

**Municipality/Organization:** TOWN OF STURBRIDGE

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**EPA NPDES Permit Number:** MAR041240

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**MassDEP Transmittal Number:** W-036131

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

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

### Part I. General Information

**Contact Person:** Greg Morse  
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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:**  \_\_\_\_\_

**Printed Name:** Gregory H. Morse \_\_\_\_\_

**Title:** DPW Director \_\_\_\_\_

**Date:** 5/1/2015 \_\_\_\_\_

## Part II. Self-Assessment

**Part III. Summary of Minimum Control Measures**

**1. Public Education and Outreach**

<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 10</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities</b>
Revised	Community Website	Town Administrator		The Town will continue to work on the Storm Water Management web page.	Town Administrator should assign duties to the Cable Access Production Coordinator
Revised	Newspaper Press Release	Town Administrator	Post Storm Water Mgmt. info on Town website	None	Only one (1) year met.
Revised	Hazardous Waste Collection Day	Board of Health	One press release per year in local newspaper	The Town will continue to hold hazardous waste collection day on the 3 <sup>rd</sup> Saturday 9 months per year. This has been lowered from 12 days due to lack of participation in winter months	9 days a year per new schedule. Lowered from 12 days
Revised	Education Displays	Conservation Commission	Monthly collection days	The Conservation Commission will continue to display educational materials at the Town Hall, at minimum during the summer	Maintain educational materials at the Center Office Building current practice is sufficient.
Revised	Local Cable Access	Town Administrator	Display educational displays at Town Hall	None.	Information Bulletins should be posted for a minimum of one month additionally, seasonally targeted prevention initiatives also. Town Administrator should assign duties to the Cable Access Production Coordinator
Revised	Classroom Education – Recycling	Board of Health	Post related bulletins on the Local Cable Access channel	The BOH will continue this program with different group of students from the elementary school.	Maintain the yearly visits which have been on-going since year one.

	Classroom Education - Storm Water	School Science Department DPW; Conservation Commission; Town Administrator	Participate in Dynamics in Democracy Program	DPW, Conservation Commission and Veolia will continue the site visit programs and support school requests and take on interns.	DPW, Conservation Commission and Veolia will continue the site visit programs and school requests which have been on-going since year one.
Revised					

**1a. Additions**


## 2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 9 (Reliance on non-municipal partners indicated, if any)	Planned Activities
Revised	Adopt-A-Road	DPW; Town Administrator	Initiate Program Maintain Program	One sponsor for Adopt-A-Road Program is in place. Posted signs identify the party on the road. Several residents are working in various spot locations.	Continue to recruit sponsors for the program; document trash collection on roads throughout the year
Revised	Storm Drain Stenciling	DPW	Begin stenciling storm drains	Continue stenciling effort, focusing on new waterways each year.	Maintain existing stenciling and expand as needed.
Revised	Community Clean up <i>Community/River/Trail clean-up day</i>	Conservation Commission; BOH; Town Administrator	Hold annual community clean-up day Maintain Program	Town wide Community Day was held and now sponsored by the Conservation Commission. DPW picks up bagged and bulk material.	Continue Town wide Community Day, trying to increase the number of volunteers each year. DPW picks up bagged and bulk material.
Revised	Adopt-A-Stream	Conservation Commission; DPW	Clean up and survey the Quinebaug River and its Tributaries	Volunteers continue to identify and clean-up spot river/stream at various locations. DPW picks up material as needed.	Continue to clean up spot river/stream locations in various areas.
Revised	Lake & Pond Management Program	Conservation Commission	Develop a Lake & Pond Mgmt. Program to test water quality & document conditions.	Continue effort to test water quality/ document conditions in Town lakes and ponds. The Town will continue to assist Lake Associations with their needs. Annual presentation held.	Continue effort to test water quality/ document conditions in Town lakes and ponds. The Town will continue to assist Lake Associations with their needs. An Annual presentation is held.
Revised	Watershed Organization Meeting	Town Administrator & Conservation Commission	Hold annual meeting w/ Lake associations.	Continue to hold meetings	Continue to hold meetings. Lake Associations frequently identify storm water problems and propose solutions or improvements. The Town supports these initiatives.

