

Municipality/Organization: SPENCER, MASSACHUSETTS
EPA NPDES Permit Number: MAR041162
MassDEP Transmittal Number: W- X265873
Annual Report Number & Reporting Period: Year 12
April 1, 2014 – March 31, 2015

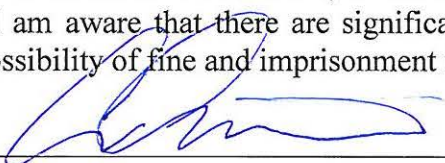
NPDES PII Small MS4 General Permit Annual Report (Due: May 1, 2015)

Part I. General Information

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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: Adam D. Gaudette, AICP

Title: Town Administrator

Date: April 30, 2014

Part II. Self-Assessment

Administrative Note: *In recent years, the Best Management Practices (BMPs) identified in the 2003 Notice of Intent to receive coverage under the MS4 Permit, and on which the Town of Spencer reported, were modified and updated. As a result, not all progress made by the Town was reflected in the reports. Since Year 10 this report restores the original 22 BMPs and identifies where revisions to the original BMP have been made. This Year 12 Report also shows all original permit tasks as well as all new tasks, actions, and progress completed since 2003 as “Additions”.*

CMRSWC CIC Grant FY2014 Summary of Activities

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

In Year 12, the Town of Spencer, 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 an \$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 Spencer.

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.centralmstormwater.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.

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.enviroscales.com/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.

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.



Figure 4: CMRSWC's Online Mapping and Inspection Platform

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. Spencer participated in 8 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, 2014, 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, 2014, 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, Spencer continued to utilize 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.

Spencer continued to utilize the Enviroscope models focused on non-point source pollution education (<http://www.enviroscopes.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.

Minimum Control Measure 2: Public Involvement and Participation

In Year 12, Spencer 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) 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, Spencer 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, Spencer 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 Spencer, 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, Spencer 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, Spencer 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, Spencer 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, Spencer 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, Spencer 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, Spencer 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.

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 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 13
PE-1	Flyer Distribution		Get participation in a Household Hazardous Waste collection event	A HHHW collection event took place September 2014. 41 Spencer residents participated in this event.	A HHHW collection date is scheduled for September 2015.
Revised	Household Hazardous Waste (HHHW) Day	U/F Dept. Deb Graves	Annual Household Hazardous Waste Day Event	Electronics collection events took place in May and October, 2014.	The Town intends to host two electronics collection events in Year 13, as well in May 2015 and September 2015.
PE-2	Informational Mailings	U/F Dept. Steven Tyler	Implement at houses adjacent to outfalls.	This BMP was expanded to include educating residents beyond those immediately adjacent to the outfall locations, and to use more visible tools to raise awareness of our valuable water resources in high traffic areas.	The stream name signs have been ordered and we plan to install them at as many locations as possible around Town during Year 13.
Revised	Stream Name Signs	Highway Dept. Eben Butler	New signs installed		
PE-3	Community Group Meetings	U/F Dept. Steven Tyler	Awards & Participation	This BMP was expanded to include education and outreach efforts beyond formal meetings, such as coordination with the local groups, schools and other boards, departments and commissions.	The Town will explore options for participating in 2015 and 2016 community Earth Day events, Spencer's Pride Day in April 2016, and other community festivals, such as by staffing a booth. The town will utilize education and outreach materials, such as using the CMRSWC nonpoint source pollution Enviroscope table to demonstrate the value of stormwater management at these events.
Revised	Public Awareness			The highway department supported Spencer's Pride Day (trash and debris cleanup town wide) on April 25, 2015. In Year 12, the U/F Department Superintendent assisted with mentoring students from WPI School as they prepared for the stormwater culvert assessment project.	The Town has linked its website to the CMRSWC website, www.CentralMAStormwater.org .

