

**Municipality/Organization:** Northborough, Massachusetts

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**EPA NPDES Permit Number:** MAR041143

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**MassDEP Transmittal Number:** W- 035921

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**Annual Report Number** Year 13  
**& Reporting Period:** April 1, 2015 – March 31, 2016

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## NPDES PII Small MS4 General Permit Annual Report (Due: May 1, 2016)

### Part I. General Information

Contact Person: Frederic E. Litchfield Title: Town Engineer

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Telephone #: (508) 393-5015 Email: flitchfield@town.northborough.ma.us

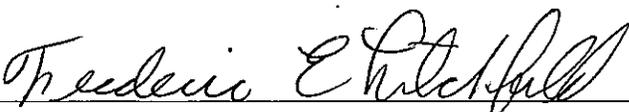
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Mailing Address: 63 Main Street, Northborough, Massachusetts 01532

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#### 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: 

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Printed Name: Frederic E. Litchfield

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Title: Town Engineer

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Date: 4/29/16

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## **Part II. Self-Assessment**

The Town of Northborough has completed the required self-assessment and has determined our municipality is in compliance with all permit conditions, except for the following provisions:

- The outreach methods for BMPs 1c, 1e, 1g, and 1h were modified in permit year 12 and materials posted on the Town's website were maintained in permit year 13.
- Schedule Modifications – schedules for the following BMPs have been modified:
  - BMP 3a 95% of all outfalls and receiving waters within the Town have been field verified. Field verification of the remaining outfalls is ongoing and all outfalls were expected to be field verified during calendar year 2015 however resources were not available to complete that task. A meeting to review the status of outfall mapping and develop a plan for completion is planned for June/July of 2016 in order to prepare a package for outsourcing the remaining work.
  - BMP 7a 99% of all outfalls within the Town which contribute to the Assabet River have been verified. Completion of the outfall mapping was reviewed at a meeting in May 2015, however due to limited resources available no additional progress was made in 2015. A meeting to review the status of outfall mapping which contribute to the Assabet River and develop a plan for completion is planned for June/July of 2016 in order to prepare a package for outsourcing the remaining work.

### ***Notable Accomplishments/Improvements in Permit Year 13:***

In Year 13, the Town of Northborough continued to be an active participant in the Central Massachusetts Regional Stormwater Coalition (the Coalition). An overview of the coalition's activities is provided in Attachment A. The Coalition's work in Year 13 (which overlaps municipal fiscal years 2014 and 2015) was funded by entirely by contributions of approximately \$4,000 from each of the 28 participating towns, including Northborough.

The Town's stormwater webpage was maintained and includes links to the following brochures, handouts and posters:

- After the Storm – EPA brochure
- Construction Best Practices
- Protecting Water from Urban Runoff, Solution to Pollution – EPA brochure
- Think Green with your Stormwater Habits
- Water Efficient Landscaping
- Solution to Pollution – EPA brochure (added in permit year 13)
- Central Massachusetts Regional Stormwater Coalition (added in permit year 13)

The Engineering, DPW and Planning Department web pages have links to the Town's stormwater webpage.

The Town of Northborough was in the planning and design phases of multiple drainage repairs throughout town and site improvements at the Public Works facility during permit year 12 and the following projects were completed in permit year 13:

- Green Street (new drainage installation, deep sump catch basins, and hooded outlets)
- Hudson Street at Silas Drive (drainage improvements)
- Otis Street Crossing – Smith Pond Outlet construction
- Construction of a new Salt Shed at the Public Works facility – replaced a 30 year old building with structural issues
- Installation of a new covered Fuel Island at the Public Works facility with above ground storage tanks – replacing an uncovered fuel island with underground tanks which was also 30 years old
- Site improvements were also made at the Public Works facility to control runoff by installing pavement and curbing in previously unpaved areas

In Permit Year 13 the Town was in the planning stages of numerous culvert repairs throughout the town. The following are listed with their current status:

- Fisher Street – Over Cold Harbor Brook is currently being designed and construction will begin when funding is available.
- Hudson Street near Solomon Pond (This drainage improvement project is listed on the Town's Capital Improvement Program)
- Church Street - Over Cold Harbor Brook is designed, bid out and funding was secured at the 2016 Annual Town Meeting with construction anticipated to begin in July of 2016