**2a. Additions**


### 3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 9 (Reliance on non-municipal partners indicated, if any)	Planned Activities
Revised	Mapping Storm water Outfalls	DPW; Planning Department	Identify Town's outfalls <i>Outfalls mapped. Mapping of Stormwater collection on-going in Urbanized areas of Town</i>	Outfalls identified Tighe & Bond Engineers, Westfield, Ma. Joined the Central Massachusetts Regional Storm Water Coalition (CMRSWC) which includes 30 Towns. Stormwater collection system on-going in all areas of town.	D.P.W. and Town non-municipal partners completed. Add/update new locations as subdivision roads accepted and continue Stormwater collection system mapping
Revised	Non-Storm water Discharge Bylaw	Town Admin.; DPW; Board of Selectman	Evaluate existing bylaw regulations	Storm water Bylaw approved	Update Storm water bylaws as regulations change.
Revised	Develop Illicit Discharge Plan	Town Admin.; DPW	Evaluate existing procedures'	Continue to work on developing Illicit Discharge Plan on-going.	Continue to work on developing Illicit Discharge Plan on-going.
Revised	Illegal Dumping	DPW	Post signs at areas of illegal dumping; remove waste that has been dumped	Monitor problem areas, posting signs where necessary and pick up debris as warranted. One sign replaced year 2014.	Continue to monitor problem areas, posting signs where necessary and pick up debris as warranted.
Revised	Non-Storm water Discharges	DPW	Inspect outfalls yearly to identify illicit connections.	Outfalls are looked at pre-storm and during storms to reduce spot flooding year round and find Illicit connections.	Continue to monitor outfalls pre-storm and during storms to reduce flooding and find Illicit connections.
Revised	DPW Employee Education	DPW	Evaluate existing regulations	Issue reminders and investigate any employee questions.	Issue reminders and investigate any employee questions.

#### 3a. Additions


#### 4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 9 (Reliance on non-municipal partners indicated, if any)	Planned Activities
Revised	Construction Runoff Bylaw	Planning Board Cons. Comm.	Evaluate existing regulations	The Town will continue to review construction plans using the existing regulations.	Follow construction run-off Bylaw adopted on 3/22/2011
Revised	Plan Review	Planning Board Cons. Comm.	Evaluation existing regulations	The Town will continue to review construction plans using the existing regulations.	The Town will continue to review construction plans using the past and new regulations.
Revised	Inspection/Reporting	Planning Board Cons. Comm.	Review construction plans in accordance with existing regulations.	To continue to enforce existing policies and regulations.	Continue to enforce existing policies and regulations.
Revised					
Revised					
Revised					

#### 4a. Additions

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### 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 9 (Reliance on non-municipal partners indicated, if any)	Planned Activities
Revised	Post Construction Runoff Bylaw	Planning Board Cons. Comm.	Evaluate existing regulations	Bylaw and or Regulations written voted and approved	Continue to review and improve bylaw and regulations as needed. Utilize outside help when needed. Homeowners are always encouraged to implement storm water features on their properties to address potential issues.
Revised	Construction Site Plan Review	Planning Board Cons. Comm.	Review construction plans in accordance with existing regulations.	Bylaw and or Regulations written voted and approved.	Continue to review and improve bylaw and regulations as needed. Utilize outside help when needed. Homeowners are always encouraged to implement storm water features on their properties to address potential issues.
Revised	Storm water System Maintenance Plan	Board of Selectman	Require Storm water facility operation and maintenance in accordance with existing regulations	Board of Selectmen continue to enforce existing policies	Board of Selectmen continue to enforce existing policies
Revised					
Revised					