PE-3 (cont)	Community Group Meetings (continued)			A student from UMass Amherst participated in “seasonal summer work” as a highway department employee, including involvement in numerous duties related to stormwater, water quality and the NPDES MS4 permit program and requirements.	The Town is interested in exploring new options for integrating stormwater education into the science program of the school department, such as by demonstrating World Water Monitoring Day Challenge water quality test kits, and distributing kits to interested teachers.
Revised	Public Awareness				Despite repeating efforts the local school district and other school officials they have been unresponsive to working with the Town on any school outreach or education efforts. The Town intends to make the U/F Department Superintendent or Highway Foreman available for a “job shadowing” experience for a high school student in Year 13.
PE-4	Public Service Announcements	U/F Dept. Deb Graves	Develop Announcements	At a minimum all public service announcements are posted on the Town’s web site (www.spencerma.gov). We also post in local newspapers and on the local cable access channel. This BMP has expanded to using the local cable access channel to advertise events.	Continue full implementation.
Revised				Thanks to its strong participation with the CMRSWC in Year 12, the Town has access to education and outreach materials that address a variety of topics in the MS4 Permit. Most of these materials are appropriate to put on the local cable access channel. Many if not all are available through the stormwater coalition website: http://www.centralmastormwater.org/	Make new materials available on the local cable access program, including the Liquid Assets DVD, the presentation on stormwater management (content focused on educating the general public and volunteer groups), and other videos. Advertise the U/F Department’s participation at events, such as Earth Day, HHHW collection events, and electronics collection events.

PE-5	Stream Restoration	U/F Dept. Steven Tyler	Clean around 1 stream per year	This BMP expanded to focus not just on streams, but other water bodies within the community.	Continue Muzzy Pond, Sugden Lake and Lake Whittemore annual pond/lake lowering for weed control and cleanup.
Revised	Water Body Restoration		On-going Annual Events	Muzzy Pond, Sugden Lake and Lake Whittemore annual pond/lake lowering for weed control and cleanup completed. Additional shoreline cleanup was performed as part of Spencer Pride Day, April 26, 2014.	

1a. Additions

PE-6	Public Awareness	U/F Dept. Steven Tyler	Public Access TV	U/F Superintendent and Conservation Commission met to discuss this possibility, and intend to move forward in Year 12.	Discuss Stormwater on Talk of the Town, local cable access program
PE-7	Public Awareness	U/F Dept. Steven Tyler	Public Access TV	Continue to air “Liquid Assets” on local cable access	Make new materials available on the local cable access program, including the Liquid Assets DVD.
PE-8	Catch Basin Stenciling Program	Highway Dept. Eben Butler	Complete Urbanized Area Stenciled	All catch basins in the MS4 Urbanized Area were stenciled in previous years, using a frog logo and the phrase “Protect ‘R’ Water”. The Town has refreshed this effort where needed to maintain previously stenciled catch basins.	Continue this effort to catch basins in rural areas outside the MS4 Urbanized Area. Continue to refresh stencils at previously-stenciled catch basins.
PE-9	Seek grants for non- point source pollution evaluation	U/F Dept. Steven Tyler	Seek and apply for grants from local, State, and Federal programs.	In Year 12, the Town received a FEMA HMGP grant to address flooding on N. Spencer Road (Route 31).	In addition to alleviating a reoccurring flooding problem this project will improve stormwater treatment and reduce erosion due to the inherent BMPs added to the stormwater treatment train (i.e., water quality swale, deep sump catch basins and sedimentation forebay at outfall).

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 – Permit Year 13
PP-1	Storm Drain Stenciling		Stenciling Areas of immediate concern	This BMP was redundant with BMP PE-8, discussed previously, as it focused on public education and outreach.	Continue to support BMP PE-8, to use stencils as an effective and visible tool to educate the public about stormwater infrastructure.
Revised				As with most MS4 communities, Town volunteers are not utilized for catch basin stenciling due to safety issues.	As with most MS4 communities, Town volunteers will not be utilized for catch basin stenciling due to safety issues.
PP-2	Hazardous Waste Day		Resident Participation at this once per year event	This BMP is redundant with BMP PE-1 and PE-4, discussed previously, which educate the public about household hazardous waste collection events.	Continue to support BMP PE-1 and PE-4 by hosting and advertising household hazardous waste collection events.
Revised	Household Hazardous Waste Collection Day Events	U&F Dept. Steven Tyler	Collect HHHW Materials	A HHHW collection event took place September 2014. 41 Spencer residents participated in this event. Electronics collection events took place in May and October, 2014. Town volunteers are not utilized at household hazardous waste collection events due to safety issues.	A HHHW collection date is scheduled for September 2015. The Town intends to host two electronics collection events in Year 13, in May 2015 and September 2015.
PP-3	Volunteer Monitoring Efforts		Annually	This BMP was not specific and has been replaced by PP-5 through PP-8.	N/A
Revised					

PP-4	SWMP Volunteer Monitoring		Annually	The public continues to have the opportunity to comment on the Town's Stormwater Management Plan.	The Town will continue to announce all meetings and presentations related to stormwater, and encourage public attendance. In addition, the U&F Office will continue to work closely with the Spencer Conservation Commission on all stormwater and water quality related matters.
Revised				U/F Superintendent participated in several meetings with the Conservation Commission under MCM 4 and MCM 5. The U&F Office works closely with the Conservation Commission on all stormwater and water quality related matters.	

