



Enter your transmittal number

X255631

Transmittal Number

Your unique Transmittal Number can be accessed online: <http://mass.gov/dep/service/online/trasmfrm.shtml>

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

A. Permit Information

MAR041165 MS4 Stormwater
1. Permit Code: 7 or 8 character code from permit instructions 2. Name of Permit Category
Annual Report (NPDES Phase II Small MS4 General Permit)
3. Type of Project or Activity

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

B. Applicant Information - Firm or Individual

Town of Upton - Department of Public Works
1. Name of Firm - Or, if party needing this approval is an individual enter name below:
2. Last Name of Individual 3. First Name of Individual 4. MI
100 Pleasant Street
5. Street Address
Upton MA 01568 (508) 529-3067
6. City/Town 7. State 8. Zip Code 9. Telephone # 10. Ext. #
Jeffrey F. Thompson, P.E. jthompson@upton.ma.us
11. Contact Person 12. e-mail address (optional)

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. Copy 2 must accompany your fee payment. Copy 3 should be retained for your records

C. Facility, Site or Individual Requiring Approval

Town of Upton
1. Name of Facility, Site Or Individual
1 Main Street
2. Street Address
Upton MA 01568 (508) 529-6901
3. City/Town 4. State 5. Zip Code 6. Telephone # 7. Ext. #
MAR041165
8. DEP Facility Number (if Known) 9. Federal I.D. Number (if Known) 10. BWSC Tracking # (if Known)

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP
P.O. Box 4062
Boston, MA
02211

D. Application Prepared by (if different from Section B)*

Tata & Howard, Inc.
1. Name of Firm Or Individual
67 Forest Street
2. Address
Marlborough MA 01752 (508) 303-9400
3. City/Town 4. State 5. Zip Code 6. Telephone # 7. Ext. #
Jenna Rzasa, P.E.
8. Contact Person 9. LSP Number (BWSC Permits only)

* Note: For BWSC Permits, enter the LSP.

E. Permit - Project Coordination

1. Is this project subject to MEPA review? [] yes [x] no
If yes, enter the project's EOE file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:
EOEA File Number

F. Amount Due

DEP Use Only

Special Provisions:

- 1. [x] Fee Exempt (city, town or municipal housing authority)(state agency if fee is \$100 or less). There are no fee exemptions for BWSC permits, regardless of applicant status.
2. [] Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. [] Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. [] Homeowner (according to 310 CMR 4.02).

Permit No:

Rec'd Date:

Reviewer:

Check Number Dollar Amount Date

Municipality/Organization: Town of Upton, MA

EPA NPDES Permit Number: MAR041165

MaDEP Transmittal Number: X255631

Annual Report Number Year 10
& Reporting Period: April 1 2012 - March 31 2013

NPDES PII Small MS4 General Permit Annual Report

Part I. General Information

Contact Person: Jeffrey F. Thompson, P.E. Title: Director of Public Works

Telephone #: (508) 529-3067 Email: jthompson@uptonma.gov

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: 

Printed Name: Blythe C. Robinson

Title: Town Manager, Town of Upton

Date: 4/29/2013

Part II. Self-Assessment

The Town of Upton has completed the required self-assessment and has determined that our municipality is in compliance with all permit conditions, except for the following provisions (section numbers refer to 2003 MS4 Permit):

Part II.B.3

The Town has implemented a comprehensive stormwater conveyance identification and mapping program. To date, outfalls, catch basins and culverts have been investigated, described, classified and mapped because of this program. No illicit discharges were identified. It is the intent of the Town to continue with the conveyance identification and mapping program within the community as new outfalls are added. The Town of Upton continues to report 72 outfalls.

The Town's ability to complete mapping of additional stormwater structures and pipe will be substantially increased in Year 11, as the Town of Upton committed to joining the Central Massachusetts Regional Stormwater Coalition (CMRSWC) in November 2012. The 30-community collaboration is designed to meet the requirements of the 2003 MS4 Permit, promote stormwater awareness, and prepare for increased regulatory focus under the pending (2013) Massachusetts MS4 Permit. The CMRSWC maintains a cloud-based integrated mapping and inspected database of stormwater infrastructure within the member communities. The CMRSWC possesses a highly advanced GPS unit for locating infrastructure, and each community has a tablet computer for conducting stormwater inspections. Standardized web-based location and inspection forms which are structure-specific are used to conduct the mapping and inspections directly on the GPS and tablet units. All mapping and inspections conducted on the units in the field upload automatically to the integrated map database, greatly expanding the functionality of the communities' mapping efforts. The Town will benefit from the resources developed by the Coalition in the next permit year and beyond to build on the Town's progress toward complying with the 2003 Massachusetts MS4 Permit. Please see the summary attached to this annual report for tasks the Coalition has accomplished since its inception.

