significant improvement in level of service for the Union Square area and its surroundings followed by Alternative 3.2. The junction manhole in the middle of Union Square floods in all storm events and alternative scenarios. However, this manhole is especially sensitive to flooding in the hydraulic model due to three main factors: (1) convergence of two major lines (i.e. Somerville Ave and Washington Street combined sewers), (2) direct loading of a large catchment area into that manhole (200 acres, which include Summer Street area, part of Prospect Hill and the surroundings of Union Square towards Webster Avenue), and (3) rapid peak flows from the Washington Street and Somerville Ave combined sewers as well as from the Summer Street catchment.

- Combinations of tank and no-tank alternatives resulted in the same flood reduction rankings as when the alternatives were evaluated individually. Alternative 8 combinations rank the highest with flood reductions up to 93%, followed by Alternatives 3.2 and Alternative 2 combinations with flood reductions up to 77% and 44%, respectively.

- Alternative 3.2 combined with no-tank alternatives is the most cost-effective with index values close to 12. Cost-effectiveness of Alternative 8 and 2 combinations are approximately half this value (index value up to 7 in best case). If the Somerville Avenue drain line extension is to be executed under the Union Square Revitalization Project, the cost-effectiveness of completing Alternative 8 or its combinations would be the highest or second highest of all the tank scenarios and very close to that of Alternative 3.2.

- Combination of Alternative 8 and 3.1 would result in a very significant improvement of level of service in the Union Square area with respect to existing conditions. Combinations of Alternatives 3.2 and 3.1 result in a more moderate improvement but level of service would still remain marginal in most locations within the Union Square area during the 10-year, 24-hour storm. Again, the junction manhole where the

Somerville Ave and the Washington Street drain converge floods in all modeled combination scenarios for the same reasons stated above.

- Alternative 8 alone or in combination would increase the flow volume entering the CMI during the peak of the storm or shortly after. The increase in conveyance capacity generated by the extension of the Someville Avenue drain would push flows towards the CMI more rapidly with the subsequent increase in volumes entering the CMI pipe. This would decrease its already limited capacity even further and negatively affect the East Cambridge system. Alternative 3.2 alone or in combination does not significantly alter the hydraulics in the MWRA's CMI with respect to existing conditions during the 10-year, 24-hour event.

7 Recommendations

Based on the results provided in this document, it is MWH recommendation to execute Alternative 3.2 (storage tank in the Vinal Ave/Summer St. ball field) in combination with Alternative 3.1(surface storage and infiltration enhancements in the Vinal Ave/Summer St. ball field) as they provide significant flood reduction (77%), are highly cost-effective with respect to the rest of evaluated alternatives and do not significantly alter the hydraulics of the receiving MWRA system. The performance of this combination of alternatives could be further improved by providing larger surface storage (i.e. constructing a higher berm) and/or sub-surface storage (i.e. installing a thicker gravel layer) in Alternative 3.1. In order to determine the final, optimum configuration for this alternative, additional detailed modeling is required in the Summer Street watershed and the Union Square area, which was not available at the time this study was performed.

It is MWH's opinion that, while Alternative 8 alone or in combination provides the largest flood reduction, its overall cost and significant alteration of the existing flow patterns in the CMI, makes it a less desirable option than Alternative 3.2. However, if the Somerville Ave drain is extended under the Union Square Revitalization Project, Alternative 8 becomes significantly more cost-effective. Additional, detailed modeling is necessary in order to determine the final configuration and find a feasible solution to avoid negative impacts to Somerville near the CMI connection and to the rest of communities serviced by the CMI system.

Attachment 1:
Opinion of Probable Project Costs

MWH
Boston

JLL
5/16/2013

City of Somerville
Stormwater Management Projects
Project #1
Surface Runoff Management in Spring Hill

Opinion of Probable Construction Costs

Currency: USD-United States-MAY 2013 Dollar

Grand Total Price: $ 710,000

Item #	Description	Quantity	UOM	Unit Price	Total Price	Comments
A.	**Capital Expenditures**				**$526,250**	
1	Install CB Inlet Controls in Spring Hill Area	69	ea	$2,500	$171,250	at 1 CB/2 ac, restrictors
2	Increase CB Inlet Capacity in Summerville Area	20	ea	$12,000	$240,000	double catch basins
3	Install 66" Throttle/Flap Valve	1	ea	$50,000	$50,000	
4	Traffic Mitigation	1	ls	$15,000	$15,000	
5	Contractor Mobilization/General Conditions	1	ls	10%	$50,000	
				Running Subtotal:	**$526,300**	
B.	**Project Management**				**$181,000**	
1	Construction Oversight & Mgt	1	ls	5%	**$30,000**	Allowanec
2	Engineering	1	ls	6%	**$30,000**	<ditto>
3	Geotechnical	1	ls	2%	**$11,000**	"
4	Engineering During Construction	1	ls	1%	**$5,000**	"
5	Misc Owner's Soft Costs (All)	1	ls	0%	**$0**	Excluded
6	Land Acquisition	1	ls	0%	**$0**	ditto
7	Scope Contingency/Market Conditions	1	ls	20%	**$105,000**	Scope definition/market allowance/estimating
8	Interest During Construction	1	ls	0%	**$0**	Excluded, allowance for financing costs
9	Owner's Construction Contingency/Mgt Reserve	1	ls	0%	**$0**	Excluded, allowance for changed field conditions
				Grand Total:	**$710,000**	Total Estimated Constr Costs w/ Contingency
				Cost Range:	**$500,000**	**$800,000** Per AACE cost estimate guidelines

Assumptions:

1) Non-standard environmental mitigations excluded.

Notes

1) This OPCC is classified as a Class 4 cost estimate per AACE guidelines. Stated accuracy range = -20% to + 30%
2) Pricing basis = 2nd Qtr 2013, escalation to midpoint of construction is excluded.
3) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).
4) Owner soft costs and project management expenses excluded.
5) Special Inspections not included.

OPCC Disclaimer

The client hereby acknowledges that MWH has no control over the costs of labor, materials, competitive bidding environments, unidentified field conditions, financial and/or commodity market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of high market volatility attributable to Acts of God and other market forces or events beyond the control of the parties. As such, Client recognizes that this OPCC deliverable is based on normal market conditions, defined by stable resource supply/demand relationships, and does not account for extreme inflationary or deflationary market cycles. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith Class 4 OPCC

AACE International CLASS 4 Cost Estimate - Class 4 estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. Typically, engineering is 10% to 40% complete. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Virtually all Class 4 estimates use stochastic estimating methods such as cost curves, capacity factors, and other parametric and modeling techniques. Expected accuracy ranges are from -15% to -30% on the low side and +20% to 50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances. As little as 20 hours or less to perhaps more than 300 hours may be spent preparing the estimate depending on the project and estimating methodology (AACE International Recommended Practices and Standards).

MWH
Boston

JLL
5/16/2013

City of Somerville
Storm water Management Projects
Project #2
Conway Park Underground Tank

Opinion of Probable Construction Costs

Currency: USD-United States-MAY 2013 Dollar

Grand Total Price: $ 5,600,000

Item #	Description	Quantity	UOM	Unit Price	Total Price	Comments
A.	**Capital Expenditures**				**$4,204,500**	
1	Install U/G 3 ac-ft Storm water Tank	600,000	gal	$3.00	$1,800,000	
2	Tank Dewatering Pumps	2	ea	$50,000	$100,000	say 100 hp/pump
3	6" DI Force Mains to (e) 60" Storm Drain Pipeline	300	lf	$120	$36,000	1- 300' run
4	Inlet Structure	1	ea	$300,000	$300,000	incls 4' static weir & deep utility obstruction
5	36" RCP Inlet Pipe	200	lf	$390	$78,000	at 15' deep
6	36" Inlet Flap Valve	1	ea	$23,000	$23,000	
7	Install CB Controls	69	ea	$2,500	$172,500	
8	Increase CB Inlet Capacity	20	ea	$12,000	$240,000	double catch basins
9	Install 66" Throttle/Flap Valve	1	ea	$50,000	$50,000	
10	Hazardous Waste Mitigation Allowance	1	ea	$700,000	$700,000	pb, TPH soil contamination
11	Permitting Mitigation Allowance	1	ea	$100,000	$100,000	scope TBD
12	Restore Playground Area	1	ea	$150,000	$150,000	
13	Traffic Mitigation	1	ls	$75,000	$75,000	
14	Contractor Mobilization/General Conditions	1	ls	10%	$380,000	
				Running Subtotal:	**$4,204,500**	
B.	**Project Management**				**$1,424,000**	
1	Construction Oversight & Mgt	1	ls	5%	**$210,000**	Allowance
2	Engineering	1	ls	6%	**$250,000**	<ditto>
3	Geotechnical	1	ls	2%	**$84,000**	"
4	Engineering During Construction	1	ls	1%	**$40,000**	"
5	Misc Owner's Soft Costs (All)	1	ls	0%	**$0**	Excluded
6	Land Acquisition	1	ls	0%	**$0**	ditto
7	Scope Contingency/Market Conditions	1	ls	20%	**$840,000**	Scope definition/market allowance/estimating
8	Interest During Construction	1	ls	0%	**$0**	Excluded, allowance for financing costs
9	Owner's Construction Contingency/Mgt Reserve	1	ls	0%	**$0**	Excluded, allowance for changed field conditions
				Grand Total:	**$5,600,000**	Total Estimated Constr Costs w/ Contingency
				Cost Range:	**$3,800,000**	**$6,200,000** Per AACE cost estimate guidelines

Assumptions:

1) Non-standard environmental mitigations excluded.

Notes

1) This OPCC is classified as a Class 4 cost estimate per AACE guidelines. Stated accuracy range = -20% to + 30%
2) Pricing basis = 2nd Qtr 2013, escalation to midpoint of construction is excluded.
3) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).
4) Owner soft costs and project management expenses excluded.
5) Special Inspections not included.

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MWH
Boston

JLL
5/16/2013

City of Somerville
Storm water Management Projects
Project #3a
Summer Street/Vinal Ave Surface Runoff Mgt & Surface Storage

Opinion of Probable Construction Costs

Currency: USD-United States-MAY 2013 Dollar

Grand Total Price: $ 1,100,000

Item #	Description	Quantity	UOM	Unit Price	Total Price	Comments
A.	**Capital Expenditures**				**$856,346**	
1	Install CB Inlet Controls in Summer Street Area	46	ea	$2,500	$115,000	at 1 CB/2 ac, restrictors
2	Lower Grade of (e) Baseball Field by 4'	5,500	cys	$15.00	$82,500	excavate to waste w/ 5 miles of site
3	Provide Gravel Base Material for Adsorption	2,750	cys	$55	$151,250	at say 2'
4	Construct 2' High Berm Around Field	165	cys	$40	$6,596	
5	15" PVC Throttle Outlet Valve	1	ea	$15,000	$15,000	
6	Install Raised Cross-walks	8	ea	$30,000	$240,000	
7	Remove/Replace (e) Concrete Curbs	1,000	lf	$40	$40,000	
8	Replace Concrete Sidewalk	6,000	sf	$6	$36,000	
9	Restore Baseball Field	1	ls	$50,000	$50,000	
10	Traffic Mitigation	1	ls	$50,000	$50,000	
11	Contractor Mobilization/General Conditions	1	ls	10%	$70,000	
				Running Subtotal:	**$856,300**	
B.	**Project Management**				**$288,000**	
1	Construction Oversight & Mgt	1	ls	5%	**$40,000**	Allowance
2	Engineering	1	ls	6%	**$50,000**	<ditto>
3	Geotechnical	1	ls	2%	**$17,000**	"
4	Engineering During Construction	1	ls	1%	**$10,000**	"
5	Misc Owner's Soft Costs (All)	1	ls	0%	**$0**	Excluded
6	Land Acquisition	1	ls	0%	**$0**	ditto
7	Scope Contingency/Market Conditions	1	ls	20%	**$171,000**	Scope definition/market allowance/estimating
8	Interest During Construction	1	ls	0%	**$0**	Excluded, allowance for financing costs
9	Owner's Construction Contingency/Mgt Reserve	1	ls	0%	**$0**	Excluded, allowance for changed field conditions
				Grand Total:	**$1,100,000**	Total Estimated Constr Costs w/ Contingency
				Cost Range:	**$700,000**	**$1,200,000** Per AACE cost estimate guidelines

Assumptions:

1) Non-standard environmental mitigations excluded.

Notes

1) This OPCC is classified as a Class 4 cost estimate per AACE guidelines. Stated accuracy range = -20% to + 30%
2) Pricing basis = 2nd Qtr 2013, escalation to midpoint of construction is excluded.
3) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).
4) Owner soft costs and project management expenses excluded.
5) Special Inspections not included.

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MWH
Boston

JLL
5/16/2013

City of Somerville
Stormwater Management Projects
Project #3b
Summer Street/Vinal Ave Surface Runoff Mgt & Underground Storage

Opinion of Probable Construction Costs

Currency: USD-United States-MAY 2013 Dollar

Grand Total Price: $ 5,300,000

Item #	Description	Quantity	UOM	Unit Price	Total Price	Comments
A.	**Capital Expenditures**				$3,976,150	
1	Extend (e) Summer Street Drain - 18"	1,400	lf	$315	$441,000	pvc. 15' deep
2	Extend (e) Summer Street Drain - 15"	800	lf	$263	$210,000	<ditto>
3	Provide Additional Inlet Capacity for Summer St Drain	11	ea	$7,250	$79,750	at 200' , sgl CB
4	Install U/G 3 ac-ft Stormwater Tank	600,000	gal	$3.00	$1,800,000	
5	Tank Dewatering Pumps	2	ea	$50,000	$100,000	say 100 hp/pump
6	6" DI Force Mains to (e) 51" Brick Drain	300	lf	$120	$36,000	1- 300' run
7	Inlet Structure	1	ea	$300,000	$300,000	incls 4' static weir & deep utility obstruction
8	24" RCP Inlet Pipe	200	lf	$360	$72,000	at 15' deep
9	24" Inlet Flap Valve	1	ea	$16,000	$16,000	
10	Restore Baseball Field	1	ls	$50,000	$50,000	
11	CCTV Inspection/Clean Brick Drain	1,220	lf	$20	$24,400	51" to 20"
12	Relocate Illicit Bldg Laterals to Combined Sewer	15	ea	$18,000	$270,000	100' of <12"
13	Install New 4' Drain Manholes for Drain Line Extend	9	ea	$8,000	$72,000	
14	Install CB Inlet Controls	46	ea	$2,500	$115,000	at 1 CB/2 ac, restrictors
15	Traffic Mitigation	1	ls	$50,000	$50,000	
16	Contractor Mobilization/General Conditions	1	ls	10%	$340,000	
				Running Subtotal:	$3,976,200	
B.	**Project Management**				$1,355,000	
1	Construction Oversight & Mgt	1	ls	5%	$200,000	Allowance
2	Engineering	1	ls	6%	$240,000	<ditto>
3	Geotechnical	1	ls	2%	$80,000	"
4	Engineering During Construction	1	ls	1%	$40,000	"
5	Misc Owner's Soft Costs (All)	1	ls	0%	$0	Excluded
6	Land Acquisition	1	ls	0%	$0	ditto
7	Scope Contingency/Market Conditions	1	ls	20%	$795,000	Scope definition/market allowance/estimating
8	Interest During Construction	1	ls	0%	$0	Excluded, allowance for financing costs
9	Owner's Construction Contingency/Mgt Reserve	1	ls	0%	$0	Excluded, allowance for changed field conditions
				Grand Total:	$5,300,000	Total Estimated Constr Costs w/ Contingency
				Cost Range:	$3,600,000	$5,900,000 Per AACE cost estimate guidelines

Assumptions:

1) Non-standard environmental mitigations excluded.