2a. Additions

PP-5	Cable viewers	N/A	Local "Talk of the Town" program	As noted in BMP PE-6, the Town has made progress toward having the stormwater topic featured on this local cable access program.	If possible we will encourage Town residents to call in to Talk of the Town with questions about stormwater, or send questions via social media.
Revised					
PP-6	Adopt Stormwater Regulations	Planning Michelle Buck	Adopt Stormwater Regulations	Stormwater Regulations were adopted in November 2011. In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations.	Continue to implement November 2011 Stormwater Regulations. In Year 13 the recommendations for updates and improvements to the Stormwater Bylaw and Regulations will be determined by Town Meeting Vote. Continue to consider and evaluate suggestions and revisions into 2011 Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.

PP-7	Establish Stormwater Committee	U/F Dept. Steven Tyler	Solicit feedback on stormwater program from Town and residents	A Stormwater Committee was formed for the development of Stormwater Regulations. Since their implementation no new formal Stormwater Committee has been formed, to date.	The Town is exploring options to establish a formal Stormwater Committee, based on groups active in surrounding communities. The Committee may include representation from the following among its members: Planning Board, Conservation Committee, general public; the school department; additional interested parties.
Revised					
PP-8	Public attendees at draft bylaw presentations and hearings	N/A	Feedback on Draft Stormwater Bylaw Regulations	Stormwater Regulations were adopted in November 2011.	Continue to implement November 2011 Stormwater Regulations.
Revised				In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations.	In Year 13 the recommendations for updates and improvements to the Stormwater Bylaw and Regulations will be determined by Town Meeting Vote. Continue to consider and evaluate suggestions and revisions into 2011 Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.
PP-9	Lead Central Massachusetts Regional Stormwater Coalition	Town Administrator Adam Gaudette U/F Dept. Steven Tyler	Lead development of a regional stormwater management project.	The Town of Spencer served as the lead community on the Coalition efforts in Year 12. This involved participation in 12+ meetings or workshops, review of deliverables, and coordinating grant funding received from the Massachusetts Executive Office of Administration and Finance. The U/F Superintendent serves as the manager of two Leica GPS devices purchased as part of the Coalition project.	The Town of Spencer will continue to lead this effort in Year 13, moving the project forward to its total number of communities as members of the Coalition. We hope to have an organization of 40 or more communities in the relatively near future.

3. Illicit Discharge Detection and Elimination

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 – Permit Year 13
ID-1	Visual Inspection		All outfalls quarterly	There is no regulatory mandate to inspect outfalls quarterly. This BMP did not provide benefit to the stormwater management program, and was replaced with BMPs ID-6, ID-7, and ID-8, which address the specific tools that will be used to identify illicit discharges.	N/A
Revised					
ID-2	Laboratory Analysis	U/F Dept. Steven Tyler	When pollution is evident	Water quality screening was completed at 2 locations in Year 12. No concerns were identified by the testing.	Utilize Coalition field test kits and meters, when appropriate, to provide screening analysis at outfalls.
Revised					Utilize full laboratory analysis when field screening parameters exceed benchmarks, as appropriate.
ID-3	Identify and map outfalls		Map and identify all outfalls in UA	All known outfalls and water bodies in the UA were located and mapped prior to Year 12. In Year 12, all outfalls were imported to GIS and uploaded to the Coalition's integrated mapping system. The Town has received training on how to inspect structures in the stormwater system using the integrated mapping system.	Continue mapping of new or newly found drainage structures, confluences and outfalls.
Revised	Identify and map outfalls in urban area	U/F Dept. Steven Tyler	Develop storm sewer map (ongoing w/ GIS)		Map catch basin and drain manhole structures and pipe and culvert infrastructure, in conjunction with catch basin cleaning events, utilizing Coalition tools.
ID-4	Remove source of contamination		When pollution is evident	In Year 12, the Town of Spencer conducted video inspections and testing of stormwater piping in an effort to identify potential illicit discharges. In Year 12, the Town of Spencer purchased a new pipe inspection robot for approximately \$65,000.00. This represents the Town's commitment to IDDE.	Continue to enforce the permanent removal of illicit discharges.
Revised	Enforce removal of illicit discharge	U/F Dept. Steven Tyler Town Administrator Adam Gaudette	Ensure permanent elimination of illicit discharge.		Use the new pipe inspection robot to investigate and identify issues or concerns with damage, infiltration, illicit connections, etc.