### 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 13	Planned Activities – Next Permit Term
1a Revised	Distribute/Post Nonpoint Source Pollution Posters	Engineering Department	Post in all schools and Town Buildings	Posters were maintained in each of the municipal buildings (Town Hall, Library, Fire, Police and Senior Center).	Maintain posters as necessary.
1b Revised	Air Stormwater Message on Local Cable Channel	Engineering Department	Post one message every month	The following stormwater messages were aired on local cable channels: - “After the Storm” video – last played on April 16, 2014 - “Reigning in the Storm” – last played on April 16, 2014	Additional dates have been added for permit year 14 with each video to be aired once every other month throughout the year.
1c Revised	Obtain and Distribute auto repair shop brochures Post brochures on the Town website	Engineering Department	Distribute to all impacted local businesses	Brochures were available on the Stormwater webpage, but not distributed due to budget constraints for printing and mailing.	Maintain flyers on the Town website. A list of businesses is being worked on and a mailing is expected to take place during permit year 14.
1d Revised	Add Stormwater information to Town’s website	Engineering Department and GIS Manager	Update information quarterly to address seasonal concerns	As discussed in “Notable Accomplishments,” the website was maintained with links to stormwater information.	Continuously maintain stormwater links.
1e Revised	Stormwater flyer to community residents Post flyers on the Town website.	Engineering Department and SuAsCo Watershed Community Council	Flyer distributed to 75% of residents and compiled and considered municipal and multi-watershed-wide “survey” results	A stormwater flyer is available on the Town website. The Town determined that this is the most feasible option at this time for flyers. Due to the manner in which bills are sent out, it is not feasible to insert materials with sewer or water bills.	Maintain flyers on the Town website.

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 13</b>	<b>Planned Activities</b>
If	Stormwater Lesson Plan for Fifth Grade Students	Engineering Department and SuAsCo Watershed Community Council	Develop and distribute lesson plan to implement at the Grade 5 level, and lesson plan is taught in one or more Grade 5 classrooms in the community	The stormwater lesson plan for Fifth Grade Students was created by the SuAsCo Watershed Community Council and previously delivered to the school administrator's office. No significant progress occurred during Year 12 due to curriculum constraints.	Verify that the stormwater lesson plan has been implemented in the school curriculum for the fifth and sixth grade.
Revised					
Ig	Stormwater Flyer to Community Businesses	Engineering Department and SuAsCo Watershed Community Council	Flyer distributed to minimum of 50% of businesses in municipality, and stormwater logo displayed by one-half of businesses receiving the flyer	The stormwater flyer for community businesses was added to the Town webpage during Permit Year 11 and maintained on the Town website during Permit Year 12.	Maintain flyers on the Town website.
Revised	Post flyers on the Town website.				
Ih	Stormwater Media Campaign	Engineering Department and SuAsCo Watershed Community Council	Media Information packet delivered to the local media, and 4 press releases generated and issued to local media and major media outlets	As discussed in "Notable Accomplishments," media information was maintained on the stormwater page, which can be accessed through the Engineering, DPW and Planning Department websites.	Media information will be distributed as staff time allows in the future and additional links that are found to be relevant will be added to the Town website when available.
Revised	Post media information on the Town website				

ii	Stormwater Video	Engineering Department and SuAsCo Watershed Community Council	Show stormwater video at a minimum of one public meeting, and air stormwater video at least once on local cable station	The stormwater video and power point presentation was completed by the SuAsCo Watershed Community Council and was delivered to the local cable access channel and aired as discussed in BMP 1B. The stormwater video "After the Storm" was not able to be shown at the Conservation Commission meeting during the permit year but will be considered for the next permit year.	Continue to broadcast and show videos at public meetings.
Revised					

## 2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 13 (Reliance on non-municipal partners indicated, if any)	Planned Activities
2a	Stormwater Traveling Display	Engineering Department and SuAsCo Watershed Community Council	Stormwater display circulates around the community for a minimum of 3 months in permit year #1, and stormwater display is posted at a minimum of 3 different public locations in permit year #1, and stormwater display is also used in future permit years for posting in public places or at stormwater events	The stormwater display was not able to be utilized during town events during permit year 13, but posters were displayed at the Town Hall.	Evaluate opportunities to circulate the stormwater display at future town events. The Stormwater display was set up and monitored by the Town Engineer prior to the start of the Annual Town Meeting on April 25, 2016.
Revised					