Part II.B.3, II.B.4, and Part II.B.5

In Year 9, the Town approved a Stormwater Management Bylaw (SMB) to meet these Minimum Control Measures. A SMB was created with input and collaboration through the use of a Stormwater Bylaw Committee that included members of the Conservation Commission, Planning Board, and a Town Selectman. The SMB satisfies the requirements of the 2003 MS4 Permit. The SMB provides reasonable guidance for the regulation of development and post-development stormwater runoff for protecting local water resources from degradation. The SMB prohibits non-stormwater discharges and the discharge of illicit materials to the Town's stormwater management system and requires the removal of all such illicit connections. The SMB assesses fines for violations of the bylaw in accordance with the severity and frequency of the violation. A vote on the SMB was held during the Annual Town Meeting on May 10th, 2012 at 7:00 pm, and the SMB was approved.

Subsequent to the passage of the SMB, the Stormwater Bylaw Committee worked to develop a variety of regulatory tools and mechanisms that implement and enforce the SMB. This includes the following:

1. Stormwater Management Plan Application
 - The Stormwater Management Plan application is required when developing a site larger than one acre or conducting a project that will cause alteration of drainage characteristics. Applicants must submit a proposed site plan, sequence of construction, a list of construction BMPs with an operation and maintenance schedule, and the persons responsible for each part of the plan. The Conservation Commission reviews the Stormwater Management Plans.
2. Checklist for a Stormwater Management Operation & Maintenance Plan
 - A Stormwater Management Operation & Maintenance Plan is required if a Stormwater Management Permit is required or an Erosion and Sediment Control Plan is required, based on triggers in the SMB. The Checklist requires that a final site plan is submitted displaying all stormwater infrastructure, who is responsible for financing and conducting system maintenance, a routine maintenance schedule, and signatures for each responsible individual.
3. Construction Notification Form and Checklist
 - The Construction Notification Form and Checklist is required when disturbing an area of more than 5,000 square feet but less than one acre, or stockpiling more than 100 cubic yards of soil. The Notification Form requires applicants to note potential sources of pollution, a basic site drawing, and erosion controls that will be used. The Notification Form and Checklist are reviewed by the Conservation Commission.
4. Erosion and Sediment Control Plan Application and Checklist
 - An Erosion and Sediment Control plan is required if a Stormwater Management Plan is required, or if grades, vegetation, or stockpiling will exceed the limits presented in the application. The Control Plan requires that an existing and proposed site plan are submitted displaying impervious areas, locations of all existing stormwater infrastructure, construction period and permanent BMP details, and a description for minimizing vegetation disturbance. The Erosion and Sediment Control Plan is reviewed by the Conservation Commission.

Part III. Summary of Minimum Control Measures

1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Continued Efforts – Future Work
1 Revised	Develop & distribute brochures to residents.	Upton DPW	Distribution of brochures.	Continued brochure distribution to residents. Brochures included as mail stuffers for water bills. Also available at Town Hall & Code Enforcement office.	Review different brochures, provide additional information and continue distribution. Consider CMRSWC brochures and pamphlets for distribution. Brochures will be placed on the Town’s website.
2 Revised	Develop & distribute brochures to businesses.	Upton DPW	Distribution of brochures.	Continued brochure distribution to businesses. Brochures included as mail stuffers for water bills. Also available at Town Hall & Code Enforcement office.	Review different brochures, provide additional information and continue distribution. Consider CMRSWC brochures and pamphlets for distribution. Brochures will be placed on the Town’s website.
3 Revised	Install watershed signage.	Upton DPW	Installation of watershed signs.	Town has contracted with a consultant to determine locations for 10 watershed notification signs along local roads.	Signs are anticipated to be installed in next Permit Year.
4 Revised	Develop collection program for household hazardous waste.	Upton DPW / Board of Health	Conduct collection program.	Two Household Hazardous Waste Collection day events were hosted, one event on April 21, 2012 in the spring and one on October 13, 2012 in the fall.	Conduct similar collection days in Spring and Fall of Year 11
5 Revised	Develop school curricula & and distribute to schools.	Upton DPW / Board of Heath	Implementation of curricula.	No program has been developed yet. In previous years, discussed several alternatives within school administration to include awareness/education into existing curricula.	Develop programs to be incorporated into existing curricula. Incorporate CMRSWC teaching materials into curricula.
Revised					

