

Municipality/Organization: Northborough, Massachusetts

EPA NPDES Permit Number: MAR041143

MassDEP Transmittal Number: W- 035921

Annual Report Number Year 12
& Reporting Period: April 1, 2014 – March 31, 2015

NPDES PII Small MS4 General Permit Annual Report (Due: May 1, 2015)

Part I. General Information

Contact Person: Frederic E. Litchfield **Title:** Town Engineer

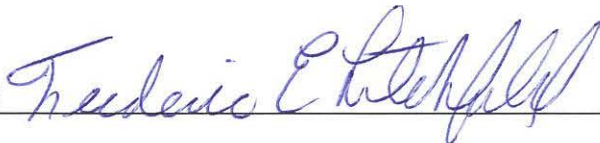
Telephone #: (508) 393-5015 **Email:** flitchfield@town.northborough.ma.us

Mailing Address: 63 Main Street, Northborough, Massachusetts 01532

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: Frederic E. Litchfield

Title: Town Engineer

Date:

5/1/2015

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 and materials were posted on the Town's website.
- 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 are expected to be field verified during calendar year 2015. A meeting to review the status of outfall mapping and develop a plan for completion is scheduled for May 2015.
 - BMP 7a 99% of all outfalls within the Town which contribute to the Assabet River have been verified. Completion of the outfall mapping will be reviewed in May 2015.

Notable Accomplishments/Improvements in Permit Year 12:

In Year 12, the Town of Northborough continued to be an active participant in the Central Massachusetts Regional Stormwater Coalition (the Coalition). A summary of the coalition's activities is provided in Attachment A. The Coalition's work in Year 12 was funded by a \$80,000 fiscal year 2014 (FY2014) Community Innovation Challenge (CIC) grant from the Massachusetts Executive Office of Administration and Finance. This grant was supplemented by a contribution of approximately \$4,000 from each of the 28 participating Towns, including Northborough.

Overview of the Coalition

The FY2014 Coalition included 28 towns: Auburn, Boylston, Charlton, Dudley, Grafton, Hardwick, Holden, Hopkinton, Leicester, Millbury, Monson, Northbridge, Northborough, Oxford, Palmer, Paxton, Rutland, Shrewsbury, Southbridge, Spencer, 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. Its FY2014 work expanded efforts initiated in previous years to comply with requirements anticipated in the new Massachusetts MS4 Permit when it becomes final, which is expected sometime in 2016 or 2017. The Coalition's FY2014 efforts were facilitated by the consulting firms of Tata & Howard, Inc., and Verdant Water, supported by the vendor PeopleGIS. However, the Coalition members themselves continue to be responsible for putting the tools developed by the Coalition into use.

The Coalition was honored as a recipient of the first Annual "Best Stormwater Idea in New England", also known as a STORMY Award (*see image below*). This honor was bestowed by the New England Stormwater Collaborative, a joint effort of the New England Water

Environment Association (NEWEA), the New England Chapter of the American Public Works Association (APWA), and the New England Water Works Association (NEWWA). A representative from the Town of Uxbridge accepted this honor at a ceremony in Worcester, MA on April 1, 2015.

Year 12 activities included routine meetings of the Coalition's Steering Committee, a day-long refresher training workshop (and FY2014 Kickoff Meeting) on October 7, 2014, and a workshop on November 12, 2014 to educate members about the 2014 Draft Massachusetts Small Municipal Separate Storm Sewer (MS4) Permit and identify concerns. Northborough participated in both training workshops, reviewed deliverables, and served other key roles.

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

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

The Town of Northborough hosted "Big Truck Day" on May, 31st 2014. Big Truck Day was a town-wide educational event where residents brought their families to learn about DPW equipment and how it works.

The Town of Northborough is in the planning and design phases of multiple drainage repairs throughout town. The following repair needs were identified permit year 12 and will be completed in the future as funding and resources are available:

- Green Street (new drainage installation, deep sump catch basins, and hooded outlets)
- Hudson Street at Silas Drive (drainage improvement)
- Hudson Street near Solomon Pond (drainage improvement with funding currently in place)
- Silas Drive (drainage improvement with funding currently in place)

In Permit Year 11 the Town was in the planning stages of numerous culvert repairs throughout the town. The following have been listed with their current status:

- Otis Street Crossing – Smith Pond Outlet construction is starting April 28th, 2015.
- Church Street – Over Cold Harbor Brook finished design in permit year 11, but project is awaiting funding for construction.
- Fisher Street – Over Cold Harbor Brook is currently being designed and construction will begin when funding is available.