#### 5a. Additions

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## 6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 9 (Reliance on non-municipal partners indicated, if any)	Planned Activities
Revised	Catch Basin Cleaning Program	DPW	Clean all catch basins at least once annually Clean all catch basins every other year (50/50)	50% goal fluctuating but close. Program is not complying with north/south Route 20 demarcation due to needs.	To maintain Catch Basin Cleaning Program
Revised	Street Sweeping Program	DPW	Sweep all Town roads annually	Road sweeping done annually. Problem spots swept again Route 20 & Route 131 sidewalks swept annually.	To maintain Street and Sidewalk Sweeping Program
Revised	Recycling Program	Board of Health	Offer recycling program free of charge to all residents	Only current cost for Recycling is for a mirror hanging tag to enter the facility: First car=Free Second car=Free 3 <sup>rd</sup> car=\$20.00 plus pay as you throw	To maintain Recycling Program:
Revised	Town Composting Program	Board of Health	Offer composting program free of charge to all residents	Only current cost for Town composting is for a sticker to enter the facility if applicable	To maintain Town Composting Program
Revised	Oil Recycling Program	Board of Health	Offer oil recycling program	Only current cost for Oil Recycling is for a sticker to enter the facility if applicable	To maintain Oil Recycling Program
Revised	Trash Program	Board of Health	Provide all residents a free service to dispose of solid waste	MSW (Municipal Solid Waste) pay as you throw One mirror hanging tag free- 2plates/cars Third car=\$20.00 No additional fees.	To maintain a Trash Program Small=\$0.50 per bag Big=\$1.00 per bag *Bags are available at local retailers

### 6a. Additions


**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 9</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities</b>
Revised	TMDL for receiving Water Quinebaug River	The Town	Under several BMP's address the issues.	Continue to address issues under current BMP's.	Continue to address issues under current BMP's. Quinebaug tested on an Annual basis as part of the Towns monitoring program
Revised	TMDL for receiving water Pistol Pond	The Town	Under several BMP's address the issues.	Continue to address issues under current BMP's.	Continue to address issues under current BMP's. Pistol Pond was tested on an annual basis as part of the Towns Lakes Monitoring Program.
Revised	TMDL for receiving water Alum Pond	The Town	Under several BMP's address the issues.	Continue to address issues under current BMP's.	Continue to address issues under current BMP's. Alum Pond tested on an annual basis as part of the Towns Monitoring Program.
Revised					
Revised					
Revised					

**7a. Additions**


**7b. WLA Assessment**

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

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

(Since beginning of permit coverage unless specified otherwise by a \*\*, which indicates response is for period covering April 1, 2011 through March 31, 2012)

**Programmatic**

		Response
Stormwater management position created/staffed	(y/n)	No
Annual program budget/expenditures	(Preferred) \$1,500.00 +/-	\$10,605 +/-
Total program expenditures since beginning of permit coverage	(\$245,450.00	\$298,222.00 +/- labor only
Funding mechanism(s) (General Fund, Enterprise, Utility, etc)		General

**Education, Involvement, and Training**

Estimated number of property owners reached by education program(s)	(# or %)	35% -50% year
Stormwater management committee established	(y/n)	No
Stream teams established or supported	(# or y/n)	No
Shoreline clean-up participation or quantity of shoreline miles cleaned **	(Y/n or mi.)	½ mile year Goal
Shoreline cleaned since beginning of permit coverage	(mi.)	6 miles
Household Hazardous Waste Collection Days		
▪ days sponsored **	(#)	9
▪ community participation **	(# or %)	50-60%

▪ material collected **	(tons or gal)	2000 gallons(yr.)
School curricula implemented	(y/n)	Yes

**Legal/Regulatory**

	In Place Prior to Phase II	Reviewing Existing Authorities	Drafted	Draft 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**