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Continued Efforts – Future Work
6	Public meeting to discuss Stormwater management plan.	Upton DPW/Board of Selectmen	Conduct a public meeting to discuss goals of the Stormwater management plan.	A public meeting to discuss the SMB was held on April 11, 2012. The SMB was approved on May 10, 2012. The Stormwater Bylaw Committee also met on August 1, September 19, and October 17 to review and finalize the Stormwater Regulations. All meetings were posted and open to the public.	Coordinate with cable access personnel on televising pertinent material on local cable access.
Revised					
7	Public Hearing to discuss water quality data of beach.	Board of Health/Board of Selectmen	Conduct a public discussion of goals and results of water testing.	No public hearings have been held. Weekly sampling of Pratt Pond was performed with no pathogens detected.	Similar to above, utilize local cable access programming to notify public of water quality results. A public hearing will be conducted if pathogens in Pratt Pond are detected above allowed limits.
Revised		Board of Health/Upton DPW			
8	Develop and implement composting program.	Board of Health	Implementation of composting program.	Composting program was not implemented due to lack of proper location.	Currently, the Town is not planning to implement a composting program.
Revised					
9	Coordinate & implement beach clean-up program.	Board of Health / Board of Selectmen	Conduct a beach clean-up.	The Upton DPW staff routinely performs regular cleanups of waterfowl feces and litter at this location. “Don’t feed waterfowl” signs have been installed at the beach.	Encourage and continue similar efforts annually, including coordination with local volunteer groups.
Revised		Board of Health/Upton DPW			
10	Form citizen watch groups to identify polluters to waterways.	Board of Health / Board of Selectmen	Creation of watch group.	No public advertisement or meetings have been held. Community citizens are very vigilant about reporting pollution.	Generate public interest and develop mission statement.
Revised					

2a. Additions

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3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Continued Efforts – Future Work
11 Revised	Develop Stormwater system map.	Upton DPW	Creation of system map.	Progress toward this goal was completed in previous Permit years.	Continue to inspect mapped outfalls and locate new outfalls as they are constructed. Focus mapping efforts on catch basins and pipe infrastructure, consistent with anticipated requirements in new MA MS4 Permit. Review & edit map as necessary. Upload existing map data to the CMRSWC integrated mapping and inspection database.
12 Revised	Identify illicit discharges.	Upton DPW	Create a list of illicit discharges.	Efforts to detect illicit discharges are ongoing. None were identified in Permit Year 10.	Continue to investigate illicit discharges in Town through additional dry weather and wet weather monitoring and sampling on an as-needed basis. Use of the CMRSWC integrated mapping database, inspection forms, field water quality monitoring test kits will be used to help identify illicit discharges.
13 Revised	Commence with elimination of identified illicit discharges.	Upton DPW	Removal of all identified illicit discharges.	No illicit discharges were identified during Permit Year 10.	Continue monitoring discharges as funding allows. Follow up on discharges within schedule identified.
14 Revised	Review & implement ordinances.	Board of Selectmen	Adoption of additional bylaws & regulations.	In Year 10, a SMB was approved on May 10, 2012 which addresses illicit discharges, construction controls, and post-construction stormwater BMPs. Final Regulations based on the SMB were put in place in early 2013.	Continue to implement activities regulated by the SMB.
15	Develop employee training program to identify discharges.	Upton DPW	Implementation of training program.	No additional training occurred in Year 10. The Town continued to monitor outfalls for illicit discharges in	The Town will use CMRSWC tools including the IDDE documentation and guidance template to start

Revised				accordance with training conducted in prior permit years. .	developing an IDDE program. Use of the integrated mapping database and field water quality monitoring and test kits will be considered for use during inspections.
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3a. Additions

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4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Continued Efforts – Future Work
16	Develop procedures to inform public of upcoming projects.	Planning Board/ Conservation Commission/ Upton DPW	Advertise to the public of upcoming activities. Develop and implement review process.	The SMB includes review by the Conservation Commission of upcoming construction projects. Upcoming projects are placed on the meeting agenda allowing public notification. Meeting minutes also allow public viewing of upcoming projects and conservation commission decisions.	Continue review of projects as required by the SMB. Develop and consider further mediums for notifying public of upcoming projects.
Revised					
17	Develop & implement site plan review process for sites.	Planning Board/ Conservation Commission/ Upton DPW	Develop and implement review process.	The approved SMB includes a site plan review process. Reviews are completed in accordance with the SMB.	Continue to review site plans in accordance with the SMB, and consider any amendments to the SMB that may be necessary. Continue to utilize Checklist for a Stormwater Management Operation & Maintenance Plan, Stormwater Management Plan Application, Construction Notification Form and Checklist, and the Erosion and Sediment Control Plan Application and Checklist.
Revised					
18	Develop & implement erosion & sediment control ordinances.	Planning Board/ Conservation Commission	Develop and implement control ordinances.	The SMB addresses erosion and sedimentation, including an Erosion and Sediment Control Plan Application	Continue to review site plans in accordance with the SMB, and consider any amendments to the