Notes

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2) Pricing basis = 2nd Qtr 2013, escalation to midpoint of construction is excluded.
3) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).
4) Owner soft costs and project management expenses excluded.
5) Special Inspections not included.

OPCC Disclaimer

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AACE International CLASS 4 Cost Estimate - Class 4 estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. Typically, engineering is 10% to 40% complete. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Virtually all Class 4 estimates use stochastic estimating methods such as cost curves, capacity factors, and other parametric and modeling techniques. Expected accuracy ranges are from -15% to -30% on the low side and +20% to 50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances. As little as 20 hours or less to perhaps more than 300 hours may be spent preparing the estimate depending on the project and estimating methodology (AACE International Recommended Practices and Standards).

MWH
Boston

JLL
5/16/2013

City of Somerville
Storm water Management Projects
Project #4
Tufts University Area Storm water Management

Opinion of Probable Construction Costs

Currency: USD-United States-MAY 2013 Dollar

Grand Total Price: $ 1,000,000

Item #	Description	Quantity	UOM	Unit Price	Total Price	Comments
A.	**Capital Expenditures**				$742,000	
1	Remove & Replace (e) Catch Basins	10	ea	$7,250	$72,500	single
2	Remove & Replace (e) Catch Basins	10	ea	$12,750	$127,500	double
4	Extend Drain Lines - 18"	500	lf	$360	$180,000	
5	Install New 4' Drain Manholes for Drain Line Extend	3	ea	$8,000	$24,000	
6	Install CB Inlet Controls	40	ea	$2,500	$100,000	at 1 CB/2 ac, restrictors
7	Increase Curb Reveal for Increased Surface Flows	1,500	lf	$40	$60,000	
8	Replace Concrete Sidewalk	6,000	sf	$6	$36,000	
9	Remove/Regrade/Replace AC Road Section	4	ea	$10,500	$42,000	2,100 sf/location
10	Traffic Mitigation	1	ls	$40,000	$40,000	
11	Contractor Mobilization/General Conditions	1	ls	10%	$60,000	
				Running Subtotal:	$742,000	
B.	**Project Management**				$253,000	
1	Construction Oversight & Mgt	1	ls	5%	$40,000	Allowance
2	Engineering	1	ls	6%	$40,000	<ditto>
3	Geotechnical	1	ls	2%	$15,000	"
4	Engineering During Construction	1	ls	1%	$10,000	"
5	Misc Owner's Soft Costs (All)	1	ls	0%	$0	Excluded
6	Land Acquisition	1	ls	0%	$0	ditto
7	Scope Contingency/Market Conditions	1	ls	20%	$148,000	Scope definition/market allowance/estimating
8	Interest During Construction	1	ls	0%	$0	Excluded, allowance for financing costs
9	Owner's Construction Contingency/Mgt Reserve	1	ls	0%	$0	Excluded, allowance for changed field conditions
				Grand Total:	$1,000,000	Total Estimated Constr Costs w/ Contingency
				Cost Range:	$700,000	$1,100,000 Per AACE cost estimate guidelines

Assumptions:

1) Non-standard environmental mitigations excluded.

Notes

1) This OPCC is classified as a Class 4 cost estimate per AACE guidelines. Stated accuracy range = -20% to + 30%
2) Pricing basis = 2nd Qtr 2013, escalation to midpoint of construction is excluded.
3) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).
4) Owner soft costs and project management expenses excluded.
5) Special Inspections not included.

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MWH
Boston

JLL
5/16/2013

City of Somerville
Storm water Management Projects
Project #5a
Upper Minuteman Trail Area Flow Management

Opinion of Probable Construction Costs

Currency: USD-United States-MAY 2013 Dollar

Grand Total Price: $ 1,800,000

Item #	Description	Quantity	UOM	Unit Price	Total Price	Comments
A.	**Capital Expenditures**				$1,344,750	
1	Remove & Replace (e) Catch Basins	18	ea	$7,250	$130,500	single
2	Remove & Replace (e) Catch Basins	5	ea	$12,750	$63,750	double
4	Extend Drain Lines - 18"	1,500	lf	$360	$540,000	12' deep
5	Install New 4' Drain Manholes for Drain Line Extend	6	ea	$8,000	$48,000	
6	Install CB Inlet Controls	25	ea	$2,500	$62,500	restrictors
7	Increase Curb Reveal for Increased Surface Flows	1,000	lf	$40	$40,000	
8	Replace Concrete Sidewalk	5,000	sf	$6	$30,000	
9	Remove/Regrade/Replace AC Road Section	4	ea	$5,000	$20,000	1000 sf/location
10	Install Raised Cross-walks	8	ea	$30,000	$240,000	
11	Traffic Mitigation	1	ls	$50,000	$50,000	
12	Contractor Mobilization/General Conditions	1	ls	10%	$120,000	
				Running Subtotal:	$1,344,800	
B.	**Project Management**				$456,000	
1	Construction Oversight & Mgt	1	ls	5%	$70,000	Allowance
2	Engineering	1	ls	6%	$80,000	<ditto>
3	Geotechnical	1	ls	2%	$27,000	"
4	Engineering During Construction	1	ls	1%	$10,000	"
5	Misc Owner's Soft Costs (All)	1	ls	0%	$0	Excluded
6	Land Acquisition	1	ls	0%	$0	ditto
7	Scope Contingency/Market Conditions	1	ls	20%	$269,000	Scope definition/market allowance/estimating
8	Interest During Construction	1	ls	0%	$0	Excluded, allowance for financing costs
9	Owner's Construction Contingency/Mgt Reserve	1	ls	0%	$0	Excluded, allowance for changed field conditions
				Grand Total:	$1,800,000	Total Estimated Constr Costs w/ Contingency
				Cost Range:	$1,200,000	$2,000,000	Per AACE cost estimate guidelines

Assumptions:

1) Non-standard environmental mitigations excluded.

Notes

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3) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).
4) Owner soft costs and project management expenses excluded.
5) Special Inspections not included.

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MWH
Boston

JLL
5/16/2013

City of Somerville
Storm water Management Projects
Project #5b
Lower Minuteman Trail Area Flow Management

Opinion of Probable Construction Costs

Currency: USD-United States-MAY 2013 Dollar

Grand Total Price: $ 5,400,000

Item #	Description	Quantity	UOM	Unit Price	Total Price	Comments
A.	**Capital Expenditures**				$4,036,000	
1	Install U/G 1 ac-ft Storm water Tank	325,000	gal	$4.00	$1,300,000	
2	Tank Dewatering Pumps	2	ea	$50,000	$100,000	say 100 hp/pump
3	6" DI Force Mains to (e) 60" Storm Drain Pipeline	100	lf	$120	$12,000	8' deep
4	Inlet Structure	1	ea	$150,000	$150,000	incls 4' static weir & deep utility obstruction
5	24" Brick Drain	200	lf	$390	$78,000	at 15' deep
6	15" Inlet Flap Valve	1	ea	$10,000	$10,000	
7	Hazardous Waste Mitigation Allowance	1	ea	$500,000	$500,000	pb, TPH soil contamination
8	Permitting Mitigation Allowance	1	ea	$100,000	$100,000	scope TBD
9	Restore Parking Area	1	ea	$150,000	$150,000	
10	New PVC Drain Piping - 18"	2,400	lf	$270	$648,000	12' deep
11	New Single Catch Basins	30	ea	$6,500	$195,000	
12	Install CB Inlet Controls	30	ea	$2,500	$75,000	restrictors
13	Install New 4' Drain Manholes for Drain Line Extend	12	ea	$8,000	$96,000	
14	Install Raised Cross-walks	2	ea	$35,000	$70,000	50' & 30'
15	Remove/Regrade/Replace AC Road Section	3	ea	$5,000	$15,000	1000 sf/location
16	Increase Curb Reveal for Increased Surface Flows	1,500	lf	$40	$60,000	
17	Replace Concrete Sidewalk	7,500	sf	$6	$45,000	
18	CCTV Inspection/Clean Brick Drain	600	lf	$20	$12,000	51' to 20"
19	Traffic Mitigation	1	ls	$50,000	$50,000	
20	Contractor Mobilization/General Conditions	1	ls	10%	$370,000	
				Running Subtotal:	$4,036,000	
B.	**Project Management**				$1,371,000	
1	Construction Oversight & Mgt	1	ls	5%	$200,000	Allowance
2	Engineering	1	ls	6%	$240,000	<ditto>
3	Geotechnical	1	ls	2%	$81,000	"
4	Engineering During Construction	1	ls	1%	$40,000	"
5	Misc Owner's Soft Costs (All)	1	ls	0%	$0	Excluded
6	Land Acquisition	1	ls	0%	$0	ditto
7	Scope Contingency/Market Conditions	1	ls	20%	$810,000	Scope definition/market allowance/estimating
8	Interest During Construction	1	ls	0%	$0	Excluded, allowance for financing costs
9	Owner's Construction Contingency/Mgt Reserve	1	ls	0%	$0	Excluded, allowance for changed field conditions
				Grand Total:	$5,400,000	Total Estimated Constr Costs w/ Contingency
				Cost Range:	$3,700,000	$6,000,000	Per AACE cost estimate guidelines

Assumptions:

1) Non-standard environmental mitigations excluded.

Notes

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5) Special Inspections not included.

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MWH
Boston

JLL
5/16/2013

City of Somerville
Stormwater Management Projects
Project #6a
Broadway/Teele Square Area

Opinion of Probable Construction Costs

Currency: USD-United States-MAY 2013 Dollar

Grand Total Price: $ 700,000

Item #	Description	Quantity	UOM	Unit Price	Total Price	Comments
A.	**Capital Expenditures**				$510,000	
1	New Single Catch Basins	20	ea	$6,500	$130,000	
2	Install CB Inlet Controls	30	ea	$2,500	$75,000	restrictors
3	Install Raised Cross-walks	2	ea	$30,000	$60,000	530'
4	Remove/Regrade/Replace AC Road Section	3	ea	$5,000	$15,000	1000 sf/location
5	Increase Curb Reveal for Increased Surface Flows	2,000	lf	$40	$80,000	
6	Replace Concrete Sidewalk	10,000	sf	$6	$60,000	
7	Traffic Mitigation	1	ls	$50,000	$50,000	
8	Contractor Mobilization/General Conditions	1	ls	10%	$40,000	
				Running Subtotal:	$510,000	
B.	**Project Management**				$180,000	
1	Construction Oversight & Mgt	1	ls	5%	$30,000	Allowance
2	Engineering	1	ls	6%	$30,000	<ditto>
3	Geotechnical	1	ls	2%	$10,000	"
4	Engineering During Construction	1	ls	1%	$10,000	"
5	Misc Owner's Soft Costs (All)	1	ls	0%	$0	Excluded
6	Land Acquisition	1	ls	0%	$0	ditto
7	Scope Contingency/Market Conditions	1	ls	20%	$100,000	Scope definition/market allowance/estimating
8	Interest During Construction	1	ls	0%	$0	Excluded, allowance for financing costs
9	Owner's Construction Contingency/Mgt Reserve	1	ls	0%	$0	Excluded, allowance for changed field conditions
				Grand Total:	$700,000	Total Estimated Constr Costs w/ Contingency
				Cost Range:	$500,000	$800,000	Per AACE cost estimate guidelines

Assumptions:

1) Non-standard environmental mitigations excluded.

Notes

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5) Special Inspections not included.

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MWH
Boston

JLL
5/16/2013

City of Somerville
Storm water Management Projects
Project #6b
Holland Street Tank

Opinion of Probable Construction Costs

Currency: USD-United States-MAY 2013 Dollar

Grand Total Price: $ 5,700,000

Item #	Description	Quantity	UOM	Unit Price	Total Price	Comments
A.	**Capital Expenditures**				$4,246,000	
1	Install U/G 3 ac-ft Storm water Tank	1,000,000	gal	$2.50	$2,500,000	
2	Tank Dewatering Pumps	2	ea	$50,000	$100,000	say 100 hp/pump
3	6" DI Force Mains to (e) 60" Storm Drain Pipeline	150	lf	$120	$18,000	8' deep
4	Inlet Structure	1	ea	$250,000	$250,000	incls 4' static weir & deep utility obstruction
5	30" RCP Drain	100	lf	$450	$45,000	at 15' deep
6	12" RCP Drain	200	lf	$180	$36,000	
7	30" Inlet Flap Valve	1	ea	$20,000	$20,000	
8	Hazardous Waste Mitigation Allowance	1	ea	$100,000	$100,000	pb, TPH soil contamination
9	Permitting Mitigation Allowance	1	ea	$100,000	$100,000	scope TBD
10	Restore Playground Area	1	ea	$150,000	$150,000	
11	New Single Catch Basins	20	ea	$6,500	$130,000	
12	Install CB Inlet Controls	30	ea	$2,500	$75,000	restrictors
13	Install New 5' Drain Manholes for Drain Line Extend	2	ea	$8,000	$16,000	
14	Install New 8' Drain Manholes for Drain Line Extend	1	ea	$11,000	$11,000	
15	Install Raised Cross-walks	2	ea	$35,000	$70,000	50' & 30'
16	Remove/Regrade/Replace AC Road Section	4	ea	$5,000	$20,000	1000 sf/location
17	Increase Curb Reveal for Increased Surface Flows	2,000	lf	$40	$80,000	
18	Replace Concrete Sidewalk	10,000	sf	$6	$60,000	
19	Traffic Mitigation	1	ls	$75,000	$75,000	
20	Contractor Mobilization/General Conditions	1	ls	10%	$390,000	
				Running Subtotal:	$4,246,000	
B.	**Project Management**				$1,435,000	
1	Construction Oversight & Mgt	1	ls	5%	$210,000	Allowance
2	Engineering	1	ls	6%	$250,000	<ditto>
3	Geotechnical	1	ls	2%	$85,000	"
4	Engineering During Construction	1	ls	1%	$40,000	"
5	Misc Owner's Soft Costs (All)	1	ls	0%	$0	Excluded
6	Land Acquisition	1	ls	0%	$0	ditto
7	Scope Contingency/Market Conditions	1	ls	20%	$850,000	Scope definition/market allowance/estimating
8	Interest During Construction	1	ls	0%	$0	Excluded, allowance for financing costs
9	Owner's Construction Contingency/Mgt Reserve	1	ls	0%	$0	Excluded, allowance for changed field conditions
				Grand Total:	$5,700,000	Total Estimated Constr Costs w/ Contingency
				Cost Range:	$3,900,000	$6,300,000	Per AACE cost estimate guidelines

Assumptions:

1) Non-standard environmental mitigations excluded.

Notes

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5) Special Inspections not included.