		Response
Outfall mapping complete	(%)	100%
Estimated or actual number of outfalls	(Preferred Units) (#)	368
System-Wide mapping complete (complete storm sewer infrastructure)	(%)	55-60% +/-
Mapping method(s)		
▪ Paper/Mylar	(%)	
▪ CADD	(%)	
▪ GIS	(%)	100% Sept 13
Outfalls inspected/screened **	(# or %)	100%
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	100%
Illicit discharges identified **	(#)	2 last 10yrs
Illicit discharges identified (Since beginning of permit coverage)	(#)	1
Illicit connections removed **	(#); and (est. gpd)	2 gpm/2880gpd

Illicit connections removed (Since beginning of permit coverage)	(#); and (est. gpd)	1/1440 gpd
% of population on sewer	(%)	48%
% of population on septic systems	(%)	52%

### Construction

		Response
Number of construction starts (>1-acre) **	(#)	0
Estimated percentage of construction starts adequately regulated for erosion and sediment control **	(Preferred Units)	100%
Site inspections completed **	(# or %)	40-50 year
Tickets/Stop work orders issued **	(# or %)	0
Fines collected **	(# and \$)	0 Town
Complaints/concerns received from public **	(#)	4 (per month)

### Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	ABOVE
Site inspections (for proper BMP installation & operation) completed **	(# or %)	ABOVE
BMP maintenance required through covenants, escrow, deed restrictions, etc.	(y/n)	No
Low-impact development (LID) practices permitted and encouraged	(Y/n)	Yes

### Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets) **	(times/yr)	50% per year
Average frequency of catch basin cleaning (commercial/arterial or other critical streets) **	(times/yr)	50% per year
Qty of structures cleaned **	(#) 684	1092 (2) years
Qty. of storm drain cleaned **	(%, LF or mi.)	1000-1250LF year
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	1026 tons

Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Landfill
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Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	\$10,464.00 labor only
• Hourly or per basin contract rate **	(\$/hr or \$ per basin)	
• Disposal cost**	(\$)	\$12.50/ ton
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	1 owned
• Vacuum truck(s) owned/leased	(#)	0 owned
• Vacuum trucks specified in contracts	(Y/n)	Yes
• % Structures cleaned with clam shells **	(%)	100%
• % Structures cleaned with vactor **	(%)	0% Drainage 10% Sanitary Sewer structures

		Response
Average frequency of street sweeping (non-commercial/non-arterial streets) **	(times/yr) (Preferred Units)	Once/year plus spot cleaning
Average frequency of street sweeping (commercial/arterial or other critical streets) **	(times/yr)	Once/year plus spot cleaning
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	1,300 tons
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Landfill
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	\$12,208.00
• Hourly or lane mile contract rate **	(\$/hr. or Ln mi.)	N/A
• Disposal cost**	(\$)	\$11.50/ton
Sweeping Equipment		
• Rotary brush street sweepers owned/leased	(#)	1 owned
• Vacuum street sweepers owned/leased	(#)	0 owned
• Vacuum street sweepers specified in contracts	(y/n)	No



• % Roads swept with rotary brush sweepers **	%	100%
• % Roads swept with vacuum sweepers **	%	0%

Reduction (since beginning of permit coverage) in application on public land of: (“N/A” = never used; “100%” = elimination)		
▪ Fertilizers very little used, spot treatment only common and ball fields	(Lbs. or %)	99%+
▪ Herbicides very little used, spot treatment only sidewalk weeds	(Lbs. or %)	99%+
▪ Pesticides	(Lbs. or %)	N/A
Integrated Pest Management (IPM) Practices Implemented	(Y/n)	No