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 12	Planned Activities – Next Permit Term
1a	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.
Revised					
1b	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 – played on April 16, 2014 - “Reigning in the Storm” – played on April 16, 2014	Consider broadcasting stormwater messages throughout the year.
Revised					
1c	Obtain and Distribute auto repair shop brochures	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.
Revised	Post brochures on the Town website				
1d	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.
Revised					
1e	Stormwater flyer to community residents	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.
Revised	Post flyers on the Town website.				

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12	Planned Activities
1f	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					

1a. Additions

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12	Planned Activities
1g	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.				

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12	Planned Activities
1h	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				
1i	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 12 (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 12, but posters were displayed at the Town Hall.	Evaluate opportunities to circulate the stormwater display.
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.
Revised					

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12	Planned Activities
2c	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 in the future.
Revised					
2d	Implement Hazardous Materials Collection Day	Engineering Department	Collect materials from residents one day per year	The Town continues to hold one Household Hazardous Waste (HHHW) Collection event each year and continued to collect metal items and Styrofoam event.	Continue to hold HHHW Collection and "Take It or Leave It Day" events annually.
Revised				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 advertized in the paper, on cable and on the Town website once the dates are scheduled.	
2e	Implement an Annual Volunteer Stream Clean-up Day	Engineering Department	Hold stream clean-up day once per year	This permit year, the Spring Cleanup was held on April 25, 2014. ~125 volunteers participated in this event.	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.
Revised				The fall stream cleanup was held on September 20, 2014. 70 volunteers participated in the cleanup. The Town has noticed that less and less debris is being found in the river over time.	

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12	Planned Activities
3a	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.	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.
Revised				<p>The Town's consultant completed additional mapping in Town and this information was added to the Town's GIS data layer.</p> <p>Outfall mapping is 95% complete and a meeting about the status and next steps for outfall mapping is scheduled for May 2015.</p>	
3b	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.
Revised					
3c	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 not created, but the Coalition created a 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 and then consider to developing an Illicit Discharge Detection & Elimination Plan in the future.
Revised					

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12	Planned Activities
3d	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
Revised					

3a. Additions

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12	Planned Activities
3e	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.	Update the stormwater webpage to include additional information related to illicit discharges.
Revised					
3f	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.	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.	Formally establish an illicit discharge hotline and advertise on the Town's stormwater webpage.
Revised				The Town responded to calls related to solid waste dumping and addressed the issues.	

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12	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.	
Revised					
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.
Revised					
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.
Revised					

4a. Additions

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 12	Planned Activities
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. No calls were received during the permit year.	Continue to address issues identified by the public and post this information on the stormwater webpage.
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 12	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.
Revised					
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.
Revised					
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.
Revised					

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 12	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.
Revised					
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 contracted work.
Revised					
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.
Revised					
6d	Train Municipal Employees at Each Facility	Department of Public Works, Engineering Department	Target all applicable municipal facilities and provide annual refreshers	The Town Engineer attended Coalition workshops on October 7 & November 12, 2014. 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 is scheduled for summer 2015.	Conduct municipal employee training and maintain annual refreshers.
Revised					
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.
Revised					

6a. Additions

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measureable Goal(s)	Progress on Goal(s)- Permit Year 12	Planned Activities
6f	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.	Continue to identify maintenance needs and make repairs and improvements to the storm drain system.
Revised				Routine maintenance of drainage structures is performed as part of the pavement management plan.	

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 12 (Reliance on non-municipal partners indicated, if any)	Planned Activities
7a	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.
Revised					
7b	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.	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.
Revised				Photos of outfalls have been taken as well as some digitizing of information. DPW developed a form to evaluate conditions for each outfall.	

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	(\$)	~\$142,000 (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)	439.17 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 vacor	(%)	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)	465.83 Tons
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)	Landfill
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)	(\$)	\$11,000
• 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 ₂ % MgCl ₂ % 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/ln mi. or %)	30%
Estimated net reduction or increase in typical year sand application rate	(±lbs/ln 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 #)	Y*
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 a new salt storage shed is under construction.		

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
Summary of Year 12 Activities – Northborough MA

Minimum Control Measure 1: Public Education and Outreach

Year 12 activities included routine meetings of the Coalition's Steering Committee, a day-long refresher training workshop (and FY2014 Kickoff Meeting) on October 7, 2014, and a workshop on November 12, 2014 to educate members about the 2014 Draft Massachusetts Small Municipal Separate Storm Sewer (MS4) Permit and identify concerns. The Town Engineer in 2 training workshops, reviewed deliverables, and served other key roles as described in this Annual Report.