Revised				and Checklist, and a Construction Notification Form and Checklist for qualifying projects. Site plans are being reviewed in accordance with the SMB. Fines are categorized in the SMB based on the severity of the violation.	SMB that may be necessary. Continue to utilize Checklist for a Stormwater Management Operation & Maintenance Plan, Stormwater Management Plan Application, Construction Notification Form and Checklist, and the Erosion and Sediment Control Plan Application and Checklist.
19	Develop construction inspection program.	Planning Board/ Conservation Commission	Implementation of inspection program.	The Town has a successful construction inspection program and history of acting on inspections. The Conservation Commission regularly inspected the Glen Echo Estates development and the Crosswinds Development during the permit year. No violations were detected. The SMB defines when an Erosion and Sedimentation Plan, Stormwater Management Plan, etc. are required.	Continue implementation efforts, and consider any necessary changes to the SMB inspection procedure based upon new state or federal regulations.
Revised					
20	Implement construction inspection program with fines for violations.	Planning Board / Conservation Commission	Implementation of inspection program and fine schedule.	The SMB addresses enforcement of construction erosion and sediment controls. The SMB delineates a fine schedule based on the severity of the violation. The Conservation Commission regularly inspects new construction projects.	Continue inspection program in accordance with the SMB and state regulations. Consider changes to inspection procedures based on future regulations.
Revised					

5. Post-Construction Stormwater Management in New Development and Redevelopment

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Continued Efforts – Future Work
21 Revised	Review existing non-structural BMPs.	Planning Board/ Conservation Commission/ Upton DPW	Development and addition of any necessary amendments and/or bylaws.	Progress toward this goal was completed in previous Permit years, including development of Good Housekeeping Practices in the Stormwater Pollution Prevention Plan for the Upton DPW Garage. Street sweeping and catch basin cleaning are completed once a year.	Review existing non-structural BMPs as necessary and recommend improvements.
22 Revised	Review of existing structural BMPs.	Conservation Commission/ Planning Board/ Upton DPW	Development and addition of any necessary amendments and/or bylaws.	In Year 10, the SMB was approved which provides reasonable guidance for the regulation of development and post-development stormwater runoff for protecting local water resources from degradation. The Conservation Commission is available to review any existing structural BMPs at the Upton DPW's request.	Review existing structural BMPs as necessary and recommend improvements.
23 Revised	Require O&M manuals for newly installed BMPs.	Conservation Commission/ Upton DPW	Catalogue and review of all new structural BMPs.	Little progress on this goal due to little or no new development.	As part of the new SMB, operation and maintenance plan is required for qualifying projects and will be enforced going forward.
24 Revised	Develop inspection program of newly installed BMPs.	Conservation Commission/ Upton DPW	Implement new BMP inspection program.	The Town has a successful inspection program for newly installed BMPs.	Continue to enforce BMP Operations and Maintenance Plans that are submitted by applicants as part of meeting the SMB.
25 Revised	Conduct inspections of BMPs within 1 st year of operation.	Conservation Commission / Upton DPW	Conduct Inspections.	Upton DPW and Conservation Commission conducted inspections as necessary and as part of routine maintenance.	Maintenance of BMPs is a challenge that will be addressed in Year 11. Rehabilitate BMPs that were noted as requiring maintenance when inspected.

5a. Additions

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6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Continued Efforts – Future Work
26 Revised	Inspection of Town owned sand/salt storage areas.	Upton DPW	Conduct inspections, make recommendations, and review procedures.	Stormwater Pollution Prevention Plan and SPCC for the Upton DPW Garage were developed and implemented in Year 8.	Continue inspection and good housekeeping efforts. Review existing stock pile locations and recommended improvements.
27 Revised	Review snow removal & street sweeping procedures.	Upton DPW	Review procedures and make recommendations.	Review of procedures continues. Town contracts Lloyd Truax for catch basin cleaning, and Dan Amarillo for street sweeping. Street sweeping and catch basins cleaning are conducted once a year.	Formalize recommendations. Continue catch basin cleaning, street sweeping, and sidewalk sweeping. Town will use CMRSWC Salt/Sand Application Benchmarking Tool to review snow removal operations. Town will use CMRSWC integrated mapping and inspection forms to conduct catch basin inspection and cleaning operations.
28 Revised	Develop & implement maintenance schedules – BMPs.	Upton DPW	Implement annual BMP maintenance program.	Upton DPW and Conservation Commission have been active in addressing private BMP neglect.	Maintenance of BMPs by Upton DPW is a challenge that will be addressed in Year 11.
29 Revised	Develop & implement employee training program.	Upton DPW	Implement training program.	Used information gathered from IDDE training in previous permit years to aid in IDDE operations.	Develop training program that will increase employee awareness and aid in IDDE and chloride application reduction using CMRSWC Tools. Consider use of other CMRSWC tools in employee training programs.
30 Revised	Review & Update Town's recycling program.	Upton DPW/ Board of Health/ Board of Selectmen	Review existing program and make recommendations.	Effective as of October 4, 2011, the Board of Health contracted E.L. Harvey to manage the curbside recycling program. Single stream recycling has been introduced.	Create a review committee and conduct review of existing program.