2b	Stormwater poster contest for Fifth Grade Students	Engineering Department and SuAsCo Watershed Community Council	Poster contest is held and entries are received, judged and displayed	The information for the stormwater poster contest was previously delivered to the school administrator's office but has not been implemented yet as there was a conflict with schedules and curriculum time constraints.	The Engineering Department staff will continue to contact the School Administration to attempt to have the poster contest inserted into the curriculum in the future.
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BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 13	Planned Activities
2c  Revised	Stormwater Photo Contest for High School Students	Engineering Department and SuAsCo Watershed Community Council Students	Photo Contest is held and entries are received, judged and displayed	No significant progress occurred during the permit year. The information for the stormwater photo contest will be sent again to the School Administrator's office to be possibly included in the Photography Club's future plans.	The photography contest will be requested again in the future as the High School has hired a photography instructor.
2d  Revised	Implement Hazardous Materials Collection Day	Engineering Department	Collect materials from residents one day per year	<p>The Town continues to hold one Household Hazardous Waste (HHHW) Collection event each year and continued to collect metal items and Styrofoam event.</p> <p>The Town also holds an additional event called "Take It or Leave It Day" where residents can swap items that they no longer use for items brought by other town residents. Residents can also bring other recyclables to this event. Both events are advertised in the paper, on cable and on the Town website once the dates are scheduled.</p>	Continue to hold HHHW Collection and "Take It or Leave It Day" events annually.
2e  Revised	Implement an Annual Volunteer Stream Clean-up Day	Engineering Department	Hold stream clean-up day once per year	<p>This permit year, the Spring Cleanup was held on April 23, 2015. ~125 volunteers participated in this event.</p> <p>The fall stream cleanup was held on September 19, 2015. 70 volunteers participated in the cleanup. The Town has noticed that less and less debris is being found in the river over time.</p>	The Town will continue to support the Town cleanup each spring and stream cleanup each fall as the budget allows and volunteers are still available.

### 3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 13	Planned Activities
3a  Revised	Map Outfalls and Receiving Water	DPW Director, GIS Manager *Assistant DPW Director's position has been eliminated	Prepare draft map in 1st year and map 25% of outfalls each following year	Mapping of outfalls continued in permit year 12 to enter information into the Town's GIS data layers with backup hard copy plans. Some of this information was digitized and photos were taken of the outfalls to assist with updating the outfall inventory.  Outfall mapping is 95% complete and a meeting about the status and next steps for outfall mapping occurred in May 2015, but due to limited resources no additional work was done on this task.	Plans are being created to continue field verifying the remaining outfalls, digitizing the rest of the data, and photographing the existing outfalls as resources are available.  Another meeting is scheduled for June/July of 2016 in order to prepare a package for outsourcing the remaining work.
3b  Revised	Review Existing Bylaws and Regulations	DPW, Engineering Department, Planning Department	Determine whether bylaws & regulations meet EPA requirements	In 2008, the Town prepared and approved an Illicit Discharge, Detection and Elimination bylaw in Article 30.	Completed.
3c  Revised	Develop Illicit Discharge Detection & Elimination Plan	DPW, Engineering Department, Planning Department	Make recommendations for plan & begin implementation by the fourth permit year	An Illicit Discharge Detection & Elimination Plan was created using the Coalition created template plan which has been reviewed by the Town. The Town plans to utilize this template for future outfall inspections.	Focus on mapping the remaining outfalls using the Coalition template.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 13	Planned Activities
3d  Revised	Develop/Modify General Illicit Discharge Bylaw	DPW, Engineering Department, Planning Department	Propose recommendations for developing a new bylaw or modifying the existing bylaw & make presentations for Town Meeting action	An illicit discharge bylaw was developed in year 4 and adopted at Town Meeting in year 5.	Completed
3e  Revised	Incorporate Information on Illicit Discharges into Public Education and Outreach Topics	DPW, Engineering Dept., Planning Dept.	Materials posted on the Town website	Information discussing stormwater impacts is available on the Town's stormwater webpage.	Continue to update the stormwater webpage to include additional information related to illicit discharges.
3f  Revised	Setup and Advertise a Method for the Public To Report Illicit Discharges	DPW, Engineering Dept., Planning Dept.	Method established and log of complaints and action taken.	<p>Various departments in Town receive calls regarding illegal dumping and potential illicit discharges. No calls were received regarding illicit discharges during the permit year. The DPW webpage has a link for the public to report a problem related to a variety of issues in Town, including illegal dumping and illicit discharges.</p> <p>The Town responded to calls related to solid waste dumping and addressed the issues.</p>	<p>Formally establish an illicit discharge hotline and advertise on the Town's stormwater webpage.</p> <p>Funds to establish a dedicated phone line are not available and therefore the Town will continue to take calls in various departments and respond accordingly.</p>