An exciting tool for public education that was rolled out in Year 12 is the Coalition's Twitter account, [@MAStormH2O](#). As of the date of this report, the Coalition's account has 67 followers, including other stormwater coalitions around the country. Information tweeted (or retweeted) by the Coalition in Year 12 addressed such water quality topics and issues as:

- Sustainable infrastructure resources
- APWA's Public Works Week outreach activities
- Pet waste management
- Available webinars and training events
- Erosion control practices
- Green infrastructure
- Appropriate fertilizer application
- Environmentally-friendly best management practices for snow and ice control
- Drought and innovative water recycling/reclamation efforts
- Proposed changes to definition of Waters of the US
- USEPA's "WaterSense" program
- The role of public education in developing successful stormwater funding programs.

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 12, 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 16, 2014, Robert McNeil from Millbury, MA and a consultant presented on the Coalition's work at the 5th Annual Water Resources Strategies Symposium, hosted by the Massachusetts Coalition for Water Resources Stewardship in Marlborough, MA, with a presentation entitled "*30 Towns Collaborating for Cost Savings, Efficiency in MS4 Compliance and Water Quality*".

- On August 7, 2015, the Coalition’s outreach to other stormwater coalitions was demonstrated in a presentation entitled “*CMRSWC: Resources to Get the Most out of Your CIC Grant Funding*”, given at the Community Innovation Challenge (CIC) Stormwater Symposium. We were invited by the Massachusetts Executive Office of Administration and Finance to present at this event, which it hosted in Worcester, MA.
- On September 19, 2015, John Woodsmall from Holden, MA gave a presentation called “*MA MS4 Permits: A Municipal Perspective – Implementing Stormwater Programs*” at the Environmental Business Council’s Water Resource Management Program.
- On September 22, 2014, representatives from the Coalition (including Hopkinton, Shrewsbury, and a consultant) attended the Local Government Advisory Committee’s “Protecting America’s Waters” Workgroup, held in Worcester, MA, and commented on the record about the importance of encouraging appropriate long-term maintenance of stormwater Best Management Practices. The Coalition submitted formal comments to the USEPA on its Proposed Rule to clarify the definition of Waters of the United States (WOTUS) in the Clean Water Act.
- On January 24, 2015, the Coalition participated on a panel session entitled “*Underwater: Financing New Regulations*” at MMA’s Annual Meeting in Boston. This session focused on new and established financing tools to ensure compliance with these requirements through means such as property surcharges, stormwater utilities, low-interest loans, principal forgiveness and regional stormwater opportunities.
- On January 26, 2015, the Coalition presented its work in a session entitled “*MS4 Compliance: Common Threads (and opportunities) in New England Permits*” at NEWEA’s Annual Meeting in Boston, MA. This session, which was well-attended, highlighted the tools developed by the Coalition (and other groups) that can be used to provide cost-effective solutions to regional stormwater management challenges.

Northborough has access to the water quality monitoring kits from the World Water Monitoring Challenge program (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 12 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.

Northborough has access to the Enviroscapes models focused on non-point source pollution education (<http://www.enviroscapes.com/nonpoint-source.html>). One model was purchased by the Coalition in Year 10 and the second was purchased in Year 12 with a grant from NEWEA. These tools are hands-on, visual trainers to demonstrate the importance of good housekeeping and low-impact development for pollution prevention, with the objective of maintaining water quality in our communities.

The Coalition continued to expand its educational website, www.CentralMAStormwater.org, focused on providing information about the

project to a number of audiences, including the general public, educators, and kids. The Town created a link on its webpage to incorporate the Coalition's webpage.

Minimum Control Measure 2: Public Involvement and Participation

Northborough has access to several presentations 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 2014 Massachusetts 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 provided training at a workshop on October 7, 2014 on 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. At this same workshop, training was provided on the Coalition's Illicit Discharge Detection and Elimination (IDDE) Documentation Packet, which specifies how illicit discharges are detected and what department or person is responsible for eliminating them. Identifying and removing illicit discharges, and ensuring that they are not reconnected, remains a substantial challenge to many MS4 communities. The October 2014 training workshop included a comprehensive review of many types of illicit discharges, and an interactive discussion with attendees about how several examples would presently be managed in their own community. Many Coalition communities began this inter-community discussion in Year 12, with others planning it for Year 13.