6a. Additions

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7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Continued Efforts – Future Work
Revised	Not Applicable	Not Applicable	Not Applicable	The following Upton water bodies are considered impaired: Mill River, West River, Mill Pond, North Pond, Pratt Pond, and Taft Pond. However, TMDLs have not been developed for any.	Evaluate any TMDLs developed for Upton impaired waters.
Revised					
Revised					
Revised					

7a. Additions

7b. WLA Assessment

Part IV. Summary of Information Collected and Analyzed

Part V. Program Outputs & Accomplishments (OPTIONAL)

Programmatic

Stormwater management position created/staffed	(y/n)	N
Annual program budget/expenditures	(\$)	\$15,000

Education, Involvement, and Training

Estimated number of residents reached by education program(s)	(# or %)	75%
Stormwater management committee established	(y/n)	N
Stream teams established or supported	(# or y/n)	N
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	Y
Household Hazardous Waste Collection Days		
▪ days sponsored	(#)	2
▪ community participation	(%)	20%
▪ material collected	(tons or gal)	NA
School curricula implemented	(y/n)	N

Legal/Regulatory

	In Place Prior to Phase II	Under Review	Drafted	Adopted
Regulatory Mechanism Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination				X
▪ Erosion & Sediment Control				X
▪ Post-Development Stormwater Management				X
Accompanying Regulation Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination		X		X
▪ Erosion & Sediment Control		X		X
▪ Post-Development Stormwater Management		X		X

Mapping and Illicit Discharges

Outfall mapping complete	(%)	100%
Estimated or actual number of outfalls	(#)	72
System-Wide mapping complete	(%)	100%
Mapping method(s)		
▪ Paper/Mylar	(%)	0%
▪ CADD	(%)	0%
▪ GIS	(%)	100%
Outfalls inspected/screened	(# or %)	100%
Illicit discharges identified	(#)	0 (ongoing)
Illicit connections removed	(#) (est. gpd)	0
% of population on sewer	(%)	30
% of population on septic systems	(%)	70

Construction

Number of construction starts (>1-acre)	(#)	0
Estimated percentage of construction starts adequately regulated for erosion and sediment control	(%)	100%
Site inspections completed	(# or %)	100%
Tickets/Stop work orders issued	(# or %)	0
Fines collected	(# and \$)	0
Complaints/concerns received from public	(#)	0

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	100
Site inspections completed	(# or %)	100%
Estimated volume of stormwater recharged	(gpy)	

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	1
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	1
Total number of structures cleaned (Approximate Values)	(#)	770
Storm drain cleaned	(LF or mi.)	None
Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	
Disposal or use of sweepings (landfill, POTW, compost, <i>recycle for sand, beneficial use</i> , etc.)	Recycle, fill	landfill
Cost of screenings disposal	(\$)	12,000

Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	1
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	1
Qty. of sand/debris collected by sweeping	(lbs. or tons)	
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(roadway fill)	landfill
Cost of sweepings disposal	(\$)	10,000
Vacuum street sweepers purchased/leased	(#)	0
Vacuum street sweepers specified in contracts	(y/n)	N

Reduction in application on public land of: (“N/A” = never used; “100%” = elimination)		
▪ Fertilizers	(lbs. or %)	
▪ Herbicides	(lbs. or %)	
▪ Pesticides	(lbs. or %)	

Anti-/De-Icing products and ratios (Approximate Values)	% NaCl % CaCl ₂ % MgCl ₂ % CMA % Kac % KCl % Sand	None
Pre-wetting techniques utilized	(y/n)	N
Manual control spreaders used	(y/n)	N
Automatic or Zero-velocity spreaders used	(y/n)	Y
Estimated net reduction in typical year salt application	(lbs. or %)	
Salt pile(s) covered in storage shed(s)	One shed used	(y/n)
Storage shed(s) in design or under construction		(y/n)

Summary

The following narrative sections describe the work of the Central Massachusetts Regional Stormwater Coalition (the Coalition) project in Fiscal Year 2012 (FY2012), which covered the period of May 2012 through the end of March 2013, entirely within Year 10 of the 2003 Massachusetts Small Municipal Separate Storm Sewer System (MS4) Permit.

The Coalition work in FY2012 was funded by a \$310,000 Community Innovation Challenge (CIC) grant from the Massachusetts Executive Office of Administration and Finance. The 13 FY2012 Coalition communities included Auburn, Charlton, Dudley, Holden, Leicester, Millbury, Oxford, Paxton, Shrewsbury, Spencer (which served as the lead community), Sturbridge, Webster, and West Boylston.