		Response
Average Ratio of Anti-/De-Icing products used **  (also identify chemicals and ratios used in specific areas, e.g., water supply protection areas)	(Preferred Units) % NaCl % CaCl <sub>2</sub> % MgCl <sub>2</sub> % CMA % Kac % KCl % Sand	25%       75%  3:1 ratio
Pre-wetting techniques utilized **	(Y/n or %)	No
Manual control spreaders used **	(Y/n or %)	Yes
Zero-velocity spreaders used **	(Y/n or %)	No
Estimated net reduction or increase in typical year salt/chemical application rate	(±lbs/ln mi. or %)	
Estimated net reduction or increase in typical year sand application rate **	(±lbs/ln mi. or %)	
% of salt/chemical pile(s) covered in storage shed(s)	(%)	100%
Storage shed(s) in design or under construction	(y/n or #)	No
100% of salt/chemical pile(s) covered in storage shed(s) by May 2008	(Y/n)	100% covered since 1980's

## **CMRSWC CIC Grant FY2014 Summary of Activities**

### **Year 12: April 1, 2014 – March 31, 2015**

In Year 12, the Town of Sturbridge, Ma continued to be an active participant in the Central Massachusetts Regional Stormwater Coalition (the Coalition). 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 Sturbridge.

#### *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 vendor PeopleGIS. However, the Coalition members themselves continue to be responsible for putting the tools developed by the Coalition to 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.



Figure 1: CMRSWC's "STORMY Award" for Collaborative Efforts in Stormwater Management

#### ***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, formally including budget in its FY2014 CIC Grant Application to support and assist in development of the stormwater-focused Interactive Qualifying Project (IQP) with four students at the Worcester Polytechnic Institute (WPI). Kickoff for this partnership began in September 2014 with a meeting at MassDEP's office in Worcester, MA. The IQP completed in fall 2014 was the fourth such project the Coalition has done in conjunction with MassDEP and WPI.

This IQP included activities that will benefit all Coalition towns, especially Holden, Millbury, and Southbridge, all of which volunteered for an intensive evaluation. Representatives from these three towns worked with the WPI students to compile a detailed summary of the full cost of their stormwater programs. The cost evaluation was developed in conjunction with the Coalition's consultants, and included not just line items budgeted by public works (or highway) departments, but also staff labor, operations and maintenance tasks, waste disposal fees, reprographics and media, legal counsel, site plan reviews, construction and post-construction inspections, and other tasks. Some of these activities are core components of a town's stormwater program, but may be managed or budgeted by planning departments, conservation commissions, boards of health, code enforcement, or other entities and therefore not generally included in assessments.

The comprehensive report prepared by the WPI IQP students was presented to their university sponsors in December 2014 and can be downloaded at: [www.centralmastormwater.org/pages/CRSC\\_documents/Attachment B WPI Cost Analysis of the 2014 MA MS4 DraftPer.pdf](http://www.centralmastormwater.org/pages/CRSC_documents/Attachment_B_WPI_Cost_Analysis_of_the_2014_MA_MS4_DraftPer.pdf). The findings of this report were also presented by the students to the 495/MetroWest Partnership in spring 2015. The framework used by the WPI students for the cost evaluation features into the ongoing stormwater program cost task discussed under *Coalition Activities in Year 13* (located at the end of this narrative.)

In addition to the stormwater program cost component, the Fall 2014 WPI students performed water quality monitoring in Coalition Communities.

Earlier in Year 12, a different team of WPI IQP students did inspection and mapping work in several Coalition towns, including Upton, MA, shown below, under the supervision of the Towns and consultants. Data from these activities was entered directly into the online mapping and inspection system.



Figure 2: The Coalition's Spring 2014 WPI IQP Student Team Inspecting and Mapping Stormwater Infrastructure in Upton, MA

The Coalition appreciates the ongoing dedication of MassDEP to work with our members so closely and collaboratively.