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MWH
Boston

JLL
5/16/2013

City of Somerville
Storm water Management Projects
Project #7
Lincoln Park Neighborhood Flow Management

Opinion of Probable Construction Costs

Currency: USD-United States-MAY 2013 Dollar

Grand Total Price: $ 600,000

Item #	Description	Quantity	UOM	Unit Price	Total Price	Comments
A.	**Capital Expenditures**				$446,700	
2	Install CB Inlet Controls	15	ea	$2,500	$37,500	restrictors
4	Install Raised Cross-walks	4	ea	$30,000	$120,000	530'
5	Remove/Regrade/Replace AC Road Section	12,000	sf	$5.00	$60,000	
6	Increase Curb Reveal for Increased Surface Flows	700	lf	$40	$28,000	
7	Replace Concrete Sidewalk	4,200	sf	$6	$25,200	
9	Install Gravel Base at Field Area - 2'	1,600	cys	$60	$96,000	1/2 acre infiltration area
10	Traffic Mitigation	1	ls	$40,000	$40,000	
11	Contractor Mobilization/General Conditions	1	ls	10%	$40,000	
				Running Subtotal:	$446,700	
B.	**Project Management**				$149,000	
1	Construction Oversight & Mgt	1	ls	5%	$20,000	Allowance
2	Engineering	1	ls	6%	$30,000	<ditto>
3	Geotechnical	1	ls	2%	$9,000	"
4	Engineering During Construction	1	ls	1%	$0	"
5	Misc Owner's Soft Costs (All)	1	ls	0%	$0	Excluded
6	Land Acquisition	1	ls	0%	$0	ditto
7	Scope Contingency/Market Conditions	1	ls	20%	$90,000	Scope definition/market allowance/estimating
8	Interest During Construction	1	ls	0%	$0	Excluded, allowance for financing costs
9	Owner's Construction Contingency/Mgt Reserve	1	ls	0%	$0	Excluded, allowance for changed field conditions
				Grand Total:	$600,000	Total Estimated Constr Costs w/ Contingency
				Cost Range:	$400,000 $700,000	Per AACE cost estimate guidelines

Assumptions:

1) Non-standard environmental mitigations excluded.

Notes

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3) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).
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5) Special Inspections not included.

OPCC Disclaimer

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AACE International CLASS 4 Cost Estimate - Class 4 estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. Typically, engineering is 10% to 40% complete. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Virtually all Class 4 estimates use stochastic estimating methods such as cost curves, capacity factors, and other parametric and modeling techniques. Expected accuracy ranges are from -15% to -30% on the low side and +20% to 50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances. As little as 20 hours or less to perhaps more than 300 hours may be spent preparing the estimate depending on the project and estimating methodology (AACE International Recommended Practices and Standards).

MWH
Boston

JLL
5/16/2013

City of Somerville
Storm water Management Projects
Project #8
Somerville Ave Drain Line Extension, Flow Mgt & Target Parking Lot Tank

Opinion of Probable Construction Costs

Currency: USD-United States-MAY 2013 Dollar

Grand Total Price: $ 14,100,000

Item #	Description	Quantity	UOM	Unit Price	Total Price	Comments
A.	**Capital Expenditures**				$10,516,650	
1	Install U/G 2 ac-ft Storm water Tank	650,000	gal	$3.00	$1,950,000	
2	Tank Dewatering Pumps	2	ea	$50,000	$100,000	say 100 hp/pump
3	6" DI Force Mains to (e) 66" Storm Drain Pipeline	200	lf	$120	$24,000	8' deep
4	Inlet Structure	1	ea	$200,000	$200,000	incls 4' static weir & deep utility obstruction
5	36" RCP Inlet Conveyance	200	lf	$540	$108,000	at 15' deep
6	36" Inlet Flap Valve	1	ea	$23,000	$23,000	
7	Extend 66" RCP at Somerville Ave	1,000	lf	$990	$990,000	
8	Extend 72" RCP at Somerville Ave	1,000	lf	$1,080	$1,080,000	
9	Install New 11' Drain Manholes for Drain Line Extend	12	ea	$15,000	$180,000	
10	Connect to New Pipe to 66"	1	ea	$10,000	$10,000	
11	66" Inlet Flap Valve	1	ea	$36,000	$36,000	
12	Install CB Inlet Controls at Summer Street	69	ea	$2,500	$171,250	restrictors
13	Increase CB Inlet Capacity in Summerville Area	20	ea	$12,000	$240,000	double catch basins
14	Extend (e) Summer Street Drain - 18"	1,400	lf	$315	$441,000	pic. 15' deep
15	Extend (e) Summer Street Drain - 15"	800	lf	$263	$210,000	<ditto>
16	New Single Catch Basins	20	ea	$6,500	$130,000	
17	CCTV Inspection/Clean Brick Drain	1,720	lf	$20	$34,400	51" to 20"
18	Relocate Illicit Bldg Laterals to Combined Sewer	50	ea	$18,000	$900,000	100' of <12"
19	Install CB Inlet Controls at Prospect Area	50	ea	$2,500	$125,000	restrictors
20	New Drain Line - 18" at Prospect Hill Area	1,400	lf	$315	$441,000	pic. 15' deep
21	New Drain Line - 15" at Prospect Hill Area	800	lf	$263	$210,000	<ditto>
22	Install New 4' Drain Manholes for Drain Line Extend	15	ea	$8,000	$120,000	
23	New Single Catch Basins for Drain Line Extension	50	ea	$6,500	$325,000	
24	New Double Catch Basin for Drain Line Extension	15	ea	$12,000	$180,000	
25	Install Raised Cross-walks	15	ea	$35,000	$525,000	50' & 30'
26	Increase Curb Reveal for Increased Surface Flows	3,000	lf	$40	$120,000	
27	Replace Concrete Sidewalk	18,000	sf	$6	$108,000	
28	Remove/Regrade/Replace AC Road Section	15	ea	$20,000	$300,000	15 locations at 20'x200'
29	Utility Relocation	1	ls	$100,000	$100,000	
30	Traffic Mitigation	1	ls	$175,000	$175,000	
31	Contractor Mobilization/General Conditions	1	ls	10%	$960,000	
				Running Subtotal:	$10,516,700	
B.	**Project Management**				$3,580,000	
1	Construction Oversight & Mgt	1	ls	5%	$530,000	Allowance
2	Engineering	1	ls	6%	$630,000	<ditto>
3	Geotechnical	1	ls	2%	$210,000	"
4	Engineering During Construction	1	ls	1%	$110,000	"
5	Misc Owner's Soft Costs (All)	1	ls	0%	$0	Excluded
6	Land Acquisition	1	ls	0%	$0	ditto
7	Scope Contingency/Market Conditions	1	ls	20%	$2,100,000	Scope definition/market allowance/estimating
8	Interest During Construction	1	ls	0%	$0	Excluded, allowance for financing costs
9	Owner's Construction Contingency/Mgt Reserve	1	ls	0%	$0	Excluded, allowance for changed field conditions
				Grand Total:	$14,100,000	Total Estimated Constr Costs w/ Contingency
				Cost Range:	$9,600,000 $15,600,000	Per AACE cost estimate guidelines

Assumptions:

1) Non-standard environmental mitigations excluded.

Notes

1) This OPCC is classified as a Class 4 cost estimate per AACE guidelines. Stated accuracy range = -20% to + 30%
2) Pricing basis = 2nd Qtr 2013, escalation to midpoint of construction is excluded.
3) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).
4) Owner soft costs and project management expenses excluded.
5) Special Inspections not included.

OPCC Disclaimer

The client hereby acknowledges that MWH has no control over the costs of labor, materials, competitive bidding environments, unidentified field conditions, financial and/or commodity market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of high market volatility attributable to Acts of God and other market forces or events beyond the control of the parties. As such, Client recognizes that this OPCC deliverable is based on normal market conditions, defined by stable resource supply/demand relationships, and does not account for extreme inflationary or deflationary market cycles. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith Class 4 OPCC

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Attachment 2:
Model Calibration Plots

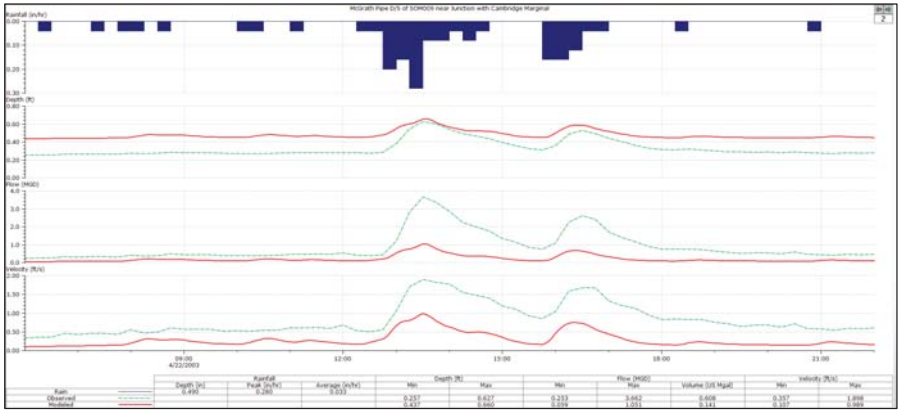

Figure A.1.1. Calibration plot in the McGrath Highway pipe downstream of SOM009 during the 04/22/2003 storm

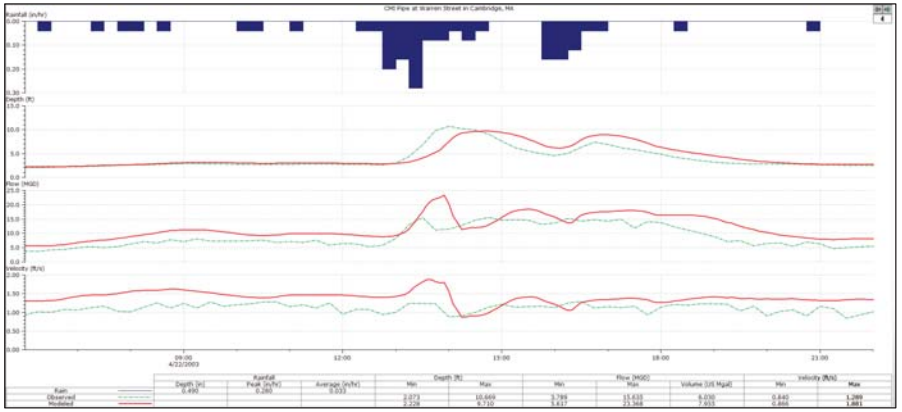

Figure A.1.2. Calibration plot in the MWRA's CMI in Warren Street in Cambridge, MA during the 04/22/2003 storm

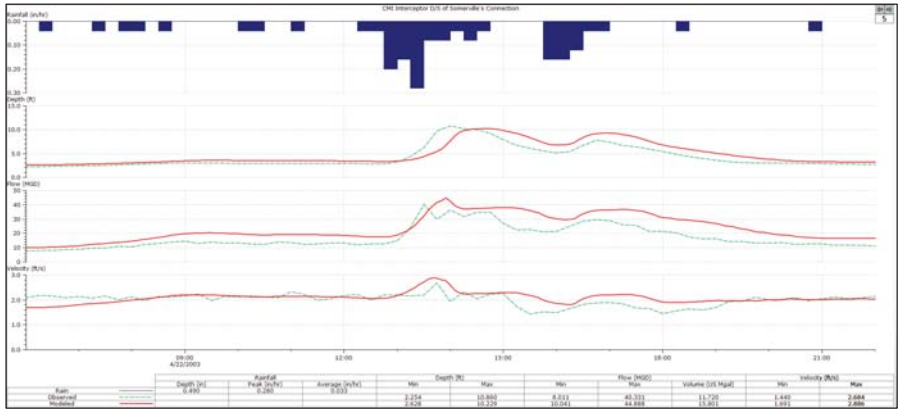

Figure A.1.3. Calibration plot in the MWRA's CMI downstream of the Somerville Ave connections during the 04/22/2003 storm

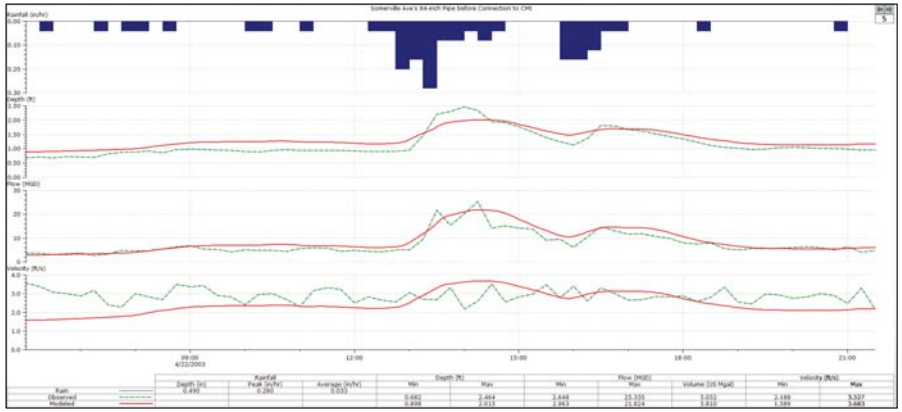

Figure A.1.4. Calibration plot in the 84-inch, Somerville Ave's sewer before Connection to the CMI during the 04/22/2003 storm

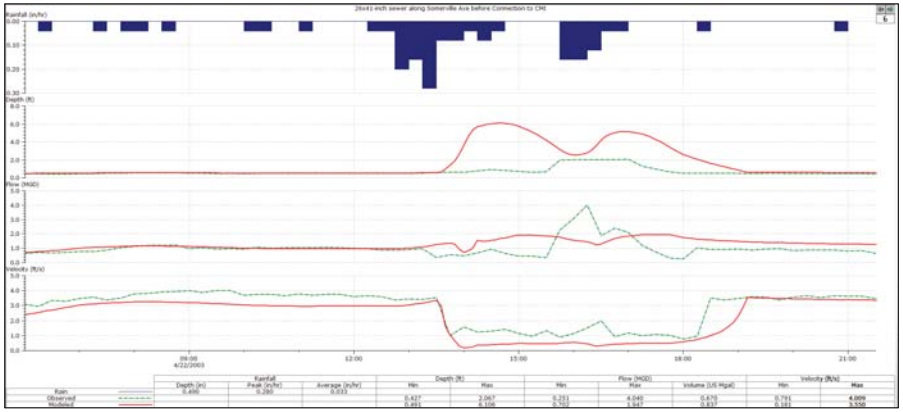

Figure A.1.5. Calibration plot in the 26x41"Somerville Ave's sewer before Connection to the CMI during the 04/22/2003 storm

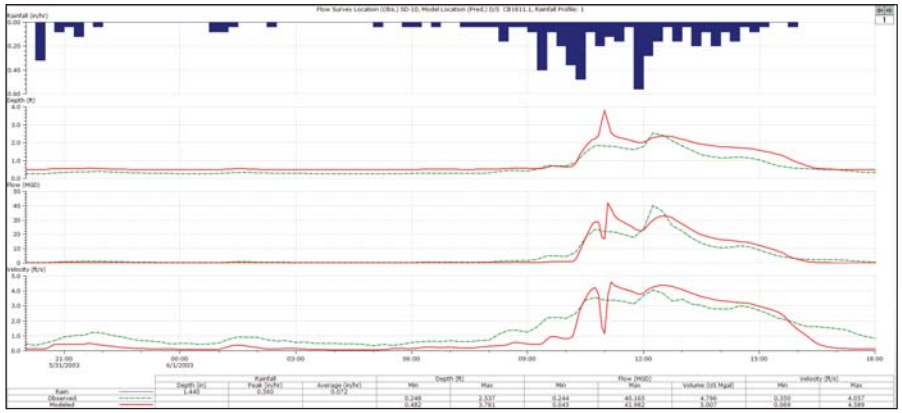

Figure A.1.6. Calibration plot in the McGrath Highway pipe downstream of SOM009 during the 06/01/2003 storm