#### 4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 13	Planned Activities
4a	Review Existing Regulations, Monitoring and Enforcement Measures	DPW, Engineering Department, Planning Department	Determine whether required EPA requirements are met	This item was previously completed.	
4b	Develop/Modify Regulations, and Monitoring & Enforcement Measures	Department of Public Works, Engineering Department	Propose recommendations for modifying existing regulations & practices	All existing bylaws and regulations were reviewed and found to be adequate with minor revisions by each Board or Committee.	This item has been completed.
4c	Present New Regulations for Town Meeting Action	DPW, Engineering Department, Planning Department	Make presentations for Town Meeting action	No Town meeting action is required at this time.	Continue to review and present new regulations for Town Meeting action, as necessary.
4d	Establish a procedure for receipt of information submitted by the public.	DPW, Engineering Dept., Planning Dept.	Number of phone calls and record of follow up actions	The DPW typically receives phone calls regarding construction sites and investigates them or forwards the information to the appropriate Town department.  Some calls were received during the permit year.	Continue to address issues identified by the public and post the information on the stormwater webpage for reporting.
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 13	Planned Activities
5a	Review Existing Regulations, and Monitoring & Enforcement Measures	DPW, Engineering Department, Planning Department	Determine whether required EPA requirements are met	All existing bylaws and regulations were previously reviewed and found to be adequate with minor revisions by each Board or Committee.	This item has been completed.
5b	Develop/modify Regulations, and Monitoring & Enforcement Measures	DPW, Engineering Department, Planning Department	Propose recommendations for modifying existing regulations & practices	All existing bylaws and regulations were previously reviewed and found to be adequate with minor revisions by each Board or Committee.	This item has been completed.
5c	Present New Regulations for Town Meeting Action	Engineering Department, Planning Department	Make presentations for Town Meeting action	No Town meeting action is required at this time.	This item has been completed.

**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 13	Planned Activities
6a	Implement Street Sweeping Program	Department of Public Works	Sweep every street once per year	The DPW sweeps all streets within the town once per year with some streets being swept additionally as needed based on the accumulation of material.	Continue to sweep streets annually and as needed.
6b	Implement Catch Basin Cleaning Program	Department of Public Works	Clean & Inspect all catch basins within five year permit cycle	Approximately 75% of all catch basins were cleaned. Budget constraints prevent cleaning of all catch basins.	Catch basin cleaning program continues with some work done by DPW, as well as some work being done by contractors.
6c	Perform Site Visits to Examine Existing Practices at Facilities	Department of Public Works, Engineering Department	Target all applicable municipal facilities and visit each annually	Informal site visits are performed at each municipal facility annually.	Maintain annual site visits.
6d Revised	Train Municipal Employees at Each Facility	Department of Public Works, Engineering Department	Target all applicable municipal facilities and provide annual refreshers	An informal training session for winter road maintenance (i.e., proper salt application) was completed for the 2014/2015 winter. Stormwater training for municipal employees scheduled for summer 2015 did not occur due to funding limitations and will occur in 2016 if funding allows.	Conduct municipal employee training and maintain annual refreshers.
6e	Perform Follow-ups to Ensure Required Practices are Met	Department of Public Works, Engineering Department	Target all applicable municipal facilities and visit each annually	Follow-up visits are performed as necessary.	Maintain follow-up visits as necessary.
6f Revised	Ensure Proper Maintenance of the Storm Drain System	Department of Public Works, Engineering Department	Record of repairs and improvements to the storm drain system	As discussed in Part II, numerous repairs and improvements will be/are being designed and/or constructed.  Routine maintenance of drainage structures is performed as part of the pavement management plan.	Continue to identify maintenance needs and make repairs and improvements to the storm drain system. See the current summary in the noticeable accomplishments section.

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

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 13</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities</b>
7a  Revised	Prioritize Stormwater System Mapping Along the Assabet River	DPW, GIS Manager	Map outfalls discharging to the Assabet River by the fourth permit year	All outfalls continue to be mapped on the Town’s GIS system with the backup paper copies.	Volunteers and/or staff will continue to be utilized to locate all outfalls and prepare a map layer as part of our GIS system as time and budget allow. The goal is to continue field verifying the remaining outfalls as resources are available.
7b  Revised	Perform Dry Weather Inspections of Outfalls Along the Assabet River	DPW, GIS Manager	Inspect outfalls discharging to the Assabet River during dry weather by the fifth permit year	Due to continued budget constraints outfalls are inspected only as needed by the DPW.  Photos of outfalls have been taken as well as some digitizing of information.  DPW developed a form to evaluate conditions for each outfall.	Once all outfalls are located by GPS and shown on the Town’s GIS system they will each be inspected annually as staff time and budget allow.

**7b. WLA Assessment**

This will be evaluated once the MS4 permit is reissued.

**Part IV. Summary of Information Collected and Analyzed**

See Part II for a description of notable accomplishments.