#### *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.

Many members of the Coalition attended the USEPA's October 2014 workshops on the 2014 Draft Massachusetts MS4 Permit, and several attended the formal public hearing on this draft permit on November 19, 2014 at the Leominster Public Library. At this public hearing, Coalition members spoke about the need for the final Permit to focus on provisions that maintain (and improve) water quality, not those that cause administrative burden without demonstrated benefits. Our comments at this hearing also requested USEPA's assistance in educating community leaders, such as selectmen and Town Administrators, about the increased need for multiple town departments and staff members to work together to comply with expanded provisions, such as illicit discharge detection and elimination (IDDE) and good housekeeping. The Coalition submitted formal comments on the 2014 Draft Massachusetts MS4 Permit, which can be found at [http://www.centralmastormwater.org/pages/CRSC\\_documents/MS4PermitComments](http://www.centralmastormwater.org/pages/CRSC_documents/MS4PermitComments).

The Coalition reached out to USEPA's Newton Tedder to suggest ways to present the drivers of expanded stormwater management to town leaders and decision makers at the "Roofs, Roads, Runoffs and Regulations: New Standards for Treating Stormwater and Drinking Water" session of the Massachusetts Municipal Association's Annual Conference in Boston on January 23, 2015. The approach resulted in an effective update to these leaders (who may be concerned about the scope and financial impacts of the proposed permit)- one that empowered them to serve as stormwater outreach resources in their own communities.

The Coalition continued to communicate with USEPA Region 1's Kyra Jacobs and Gina Snyder during Year 12. Ms. Jacobs is a connection to agency staff who work to protect water resources, and has been a positive advocate of the importance of stormwater management in accomplishing this goal. We will continue to engage with Ms. Jacobs as competitive grants for regional MS4 compliance work may become available from the agency in the near future. Ms.

Snyder has served as an ongoing resource for the Coalition and its consultants about agency resources, most recently the approval of easy-to-use field kits for ammonia, which we purchased and distributed in Year 12. We appreciate the support of these agency staff.

#### *Other Massachusetts Stormwater Coalitions*

The Coalition continues to coordinate with “sister” groups with a similar stormwater focus that are also funded at least in part by CIC Grants. These include:

- The Merrimack Valley Stormwater Collaborative (coordinated by the Merrimack Valley Regional Planning Commission);
- The Neponset Valley Regional Stormwater Collaborative (coordinated by the Metropolitan Area Planning Council); and
- The Northern Middlesex Stormwater Collaborative (coordinated by the Northern Middlesex Council of Governments)

Administrators from each of these groups are invited to attend Coalition Steering Committee meetings. Further, the Coalition coordinated with each of these “sister” coalitions during preparation of its comments on the 2014 Draft Massachusetts Small Municipal Separate Storm Sewer (MS4) Permit to ensure consistency in suggestions and revisions submitted to the US EPA.

Members of the Coalition were invited to attend training sessions the Merrimack Valley Stormwater Coalition hosted in March and April 2015. We shared digital versions of the Coalition’s stormwater inspection forms with both the Neponset Valley Regional Stormwater Collaborative and the Northern Middlesex Stormwater Collaborative, and the latter has also benefitted from the structure of the online mapping and inspection system we developed and implemented in Years 10 and 11.

#### *New England Water Environment Association (NEWEA)*

The Coalition was pleased to receive a \$2,000 competitive grant from the NEWEA Humanitarian Assistance & Grants Committee in September 2014. This grant was used to purchase a second Nonpoint Source hands-on educational EnviroScape model ([www.enviroscapecom/nonpoint-source.html](http://www.enviroscapecom/nonpoint-source.html)) for use by Coalition members (the first was purchased in Year 10 with funds from the first CIC Grant).

The photo below was taken at the Coalition’s October 7, 2014 training workshop for CMRSWC communities, and shows Todd Girard (Conservation Agent in Charlton, MA) demonstrating to other members how the EnviroScape table can be used as an education tool for kids of all ages, as well as adults. This train-the-trainer format increases confidence of our members to do outreach on the topic of stormwater pollution prevention in their own communities.