The Coalition applied for \$200,000 in additional funding from the CIC Grant program to continue the regional stormwater program in Fiscal Year 2013, which would allow 17 additional communities to join the Coalition. The 17 communities identified in the FY2013 proposal include Boylston, Grafton, Hardwick, Monson, New Braintree, Northbridge, Northborough, North Brookfield, Palmer, Princeton, Rutland, Southbridge, Sterling, Upton, Ware, Westborough, and Wilbraham. The Coalition received an award of \$115,000 in FY2013 grant funds, and is currently working to confirm which of the 30 (total) communities are willing and able to make a small financial contribution to fund the gap between scope of work and the grant amount. It is expected that most of the 30 communities will make this commitment.

The work includes numerous technical tasks completed by the member communities, as facilitated by the consulting firm of Tata & Howard, Inc., as well as a number of purchases funded with the grant monies. The FY2012 effort included 13 meetings of the Coalition Steering Committee, four training sessions, and a presentation by Thelma Murphy (USEPA Region 1) on February 6, 2013. Two members of the Coalition Steering Committee (from Charlton and Millbury) presented the work of the project at the January 2013 Annual Meeting of the New England Water Environment Association. The group is actively engaged with other water quality organizations and is committed to sharing the knowledge it has developed for the benefit of other communities.

In the following sections, descriptions of the technical tasks and purchases made possible by the CIC grant funding have been separated into sections that mirror the six Minimum Control Measures (MCM's) in the 2003 Massachusetts Small MS4 Permit.

The exception to this organization is one of the more innovative tools developed by the Coalition in Year 10: an integrated mapping and inspection database. The database is cloud-based, and can be accessed by all 13 member communities through a desktop or tablet computer. Existing mapping completed by the 13 member communities was converted to a project standard format and uploaded to a single online map, so that the communities can see each other's stormwater collection system. This tool represents the essence of the Coalition project's message, which is that stormwater is regional- it doesn't stop at a community boundary. All mapped infrastructure is connected to inspection reports that mirror hard-copy forms developed in the 15 Standard Operating Procedures discussed under MCM 1, below: for example, outfall and catch basin inspections. The developed integrated mapping and inspection system is so comprehensive and flexible that it does not fit into just one of the MCM's. It aids communities with public education and outreach (MCM 1), as surveying is a highly-visible activity that will generate questions, and would make an engaging demonstration to school groups. The integrated mapping and inspection database documents evidence of potential illicit discharges or the absence thereof (MCM 3), aids construction site stormwater control (MCM 4) by allowing for

data evaluation of how much sediment is contained in a sump, and makes good housekeeping (MCM 6) easier by collecting data on how often catch basins are cleaned. Other tasks and tools of the project connect to the integrated mapping and inspection database, which was designed to serve the needs of the Coalition communities well beyond the 2003 Massachusetts Small MS4 Permit.

Minimum Control Measure 1: Public Education and Outreach

The Coalition developed a DVD to be distributed to each member community. The DVD contained a number of materials appropriate for public education and outreach, with materials on a variety of topics. The topics included illicit discharge detection and elimination, management of pet wastes, and appropriate use of fertilizer, among others. The benefit of this delivery format is that the group members can print materials on demand. The Coalition also developed a presentation on stormwater management, with content focused on educating the general public and volunteer groups.

The Coalition purchased 13 copies of the Pennsylvania State University documentary “Liquid Assets,” and distributed a copy to each member community. Most of the Coalition communities intend to play this video on their local cable access channels and at appropriate community events in 2013.

The Coalition purchased 100 water quality monitoring kits from the World Water Monitoring Challenge program (www.worldwatermonitoringday.org), which “builds public awareness and involvement in protecting water resources around the world by engaging citizens to conduct basic monitoring of their local water bodies”. Several communities have already worked with teachers in their local school department or district to do outreach to elementary and middle-school aged students. The kits are being stored in Spencer and Shrewsbury for distribution to the Coalition members.

The Coalition purchased an Enviroscapes table focused on non-point source pollution education (<http://www.enviroscapes.com/nonpoint-source.html>). This tool is a hands-on, visual trainer to demonstrate the importance of good housekeeping and low-impact development for pollution prevention, with the objective of maintaining water quality in our communities. Two communities have done demonstrations for local schools using this tool, and many additional communities plan to use it at local Earth Day or other community fairs in spring and summer 2013.

The Coalition developed an educational website, www.CentralMAStormwater.org, focused on providing information about the project to a number of audiences, including the general public, educators, and kids. Five members of the Coalition Steering Committee received training on how to update the website’s content.

Minimum Control Measure 2: Public Involvement and Participation

The Coalition developed a presentation on stormwater management, with content focused on educating elected officials and municipal department heads about the requirements of the 2003 Small MS4 Program, changes likely in the anticipated new Small MS4 Permit, and the financial impact these potential changes may have on Massachusetts communities.