**Part V. Program Outputs & Accomplishments (OPTIONAL)**

**Programmatic**

	(Preferred Units)	Response
Stormwater management position created/staffed	(y/n)	N
Annual program budget/expenditures	(\$)	~\$21,000 (Engineering)
Total program expenditures since beginning of permit coverage	(\$)	~\$163,000 (Engineering)
Funding mechanism(s) (General Fund, Enterprise, Utility, etc)		General Fund

**Education, Involvement, and Training**

Estimated number of property owners reached by education program(s)	(# or %)	100% (website)
Stormwater management committee established	(y/n)	N
Stream teams established or supported	(# or y/n)	1 (OAR)
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	Y
Shoreline cleaned since beginning of permit coverage	(mi.)	Assabet*
Household Hazardous Waste Collection Days		
▪ days sponsored	(#)	1
▪ community participation	(# or %)	
▪ material collected	(tons or gal)	
School curricula implemented	(y/n)	N

\*cleanup was limited to the shoreline that is accessible to public.

## Legal/Regulatory

	In Place Prior to Phase II	Reviewing Existing Authorities	Drafted	Draft in Review	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
▪ Erosion & Sediment Control	X				
▪ Post-Development Stormwater Management	X				

## Mapping and Illicit Discharges

	(Preferred Units)	Response
Outfall mapping complete	(%)	95%
Estimated or actual number of outfalls	(#)	300
System-Wide mapping complete (complete storm sewer infrastructure)	(%)	95%
Mapping method(s)		
▪ Paper/Mylar	(%)	
▪ CADD	(%)	
▪ GIS	(%)	100%
Outfalls inspected/screened	(# or %)	0%
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	0%
Illicit discharges identified	(#)	0
Illicit discharges identified (Since beginning of permit coverage)	(#)	0
Illicit connections removed	(#); and (est. gpd)	0
Illicit connections removed (Since beginning of permit coverage)	(#); and (est. gpd)	0
% of population on sewer	(%)	30%
% of population on septic systems	(%)	70%

## Construction

	(Preferred Units)	Response
Number of construction starts (>1-acre)	(#)	4
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 (for proper BMP installation & operation) completed	(# or %)	100%
BMP maintenance required through covenants, escrow, deed restrictions, etc.	(y/n)	Y
Low-impact development (LID) practices permitted and encouraged	(y/n)	Y

## Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	1/yr
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	1/yr
Qty. of structures cleaned	(#)	1,000
Qty. of storm drain cleaned	(%, LF or mi.)	0
Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	72.82 Tons
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.)	(location)	Landfill

**Operations and Maintenance (con't.)**

Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)	(\$)	\$20,000
• Hourly or per basin contract rate	(\$/hr or \$ per basin)	\$17.50
• Disposal cost	(\$)	\$15,000
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	1
• Vacuum truck(s) owned/leased	(#)	0
• Vacuum trucks specified in contracts	(y/n)	N
• % Structures cleaned with clam shells	(%)	100%
• % Structures cleaned with vector	(%)	0%

	(Preferred Units)	Response
Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	1/yr
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	1/yr
Qty. of sand/debris collected by sweeping	(lbs. or tons)	1176.87 Tons
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)	Landfill
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)	(\$)	\$65,000
• Hourly or lane mile contract rate	(\$/hr. or ln mi.)	
• Disposal cost	(\$)	
Sweeping Equipment		
• Rotary brush street sweepers owned/leased	(#)	2
• Vacuum street sweepers owned/leased	(#)	0
• Vacuum street sweepers specified in contracts	(y/n)	0
• % Roads swept with rotary brush sweepers	%	100%
• % Roads swept with vacuum sweepers	%	0

### Operations and Maintenance (con't.)

Reduction (since beginning of permit coverage) in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	NA
▪ Herbicides	(lbs. or %)	NA
▪ Pesticides	(lbs. or %)	NA
Integrated Pest Management (IPM) Practices Implemented	(y/n)	N

	(Preferred Units)	Response
Average Ratio of Anti-/De-Icing products used (also identify chemicals and ratios used in specific areas, e.g., water supply protection areas)	% NaCl % CaCl <sub>2</sub> % MgCl <sub>2</sub> % KCl % Sand	100%
Pre-wetting techniques utilized	(y/n or %)	0%
Manual control spreaders used	(y/n or %)	2/7*
Zero-velocity spreaders used	(y/n or %)	5/7*
Estimated net reduction or increase in typical year salt/chemical application rate	(±lbs/l <sub>n</sub> mi. or %)	0%
Estimated net reduction or increase in typical year sand application rate	(±lbs/l <sub>n</sub> mi. or %)	NA
% of salt/chemical pile(s) covered in storage shed(s)	(%)	100%
Storage shed(s) in design or under construction	(y/n or #)	N
100% of salt/chemical pile(s) covered in storage shed(s) since May 2008	(y/n)	Y
*2 out of 7 spreaders have manual controls and the remaining spreaders (5) have automatic (zero-velocity) spreaders. The Town has noticed a reduction in the salt application rate through the use of automatic spreaders. Salt is stored in a shed and the new salt storage shed construction was completed during permit year 13.		