On May 23, 2014, the Town of Millbury hosted a demonstration by Environmental Canine Services (www.ecsk9s.com) and invited Coalition members, MassDEP, and other communities to observe. ECS uses two highly-trained dogs (see photos below) to detect the presence of human sewage (both fecal bacteria and metabolic byproducts) very low levels in water at outfalls and catch basins, without interference from non-human sources of bacteria. This interesting approach represents an accurate, quick, and cost-effective screening tool for locating illicit discharges. Water quality samples were collected to evaluate the observations noted by the dogs. Inspections were documented in the Coalition's online mapping and inspection system, with forms that have been updated to allow our communities to use this innovative approach to IDDE. The Town of Northborough reviewed this service as a possibility for future IDDE activities in Town.

Northborough has access to utilize the two Leica surveying devices (purchased by the Coalition in Year 10) to map new structures with very high accuracy, using connection to a military-grade Real Time Kinematic (RTK) satellite network. In Year 12, Northborough received a new tablet device. The Leica and tablets can be used to directly access the online mapping and inspection system: the Leica is the 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 Leica units rotate between the 28 Coalition communities on a schedule, with formal handoff between Towns documented.

In Year 12, the Coalition purchased new ammonia field kits (CHEMetrics K-1510 kits) and provided two kits to each member community. These were approved by USEPA in Year 11 for stormwater outfall monitoring and are easier to use than ammonia monitoring tools purchased in Year 10. In Year 11, the Coalition began the process of rotating two full sets of water quality kits and meters around the 28 Coalition communities, on a schedule that follows the use of two Leica devices; this rotating schedule continued in Year 12. The objective of this approach was that inspection and mapping activities completed with the Leica may result in a list of outfalls or structures for which screening-level monitoring should be completed. The Coalition provided refresher training on the water quality kits at the workshop on October 7, 2014. The Towns of Millbury and Oxford are hosting the two sets of water quality kits and meters, and have taken responsibility of replacing reagent packets as they become depleted. These resources were made available to the Town of Northborough.

In Year 12, the Coalition finalized a review of industrial facilities located in each member community, including facilities that applied for coverage under the USEPA's Multi-Sector General Permit (MSGP) program, and the compliance status of each. The objective of this activity was to connect data from the two permit programs, consistent with the anticipated 2014 Massachusetts MS4 Permit.

Minimum Control Measure 4: Construction Site Stormwater Runoff Control

Construction activities- including erosion control, stormwater pollution prevention, and appropriate management of waste materials- are covered in the Stormwater Best Management Practices (BMP) Toolbox, development of which began in Year 10 and which was finalized in Year 11. The Stormwater BMP Toolbox was written to inform the general public about the importance of managing private construction projects responsibly. The Coalition provided training on this topic at a workshop on October 7, 2014.

Several Coalition members have chosen to use some of their "one-on-one" time (currently underway; see *Coalition Activities in Year 13* at the end of this narrative) 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

Northborough has access to the Stormwater Best Management Practices (BMP) Toolbox, developed as a Draft in Year 10 and finalized in Year 11. This tool compiles 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, and other current

guidance documents. The Coalition provided training on this topic at a workshop on October 7, 2014.

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

Northborough has access to the Stormwater Pollution Prevention Plan (SWPPP) template in the form of a word processing document. This document was developed in Year 10 and 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. The Coalition provided training on the SWPPP Template at a workshop on October 7, 2014. The 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.

Northborough has access to utilize the 15 Standard Operating Procedures (SOP's) developed by the Coalition in Year 10, and intended to provide guidance on activities required or encouraged by the 2003 Massachusetts Small MS4 Permit. The Coalition provided training on these SOP's at a workshop on October 7, 2014. 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.

Northborough has access to utilize two presentations developed in Year 10 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. The Coalition provided training on how to use these presentations to educate a variety of staff members at a workshop on October 7, 2014. One presentation is focused on using the SWPPP Template and the responsibilities of municipal personnel to implement requirements of the SWPPP, and the second training presentation provides explanation and insight on the 15 SOP's described previously.

Northborough has access to utilize a Sump Pump Discharge Policy developed in Year 10 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 Coalition provided training on the Sump Pump Discharge Policy at a workshop on October 7, 2014. 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.

Northborough considered the Salt/Sand Benchmarking tool developed in Year 10 to guide member communities in calibrating deicing equipment. The Benchmarking tool calculates 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 Town primarily relies upon ground speed control calibration to achieve the target rate for salt applications.