Minimum Control Measure 3: Illicit Discharge Detection and Elimination

The Coalition developed SOP 10, “Locating Illicit Discharges,” intended to define the types of illicit discharges that may be observed in the Coalition communities and provide guidance on

tools that can be used to identify each. SOP 10 includes an Illicit Discharge Incident Tracking Sheet.

The Coalition also developed the Illicit Discharge Detection and Elimination (IDDE) Documentation Packet, which specifies how illicit discharges are detected and what department or person is responsible for ensuring elimination. This issue remains a substantial challenge to many MS4 communities. Without documentation of the entity responsible for this task for a variety of types of illicit discharge, communities may not satisfy the requirements of the 2003 Massachusetts Small MS4 Permit and may be unprepared for increased IDDE compliance in the new Small MS4 Permit. This deliverable clarified USEPA's minimum IDDE requirements and incorporated appropriate existing IDDE Plans and materials by reference. More importantly, the task provides a framework for people in multiple departments to understand each person's responsibilities, encourage cooperation and communication toward a single objective, and provide templates for documenting observations, actions, and compliance.

The Coalition purchased two Leica surveying devices that can be used to map new structures with very high accuracy, using connection to a military-grade RTK satellite network. The Coalition also purchased 13 tablet computers, one for each member community. Both of these tools can be used to directly access the online mapping and inspection system. The Leica will be most valuable for mapping outfalls, catch basins, pipe, drain manholes, BMPs, and other components of the MS4, while the tablet computers will be most valuable for ongoing inspection of the structures. These two activities serve as the foundation of IDDE. The Coalition purchased portable wireless devices (MiFi) for each of the 13 member communities so that both Leica and tablet computers can be used in the field. Members of all Coalition communities received training on both the Leica devices and the tablet computers during Year 10.

The Coalition purchased several water quality field kits and meters, most of which are focused on identifying illicit discharges and aligned with the field screening parameters expected to be listed in the pending Massachusetts Small MS4 permit. A summary of the water quality tools purchased is below. These tools are available to all 13 member communities.

Analyte or Parameter	Manufacturer	Number Purchased	Product Type*
Ammonia	CHEMetrics	1	Colorimeter
	Hach	3	Field
Surfactants (detergents)	CHEMetrics	1	Colorimeter
	Hach	2	Colorimeter
	CHEMetrics	4	Field Kit
	Hach	3	Field Kit
Fluoride	CHEMetrics	2	Colorimeter
	Hach	1	Colorimeter
Hardness	Hach	2	Colorimeter
pH	CHEMetrics	1	Meter
	Hach	2	Colorimeter
	Hach	2	Meter
	Extech	4	Meter
Chlorine	CHEMetrics	1	Colorimeter
	CHEMetrics	4	Field Kit
Turbidity	CHEMetrics	2	Meter
Total Dissolved Solids	Hach	2	Meter
	Extech	4	Meter
Conductivity	Hach	2	Meter
	Extech	4	Meter

Salinity	Hach	2	Meter
	Extech	4	Meter
Temperature	Extech	4	Meter

*- Some meters, such as the colorimeters and Extech meter, can be used for multiple parameters.

In February 2013, the Coalition began an evaluation of options to serve as a regional stormwater laboratory. It summarized the estimated capital costs to retrofit an existing laboratory at the Town of Millbury’s unused wastewater treatment facility, as well as annual certification, calibration, and labor costs that would be associated with operating that facility. If retrofitted, the laboratory at this site has the potential to serve as a regional stormwater laboratory that may benefit the Coalition and other adjacent communities once the new Massachusetts Small MS4 Permit is finalized, particularly as the new permits will have an increased focus on IDDE. The Cost/Benefit Analysis calculates the approximate fee the regional laboratory would need to charge for services in order to cover the capital and annual cost(s) of maintaining the laboratory. This deliverable compares the potential Millbury regional laboratory with alternatives in the area, including commercial laboratories and the laboratory at the Upper Blackstone Water Pollution Abatement District. This report is presently being finalized.

The Coalition developed a Request for Proposals (RFP) for a third-party firm to perform many of the field or inspection services defined in the 15 SOP’s, including outfall inspection (dry weather and/or wet weather), water quality monitoring, catch basin inspection, and other related tasks. These services are all vital to the effort to identify illicit discharges in the Coalition communities. The work of the RFP will be funded using FY2013 CIC monies. The scope of the RFP will be reviewed and compared to the requirements of the proposed or final Massachusetts Small MS4 Permit in effect at that time.

Minimum Control Measure 4: Construction Site Stormwater Runoff Control

The Coalition developed SOP 6, “Erosion and Sedimentation Control,” intended to help communities minimize discharges from land-disturbing activities. The SOP addresses design, planning, construction, and inspection tools and activities that can serve as BMPs. The SOP also outlines inspection requirements for a variety of constructed BMPs that need to serve a long-term purpose for protecting surface waters from discharge of sediments.