### Water Supply Protection

Storm water outfalls to public water supplies eliminated or relocated	# or y/n	0
Installed or planned treatment BMPs for public drinking water supplies and their protection areas	# or y/n	NA
Treatment units induce infiltration within 500-feet of a wellhead protection area	# or y/n	

**Attachment A**  
**Central Massachusetts Regional Stormwater Coalition**  
**Overview of Year 13 Activities – Northborough MA**

**Central Massachusetts Regional Stormwater Coalition  
FY2014/2015 Overview of Activities  
Year 13: April 1, 2015 – March 31, 2016**

In Year 13, the Town of Northborough continued to be an active participant in the Central Massachusetts Regional Stormwater Coalition (the Coalition). The Coalition's work in Year 13 (which overlaps municipal fiscal years 2014 and 2015) was funded entirely by contributions of approximately \$4,000 from each of the 28 participating Towns, including Northborough.

*Overview of the Coalition*

The FY2014/2015 Coalition included 28 towns: Auburn, Boylston, Charlton, Dudley, Grafton, Hardwick, Holden, Hopkinton, Leicester, Millbury, Northborough, Northbridge, Oxford, Palmer, Paxton, Rutland, Shrewsbury, Southbridge, Spencer, Sterling, Sturbridge, Upton, Uxbridge, Ware, Webster, West Boylston, Westborough, and Wilbraham. The Coalition was officially formed in FY2012 with 13 members, expanding to 30 in FY2013. The FY2016 Coalition will be comprised of 31 towns with the recent additions of Framingham, Lunenburg, and Marlborough.

The Year 13 work of the Coalition focused on implementation and preparation.

- The implementation aspects included eight hours of one-on-one time, in which each member was provided with dedicated time from consultants that could be used for whatever was most needed. The Town of Northborough asked for a review and update of their Illicit Discharge Detection and Elimination (IDDE) Plan.
- The preparation aspects included work to both understand the technical components of the pending (at the time) Massachusetts MS4 Permit as well as how they will continue to afford the new Permit.
  - The group hosted a September 3, 2015 workshop by Keith Readling of Raftelis Financial Consultants, who has assisted more communities develop a stream of dedicated funding for stormwater management than anyone else. The objective was not to force the concept of a "stormwater utility", but to get community leaders thinking of stormwater funding as an enterprise, similar to how many already manage sanitary sewer funds. The Town Engineer attended this workshop on September 3, 2015.
  - The Coalition continues work on a Stormwater Program cost assessment for member towns, with most already being delivered. This task looks at what the community is actually spending on stormwater management, including staff labor (across many departments and positions), operations and maintenance, equipment costs (rental and depreciation), and third party vendors and consultants. The Town of Northborough is still working on preparing this assessment.

On April 15, 2015, a meeting of all member communities was held in Charlton, MA to develop a potential scope for FY2016 and determine how the group would be funded and administered going forward. The Town Engineer attended this workshop on April 15, 2015.

*The Coalition's Partnerships in Central Massachusetts*

The Coalition continues to be actively engaged with many water quality agencies and organizations and is committed to sharing the knowledge it has developed for the benefit of other communities. These efforts are discussed in following sections as they relate to the following organizations:

- Massachusetts Department of Environmental Protection (MassDEP)
- United States Environmental Protection Agency (USEPA)
- Other Massachusetts Stormwater Coalitions
- New England Water Environment Association (NEWEA)
- Massachusetts Municipal Association (MMA)

Additional organizations and entities are mentioned elsewhere throughout this Annual Report, reflecting the wide network of knowledge and experience that the Coalition has tapped into.

*Massachusetts Department of Environmental Protection (MassDEP)*

The Coalition continued its partnership with the MassDEP in FY2014/2015, most recently announcing the receipt of a \$50,000 Stormwater Technical Assistance grant from the department. This grant will be used to develop training elements and outreach tools that target new or expanded elements in the new permit, and that can be used by communities across the Commonwealth.