3a. Additions

ID-5	Develop Discharge Regulations	Stormwater Committee & Planning Board	Adopt Stormwater Regulations	Adopted new Stormwater Bylaw at May 7, 2009 Town Meeting.	In Year 13 the recommendations for updates and improvements to the Stormwater Bylaw and Regulations will be determined by Town Meeting Vote.
Revised				Adopted new Stormwater Regulations in November 2011. In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations.	Continue to consider and evaluate suggestions and revisions into 2009 Stormwater Bylaw and 2011 Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.
ID-6	Screening of urban outfalls	Highway Dept. Eben Butler	Trace system outfalls in urban area using CCTV	In Year 12, CCTV of stormwater and sanitary sewer systems included Main Street and Pleasant Street as part of advance road reconstruction project planning. No illicit discharge was identified within the project limits. The Town replaced the storm drain and six catch basins on Water Street. New catch basins have deep sump design to improve collection of sediments.	Identify and begin screening outlying areas. In year 12 the Town of Spencer completed the purchase of a new pipe inspection robot for approximately \$65,000.00. This CCTV camera, rig, and system for use in inspecting the storm drain and sewer systems and identifying illicit discharges for elimination. The Town will incorporate inspection tools developed as part of the Coalition project into its catch basin cleaning program, especially those related to IDDE.
Revised					
ID-7	Smoke Testing Sewer Mains	Sewer Dept. Mark Robidoux	IDDE Investigation and Elimination	Two formerly unknown connections to the stormwater system were located as part of the Grant Street project investigation. Both of these connections turned out to be uncontaminated groundwater from foundation drain systems and were therefore allowed and accommodated by the reconstruction.	Additional sanitary sewer and storm drain lines will be tested as part of programmed roadway improvements. In 2015-2016, the Town will perform pipe inspections on Chestnut Street and the drainage system that goes through the Old Railroad Yard.
Revised					

ID-8	Smoke Testing of Urban Outfalls	Highway Dept. Eben Butler	IDDE Investigation and Elimination	In Year 12, the Town of Spencer did not perform any smoke testing. Because of the recent purchase for a pipe inspection robot we are able to use the robot to get better information about potential illicit connections.	Additional sanitary sewer and storm drain lines will be tested as part of programmed roadway improvements. Our new procedure will utilize robot inspections first and smoke testing will be used if needed following the robotic inspection.
Revised					
Revised					

4. Construction Site Stormwater Runoff Control

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 – Permit Year 13
CS-1	Develop Bylaws	Stormwater Committee & Planning Board	By the end of permit Year 2.	Adopted Stormwater Bylaw at May 7, 2009 Town Meeting.	In Year 13 the recommendations for updates and improvements to the Stormwater Bylaw and Regulations will be determined by Town Meeting Vote.
Revised	Develop Construction Site Stormwater Runoff Control Bylaw and Regulations		Adopt Stormwater Regulations	Adopted Stormwater Regulations in November 2011. In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations.	Continue to consider and evaluate suggestions and revisions into 2009 Stormwater Bylaw and 2011 Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.
CS-2	Pre-Construction Informational Meetings	ConCom Margaret Washburn	Each construction project after bylaws are in place.	In Year 12, the Conservation Commission completed an inspection of 71+ projects under construction. Of these, stop work orders or notices of violations were issued for 7.	Continue performing inspections of projects under construction.
Revised	Site Inspections	ConCom Margaret Washburn	Identifying and Tracking Violations	Violations identified and tracked until resolved	Continue identifying and tracking violations