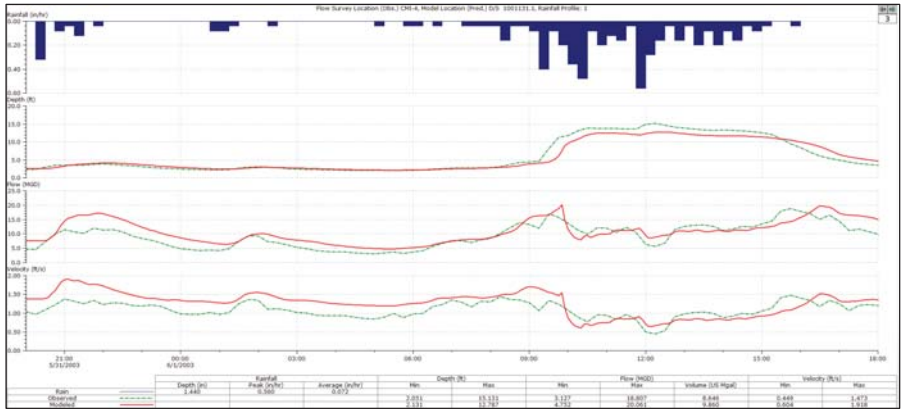

Figure A.1.7. Calibration plot in the MWRA's CMI in Warren Street in Cambridge, MA during the 06/01/2003 storm

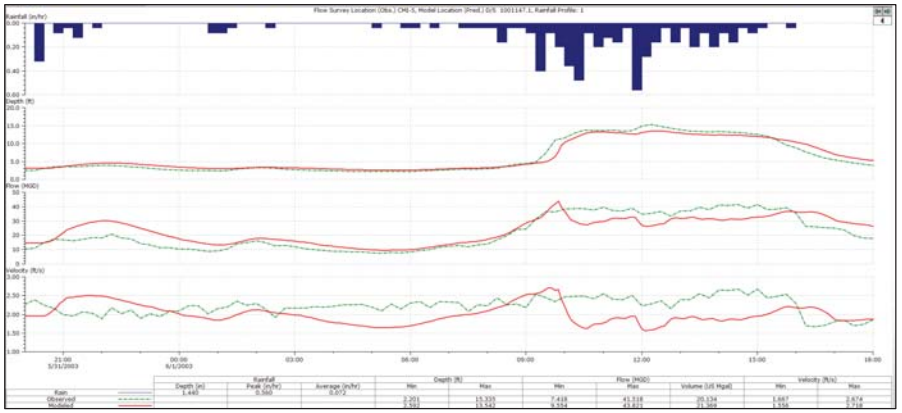

Figure A.1.8. Calibration plot in the MWRA's CMI downstream of the Somerville Ave connections during the 06/01/2003 storm

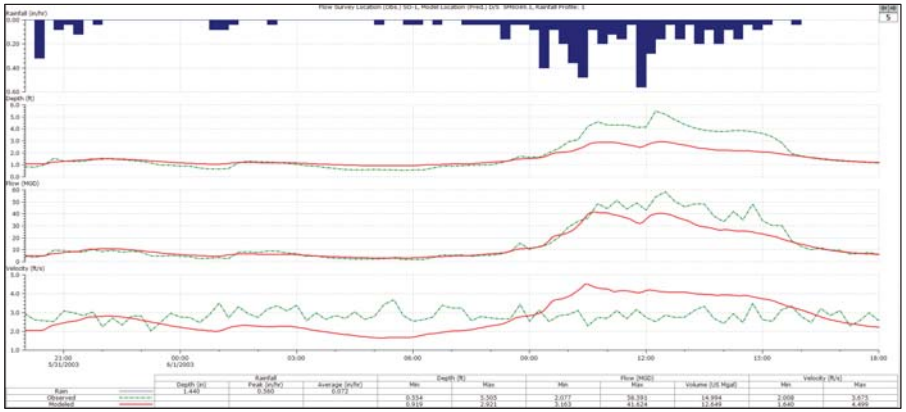

Figure A.1.9. Calibration plot in the 84-inch, Somerville Ave's sewer before Connection to the CMI during the 06/01/2003 storm

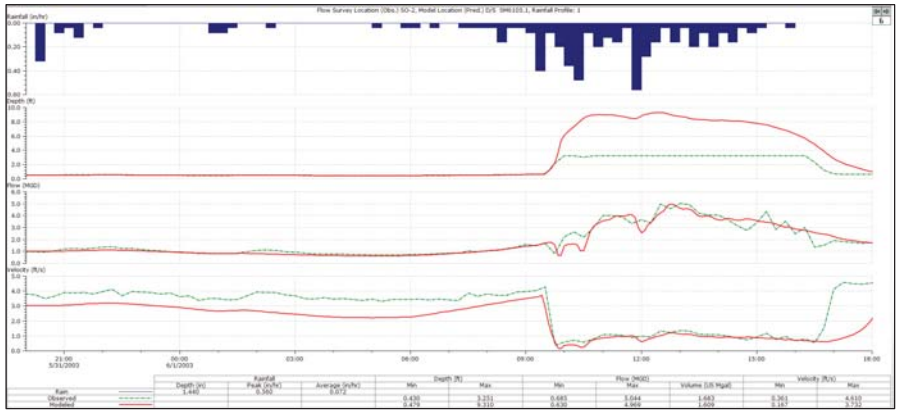

Figure A.1.10. Calibration plot in the 26x41"Somerville Ave's sewer before Connection to the CMI during the 06/01/2003 storm

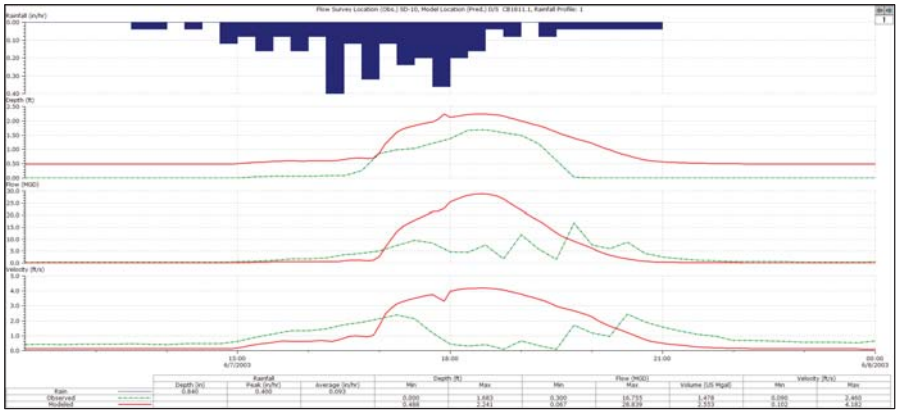

Figure A.1.11. Calibration plot in the McGrath Highway pipe downstream of SOM009 during the 06/07/2003 storm

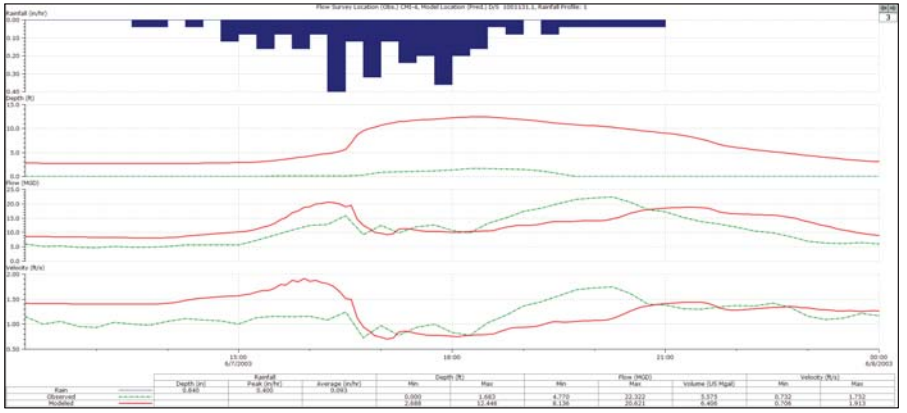

Figure A.1.12. Calibration plot in the MWRA's CMI in Warren Street in Cambridge, MA during the 06/07/2003 storm

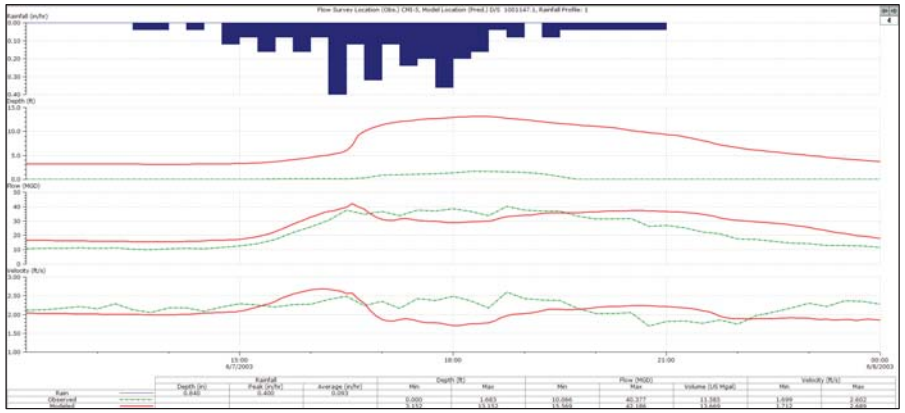

Figure A.1.13. Calibration plot in the MWRA's CMI downstream of the Somerville Ave connections during the 06/07/2003 storm

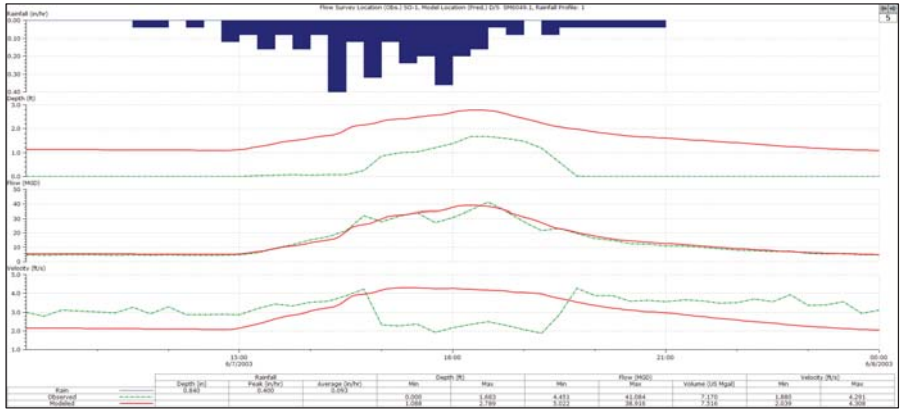

Figure A.1.14. Calibration plot in the 84-inch, Somerville Ave's sewer before Connection to the CMI during the 06/07/2003 storm

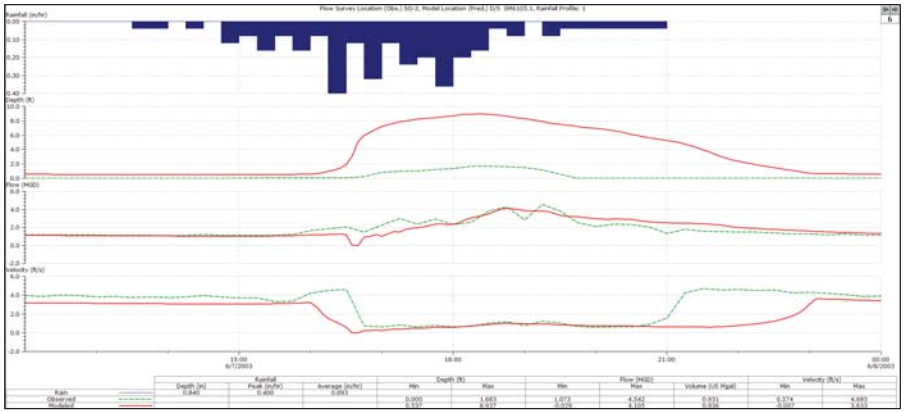

Figure A.1.15. Calibration plot in the 26x41"Somerville Ave's sewer before Connection to the CMI during the 06/07/2003 storm

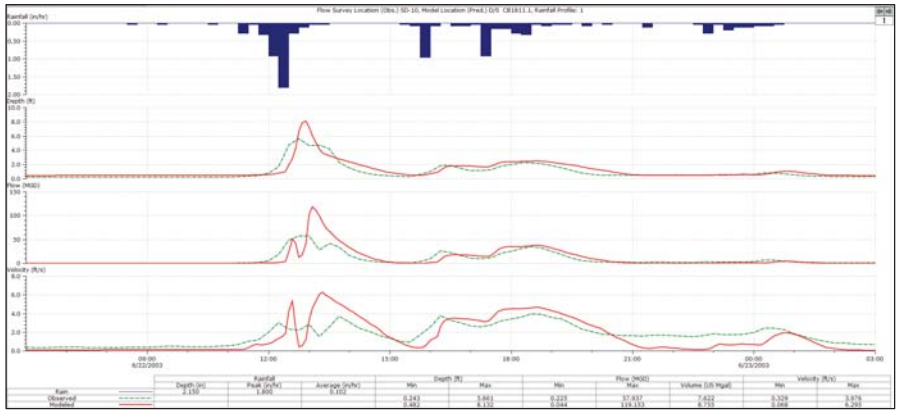

Figure A.1.16. Calibration plot in the McGrath Highway pipe downstream of SOM009 during the 06/22/2003 storm

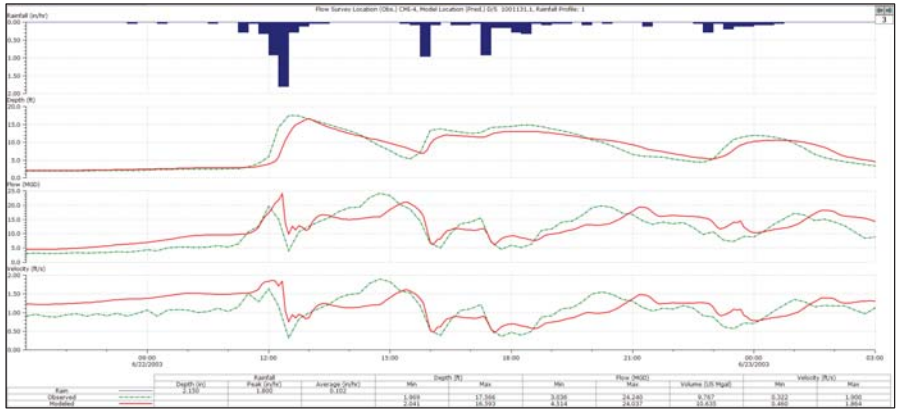

Figure A.1.17. Calibration plot in the MWRA's CMI in Warren Street in Cambridge, MA during the 06/22/2003 storm