Figure 3: CMRSWC Members Learn How to Demonstrate Stormwater Pollution Prevention Using the Coalition's Nonpoint Source EnviroScape model

With the purchase of this second model, the CMRSWC can make this popular resource more readily available across the substantial geographic spread of our 28 municipal members. The presence of second unit also allows towns to easily demonstrate the impacts of stormwater pollution and ways to prevent it, showing the resulting differences in water quality when Best Management Practices (BMPs) are installed on one unit, but not on the other unit. One model is stored in Charlton, MA, and the other stored in Shrewsbury, MA to facilitate any member town having easy access to the tool.

The NEWEA grant award exceeded the Coalition's application, so remaining funds will be used to replenish the consumable materials used in the demonstration, including food coloring, baking soda, clay, and sponges.

#### *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 serves on 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.

In Year 12, the Coalition participated on the "Underwater: Financing New Regulations" session at MMA's Annual Conference in Boston on January 24, 2015, discussing how regionalization can be appropriate for stormwater management.

Finally, the Coalition coordinated with MMA during preparation of its comments on the 2014 Draft Massachusetts Small Municipal Separate Storm Sewer (MS4) Permit to ensure consistency in suggestions and revisions submitted to the US EPA.

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

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

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. Below is a screen shot of the platform showing the extent of the 28 Coalition communities.

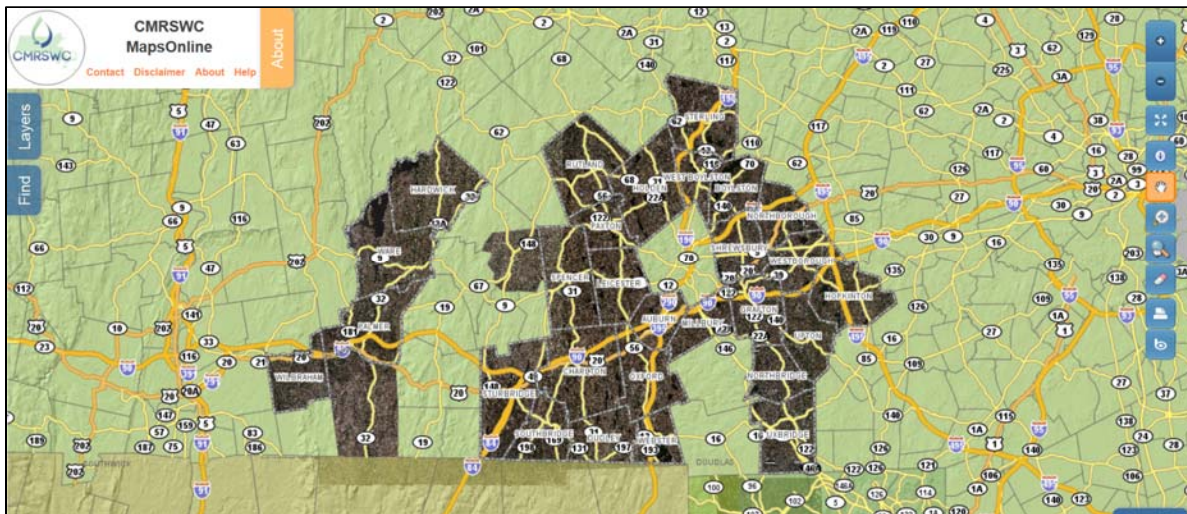


Figure 4: CMRSWC's Online Mapping and Inspection Platform

We were pleased to see the increased use in Year 12 by Coalition members of this resource, both in terms of inspections of existing infrastructure (such as outfalls) and mapping additional infrastructure, such as catch basins and pipe (a linear feature added in Year 11). Newer Coalition communities (those that joined in FY2013) continue to upload GIS shapefiles to the platform, managing their stormwater system infrastructure information in one location.