4a. Additions

CS-3	Review of Major Proposed Projects for Erosion & Sedimentation Control	U/F Dept. Steven Tyler	Review projects for erosion and sedimentation controls.	In Year 12, the U/F Superintendent completed a review of 11 proposed major projects as part of the preliminary technical review committee.	The U/F Superintendent will continue to review projects submitted for approval, with a focus on erosion and sedimentation controls as well as overall site stormwater design.
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CS-4	Increase awareness of sedimentation and erosion requirements.	U/F Dept. Steven Tyler	Make information available at more locations	In Year 12 further information was distributed to staff and made available to the public via our internet web site.	In Year 13, the Town will make erosion and sedimentation information available at more locations within town, including providing materials when a resident on contractor applies for a road opening permit, building permit, or prepares to submit a Notice of Intent.
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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 10 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 13
PC-1	Visual Monitoring	ConCom Margaret Washburn	Minimum of one time after completion	Violations identified and tracked until resolved.	Continue identifying and tracking violations. Look for ways to incorporate stormwater treatment or infiltration BMPs into Town-owned or Town –operated projects.
Revised	Site Inspections	ConCom Margaret Washburn	Identifying and Tracking Violations	With the exception of the Water Street project’s new deep sump catch basins no stormwater treatment or infiltration BMPs were constructed as part of Town-owned or Town –operated projects in Year 12.	Inspect all stormwater treatment or infiltration BMPs before they are accepted by the Town.

5a. Additions

PC-2	Develop Post-Construction Stormwater Management Regulations	Stormwater Committee & Planning Board	Adopt Stormwater Regulations	Adopted new Stormwater Bylaw at May 7, 2009 Town Meeting. Adopted new Stormwater Regulations in November 2011.	In Year 13 the recommendations for updates and improvements to the Stormwater Bylaw and Regulations will be determined by Town Meeting Vote.
Revised				In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations.	Continue to consider and evaluate suggestions and revisions into 2009 Stormwater Bylaw and 2011 Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit
PC-3	Review of Major Proposed Projects for Erosion & Sedimentation Control	U/F Dept. Steven Tyler	Review projects to evaluate pre-and post-development runoff, and whether use of infiltration BMPs on site may be appropriate.	In Year 12, the U/F Superintendent completed a review of 11 proposed major projects as part of the preliminary technical review committee.	The U/F Superintendent will continue to review projects submitted for approval, with a focus on post-construction stormwater management.

6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 13
GH-1	Employee Training	U/F Dept. Steven Tyler	Annual training meeting	In Year 12, several U/F staff members received training. U/F Superintendent Steven Tyler received training on stormwater related equipment or systems.	The Town will continue to take advantage of training opportunities that are presented as part of the Coalition work and from the Worcester County Highway Association, MassDOT and other training resources.
Revised			Provide training to appropriate employees based on nature of activities.	The U/F department hosts a number of internal training events, reaching seven staff members, related to the need to implement Emergency Response procedures consistent with the town's Environmental Management System. All of these have objectives consistent with the MS4.	The Town will continue to train staff internally on procedures necessary to implement the Environmental Management System.
GH-2	Develop Operation and Maintenance Schedule		Develop within first year.	This BMP was vague and did not reflect on the specific maintenance activities completed within the Town's system. It has been replaced with BMPs GH-6, GH-7, and GH-8.	N/A
Revised					

GH-3 Revised	Implement Operation and Maintenance Schedule		Implement during Permit Years 2 through 5.	This BMP was vague and did not reflect on the specific maintenance activities completed within the Town's system. It has been replaced with BMPs GH-6, GH-7, and GH-8.	N/A
GH-4 Revised	Recordkeeping		For each BMP employed	During Year 12, the Coalition continued development and input into our online mapping and inspection system that documents all inspections and provides the opportunity to produce a report of actions. This includes inspections of BMPs as well as many other common tasks associated with the MS4 Permit. The Coalition also finalized and adopted 15 Standard Operating Procedures for many stormwater-related activities, such as dry- and wet-weather outfall inspection, catch basin inspection. These SOPs define the consistent approach that serves as the foundation for effective recordkeeping.	Continue to implement the SOPs and the online mapping and inspection system.