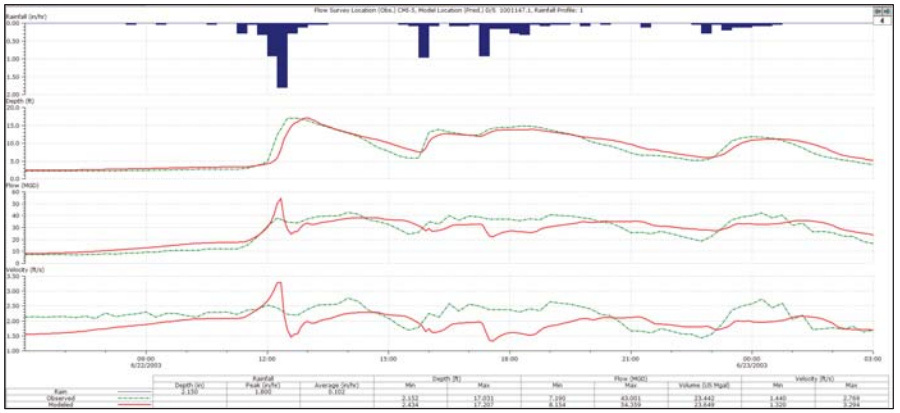

Figure A.1.18. Calibration plot in the MWRA's CMI downstream of the Somerville Ave connections during the 06/22/2003 storm

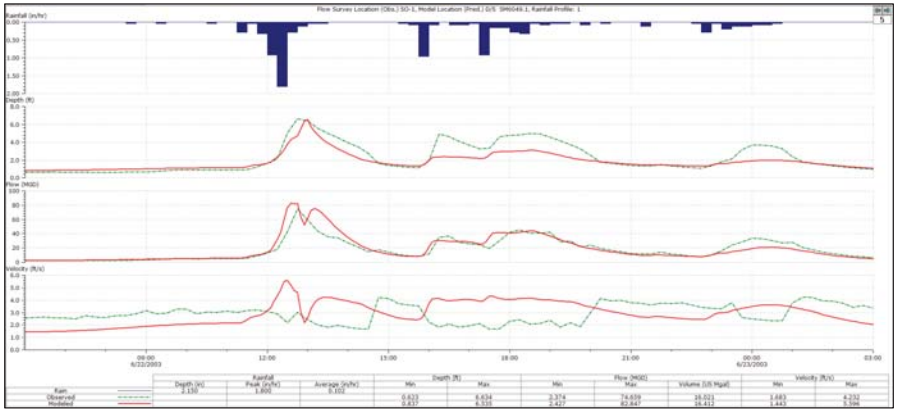

Figure A.1.19. Calibration plot in the 84-inch, Somerville Ave's sewer before Connection to the CMI during the 06/22/2003 storm

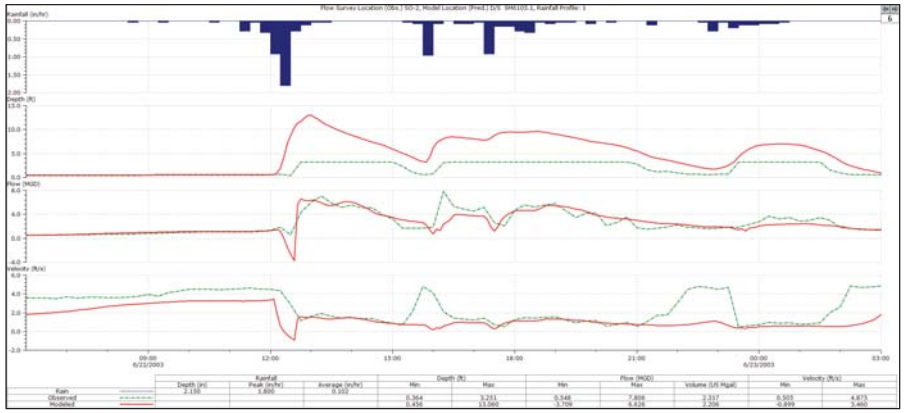

Figure A.1.20. Calibration plot in the 26x41”Somerville Ave’s sewer before Connection to the CMI during the 06/22/2003 storm

APPENDIX A
SAMPLE DESIGN CONTRACT

AGREEMENT FOR DESIGNER SERVICES
BETWEEN
THE CITY OF SOMERVILLE
AND
THE DESIGN PROFESSIONAL

This Agreement made on the _____ is between the City of Somerville ("the **City**"), City Hall, 93 Highland Avenue, Somerville, MA 02143 and _____("the **Design Professional**") located at _____

for the services described herein and in the attached APPENDIX A, Request for Proposals ("RFP"). The Design Professional's principal design discipline is *(insert architecture, landscape architecture, or engineering)* _____.

The **City** and the **Design Professional** agree to the following:

ARTICLE 1

DEFINITIONS

1.1. In General.

1.1.1. Well-known meanings. When words or phrases which have a well-known technical or construction industry or trade meaning are used herein, such words or phrases shall be interpreted in accordance with that meaning, unless otherwise stated.

1.1.2. Capitalization. The words and terms defined in this Article are capitalized in this Agreement. Other capitalized words may refer to a specific document found in the Contract Documents or may be defined in the General Terms and Conditions of the Contract.

1.1.3. Persons. Whenever the word person or persons is used, it includes, unless otherwise stated, entity or entities, respectively, including, but not limited to, corporations, partnerships, and joint venturers.

1.1.4. Singular and Plural. The following terms have the meanings indicated which are applicable to both the singular and the plural thereof.

1.2. Definitions.

1.2.1. ***Agreement*** **-** The Agreement is this written document between the **City** and the **Design Professional** which is titled: Agreement for Designer Services between the City of Somerville and the **Design Professional**, which is the executed portion of the Contract, and which forms a part of the Contract. The Agreement also includes all documents required to be attached thereto, including, but not limited to, certificates of insurance and all modifications of the Agreement.

1.2.2. ***Change Order*** **-** A Change Order is a document which is signed by the Contractor and the **City** which is directed to the Contractor and which authorizes the Contractor to make an addition to, a deletion from, or a revision in the Work, or an adjustment in the sum or in the time of the Contract issued on or after the date of the Contract**.**

1.2.3. ***Construction Cost*** **-** The Construction Cost is the total cost or estimated cost to the **City** of all elements of the Project designed or specified by the **Design Professional**. The Construction Cost shall include the cost of labor at current prevailing wage rates established by the Commonwealth and furnished by the **City** (or, if applicable, current Davis Bacon wage rates established by the federal government and furnished by the **City**), materials and equipment designed, specified, selected, or specially provided for by the **Design Professional**, plus a reasonable allowance for overhead and profit. In addition, a reasonable allowance for contingencies shall be included for market conditions at the time of bidding and for changes in the Work during construction. Construction Cost does not include the compensation of the **Design Professional** and the **Design Professional's** consultants, the costs of the land, rights-of-way, financing, or other costs which are the responsibility of the **City** as provided herein.

1.2.4. ***Construction Documents*** **-** The Construction Documents consist of Plans and Specifications setting forth in detail the requirements for the construction of the Project.

1.2.5. ***Contract Documents*** - The Contract Documents consist of the Agreement between the City and the Contractor; the notice of award of the Contract; the Notice to Proceed; the entire Project Manual; Change Orders; Work Change Directives; the Contractor's Bid and all accompanying documents; and the **Design Professional's** written interpretations and clarifications issued on or after the issuance of the Notice to Proceed.

1.2.6. ***Contract*** **-** The Contract consists of all the Contract Documents.

1.2.7. ***Contractor*** **-** The Contractor is the person who is awarded the construction contract for the Project pursuant to M.G.L. c. 149, §§44A-H, inclusive, or M.G.L. c. 30, §39M, and is identified in the Agreement as such. The term "Contractor" is intended to include the Contractor as well as its authorized representative(s).

1.2.8. ***General Terms And Conditions Of The Contract*** - General Terms and Conditions of the Contract refers to the General Terms and Conditions of the Contract between the City and the Contractor.

1.2.9. ***Product Data*** **-** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

1.2.10. ***Project*** **-** The Project is the total construction of which the Work to be provided under the Contract Documents may be the whole or a part of the Project as indicated elsewhere in the Contract Documents and may include construction by the **City** or by separate contractors. The Project is the Work described in the invitation to bid and Specifications, and illustrated by the Plans.

1.2.11. ***Proposed Change Order*** **-** A Proposed Change Order is a Change Order that has not been approved by the **City**.

1.2.12. ***Reimbursable Expenses*** **-** Reimbursable Expenses are in addition to compensation for Basic and Additional Services and include expenses incurred by the **Design Professional** in the interest of the Project, as identified by the following: long distance calls and faxes; fees paid for securing approval of authorities having jurisdiction over the Project; reasonable expense of reproduction necessary for the rendition of services hereunder, which expense shall not include the expense of producing the sets of documents referred to in the Schematic Design Phase, the Design Development Phase, and the Construction Document Phase herein, as these expenses are covered in the **Design Professional's** compensation for Basic Services; expense of postage and such other expenses incurred in connection with the Project when specifically authorized in advance in writing by the **City**. Payment for photocopying letter or legal size documents shall not exceed 10¢ per page. Payment for all other documents shall be at cost. Sales tax is not a reimbursable expense. The **City's** tax exempt number is E04-600-1414.

1.2.13. ***Samples*** **-** Samples are physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

1.2.14. ***Shop Drawings*** **-** Shop Drawings are all drawings, diagrams, illustrations, schedules, and other information which are specifically prepared or assembled by or for the Contractor and submitted by the Contractor to illustrate some portion of the Work.

1.2.15. ***Statement of Probable Construction Costs*** **-** The Statement of Probable Construction Costs is a preliminary, detailed estimate of Construction Cost based on current area, volume, or other unit costs. Such estimate shall indicate the cost of each category of work involved in constructing the Project (including, but not limited to, filed sub-trades) and shall establish the period of time for each category from the commencement to the completion of the construction of the Project. The detailed estimate shall include quantities of all materials and unit prices of labor and material, as well as a cost estimate containing individual line items for each item of work.

1.2.16. ***Substantial Completion*** **-** Substantial Completion means that the Work has been completed and opened to public use, except for minor incomplete or unsatisfactory items that do not materially impair the usefulness of the Work. The **Design Professional** shall decide what constitutes "minor," "incomplete," "unsatisfactory," and "materially" and the **Design Professional's** decision shall be final.

1.2.17. ***Work Change Directive*** **-** A Work Change Directive is a written directive to the Contractor issued on or after the date of the contract between the **City** and the Contractor and signed by the **City** and recommended by the **Design Professional** ordering an addition to, a deletion from, or a revision in the Work.

1.2.18. ***Work*** **-** The Work means the construction and services required by the Construction Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill its obligations. The Work may constitute the whole or a part of the Project.

ARTICLE 2

THE DESIGN PROFESSIONAL'S RESPONSIBILITIES

2.1. **STANDARD OF PERFORMANCE.** The Design Professional shall perform the services under this Agreement with the skill, care, and diligence in accordance with the high level of professional standards prevailing in the greater Boston area for the type of construction required herein. All of the **Design Professional's** services under this Agreement shall be performed as expeditiously as is consistent with such standards. The **Design Professional** shall be responsible in accordance with those standards for the adequacy, safety, and overall integrity of the Project's design, including, but not limited to, the Design architectural or landscape architectural (or both if applicable), structural, mechanical, and electrical design of the Project.

2.2. **SCHEDULE OF PERFORMANCE.** The approved schedule for the performance of the **Design Professional's** services is attached hereto as APPENDIX B. Time is of the essence and time periods established by the attached APPENDIX B shall not be exceeded by the **Design Professional** except for delays due to causes outside the **Design Professional's** control (which term shall not include staffing problems, insufficient financial resources, consultant's default, or negligent errors or omissions on the part of either the **Design Professional** or any of its consultants).

2.3. **TIMELINESS OF INTERPRETATIONS, CLARIFICATIONS, AND DECISIONS.** With regard to all phases of this Agreement**,** the **Design Professional** shall render interpretations, clarifications, and decisions in a timely manner pertaining to documents submitted by the **City** or the Contractor in order to avoid unreasonable delay in the orderly and sequential progress of the **Design Professional's** services.

2.4. **RELATIONSHIP WITH THE CITY.** For the purposes of this Agreement, the **Design Professional** shall be a representative of the **City** and shall advise and consult with the **City** until the termination of the Contractor's warranty and correction period.

ARTICLE 3

SCOPE OF THE DESIGN PROFESSIONAL'S BASIC SERVICES

3.1. **IN GENERAL.**

3.1.1. The **Design Professional's** Basic Services shall consist of:

3.1.1.1. those services identified below within the different phases;

3.1.1.2. any other professional services which are reasonably necessary as determined by the **City** for the design and administration of construction of the Project, including, without limitation, the following:

3.1.1.2.1. for public building projects, all surveys (unless provided by the **City**), geotechnical services, testing services, and related information and reports reasonably required by the Project, geotechnical and civil engineers; landscape architect; independent cost estimator; fire protection, life safety, lighting, interior design, asbestos removal, and movable equipment consultants; and normal structural, mechanical, electrical, and any other engineering services necessary to produce a complete and accurate set of Construction Documents (the cost for any and all professional services is not subject to profit adjustments);

3.1.1.2.2 for park/playground projects, all surveys (unless provided by the **City**), lighting consultants, independent cost estimators (if specified in the RFP)
and normal structural, mechanical, electrical, and any other engineering services necessary to produce a complete and accurate set of Construction Documents (the cost for any and all professional services is not subject to profit adjustments);

3.1.1.2.3 for roadway, bridge, and other public works projects other than park/playground projects, all surveys (unless provided by the **City**), geotechnical services, testing services, and related information and reports reasonably required by the Project, geotechnical and civil engineers; independent cost estimators; fire protection, life safety, and lighting consultants; and normal structural, mechanical, electrical, and any other engineering services necessary to produce a complete and accurate set of Construction Documents (the cost for any and all professional services is not subject to profit adjustments).

3.1.1.3. attending and providing testimony at any formal or informal hearings related to the Project, including, but not limited to, bid protest hearings and Board of Aldermen meetings, if deemed necessary by the **City**. If the **Design Professional** is called as a witness in a court of competent jurisdiction in a matter in which the **Design Professional** is a named party, the **Design Professional** will not be additionally compensated. If the **Design Professional** is called by the **City** as a witness in a matter in a court of competent jurisdiction in which the **Design Professional** is not a named party,

the **Design Professional** will be compensated according to APPENDIX C attached hereto;

3.1.1.4. preparing for and appearing on the **City's** behalf at all administrative or regulatory hearings, presentations, or conferences with respect to any zoning, building code, urban renewal, or other matters in connection with the Project, including, without limitation, any hearings, presentations, or conferences with any City, State, or Federal agencies or officials and any neighborhood groups. The **Design Professional's** obligations under this paragraph shall include preparing plans and other materials reasonably required in connection with any such hearings, presentations, and conferences;

3.1.1.5. assisting the **City** in connection with the **City's** responsibility for filing documents required for the approval of governmental authorities having jurisdiction over the Project. The **Design Professional** shall prepare the Plans and Specifications required in order to obtain approval of, and in accordance with, all requirements of all governmental agencies having jurisdiction over the Project. Any Plans and Specifications furnished by the **Design Professional** which are discovered to be defective during any Phase will be promptly corrected by the **Design Professional** at no cost to the **City**, and the **Design Professional** will promptly reimburse the **City** for all damages, if any, resulting from the use of such defective Plans and Specifications. The **City's** approval, acceptance, use of or payment for all or any part of the **Design Professional's** services shall in no way alter the **Design Professional's** obligations or the **City's** rights hereunder; and

3.1.1.6. all design and redesign services required within or between the Design Development Phase and the Construction Documents Phase to keep the Construction Cost of the Project within the fixed limit of Construction Cost.