MassDEP staff continue to attend CMRSWC Steering Committee events and make themselves available for technical assistance. The Coalition appreciates the ongoing dedication of MassDEP to work with our members so closely and collaboratively.

In FY2016, the CMRSWC hopes to develop another Interactive Qualifying Project (IQP) with students from the Worcester Polytechnic Institute (WPI). One potential concept for a FY2016 project is to work with MassDEP stormwater and solid waste staff to develop a streamlined method to determine appropriate beneficial reuse of street sweepings and/or grit from catch basin cleaning activities, thereby turning a material that can be costly to dispose into a source of revenue to our members.

*United States Environmental Protection Agency*

The Coalition continued collaboration with technical assistance staff in USEPA Region 1, with the goal of benefiting from knowledge and experience of the agency's staff and from its network. We appreciate the support of these agency staff, and believe this positive communication resulted in some modifications to the new MA MS4 permit (released on April 4, 2016) that make it more reasonable while still benefiting and protecting water quality.

#### *Other Massachusetts Stormwater Coalitions*

The Coalition continues to coordinate with “sister” groups with a similar stormwater focus. These include:

- The Merrimack Valley Stormwater Collaborative (coordinated by the Merrimack Valley Regional Planning Commission);
- The Neponset Stormwater Partnership (coordinated by the Metropolitan Area Planning Council and the Neponset River Watershed Association);
- The Northern Middlesex Stormwater Collaborative (coordinated by the Northern Middlesex Council of Governments);
- The Connecticut River Stormwater Committee (through the Pioneer Valley Planning Commission); and
- The Southeastern Massachusetts Stormwater Collaborative (coordinated by the Southeastern Regional Services Group)

Many members of these groups were invited to attend the September 2015 stormwater funding workshop, and the facilitators of these different collaboratives have made the effort to inform the other groups of events they’re hosting.

Importantly, these separate regional groups met twice in Year 13 (June 23, 2015 and September 17, 2015) to compare notes on activities in progress and share ideas on future collaborations. This statewide partnership will be expanding in Year 14.

#### *Massachusetts Municipal Association (MMA)*

Members of the Coalition have been active in the MMA for years, including Robin Craver, Town Administrator for Charlton, MA and an active Coalition leader, who is the Chair of MMA’s Policy Committee on Energy and the Environment. This Committee formulates policy related to stormwater, water quality, water supply, wetlands, coastal areas, and other related environmental issues and represents a way for the Coalition to learn from (and share) ideas around the Commonwealth.

#### *Tasks Included in this Annual Report*

In the following sections, descriptions of the technical tasks and resources performed by the CMRSWC in Year 13 have been separated into sections that mirror the six Minimum Control Measures (MCM’s) in the 2003 Massachusetts Small MS4 Permit.

One of the more innovative tools developed by the Coalition- one that spans across multiple MCM’s- is the integrated online mapping and inspection database, hosted by PeopleGIS. The database is cloud-based, and can be accessed by all 28 member communities through a desktop or tablet computer.

In Year 13, we observed that Coalition members expanded use of this resource, primarily by beginning the process of mapping linear infrastructure (like pipes and culverts) and doing more catch basin inspections using the tools. Both of these tasks are key to preparing to increase mapping and to perform the catchment evaluation process included in the 2016 MA MS4 Permit.

As noted in last year's report, this platform 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 is 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 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. Each of the online forms is fluid- they will continue to be revised, as needed, to meet the goals of the Coalition members and future Massachusetts MS4 Permit requirements.

### **Minimum Control Measure 1: Public Education and Outreach**

Year 13 activities included routine meetings of the Coalition's Steering Committee.

In Year 13, the Coalition purchased copies of the "Water Blues, Green Solutions" documentary (<http://waterblues.org/about>) for each member town, on DVD.

An exciting tool for public education continues to be the Coalition's Twitter account, @MAStormH2O. As of the date of this report, the Coalition's account has 96 followers, including other stormwater coalitions around the country. Information tweeted (or retweeted) by the Coalition in Year 13 addressed such water quality topics and issues as:

- Stormwater infrastructure funding
- Nutrient credits and trading
- Sharing public service announcements (PSA's) developed by our member communities and partners
- Impact of leaking sanitary sewers on stormwater and water quality
- Low Impact Development (LID) workshops and training courses held by partners in or near our member communities

Many of our member communities and regional agencies follow @MAStormH2O and retweet our information, greatly expanding the audience reached by the message. We anticipate using this tool in the future to quantify the size of the audience reached by each message, and evaluating the success of the message.