An investment in Year 12 intended to increase use of the online mapping and inspection platform was the purchase of new Samsung tablet devices for each community that are faster, allowing data to load more quickly than the ASUS tablets purchased in FY2012. We believe that the mapping and inspection tool will be used increasingly as town staff members become comfortable with the platform, realize how easy it is to use, and see how it facilitates compliance and documentation.

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 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. Sturbridge participated in 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.

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.

In Year 12, Sturbridge continued to utilize 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 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.

Sturbridge continued to utilize 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](http://www.CentralMAStormwater.org), focused on providing information about the project to a number of audiences, including the general public, educators, and kids.

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

In Year 12, Sturbridge continued to utilize 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](http://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.



*Figure 5: Environmental Canine Services, LLC,  
Performing a Demonstration of Innovative IDDE Approaches in Millbury, MA*

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.

In Year 12, Sturbridge continued to utilize the two Leica surveying devices (purchased by the Coalition in Year 10) that can be used to map new structures with very high accuracy, using connection to a military-grade Real Time Kinematic (RTK) satellite network. In Year 12, Sturbridge 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, including Sturbridge, 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.

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**

In Year 12, Sturbridge continued to use 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.

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 6: Pollution Prevention and Good Housekeeping in Municipal Operations**

In Year 12, Sturbridge continued to utilize 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.

In Year 12, Sturbridge continued 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.

In Year 12, Sturbridge continued 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.

In Year 12, Sturbridge continued 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.

In Year 12, Sturbridge continued to utilize a 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.

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.

### ***Coalition Activities in Year 13 (April 1, 2015 – March 31, 2016)***

The following are some, but not all, of the work presently underway by the Coalition in Year 13:

- *Administration.* The long-term goal of the Coalition when it formed in FY2012 was to become self-sustaining. The Coalition's Steering Committee has reached out to similar organizations around the country, and is presently evaluating three funding mechanisms. 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. The Coalition plans to finalize its long-term plans in June 2015.
- *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.
- *One-on-One Consulting Time.* As noted previously, each of the 28 Coalition communities has been allocated one-on-one time with the group's consultants. Each town has chosen the MCM or tasks that benefit it most strongly. This may include refresher training on water quality kits and meters, development of public outreach materials, review of stormwater enforcement tools, updates to IDDE Programs, or other related services. This focused effort lets each town optimize its investment in the Coalition.
- *Understanding Stormwater Program Costs.* In Year 13, the Coalition is expanding on the WPI IQP program to quantify the actual (albeit rough) cost of all 28 participants' existing stormwater programs. The current costs will be scaled up to match the anticipated provisions of the future Massachusetts MS4 Permit and will serve as the foundation for ongoing discussions about how each community will fund future stormwater programs. This is the first time many of these towns will have performed a community-wide review of these costs, which tend to be managed within many departments. We will follow this with a focused workshop on mechanisms to develop sustainable stormwater program funding mechanisms.
- *Public Outreach and Education.* Coalition members will present at the 6th Annual Water Resources Strategies Symposium on May 12, 2015, hosted by the Massachusetts Coalition for Water Resources Stewardship, sharing information on stormwater program costs and ways to create regional efficiencies. The Coalition is purchasing copies of the "Water Blues, Green Solutions" documentary (<http://waterblues.org/about>) for each member town, on DVD. We are also considering re-allocating funding to the development of Coalition-specific outreach materials. 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 evaluations. 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 13 if a final Massachusetts MS4 Permit is issued.

- *Good Housekeeping.* The Coalition is coordinating 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 considering approaching MassDEP and USEPA with a proposal to develop a pilot project for beneficial reuse of catch basin cleaning materials, and/or developing such a pilot project through a grant.


**Water Supply Protection**

Storm water outfalls to public water supplies eliminated or relocated	# or y/n	No
Installed or planned treatment BMPs for public drinking water supplies and their protection areas	# or y/n	No
<ul style="list-style-type: none"> <li>Treatment units induce infiltration within 500-feet of a wellhead protection area</li> </ul>	# or y/n	No