6a. Additions

GH-5	Water Dept. Environmental Management System (EMS) Implementation	U/F Dept. Steven Tyler	Finalize EMS	The Town revised its original EMS program in Year 12, incorporating new inspections and action items into the existing report. This EMS includes Town resources associated with water, highway, sewer, police, fire, and transfer station facilities and operations.	Continue to update and revise the Environmental Management System (EMS) policy and procedures, as necessary.
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GH-6	Catch basin and outfall cleaning	HWY Dept. Eben Butler Ray Holmes	Clean each structure twice a year (min.); maintain log of conditions, etc.	Completed annual catch basin program; updated maps and records.	The Town will continue its program of cleaning catch basins at least once.
Revised				The Town has invested in its own “clamshell” catch basin cleaning device. All catch basins are cleaned in spring, with selected basins cleaned a second time, in fall, based on staff knowledge of basin conditions. Having this device “in house” will facilitate multiple cleanings in the future.	The Town will incorporate inspection tools developed as part of the Coalition project into its catch basin cleaning program, especially those related to IDDE.
GH-7	Street Sweeping	HWY Dept. Eben Butler Kevin Simonovitch	Main Street weekly; urban area monthly; complete town annually	All streets and sidewalks within the urbanized area are swept in spring. Some streets and sidewalks are swept a second time in fall, based on U/F knowledge of debris and grit. The Town uses its own mechanical sweeper to complete this task.	Continue sweeping streets and sidewalks in the urbanized area at least once a year.
Revised					
GH-8	Minimize salt and sand use & exposure	Highway Dept. Eben Butler	Monitor salt and sand use – cover pile off season	In Year 12, the Highway Department continued efforts to set best practices benchmarks for salt and sand use and reduce the quantity of materials used. Staff re-calibrated all spreading equipment to determine how much each component was delivering. The Town has also switched to “treated” salt, which consists of standard salt treated with magnesium chloride. Use of this material has allowed the Town to use less sand, reducing how frequently catch basins fill up, and applying fewer pounds of chloride per lane mile. The Town presently calculates its chloride application at approximately 500 pounds of chloride per lane-mile.	Maintain expectations & continue training on equipment calibration. Attempt to procure funding to add a new salt shed. The Town will continue to reduce its application rate of salt, ensuring that the public safety is not jeopardized.

GH-9 Revised	Close police firing range at Town well site	U/F Dept. Steven Tyler	Keep Range Closed	The range was closed in previous Permit Years.	Keep the range closed in order to prevent stormwater pollution.
GH-10 Revised	Implement pollution prevention practices at Town properties	U/F Dept. Steven Tyler	Implement pollution prevention practices at Crash Derby	In Year 12, the U/F Superintendent refined and implemented a number of best management practices at the Town Fairgrounds property, site of the annual Crash Derby and located within the Zone 2 of a public water supply. These BMPs included requiring the Fire Department to be on site to respond to spills, preventing vehicles from staying on-site overnight, minimizing the amount of fuel contained in each vehicle, and prohibiting factory fuel tanks and antifreeze in any vehicle. While aimed at protecting the public water supply, these BMPs also result in cleaner surface water and reduced pollution potential, overall.	Continue to monitor BMPs during the Crash Derby to prevent stormwater pollution. Implement additional BMPs if determined necessary. Continue to seek BMPs to implement at other Town properties that will prevent stormwater pollution.

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

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 13
Revised					

7a. Additions

7b. WLA Assessment

Several water bodies, including Sevenmile River and Cranberry River (Category 2), are currently being assessed for one or more designated uses, which may require TMDLs in the future. Other water bodies have never been assessed (Category 3), but may require TMDLs in the future. Spencer will continue to watch for these TMDLs to be published and will evaluate published Waste Load Allocations, accordingly.

Under Category 4a (“TMDL is Completed”), Sugden Reservoir (TMDL 3633, “Nutrient/Eutrophication Biological Indicators”) is located within Spencer. Spencer will continue to evaluate its actions toward meeting Waste Load Allocations for this TMDL.

Water bodies that address plants or other non-pollutant impairments include Jones Pond (TMDL 2364, “Aquatic Plants [Macrophytes]”) and Brooks Pond, which has been assessed as having an “Impairment not Caused by a Pollutant” (Category 4c; no TMDL required). These impairments do not require actions under the MS4.

A TMDL has been completed for Browning Pond to address “Nutrient/Eutrophication Biological Indicators: Non-Native Aquatic Plants” (TMDL 3626), but this water body is not located within Spencer’s Urbanized Area. A TMDL for Lake Whittemore (Category 5; Turbidity) will be developed in the future. Spencer will continue to watch for these TMDLs to be published and will evaluate published Waste Load Allocations, accordingly.

Part IV. Summary of Information Collected and Analyzed

Since beginning of permit coverage the Town of Spencer has presented our summary of information collected and analyzed in the preceding sections. Other than the information presented in Part III, above, no additional; information was collected or analyzed. The Town of Spencer maintains that it continues to be in compliance with the 2003 Massachusetts Small MS4 Permit.