In Year 13, the Coalition expanded its efforts to educate the public and other communities about its work. This includes the following presentations and events, listed in chronological order:

- On May 12, 2015, Robin Craver (Charlton, MA) presented at the 6th Annual Water Resources Strategies Symposium, hosted by the Massachusetts Coalition for Water Resources Stewardship, sharing information on stormwater program costs and ways to create regional efficiencies.
- On May 15, 2015, a Coalition consultant did a presentation to the New England Interstate Water Pollution Control Commission (NEIWPCC) at its Board meeting in Bolton, MA.
- On June 26, 2015, Robin Craver (Charlton, MA) and a Coalition consultant did a presentation to the Central Massachusetts Regional Planning Commission at its Summer Legislative Breakfast, in Worcester, MA.
- On July 13, 2015, a Coalition consultant did a presentation to the National Association of Clean Water Agencies at its Summer Conference in Providence, Rhode Island.
- On November 18, 2015, Robin Craver (Charlton, MA) and a Coalition consultant did a presentation at the “*Community Stormwater Solutions*” conference, hosted at Worcester Polytechnic Institute by the Massachusetts Watershed Coalition.

Several Coalition members chose to use some of their “one-on-one” to expand their efforts on this MCM. Updates will be provided in future Annual Reports.

**Minimum Control Measure 2: Public Involvement and Participation**

In Year 13, Northborough has access to water quality monitoring kits from the World Water Monitoring Challenge program ([www.worldwatermonitoringday.org](http://www.worldwatermonitoringday.org)), purchased by the Coalition in Year 10. These kits “build 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 used this in Year 13 to work with teachers in their local school department or district to do outreach to elementary and middle-school aged students. The kits continue to be stored in Spencer and Shrewsbury for distribution to the Coalition members.

The Coalition continued to expand its educational website, [www.CentralMAStormwater.org](http://www.CentralMAStormwater.org), focused on providing information about the project to a number of audiences, including the general public, educators, and kids which is attached to Northborough’s Engineering page.

**Minimum Control Measure 3: Illicit Discharge, Detection and Elimination**

Several Coalition members chose to use some of their “one-on-one” time to expand their efforts on this MCM. Updates will be provided in future Annual Reports.

**Minimum Control Measure 4: Construction Site Stormwater Runoff Control**

Several Coalition members chose to use some of their “one-on-one” time to expand their efforts on this MCM. Updates will be provided in future Annual Reports.

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

Several Coalition members chose to use some of their “one-on-one” time to expand their efforts on this MCM. Updates will be provided in future Annual Reports.

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

Several Coalition members chose to use some of their “one-on-one” time to expand their efforts on this MCM. Updates will be provided in future Annual Reports.

***Coalition Activities in Year 14 (April 1, 2016 – March 31, 2017)***

The following are some, but not all, of the work presently underway by the Coalition in Year 14:

- *Administration.* The long-term goal of the Coalition has always been to be self-sustaining, and this was made a reality in Year 13. The Coalition’s Steering Committee drafted a bylaw in Year 13 that will govern how the group makes future decisions. The group will add three new communities in Year 14, continuing to be fully self-funded. The Coalition’s leadership is committed to keeping the momentum developed in recent years, and sharing the resources for the improvement of water quality in New England.
- *Funding.* The Coalition maintains a strong network of partners, and will continue to evaluate funding sources that become available, including competitive USEPA grants dedicated to MS4 communities as well as 319 and 604(b) grants appropriate for community-wide water quality projects.
- *Public Outreach and Education.* We are implementing development of training and outreach tools, made possible through a \$50,000 MassDEP Stormwater Technical Assistance grant. We are also considering developing of Coalition-specific outreach materials using FY2016 funding. Finally, the Coalition plans to increase its use of Twitter as a measurable outreach tool.
- *IDDE.* The Coalition is developing competitive pricing for its members that wish to use Environmental Canine Services to perform IDDE screening-level assessments. The catchment delineation tool initially developed during the WPI IQP Fall 2013 project will be revised, modified, finalized, and distributed for use by Coalition towns. The Request for Proposals (RFP) developed in Year 10 (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) will be re-evaluated in Year 14 to match the 2016 MA MS4 Permit. Improving the knowledge of IDDE components by many town departments will likely be a substantial component of FY2016 work.

- *Good Housekeeping.* The Coalition may coordinate an on-site demonstration of calibrating deicing equipment at a member community's highway facility. This active demonstration will provide a real-life example of the benchmarking process developed in Year 10 and encourage members to calibrate their own equipment, with a goal of reducing pounds of chloride per lane mile. The Coalition is in the initial phases of developing an IQP project with Worcester Polytechnic Institute and MassDEP to develop a pilot project for beneficial reuse of catch basin cleaning materials.