3.1.2. As part of the Basic Services, the **Design Professional** shall assist the General Contractor in preparing record drawings in accordance with the following:

3.1.2.1. Record Keeping.
As the Construction Phase progresses, the **Design Professional** shall work with the Contractor to maintain four separate sets of in-progress record drawings (blueline or blackline) at the Site, one set each for architectural, mechanical, electrical, plumbing, and structural disciplines**.** All deviations from the Construction Documents and the exact locations of the Work as installed and constructed shall be neatly and accurately indicated. Work completed to date shall be colored and highlighted.

3.1.2.2. Permanent Record Drawing Preparation.
The **Design Professional** shall assist the General Contractor in transferring the information contained on the in-progress record drawings to CAD compatible discs of the original contract drawings. All work shall be performed by experienced and knowledgeable draftspersons using the same standards and quality of drafting as used on the original drawings.

3.1.2.3. Review of Record Drawings at Substantial Completion.
Upon Substantial Completion of the Work or portions thereof, the **Design Professional** of record shall review and approve the above permanent record drawings.

3.1.2.4. Submission to the **City.**

The following shall be submitted to the **City** no later than the date of Substantial Completion:

3.1.2.4.1 A complete set of original Construction Documents on disk in AutoCad format.

3.1.2.4.2 Permanent record drawings as described above on mylar with the seal of the **Design Professional** of record.

3.1.2.4.3 One set of blueline prints of the above.

3.1.2.4.4 Four sets of in-progress record drawings.

3.2. SCHEMATIC DESIGN PHASE.

3.2.1. Commencement. The Schematic Design Phase begins upon the full execution of this Agreement.

3.2.2. Written Program. The **Design Professional** in consultation with the **City** and any other persons designated by the **City** shall develop a written program for the Project to ascertain the **City's** needs and to establish the requirements of the Project.

3.2.3. Preliminary Evaluation. The **Design Professional** shall provide a preliminary evaluation of the **City's** program, schedule, and construction budget requirements, each in terms of the other.

3.2.4. Alternative Approaches. The **Design Professional** shall review with the **City** alternative approaches to the design and construction of the Project.

3.2.5. Schematic Design Documents. The **Design Professional** shall prepare, for approval by the **City**, Schematic Design Documents consisting of drawings and other documents illustrating the scale and relationship of Project components. Based upon the program approved by the **City**, as well as schedule and construction budget requirements, the Schematic Design Documents shall comply with all applicable laws, statutes, ordinances, codes, orders, rules, and regulations.

3.2.6. Independent Cost Estimators. As part of the Basic Services and when requested by the **City**, the **Design Professional** shall retain the services of an independent cost estimator whose responsibilities shall include without limitation all cost estimates described in this Agreement, estimates of the cost of Proposed Change Orders and assistance in establishing a Change Order budget, and review and confirmation of the Contractor's cost estimates.

3.2.7. Statement of Probable Construction Costs. The **Design Professional** shall submit to the **City** a Statement of Probable Construction Costs.

3.2.8. Life-Cycle Cost Estimates. If this Agreement includes Design Professional services necessary for the preliminary design of a new building or for the modification or replacement of an energy system in an existing building, life-cycle cost estimates for the Project shall be obtained at an initial stage and as a Basic Service. (*Reference:* M.G.L. c. 149, §44M).

3.2.8 SUSTAINABLE DESIGN CRITERIA. INSERT REQUIREMENTS AS TO SUSTAINABLE DESIGN.

3.3. DESIGN DEVELOPMENT PHASE.

3.3.1. Commencement. The Design Development Phase begins upon the **City's** written approval of the **Design Professional's** Schematic Design Documents.

3.3.2. Preparation of Design Development Documents. Based on the approved Schematic Design Documents and any adjustments authorized by the **City** in the program**,** schedule, or construction budget, the **Design Professional** shall prepare, for approval by the **City**, Design Development Documents consisting of drawings and other documents to fix and describe the size and character of the Project as to appropriate architectural, landcape architectural, structural, mechanical, and electrical systems; materials; and such other elements as may be appropriate. The Design Development Documents shall be complete and unambiguous and shall comply with all applicable laws, statutes, ordinances, codes, orders, rules, and regulations.

3.3.3. Adjustment to Statement of Probable Construction Cost. The **Design Professional** shall advise the **City** in writing of any adjustments to the Statement of Probable Construction Cost prior to the commencement of the Construction Document Phase. The approved adjustment of the Statement of Probable Construction Cost or the Statement of Probable Construction Cost, if there is no adjustment, shall constitute a fixed limit of Construction Cost as that term is used herein. Such fixed limit, once established, shall be adjusted only by written agreement of the **City** and the **Design Professional**, or as otherwise provided herein.

3.4. CONSTRUCTION DOCUMENT PHASE.

3.4.1. Commencement. The **Design Professional's** responsibility to provide Basic Services for the Construction Document Phase under this Agreement commences with the **City's** acceptance and approval of the Design Development Documents and ends on the date the Bidding and Award Phase commences.

3.4.2. Preparation of Plans and Specifications. Based on the approved Design Development Documents and any further adjustments in the scope or quality of the Project or in the construction budget authorized by the **City**, the **Design Professional** shall prepare, for approval by the **City**, Plans and Specifications setting forth in detail the requirements for the construction of the Project.

3.4.3. Preparation of Additional Bidding Information. The **Design Professional** shall assist the **City** in preparing the bidding documents when requested by the City.

3.4.4. City-Generated Forms and Documents. The **City** shall provide the **Design Professional** with copies of all **City**-generated forms and documents intended to be included in the Project Manual. The **Design Professional** will include these forms and documents in its Project Manual. It is the responsibility of the **Design Professional** to ensure that all such documents are included in the final Project Manual. Any costs incurred as a result of the failure of the **Design Professional** to include any such documents will be borne by the **Design Professional** and not charged to the **City**, where such failure is the fault of the **Design Professional**. The **Design Professional** may propose changes to these **City**-generated forms and documents; however, implementation of such changes are subject to the unilateral approval of the **City**. No changes may be made to such documents without the prior written consent of the **City**. The **Design Professional** shall prepare and submit to the **City** for approval the entire Project Manual. The **Design Professional** shall, to the best of his/her ability, immediately inform the City if any documents are missing or deficient.

3.4.5. Addenda. All addenda shall be issued by the Contracting Department; however, at the Contracting Department's sole discretion, the **Design Professional** may be called upon to prepare a draft of any such addenda. Any corrections to the Construction Documents which require an addendum will be made by the **Design Professional** at no charge to the **City**.

3.4.6. Printing of Project Manual. The **Design Professional** must provide the **City** with a final draft of the Project Manual and obtain approval from the **City** prior to printing. The **Design Professional** will be responsible for the printing of the Project Manuals unless the **City** instructs the Design Professional otherwise. The cost of producing such Project Manuals will be passed onto the **City** at cost. Any changes required to be made to the Construction Documents as a result of errors by the **Design Professional** or persons within its control will be promptly corrected at no cost to the **City**. The **Design Professional** shall make its best efforts to print Project Manuals on paper containing a minimum of twenty percent (20%) post consumer content.

3.4.7. Packaging the Project Manual.. The **Design Professional** will require the printer of the Project Manual to wrap each set of Plans in a brown wrapper, or, if the Plans are small in number, fold each set of Plans and insert one set into each Project Manual.

3.4.8. Delivery of Project Manual. The **Design Professional** will use its best efforts to ensure that the Contracting Department receives the number of Project Manuals requested by the Contracting Department no later than 3:00 p.m. on the day prior to the first day of advertisement of the Invitation to Bid.

3.4.9. Adjustment to Statement of Probable Construction Cost. The **Design Professional** shall advise the **City** in writing of any adjustments to Statement of Probable Construction Cost indicated by changes in requirements or general market conditions.

3.5. BIDDING AND AWARD PHASE.

3.5.1. Commencement. The Bidding and Award Phase commences on the date the Invitation to Bid is first advertised pursuant to M.G.L. c. 149, §44J, or M.G.L. c. 30, §39M, and ends on the date the Construction Phase begins.

3.5.2. Additional Bidders. The **Design Professional** shall assist the **City** in obtaining bids if, in the opinion of the Contracting Department, an insufficient number of persons requested the Project Manual. The **Design Professional** will notify "eligible" and "responsible" persons (as those terms are defined in the M.G.L. c. 149, §44A and referred to in M.G.L. c. 30, §39M) of the Invitation to Bid.

3.5.3. When Lowest Bid Exceeds Total Construction Cost. If the lowest bona fide bid by a Contractor exceeds the total construction cost of the Project as set forth in the approved Statement of Probable Construction Costs by more than ten percent (10%), then upon the request of the **City**, the **Design Professional** will revise the Plans and Specifications in consultation with the **City** to reduce or modify the quality or quantity, or both, of the Work so that the total construction cost of the Project will not exceed the total construction cost set forth in the Statement of Probable Construction Costs by more than ten percent (10%). All revisions pursuant to this paragraph shall be at the **Design Professional's** sole cost and expense (which cost and expense include, but are not limited to the **Design Professional's** time, the cost of reprinting the Project Manual, and the cost of re-advertisement of the Project).

3.5.4. Pre-Bid Conferences. The **Design Professional** shall attend all pre-bid conferences.

3.5.5. Investigation of Bidders. The **Design Professional** shall investigate, at minimum, the lowest Bidder. The investigation shall include, but is not limited to, reviewing the files maintained by the Division of Capital Asset Management, or any other governmental agency

charged with maintaining such documents related to such Bidder, telephoning or writing owners of the Bidder's prior projects, telephoning or writing Design Professionals from such prior projects, visiting the sites of such other projects and checking all other appropriate references. The **Design Professional** shall provide the **City** with a detailed letter of approval or disapproval of such Bidder. The letter must include relevant language from the appropriate state laws regarding the eligibility and responsibility of Bidders (i.e., M.G.L. c.149, §44A(1), M.G.L. c. 30, §39M(c), or, if appropriate, M.G.L. c. 29, §29F). If the **Design Professional** disapproves of the lowest Bidder, then the **Design Professional** must investigate the next lowest Bidder in the same manner described above, and continue to investigate each successive low Bidder until a Bidder is approved. For every Bidder investigated, the **Design Professional** must provide the **City** with a detailed letter as described above.

3.5.6. Preparation of Contract. To the extent required, the **Design Professional** shall assist the Contracting Department in the preparation of the construction contract.

3.6. CONSTRUCTION PHASE-- ADMINISTRATION OF THE CONSTRUCTION CONTRACT.

3.6.1. Commencement. The Construction Phase commences with the full execution of the contract for construction and terminates on the date of expiration of all of the guarantees and warranties provided by the Contractor to the **City**.

3.6.2. Change in Design Professional's Duties, Etc. Construction Phase duties, responsibilities, and limitations of authority of the **Design Professional** shall not be extended without written agreement of the **City** and the **Design Professional.** Any restrictions or modifications to the **Design Professional's** duties and responsibilities can be imposed by the **City** without the consent of the **Design Professional**.

3.6.3. Pre-construction Conferences. The **Design Professional** shall attend all pre-construction conferences.

3.6.4. Site Visits. The **Design Professional** shall visit the Site at intervals appropriate to the stage of construction, but no less than once a week, or as otherwise agreed by the **City** and the **Design Professional**, to become familiar with the progress and quality of the Work and to determine with care if the Work is proceeding in accordance with the requirements of the Contract Documents. The **Design Professional** shall cause its engineering and other consultants to make similar Site visits, at such times as may be required for observation of portions of the Work designed and/or specified by them. The **Design Professional** shall not be required to make continuous on-site inspections to check the quality or quantity of the Work. The **Design Professional** shall promptly submit to the **City** a detailed written report subsequent to each on-site visit, which shall include any observation of material deviations by the Contractor or subcontractors from the requirements of the Contract Documents.

3.6.5. Job Meetings. There shall be no less than one job meeting per week. The **Design Professional** shall attend all job meetings. The number of meetings per week will depend on the complexity of the Project at a particular stage, the problems encountered on the Project, or the **City's** request that additional meetings be held. The **Design Professional** shall also be required to be present when governmental authorities having jurisdiction over the Project visit the Site to inspect the Work**.** The **Design Professional** will exercise good care and diligence in discovering and promptly reporting to the **City**, as well as to the Contractor, any defects or deficiencies in the Work.

3.6.6. Construction Means, Methods, Etc. The **Design Professional** shall not have control over or charge of and shall not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work. However, the **Design Professional** shall promptly report to the **City** any perceived irregularities.

3.6.7. Contractor's Schedule. Except as otherwise provided in this Agreement, the **Design Professional** shall not be responsible for the Contractor's schedules or failure to carry out the Work in accordance with the Contract Documents, except to the extent that such failure is caused by the **Design Professional**. Except as otherwise provided in this Agreement, the **Design Professional** shall not have control over or charge of acts or omissions of the Contractor, its Subcontractors, or their agents or employees, or of any other persons performing portions of the Work. However, nothing in this paragraph shall relieve the **Design Professional** of its obligations to the **City** elsewhere in this Agreement. The **Design Professional** shall review all schedules presented by the Contractor and advise the **City** as to the appropriateness of same.

3.6.8. Communications. The **City** and the Contractor may communicate through the **Design Professional**. Communications by and with the **Design Professional's** consultants shall be through the **Design Professional**, unless the **City** deems it necessary or expedient to speak directly to the consultants.

3.6.9. Applications and Certifications for Payment. Based on the **Design Professional's** observations of the Work and evaluations of the Contractor's applications for payment, the **Design Professional** shall review and certify the appropriate amounts due the Contractor within five (5) business days after receipt of the Contractor's application for payment, and such certifications shall be in the form requested by the **City**. The **Design Professional's** certification for payment shall constitute a representation to the **City** based on the **Design Professional's** observations at the site and on the data comprising the Contractor's application for payment that the Work has progressed to the point indicated and the quality of Work is in accordance with the Contract Documents. The foregoing representations are subject to minor deviations from the Contract Documents correctable prior to completion and to specific qualifications expressed by the **Design Professional**. The **Design Professional** is required to review and validate the certified payrolls. The **Design Professional** is required to reconcile the applications for payment with the certified payrolls. The issuance of a certificate for payment shall further constitute a representation that the Contractor is entitled to payment in the amount certified. Timely payment of Contractor is required by M.G.L. c. 30, §39K; therefore, the **Design Professional** shall establish office procedures assuring either immediate mail or messenger delivery of the approved applications for payment to the **City.** Notwithstanding the foregoing, the Mayor's Office of Strategic Planning and Community Development (SPCD) shall be responsible for monitoring and certifying construction payrolls for compliance with prevailing wage requirements (a) if the Contract is a federally funded contract subject to federal Davis Bacon and Related Acts; and/or (b) if SPCD is the Contracting Department.

3.6.10. Rejection of Work. The **Design Professional** shall have the responsibility, obligation, and authority to reject Work which (1) does not conform to the Contract Documents; or (2) the **Design Professional** believes to be defective; or (3) the **Design Professional** believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. The **Design Professional** shall promptly notify the **City** of such rejection. Whenever the **Design Professional** considers it necessary or advisable for implementation of the intent of the Contract Documents, the **Design Professional** will have the responsibility, obligation, and authority to require additional inspection or testing of the Work in accordance with the provisions of the Contract Documents, whether or not such Work is fabricated, installed, or completed; provided, however, the **Design Professional** must obtain the **City's** prior written approval of any such special inspection or testing. However, neither this authority of the **Design Professional** nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the **Design Professional** to the Contractor, Subcontractors, Suppliers, other persons performing portions of the Work.