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, 2013 through March 31, 2014)

Programmatic

		Response
Stormwater management position created/staffed	(y/n)	Yes (Committee)
Annual program budget/expenditures **	(Preferred \$) Units	±\$40,000
Total program expenditures since beginning of permit coverage	(\$)	±\$220,000
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 %)	5,000
Stormwater management committee established	(y/n)	Yes
Stream teams established or supported	(# or y/n)	Yes
Shoreline clean-up participation or quantity of shoreline miles cleaned **	(y/n or mi.)	1 mi
Shoreline cleaned since beginning of permit coverage	(mi.)	7 mi.
Household Hazardous Waste Collection Days		
▪ days sponsored **	(#)	1
▪ community participation **	(# or %)	41
▪ material collected **	(tons or gal)	14 gals
School curricula implemented	(y/n)	No. (No cooperation by school district)

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	(%)	97%
Estimated or actual number of outfalls	(Preferred Units)	100
System-Wide mapping complete (complete storm sewer infrastructure)	(%)	97%
Mapping method(s)		
▪ Paper/Mylar	(%)	<2%
▪ CADD	(%)	<2%
▪ GIS	(%)	97%
Outfalls inspected/screened **	(# or %)	80%
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	100%
Illicit discharges identified **	(#)	1
Illicit discharges identified (Since beginning of permit coverage)	(#)	4
Illicit connections removed **	(#); and (est. gpd)	1; (gpd unknown)
Illicit connections removed (Since beginning of permit coverage)	(#); and (est. gpd)	4; (gpd unknown)
% of population on sewer	(%)	50%
% of population on septic systems	(%)	50%

Construction

		Response
Number of construction starts (>1-acre) **	(#)	4
Estimated percentage of construction starts adequately regulated for erosion and sediment control **	(Preferred Units)	100%
Site inspections completed **	(# or %)	65+
Tickets/Stop work orders issued **	(# or %)	5
Fines collected **	(# and \$)	N/A
Complaints/concerns received from public **	(#)	7

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 %)	30 +/-
BMP maintenance required through covenants, escrow, deed restrictions, etc.	(y/n)	YES
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)	2 times/year
Average frequency of catch basin cleaning (commercial/arterial or other critical streets) **	(times/yr)	2 times/year
Qty of structures cleaned **	(#)	±1,000
Qty. of storm drain cleaned **	(%, LF or mi.)	±1,500 lf
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	10 tons
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	landfill

Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	\$30,000
• Hourly or per basin contract rate **	(\$/hr or \$ per basin)	
• Disposal cost**	(\$)	
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	1 owned
• Vacuum truck(s) owned/leased	(#)	0
• Vacuum trucks specified in contracts	(y/n)	No
• % Structures cleaned with clam shells **	(%)	100%
• % Structures cleaned with vacator **	(%)	0%

Response

Average frequency of street sweeping (non-commercial/non-arterial streets) **	(times/yr)	1 time/year
Average frequency of street sweeping (commercial/arterial or other critical streets) **	(Preferred Units)	2+ times/year
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	±2,000 tons
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Landfill/Compost
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	20,000
• Hourly or lane mile contract rate **	(\$/hr. or ln mi.)	
• Disposal cost**	(\$)	
Sweeping Equipment		
• Rotary brush street sweepers owned/leased	(#)	1
• Vacuum street sweepers owned/leased	(#)	0
• 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	(lbs. or %)	100%
▪ Herbicides	(lbs. or %)	50%
▪ Pesticides	(lbs. or %)	50%
Integrated Pest Management (IPM) Practices Implemented	(y/n)	No

	(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 % CMA % Kac % KCl % Sand	75-100% <25% <5%
Pre-wetting techniques utilized **	(y/n or %)	No
Manual control spreaders used **	(y/n or %)	Yes 95%
Zero-velocity spreaders used **	(y/n or %)	No
Estimated net reduction or increase in typical year salt/chemical application rate **	(±lbs/l _n mi. or %)	5% increase
Estimated net reduction or increase in typical year sand application rate **	(±lbs/l _n mi. or %)	5% decrease
% 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 2009	(y/n)	Yes

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	Yes
Treatment units induce infiltration within 500-feet of a wellhead protection area	# or y/n	Yes