Minimum Control Measure 5: Post-Construction Stormwater Management in New Development and Redevelopment

The Coalition developed a Stormwater Best Management Practices (BMP) Toolbox, compiling the stormwater post-development tools currently permitted and encouraged for small development or redevelopment, specifically single-family homes and limited commercial renovations that have a small development footprint. The Stormwater BMP Toolbox provides technical data, design factors, and construction limitations with these BMPs in non-technical language. The objective was to provide the average property owner with easy-to-understand information that encourages them to select low-impact stormwater management tools for their properties, construct them safely, and maintain them for long-term benefit. The BMPs in the Toolbox are consistent with the requirements of the current Small MS4 Permit, the Massachusetts Stormwater Handbook (February 2008), and other current guidance documents.

Minimum Control Measure 6: Pollution Prevention and Good Housekeeping in Municipal Operations

The Coalition developed a Stormwater Pollution Prevention Plan (SWPPP) template in the form

of a word processing document. The template addresses elements common to all SWPPPs, including storage of materials, site inspection practices, water sampling, training, spill prevention and cleanup, Standard Operating Procedures for a number of activities, and other sections. SWPPP template covers many types of municipal properties. This includes highway department garages and public works yards, where salt is stored and vehicle maintenance or storage is completed, as well as parks, golf courses, and cemeteries, where fertilizers and pesticides may be applied and lawn mowing activities may result in small spills. The SWPPP template includes built-in instructions to make it as simple as possible for each community to develop a SWPPP for a property, simply by deleting text that doesn't apply. Each community also received at least one detailed Site Plan that shows the location of materials storage, vehicle maintenance and other SWPPP-specific activities at a municipal facility, as well as the locations of structures that discharge to the MS4 and the direction of stormwater flow.

The Coalition developed 15 Standard Operating Procedures (SOP's) intended to provide guidance on activities required or encouraged by the 2003 Massachusetts Small MS4 Permit. These SOPs addressed such diverse activities or needs as outfall inspection (both dry weather and wet weather), catch basin cleaning, erosion and sedimentation control, oil/water separator maintenance, use and storage of pesticides and fertilizers, and many more. The group developed standard forms and methodologies for these procedures, many of which were incorporated into the Integrated Online Mapping and Inspection System, described in following paragraphs.

The Coalition developed two presentations on pollution prevention in stormwater management, with content focused on educating employees of public works, engineering, conservation, planning, highway, and other similar municipal departments on the requirements of the 2003 Small MS4 Program. This includes a training presentation on the SWPPP Template and the responsibilities of municipal personnel to implement requirements of the SWPPP. A second training presentation provides explanation and insight on the 15 SOP's described previously.

The Coalition developed a Sump Pump Discharge Policy that provides a framework for the member communities to respond to needs to remove sump pumps from the sanitary sewer system without causing property damage or creating a hazardous condition for the public. The Policy discusses considerations related to potential contamination and reduction in capacity of the storm drain system when sump pumps are permitted to connect to the drainage system, and lays out a situational approach to provide flexibility in administering a policy. The Policy includes guidance for when such a connection should be considered, what information the municipality can request from a residential or commercial property to guide in its decision, and outlines the responsibilities of the property owner.

The Coalition developed a Salt/Sand Benchmarking tool to guide member communities in determining the present loading rate of chloride (per lane-mile) presently applied by its salt trucks and other municipal vehicles, regardless of the compound (e.g.: sodium chloride, green salt, calcium chloride) or form (e.g., solid or liquid, mixed with sand), and in evaluating alternative application methods and materials to current practices. The deliverable guides communities through an equipment calibration process and suggests a target reduction rate that is coupled to and appropriate for the benchmarked loading rate. The objective of this task is to reduce the overall loading of chlorides to surface waters in the region while maintaining safe conditions on roadways.

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The Sump Pump Policy, as well as a Private Drainage Connection SOP (SOP 15), both include technical criteria for a member community to evaluate when considering granting approval to residential and/or commercial users to connect such private drainage into engineered storm drain

systems within the MS4. However, this approach is not effective in areas where no engineered storm drain system exists. In February 2013, the Coalition began to develop a process to connect pieces of data managed by multiple departments within a community for the benefit of all departments. Specifically, the task merges knowledge of areas where high inflow (i.e., sump pumps and drainage connections) to the sanitary sewer has been identified but where no engineered storm drain system exists. This knowledge includes drainage Capital Improvement Plan (CIP) categories and fields to prioritize the extension of the engineered drain system, within the parameters of the Sump Pump Policy and the Private Drainage Standard Operating Procedure, to reduce inflow to the sanitary sewer while protecting surface water quality. This report is presently being finalized.