3.6.11. **Submittals.** The **Design Professional** shall review and approve or take other appropriate action upon the Contractor's submittals such as Proposed Change Orders, Shop Drawings, Product Data, and Samples, for the purpose of: (a) determining compliance with applicable laws, statutes, ordinances, codes, orders, rules, and regulations; and (b) determining whether the Work, when completed, will be in compliance with the requirements of the Contract Documents. The **Design Professional's** action shall be taken with such reasonable promptness as to cause no delay in the Work taking into account the time periods set forth in the latest schedule prepared by the Contractor and approved by the **Design Professional** and, in any event, such action shall be taken within fourteen (14) days after submittal to the **Design Professional**. The **Design Professional** shall indemnify the **City** for any monies paid by the **City** to the Contractor as a result of the **Design Professional's** delay in taking appropriate action, as described above, where such delay is not caused in any part by the **City**. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities or for substantiating instructions for installation or performance of equipment or systems designated by the Contractor, all of which remain the responsibility of the Contractor to the extent required by the Contract Documents. The **Design Professional's** review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the **Design Professional**, of construction means, methods, techniques, sequences, or procedures. The **Design Professional's** approval of a specific item shall not indicate approval of an assembly of which the item is a component. When professional certification of performance characteristics of materials, systems, or equipment is required by the Contract Documents, the **Design Professional** shall be entitled to rely upon such certification to establish that the materials, systems, or equipment will meet the performance criteria required by the Contract Documents.

3.6.12. **Change Orders and Work Change Directives.** The **Design Professional** shall prepare Change Orders and Work Change Directives, with supporting documentation and data if deemed necessary by the **Design Professional** for the approval and execution in accordance with the Contract Documents, and may authorize minor changes in the Work not involving an adjustment in the Contract Sum or an extension of the Contract Time (which is the time in which the Work reaches final completion) and which are not inconsistent with the intent of the Contract Documents.

3.6.13. **Interpretations, Clarifications, and Decisions of the Design Professional.**

3.6.13.1. The **Design Professional** will interpret, clarify, and decide matters concerning performance under and requirements of the Contract Documents on written request of either the **City** or the Contractor. The **Design Professional's** response to such requests will be made with reasonable promptness and within the time set forth herein. Any such written interpretations, clarifications, or decisions shall be binding on the **City** and the Contractor. Interpretations, clarifications, and decisions of the **Design Professional** shall be consistent with the intent of and reasonably inferable from the Contract Documents and shall be in writing or in the form of drawings. The **Design Professional** may, as the **Design Professional** judges desirable, issue additional drawings or instructions indicating in greater detail the construction or design of the various parts of the Work; such drawings or instructions may be effected by a Field Order or other notice to the Contractor, provided such drawings or instructions are reasonably consistent with the previously existing Contract Documents. The **Design Professional** shall not be liable for results of interpretations, clarifications, and decisions so rendered in good faith and in the absence of negligence by the **Design Professional**.

3.6.13.2. Time Limit for Rendering Decisions. The **Design Professional** shall render written interpretations, clarifications, and decisions within a reasonable time, but in no event more than seven (7) days after receipt of same.

3.6.14. **Aesthetic Effect.** The **Design Professional's** decisions on matters relating to aesthetic effect must be consistent with the **City's**. The **Design Professional** shall advise the **City** in matters relating to aesthetic effect; however, the **City's** decision in these matters shall be final.

3.6.15. **Claims.**

3.6.15.1. Initial Referral. All Claims, the bases of which arise prior to final payment or the earlier termination of the Contract, shall be referred initially to the **Design Professional** for action as provided herein.

3.6.15.2. Time Period and Action. The **Design Professional** shall review Claims and shall do one of the following within seven (7) days of receipt of the Claim:

3.6.15.2.1. defer any action with respect to all or any part of a Claim for the purpose of requesting and receiving additional information from either party;

3.6.15.2.2. decline to render a decision for any reason which it deems appropriate (including, but not limited to, the fact that the Claim involves allegations of fault on the part of the **Design Professional**); or

3.6.15.2.3. render a decision on all or a part of the Claim.

If the **Design Professional** requests additional information, the **Design Professional** shall take action with respect to the Claim no later than seven (7) days after receipt of the additional information. The **Design Professional** shall notify the parties in writing of its disposition of such Claim. If the **Design Professional** decides that the Work relating to such Claim should proceed regardless of its disposition of such Claim, the **Design Professional** shall issue to the Contractor a written order to proceed.

3.6.15.3. Decisions.

3.6.15.3.1. Decisions by the City or the Design Professional. (*Reference:* M.G.L. c. 30, §39P). In every case in which this Contract requires the **City**, any official, or its **Design Professional** to make a decision on interpretation of the Specifications, approval of equipment, material or any other approval, or progress of the Work, the decision shall be made promptly and, in any event, no later than seven (7) days after the written submission for decision; but if such decision requires extended investigation and study, the **City**, the official, or the **Design Professional** shall, within seven (7) days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the seven-day period and the date by which the decision will be made.

3.6.15.4. Resolved Claims. If a Claim is resolved, the **Design Professional** shall obtain or prepare the appropriate documentation and provide the **City** and the Contractor with a copy of same.

3.6.16. Determination of Substantial and Final Completion. On behalf of the **City**, the **Design Professional** shall conduct inspections, determine the dates of Substantial Completion and final completion, and shall issue a certificate of Substantial Completion, with the prior written consent of the **City**. Such inspections shall include a reasonable number of Site visits by the **Design Professional** and the **Design Professional's** engineering consultants. The **Design Professional** shall provide to the **City** a written report of all findings with recommendations for appropriate action. The **Design Professional** will receive and review (and approve or disapprove, as the case may be) written guarantees, operating manuals, spare parts lists, value charts, and

related documents required by the Contract Documents to be assembled by the Contractor. When the **Design Professional** is satisfied that all such documents are complete as required by the Contract Documents, the **Design Professional** shall issue a final certificate of payment.

3.6.17. Inspection Prior to End of Guarantee Period. Notwithstanding any other provision in this Agreement, at least thirty (30) days prior to the expiration of the Contractor's guarantee period, the **Design Professional** shall assist the **City** in inspecting the Project at the **City's** request and provide to the **City** a written report of all findings with recommendations for appropriate action. Such inspections shall include a reasonable number of Site visits by the **Design Professional** and the **Design Professional's** engineering consultants.

3.6.18. Certificate of Occupancy. The **Design Professional** shall be responsible for satisfying any and all requirements with respect to services of an Design Professional necessary to obtain a permanent certificate of occupancy under the Commonwealth of Massachusetts State Building Code.

3.6.19. Limitation on the Design Professional's Responsibilities.

3.6.19.1. Neither the **Design Professional's** authority to act under the provisions of the Contract Documents nor any decision made by the **Design Professional** in good faith to exercise or not to exercise such authority shall give rise to any duty or responsibility of the **Design Professional** to the Contractor, any Subcontractor, any Supplier, any surety for any of them, or any other person. The **Design Professional** will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Article 5 of the General Terms and Conditions. The **Design Professional** will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The **Design Professional** will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, Suppliers, or of any other persons performing portions of the Work.

ARTICLE 4

DESIGN PROFESSIONAL'S ADDITIONAL SERVICES

4.1. **IN GENERAL.** The services described hereunder shall be paid for by the **City** in addition to the compensation for Basic Services. Prior to performing any service which the **Design Professional** claims to be an Additional Service, the **Design Professional** shall notify the **City** in writing that the service is an Additional Service, and shall provide with such notice an estimate of the additional compensation which will be payable to the **Design Professional** for performing such service. Such service shall not be performed, nor shall such estimate be exceeded, without the **City's** prior written approval. Failure to so notify the **City** and obtain the **City's** written approval shall constitute a waiver of the **Design Professional's** claim for additional compensation on account of such services. These services shall be provided only if authorized or confirmed in writing by the **City**. Notwithstanding anything to the contrary in this Agreement, the **City** shall not be responsible to pay and the **Design Professional** shall not be entitled to receive compensation for any additional service if such service was required due to the fault of the **Design Professional** or the **Design Professional's** failure to perform in accordance with the terms of this Agreement. Neither the **Design Professional** nor its consultants shall be compensated for any services involved in preparing changes that are required for additional Work that should have been anticipated by the **Design Professional** in the preparation of the Construction Documents, as reasonably determined by the **City**.

4.2. **LIST OF ADDITIONAL SERVICES**. The following list of Additional Services is intended to be illustrative and not considered all inclusive.

4.2.1. Making major revisions in Plans, Specifications, or other documents when such major revisions are:

4.2.1.1. inconsistent with approvals or instructions previously given by the **City**, including revisions made necessary by adjustments in the **City's** program or project budget;

4.2.1.2. required by the enactment or revision of codes, laws, or regulations subsequent to the preparation of such documents; or

4.2.1.3. due to changes required as a result of the **City's** failure to render decisions in a timely manner and where such failure is in no way caused by the **Design Professional**.

4.2.2. Providing services required because of major changes in the Project instigated by the **City**.

4.2.3. Undertaking material design work requested by the **City** in connection with Change Orders, Construction Change Directives, and the Contractor's value engineering proposals, provided that evaluation and judgments of the proposed changes and value engineering substitutions shall be provided as a Basic Service.

4.2.4. Providing consultation concerning replacement of Work damaged by fire or other cause during construction, and furnishing services required in connection with the replacement of such Work; provided, however, that such services are not required as a result of the negligence of the **Design Professional**.

4.2.5. Providing any other services not otherwise included in this Agreement.

ARTICLE 5

OTHER CONDITIONS OR SERVICES

5.1. **OTHER SERVICES.** Any other services which are part of Basic Services are set forth in APPENDIX D.

5.2. **HAZARDOUS MATERIALS.** Unless otherwise provided in this Agreement, the **Design Professional** and the **Design Professional's** consultants shall have no responsibility for the discovery, presence, handling, removal, or disposal of, or exposure of persons to hazardous materials in any form at the Project Site, including, but not limited to, asbestos, asbestos products, polychlorinated biphenyl, or other toxic substances, provided, however, the **Design Professional** shall report to the **City** the presence and location of any hazardous material observed by the **Design Professional** (or any material suspected to exist) or that an design professional of similar skill and expertise should have observed.

ARTICLE 6

THE CITY'S RESPONSIBILITIES

6.1. REQUIREMENTS FOR THE PROJECT. The **City** shall consult with the **Design Professional** regarding requirements for the Project, including the **City's** contemplated objectives, schedule, constraints, and criteria, including space requirements and relationships, flexibility, expandability, special equipment, systems, and site requirements.

6.2. BUDGET. The **City** shall consult with the **Design Professional** in order to establish and update an overall budget for the Project, including the Construction Cost, the **City's** other costs and reasonable contingencies related to all of these costs.

6.3. AUTHORIZED REPRESENTATIVE The **City** shall designate a representative authorized to act on the **City's** behalf with respect to the Project. The **City** or such authorized representative shall render decisions in a timely manner pertaining to documents submitted by the **Design Professional** in order to avoid unreasonable delay in the orderly and sequential progress of the **Design Professional's** services.

6.4. CONSULTANTS. The **City** shall furnish the services of consultants not listed in the advertisement for the Request for Proposals when the **City** deems such services to be necessary.

6.5. FURNISHING INFORMATION OR SERVICES. Notwithstanding anything to the contrary written herein, the **City** shall only furnish information or services described in herein to the extent that any such information or service is reasonably required by the **Design Professional** to perform its services under this Agreement. The **Design Professional** shall review and confirm the sufficiency of any test and information furnished to the **Design Professional** by or on behalf of the **City** pursuant to this section.

6.6. NOTICE OF FAULT OR DEFECT. The **City** shall give prompt written notice to the **Design Professional**, if the **City** becomes aware of any fault or defect in the Project or nonconformance with the Contract Documents.

ARTICLE 7

USE OF THE DESIGN PROFESSIONAL'S PLANS, SPECIFICATIONS, AND OTHER DOCUMENTS

7.1. IN GENERAL. The Plans, Specifications, and other documents prepared by the **Design Professional** for this Project are instruments of the **Design Professional's** service for use solely with respect to this Project and, unless otherwise provided, the **Design Professional** shall be deemed the author of these documents and shall retain all common law, statutory, and other reserved rights, including the copyright (Note: if this contract is federally funded, see Appendix L Federal Requirements regarding royalties and copyrights). The **City** shall be permitted to retain copies, including reproducible copies, of the **Design Professional's** Plans, Specifications, and other documents for information and reference in connection with the **City's** use and occupancy of the Project. The **Design Professional's** Plans, Specifications, or other documents shall not be used by the **City** or others on other projects, except by agreement in writing. However, it is expressly understood and agreed that the **City** shall have the right to utilize the Plans, Specifications, and other documents in the event the **City** expands the Project, corrects any deficiencies, or makes any renovations or repairs to the Project. In the event of termination or purported termination of this Agreement by either party, the **City** may use the Plans, Specifications, and other documents in connection with the Project, notwithstanding any dispute between the **City** and the **Design Professional** as to the reason for validity of the termination, provided only that the **Design Professional** has been paid for its work through the date of the termination, unless the matter of such payment is subject to litigation or other dispute resolution procedure provided for herein.

7.2. OFFICIAL REGULATORY REQUIREMENTS. Submission or distribution of the Plans, Specifications, and other documents to meet official regulatory requirements or for similar purposes in connection with the Project is not to be construed as publication in derogation of the **Design Professional's** reserved rights herein.

ARTICLE 8

BASIS OF COMPENSATION

8.1. IN GENERAL. For Basic Services, compensation shall be as provided in APPENDIX E.

8.2. STIPULATED SUM. Where the compensation is based on a stipulated sum, progress payments for Basic Services in each phase shall be as stated in APPENDIX F.

8.3. MATERIAL CHANGE IN SCOPE OR SERVICES. In the event of a material change in the scope or services of the Project or the **Design Professional's** services, the **Design Professional** shall continue to perform in accordance with the terms of this Agreement during the course of any renegotiation of the **Design Professional's** compensation hereunder. Equitable adjustments shall be made to the total dollar amount of this Agreement in the event of changes in scope or services herein. (*Reference:* M.G.L. c. 7, §38G for designer contracts subject to the Designer Selection Statute, but this section applies also to contracts not subject to M.G.L. c. 7, §38G).

8.4. ADDITIONAL SERVICES OF THE DESIGN PROFESSIONAL. For Additional Services of the **Design Professional**, compensation shall be as stated in APPENDIX C.

8.5. ADDITIONAL SERVICES OF THE CONSULTANTS. For additional services of consultants, compensation shall be the actual cost billed to the **Design Professional** for such services stated in APPENDIX G.

8.6. REIMBURSABLE EXPENSES. For Reimbursable Expenses, compensation shall be the actual cost billed to the **Design Professional**, not including any tax. The City will provide its tax-exempt number upon request..

ARTICLE 9

PAYMENT TO THE DESIGN PROFESSIONAL

9.1. PAYMENT TO DESIGN PROFESSIONAL. The **City** shall make payments directly to the **Design Professional** within forty-five (45) days after the **City** receives and approves the **Design Professional's** detailed certified monthly statement. The detailed monthly statement must include, at minimum, itemized hours and work performed by the **Design Professional** (including, but not limited to, all employees of the **Design Professional** and its agents), and an itemized list of Reimbursable Expenses. Records of the **Design Professional's** expenses and hours pertaining to this Project shall be kept in accordance with generally accepted accounting principles, which principles shall be consistently applied. Said records shall be available to the **City** or its authorized representative upon reasonable notice for inspection and copying during regular business hours for six (6) years after the date of the final certificate of payment.

9.2. NO ADVANCE PAYMENTS. No payments will be made in advance of services rendered.

9.3. DEDUCTIONS. Deductions may be made from the **Design Professional's** compensation, if the **Design Professional** has not properly performed the services required in accordance with the terms of this Agreement.

ARTICLE 10

INSURANCE REQUIREMENTS

10.1. **LIABILITY INSURANCE.** The **Design Professional** at its own expense must obtain and maintain a professional liability insurance policy covering negligent errors, omissions, and acts of the **Design Professional** or of any person for whose performance the **Design Professional** is legally liable arising out of the performance of such contracts for design services. The **City** may require a consultant employed by the **Design Professional** subject to this subparagraph to obtain and maintain a similar liability insurance policy. If the **Design Professional** is required by the **City** to obtain all or a portion of such insurance coverage, it shall at its own expense furnish a certificate or certificates of insurance coverage to the **City** prior to the award of the contract. Certificates of insurance are attached hereto as APPENDIX H. Any amendments these insurance requirements are set forth in APPENDIX H.

10.2. **INSURANCE RATING.** Any insurance carrier utilized to fulfill the insurance requirements of this Contract shall have a minimum A.M. Best rating of A-X**.**

10.3. **MINIMUM COVERAGES.** The **Design Professional** and its structural, mechanical, and electrical engineering consultants shall each maintain the following minimum insurance coverages:

10.3.1. Workers' Compensation insurance- co-called "statutory coverage" in compliance with Massachusetts law;

10.3.2. Employer's liability policy covering bodily injury by accident ($100,000 each occurrence) and bodily injury by disease ($100,000 each employee, $500,000 policy limit);

10.3.3. Comprehensive automobile liability insurance including hired, non-owned, and leased vehicles, if any, in the amount of $1,000,000 covering personal injury, bodily injury, and property damage;

10.3.4. Valuable Papers insurance in the amount of $100,000 covering damage to plans, drawings, computations, filed notes, or other similar data relating to the Work covered by this Agreement;

10.3.5. Commercial general liability insurance with a primary limit of not less than $1,000,000 combined single limit and naming the **City** as an additional insured; and

10.3.6. Professional Liability insurance in an amount not less than $1,000,000 or ten per cent (10%) of the Project's estimated cost of construction, or such larger amounts as the **City** may require, for the applicable period of limitations, including contractual liability coverage with all coverage retroactive to the earlier date of this Agreement or the commencement of the **Design Professional's** services in relation to the Project.

10.4. **INSURANCE TERMS**. All insurance shall be provided by companies qualified and licensed to do business in the Commonwealth of Massachusetts and acceptable to the City, and shall be maintained for a period of six (6) years following the last performance of services under this Agreement. Certificates evidencing such insurance shall be furnished to the **City** upon the execution of this Agreement by the **Design Professional** and upon each renewal period thereafter. The policies shall provide that the policies shall not be cancelled, renewed, or amended without thirty (30) days' prior notice to the **City**. All requests by the **Design Professional** for approval of engineers or other consultants shall be accompanied by certificates setting forth the types and amounts of insurance carried by them. The **Design Professional** shall require each such engineer or other consultant approved by the **City** to maintain the insurance shown in such certificate in accordance with the provisions of this paragraph.

ARTICLE 11

STATUTORY RECORD-KEEPING AND RECORD-FILING REQUIREMENTS

(M.G.L. C. 30, §39R)

___(If this contract is federally funded, see also Federal Requirements attached hereto as Appendix L.)

11.1. The **Design Professional** shall make and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the **Design Professional**.

11.2. Until the expiration of six (6) years after final payment, the office of inspector general, and the deputy commissioner of capital planning and operations shall have the right to examine any books, documents, papers or records of the **Design Professional** or of its subcontractors that directly pertain to and involve transactions relating to, the **Design Professional** or its subcontractors.

If this contract is subject to the Massachusetts Designer Selection Statute, M.G.L., c. 7, §38A-1/2 et seq., and if the Contract Amount exceeds $100,000, the provisions of M.G.L. c. 30, §39R contained in sections 11.3 –11.7 below shall be applicable.

11.3. The **Design Professional** shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the **City**, including in its description the date of the change and reasons therefore, and shall accompany said description with a letter from the **Design Professional's** independent certified public accountant approving or otherwise commenting on the changes.

11.4. The **Design Professional** has filed a statement of management ("management," as used in these paragraphs is defined in M.G.L. c. 30, §39R(a)(7) as "the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the contractor" which is the **Design Professional** herein) on internal accounting controls as set forth in M.G.L. c. 30, §39R(c) prior to the execution of this Agreement.

11.5. The **Design Professional** must file with the **City** a statement of management as to whether the system of internal accounting controls of the **Design Professional** and its subsidiaries reasonably assures that:

11.5.1. transactions are executed in accordance with management's general and specific authorization;

11.5.2. transactions are recorded as necessary: to permit preparation of financial statements in conformity with generally accepted accounting principles, and to maintain accountability for assets;

11.5.3. access to assets is permitted only in accordance with management's general or specific authorization; and

11.5.4. the record accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

11.6. The **Design Professional** has filed with DCAM prior to the execution of this Agreement and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in M.G.L. c. 30, §39R(d). The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the **City** upon request.

11.7. The **Design Professional** shall file with the **City** a statement prepared and signed by an independent certified public accountant, stating that s/he has examined the statement of management on internal accounting controls, and expressing an opinion as to:

11.7.1. whether the representations of management in response to this paragraph and the previous paragraph are consistent with the result of management's evaluation of the system of internal accounting controls; and

11.7.2. whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the **Design Professional's** financial statements.

NOTE: RECORDS AND STATEMENTS REQUIRED TO BE MADE, KEPT OR FILED UNDER THE PROVISIONS OF M.G.L. c. 30, §39R ARE **NOT PUBLIC RECORDS** AS DEFINED IN M.G.L. c.4, §7 AND SHALL NOT BE OPEN TO PUBLIC INSPECTION, EXCEPT AS PROVIDED HEREIN.

(*Reference:* M.G.L. c. 30, §39R)

ARTICLE 12

TERMINATION, SUSPENSION, OR ABANDONMENT

12.1. Except for reasons of nonpayment, this Agreement may be terminated by either party upon not less than seven (7) days' written notice should the other party fail to perform in accordance with the terms of this Agreement through no fault of the party initiating the termination and may be terminated without cause by the **City** upon at least seven (7) days' written notice to the **Design Professional**. In the event this Agreement is terminated by the **City** pursuant to this paragraph, the **Design Professional** shall be entitled to receive compensation for Basic and Additional Services properly performed and for all substantiated Reimbursable Expenses incurred to the date of the notice of termination, but in no event shall compensation exceed the amount specified hereafter if the Project does not proceed and in no event shall any payment be due earlier than such payment would otherwise be due hereunder. Moreover, the **City** shall be entitled to retain from the monies alleged to be due to the **Design Professional** an amount that reasonably reflects the cost and expense incurred or to be incurred by the **City** associated with the termination, if the termination is with cause.

12.2. The **City** reserves the right to stop or suspend the work upon seven (7) days' written notice to the **Design Professional**, with no resulting fee adjustment to the **Design Professional**, unless such suspension extends for more than twelve (12) months, in which case the **Design Professional's** compensation shall be equitably adjusted when the project is resumed to provide for expenses incurred in the interruption and resumption of the **Design Professional's** services. The **Design Professional** shall have no cause for termination of this Agreement based on suspension of the Project unless such suspension extends for more than twelve (12) months.

12.3. Persistent failure by the **City** to make payments to the **Design Professional** in accordance with this Agreement or persistent failure of the **City** to pay the **Design Professional** within forty-five (45) days of receipt of a statement for services properly performed shall be considered nonperformance and cause for termination. "Persistent" herein shall mean at least three occasions.

12.4. If the **City** fails to make payment when due for services and expenses properly performed, the **Design Professional** may, upon thirty (30) days' written notice to the **City**, suspend performance of services under this Agreement. Unless the **Design Professional** receives within thirty (30) days of the date of the notice payment in full for such services that have been properly performed, the suspension shall take effect without further notice. In the event of a suspension of services, the **Design Professional** shall have no liability to the **City** for delay or damage caused by the **City** because of such suspension of services.

ARTICLE 13

MISCELLANEOUS PROVISIONS

13.1. GOVERNING LAW. This Agreement shall be governed by the laws of the Commonwealth of Massachusetts and, if federally funded, applicable provisions of the Federal Requirements attached hereto as Appendix L.

13.2. VENUE. Venue for any court action or proceeding shall be Middlesex County in the Commonwealth of Massachusetts only. The **Contractor**, all Subcontractors, and Suppliers waive any and all jurisdictional and venue defenses.

13.3. PARTNERS, SUCCESSORS, ASSIGNS, ETC. The **City** and the **Design Professional**, respectively, bind themselves, their partners, successors, assigns, and legal representatives to the other party to this Agreement and to the partners, successors, assigns, and legal representative of such other party with respect to all covenants of this Agreement.

13.4. PROHIBITION AGAINST ASSIGNMENT. The **Design Professional** shall not assign, in whole or in part, its rights and obligations under the Contract Documents without prior written consent of the **City**. An assignment without the prior written consent of the **City** shall not relieve the **Design Professional** of its obligations thereunder.

13.5. ENTIRE AGREEMENT. This Agreement represents the entire and integrated agreement between the **City** and the **Design Professional** and supersedes all prior negotiations, representations, or agreements, either written or oral. This Agreement can be amended only by a written instrument signed by both the **City** and the **Design Professional**.

13.6. THIRD-PARTY BENEFICIARIES. Nothing contained in this Agreement shall create a contractual relationship with or a cause of action in favor of a third party against either the **City** or the **Design Professional**.

13.7. NOTICES AND DEMANDS. Notices and demands required by or permitted to be given hereunder shall be hand-delivered or given by registered mail, certified mail, express mail with a tracking receipt, or FedEx and shall be addressed to the parties at the addresses set forth in APPENDIX I. Such notices and demands may be sent by facsimile transmission if such transmission is followed by hand delivery, or registered, certified, or express mail, or FedEx on the same day or the following business day. Notice and demands shall be deemed to have been given when delivered, or when mailed, or when transmitted by facsimile, if followed by hand delivery or registered or certified mail as provided herein.

13.8. WAIVER OF RIGHTS. The **City's** review, approval, acceptance, or payment for services under this Agreement shall not operate as a waiver of any rights under this Agreement and the **Design Professional** shall be and shall remain liable to the **City** for all damages incurred by the **City** as the result of the **Design Professional's** failure to perform in conformance with the terms and conditions of this Agreement. The rights and remedies of the **City** provided for under this Agreement are in addition to any other rights or remedies provided or allowed by law.

13.9. PERSONAL LIABILITY. No member, officer, director, trustee, representative, consultant, volunteer participant, or employee of the **City** shall be personally liable to the **Design Professional** under

any term or provision of this Agreement for the **City's** payment obligation or otherwise, or because of any breach hereof.

13.10. INDEMNIFICATION. The **Design Professional** shall indemnify and defend the **City** from and against all claims, costs, and liability arising out of the **Design Professional's** Services hereunder, to the extent that such claims, costs, and liability are the result of the negligent acts, errors, or omissions of the **Design Professional**, or breaches by the **Design Professional** of its obligations hereunder or (with respect to the **Design Professional's** duty to defend) are claimed to be the result thereof.

13.11. DESIGN PROFESSIONAL'S PRINCIPALS AND SENIOR PERSONNEL. The **City** is relying on the continued participation in the Project of the principals and senior personnel whose names and time commitments and, where applicable, Massachusetts professional registration numbers are listed in the attached APPENDIX J. The **Design Professional** shall not remove any such individual from the Project or reduce his or her time commitment to the Project without the **City's** written consent unless such individual dies, becomes disabled, or terminates his or her employment. The replacement of any individual listed in APPENDIX J shall be subject to the **City's** written approval.

13.12 USE OF PROJECT-RELATED DOCUMENTS. The **Design Professional** may, upon prior written consent of the **City**, include representations of the design of the Project, including photographs of the exterior and interior, among the **Design Professional's** promotional and professional materials. The **Design Professional's** materials shall not include the **City's** confidential or proprietary information if the **City** has previously advised the **Design Professional** in writing of the specific information considered by the **City** to be confidential or proprietary. The **City** shall provide professional credit for the **Design Professional** on the construction sign and in the promotional materials for the Project. The **City** considers all information concerning the Project to be confidential and proprietary unless otherwise expressly indicated in writing to the **Design Professional**.

ARTICLE 14

CERTIFICATIONS

14.1. The undersigned **Design Professional** certifies under the penalties of perjury that:

14.1.1. the **Design Professional** has not given, offered or agreed to give any gift, contribution or offer of employment as an inducement for, or in connection with, the award of a contract for design services;

14.1.2. no consultant to, or subcontractor for the **Design Professional** has given, offered or agreed to give any gift, contribution, or offer of employment to the **Design Professional**, or to any other person, corporation, or entity as an inducement for or in connection with the award to the consultant or subcontractor of a contract by the **Design Professional**;

14.1.3. no person, corporation, or other entity, other than a bona fide, full-time employee of the **Design Professional** has been retained or hired to solicit for or in any way assist the **Design Professional** in obtaining the contract for design services upon an agreement or understanding that such person, corporation, or other entity be paid a fee or other consideration contingent upon the award of the contract to the designer;

14.1.4. if and as required by M.G.L. c. 30, §39R, the **Design Professional** has internal accounting controls the **Design Professional** shall:

14.1.4.1. file regular statements of management concerning internal auditing controls; and

14.1.4.2. file an annual audited financial statement; and submit a statement from an independent certified public accountant that s/he has examined management's internal auditing controls and expresses an opinion as to their consistency with management's statements and whether such statements are reasonable with respect to transactions and assets that are substantial in relation to the **Design Professional's** financial statements, as provided by M.G.L. c. 7, §38H(e) and

14.1.4.3. the Design Professional has filed a statement of management on internal accounting controls as set forth in M.G.L. c. 30, §39R(c) prior to the execution of this Agreement;

14.1.4.4the Design Professional has filed with DCAM prior to the execution of this Agreement an audited financial statement for the most recent completed fiscal year as set forth in M.G.L. c. 30, §39R(d); and

14.1.5. the **Design Professional** has complied with all the laws of the Commonwealth pertaining to taxes, reporting of employees and contractors, and withholding and remitting child support (M.G.L. c. 62C, §49A).

14.1.6. the **Design Professional** will, for a seven-year period after the final payment, maintain accurate books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the **Design Professional**;

APPENDICES:

APPENDIX A The RFP
APPENDIX B Schedule of Performance of the Architect
APPENDIX C Compensation for Additional Services
APPENDIX D Additional Basic Services
APPENDIX E Compensation for Basic Services
APPENDIX F Compensation Based Upon a Stipulated Sum
APPENDIX G Compensation for Additional Services of Consultants
APPENDIX H Certificates of Insurance and Additional Insurance Requirements
APPENDIX I Notices
APPENDIX J Mass. Professional Registration Numbers
APPENDIX K Truth-In-Negotiations Certificate
APPENDIX L Federal Requirements
APPENDIX M Statement of Management

SIGNATURE PAGE FOLLOWS: