Municipality/Organization:	SPENCER, MASSACHUSETTS
EPA NPDES Permit Number:	MAR041162
MassDEP Transmittal Number:	W- X265873
Annual Report Number & Reporting Period:	Year 14 April 1, 2016 – March 31, 2017

NPDES PII Small MS4 General Permit Annual Report
(Due: May 1, 2017)

Part I. General Information

Contact Person: Steven J. Tyler, P.E. Title: Superintendent

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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 26, 2017

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 13 Report also shows all original permit tasks as well as all new tasks, actions, and progress completed since 2003 as "Additions".*

Central Massachusetts Regional Stormwater Coalition
2003-MS4 Permit
Coalition Activities in Year 14 (April 1, 2016-March 31, 2017)

Introduction

The Central Massachusetts Regional Stormwater Coalition (CMRSWC) is an MS4 resource for all member communities. In 2016, total membership reached 31 towns. In December 2016, CMRSWC created four standing sub-committees to allow members to focus efforts on specific issues important to the Coalition. These sub-committees are:

- Education Sub-Committee: responsible for developing and promoting outreach and educational materials for audiences targeted in the 2016-MS4 permit. The committee is the primary liaison to the WPI Project Centers and other university partnerships.
- Program Sub-Committee: responsible for planning and scheduling Annual Meeting, Steering Committee Meetings, educational workshops, and other forums for discussion of MS4 topics.
- Technical Sub-Committee: responsible for managing Coalition's website and shared equipment resources; advising members on relevant technical issues including GIS system maintenance and upgrades.
- Legislative Sub-Committee: serves as the liaison to the Massachusetts Statewide Stormwater Collaborative; responsible for tracking MS4 related legislation and regulations and keeping the legislature and regulatory agencies informed of the concerns of member communities.

The CMRSWC Steering Committee held four meetings during this 12 month reporting cycle. The CMRSWC Annual Meeting was held on September 20, 2016 in Holden. CMRSWC's Needham MS4 Technical Training Workshop and Stormwater Video were featured at the Annual Meeting of the Statewide Collaborative on September 27, 2016 at the Massachusetts Department of Environmental Protection central region office in Worcester. Members of CMRSWC attended and actively participated in the Massachusetts Statewide Stormwater Collaborative meetings.

MS4 Workshops and Technical Training (Minimum Control Measures 3, 4, 5, and 6)

Municipal Stormwater Technical Assistant Project
The CMRSWC was awarded a $50,000 Municipal Stormwater Technical Assistance Contract Grant from the Massachusetts Department of Environmental Protection to provide technical assistance support and materials designed to help regulated communities in Massachusetts begin to cost-effectively comply with the requirements of the 2016 MS4 Permit. The grant funded the Needham MS4 training workshop, educational and training videos, and stormwater templates.

Needham Workshop
On June 29, 2016, CMRSWC and the Fuss & O'Neill project team held an MS4 training workshop at the Needham Public Services Administration Building.

This site was selected because it contains several features that provided participants hands-on training and exposure to actual operations and conditions affected by the new MS4 permit requirements. These features include new SWPPP regulated activities, outfalls discharging to an on-site stream, vegetated swales, infiltration basins, catch basin and manholes, gravel surface parking area, and more.

The program targeted new or inexperienced public works professionals, stormwater coordinators, and other municipal staff responsible for their community's NPDES Phase II Stormwater Permit Minimum Control Measures 3, 4, 5, and 6. The program included classroom presentation, site visits, and hands-on experience on the following MS4 topics:

- Outfall inspections and water quality sampling – safety, tools, protocols, hits
- Mapping stormwater system attributes – paper versus GIS
- Stormwater BMPs and LID – construction, operations, and maintenance
- SWPPPs – site characteristics

Millbury Workshop
CMRSWC held a second workshop for Coalition members on October 28, 2016 at the Millbury Public Works Facility. The program targeted public works professionals, stormwater coordinators, and other municipal staff responsible for the NPDES Phase II Stormwater Permit Minimum Control Measures 3, 4, 5, and 6.

The MS4 Training Workshop emphasized hands-on training on the following topics:

- IDDE – review of CMRSWC IDDE template and inspection form
- BMPs and LID–BMP retrofits; BMP & LID construction, O&M
- SWPPPs – using CMRSWC template to develop a facility-specific SWPPP

The Workshop included a Vendor Fair with products and services that support MS4 compliance. There were scheduled presentations by Environmental K9 Services, People GIS, and Civil View drone services.

Videos and Templates (Minimum Control Measures 1, 3, 4, 5, 6)
In addition to the Needham training workshop, the Municipal Stormwater Technical Assistance Contract Grant funded the following stormwater videos, new templates, updates of existing CMRSWC templates, and referenced additional online resources associated with various stormwater management topics to assist regulated communities.

Long-Format Stormwater Videos

- MS4 workshop from June 29, 2016
- Questions, concerns, and contributions from workshop participants
- Stormwater Utility options presented by municipal finance expert Mark Abrahams
- The success of Franklin, MA in considering stormwater BMPs and LID in their public works projects

Short-Format Classroom Videos

- Outfall inspections and water quality sampling – safety, tools, protocols, hits

- Mapping stormwater system attributes – paper versus GIS
- BMPs – construction, operations, and maintenance
- SWPPPs – site characteristics

Short-Format Videos Targeting Information on Specific MS4 Requirements

- Exterior salt and sand storage
- Proprietary systems for stormwater management
- Vegetated swales
- Outfall screening
- Tablet tools
- Stormwater infiltration basins
- Introduction to water quality testing procedures and tools
- Public works facility SWPPPs

Underscoring the value of the videos and templates developed by CMRSWC, in advance of the Millbury Technical Training Workshop participants were asked to review the MS4 training videos on CMRSWC's website. These videos provided background on the permit requirements, which facilitated the field training component of this workshop. CMRSWC MS4 templates were used and referenced for the SWPPP and IDDE program elements.

Worcester Polytech Institute Worcester Community Project Center (Minimum Control Measures 1 and 2)

From September 27, 2016 Statewide Stormwater Collaborative Minutes: Andrea Briggs of DEP provided a review of WPI Student projects, and an overview of the program. Andrea facilitates the program. In 2012 WPI and DEP approached the CMRSWC to pair students with communities who need assistance. Since that time WPI has created a new center called the Water Research Outreach Center (WROC), which is a Worcester Project Center. They also have a Boston Project Center. There are three ways through WPI that students can help cities and towns. WPI project timeline is structured in 4 quarters. A, B, C and D term. During the A term they prepare to work (e.g. learning the permit); during the B term the students are available full time to the communities. This past summer the student group looked at cost estimates for municipalities and created a permit summary. Andrea showed 5-minute educational video on stormwater and the connection to local resources, which is posted on the town of Holden webpage. WPI students in attendance introduced themselves and the projects they have been working on. Project #1 involves developing a methodology to help communities estimate cost and hopefully to compare to EPA's cost estimators. Project #2 involves developing an education and outreach campaign to educate municipalities and looking to conduct education and outreach to communities. Andrea described how the partnership between the state and WPI has been very beneficial. Holden has had at least 3 projects now.

WPI students developed a stormwater toolkit featuring an activity book and stickers for children. The activity book includes opportunities for parents to participate and ask questions. The students participated in a craft fair at Union Station in Worcester where they surveyed attendees on logo schemes for their stormwater project branding.

Member Needs Survey

In September 2016, CMRSWC developed a technical needs survey that measured the concerns of member communities with respect to the issuance of the 2016-MS4 General Permit for Stormwater Discharges. The survey also asked members to rank certain programs and tasks that CMRSWC could support to assist members in complying with the MS4 Permit.

Coalition members ranked their needs as follows:

1. Provide Comprehensive Training Programs
2. Continue Standardization of Templates and Forms
3. Provide Web-Based Tools That Support GIS Mapping

Coalition members ranked their compliance concerns as follows:

1. Funding
2. Preparation of NOI and SWMP
3. Designing and Constructing BMP Retrofits
4. Performing Outfall Inspections
5. Performing Outfall Inventory Ranking
6. Developing a Written IDDE Program
7. Meeting TMDL Requirements
8. Developing Written Catchment Investigation Procedures
9. Identifying and Removing Illicit/Illegal Discharges
10. Developing and Maintaining SWPPPs

Conclusion

More than 40 representatives, including CMRSWC members, from MS4 communities participated in the MS4 Workshop in Needham. More than 35 CMRSWC members participated in the Millbury Workshop. The production of 16 videos targeting specific MS4 topics and training opportunities expands the learning opportunities to anyone with access to the web.

Link to MS4 Training Videos 2016 http://www.centralmastormwater.org/Pages/crsc_toolbox/videos

The enhanced MS4 templates and information sources on developing IDDE plans, SWPPPs, bylaw review, and LID, which are accessible on the Coalition's website, provide relevant tools to communities implementing their MS4 program with local staff and resources. They are just as relevant to MS4 communities choosing to partner with associations or consultants in the implementation of their MS4 requirements.

Link to CMRSWC Web Site http://www.centralmastormwater.org/Pages/index

CMRSWC members receive ongoing value from the Coalition's workshops, field training, video library, and templates. CMRSWC membership provides consistency to an MS4 constituency subject to routine staff changes, questionable access to funding, and ongoing regulatory demands.

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 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15
PE-1	Flyer Distribution		Get participation in a Household Hazardous Waste collection event	A HHHW collection event took place September 2016. 44 Spencer residents participated in this event. Electronics collection events took place in May and October, 2016.	A HHHW collection date is scheduled for September 2017. The Town intends to host two electronics collection events in Year 15, as well in May 2017 and September 2017.
Revised	Household Hazardous Waste (HHHW) Day	U/F Dept. Deb Graves	Annual Household Hazardous Waste Day Event		
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 installation of stream name signs was completed in Year 11.
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 highway department supported Spencer's Pride Day (trash and debris cleanup town wide) in April, 2017 and had 58 participants. In Year 12, the U/F Department Superintendent assisted with mentoring students from WPI School as they completed their the stormwater culvert assessment project analyzing 22 culverts and developing a culvert inspection and assessment tool now being copied and used by cities/towns statewide.	The Town will explore options for participating in 2017 and 2018 community Earth Day events, Spencer's Pride Day in April 2018, 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 Enviroscape table to demonstrate the value of stormwater management at these events. The Town has linked its website to the CMRSWC website, www.CentralMAStormwater.org.
Revised	Public Awareness				

PE-3 (cont) Revised	*Community Group Meetings (continued)* *Public Awareness*			In Year 13 a student from WPI 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. In Year 14 a Clark University Student created numerous stormwater web pages & a pet waste mailer distributed by the Town Clerk by mail to over 2,100 licensed pet owners. New stormwater web pages created in 2017 include: http://www.spencerma.gov/Pages/SpencerMA_Bcomm/Planning/StormwaterResources Link to Pet Waste Flyer http://www.spencerma.gov/Pages/SpencerMA_Bcomm/Planning/Stormwater/PetWasteManagement	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. 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 15.
PE-4 Revised	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. Thanks to its strong participation with the CMRSWC in Year 14, 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/	Continue full implementation. 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. The town will continue to update our stormwater web pages.

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. Several culverts were replaced in 2016 which included restoration and stabilization of both perennial and intermittent streams. 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 22, 2017.	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		

1a. Additions

PE-6	Public Awareness	U/F Dept. Steven Tyler	Public Access TV	In Year 12 the U/F Superintendent discussed Stormwater on Talk of the Town, a local cable access program.	We would like to perform similar outreach in Year 15.
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. Raymond Holmes	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 implemented a FEMA HMGP grant to address flooding on N. Spencer Road (Route 31). In Year 14 we passed a local funding article for roadway and stormwater improvements.	In addition to alleviating a reoccurring flooding problem this project improves 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 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15
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. As with most MS4 communities, Town volunteers are not utilized for catch basin stenciling due to safety issues.	Continue to support BMP PE-8, to use stencils as an effective and visible tool to educate the public about stormwater infrastructure. As with most MS4 communities, Town volunteers will not be utilized for catch basin stenciling due to safety issues.
Revised					
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. A HHHW collection event took place September 2016. 44 Spencer residents participated in this event. Town volunteers are not utilized at household hazardous waste collection events due to safety issues. Town firefighters supported this effort instead. Electronics collection events took place in May and October, 2016.	Continue to support BMP PE-1 and PE-4 by hosting and advertising household hazardous waste collection events. A HHHW collection date is scheduled for September 2017. The Town intends to host two electronics collection events in Year 14, in May 2017 and September 2017.
Revised	Household Hazardous Waste Collection Day Events	U&F Dept. Steven Tyler	Collect HHHW Materials		
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 Revised	SWMP Volunteer Monitoring		Annually	The public continues to have the opportunity to comment on the Town's Stormwater Management Plan. 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.	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.

2a. Additions

PP-5 Revised	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.
PP-6	Adopt Stormwater Regulations	Paul Dell' Aquilla	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. In Year 13 our recommendations for updates and improvements to the Stormwater Bylaw and Regulations were approved/adopted by Town Meeting Vote in May 2016.	Continue to implement November 2011 Stormwater Regulations as amended in Year 15. Continue to consider and evaluate suggestions and revisions into our 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	The Town is exploring options to establish a formal Stormwater Committee, based on groups active in surrounding communities. The

Revised				Stormwater Committee has been formed, to date.	Committee may include representation from the following among its members: Planning Board, Conservation Committee, general public; the school department; additional interested parties.
PP-8 Revised	Public attendees at draft bylaw presentations and hearings	N/A	Feedback on Draft Stormwater Bylaw Regulations	Stormwater Regulations were adopted in November 2011. In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations. In Year 13 our recommendations for updates and improvements to the Stormwater Bylaw and Regulations were approved/adopted by Town Meeting Vote in May 2016.	Continue to implement November 2011 Stormwater Regulations as amended in Year 15. Continue to consider and evaluate suggestions and revisions into our 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 14. This involved participation in 16+ 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. Assisted with the creation of a statewide stormwater coalition in 2016 and attending quarterly meetings.	The Town of Spencer will continue to lead this effort in Year 15, moving the project forward to its total number of communities as members of the Coalition. The CMRSWC is presently at 31 communities and hope to have an organization of 40 or more communities in the relatively near future. Continue participation in State Stormwater Coalition.

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15
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 14. One location had no concerns were identified by the testing. The second location identified an illicit connection on corner of Valley St. and Chestnut St. which was eliminated.	Utilize Coalition field test kits and meters, when appropriate, to provide screening analysis at outfalls. Utilize full laboratory analysis when field screening parameters exceed benchmarks, as appropriate. Additional street by street screenings planned by Sewer Dept. in year 15.
Revised					
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 13. In Year 13, the U/F Department Superintendent assisted with mentoring students from WPI School as they completed their the stormwater culvert assessment project analyzing 22 culverts and developing a culvert inspection and assessment tool now being copied and used by cities/towns statewide.	Continue mapping of new or newly found drainage structures, confluences and outfalls. Verify mapping of catch basins and drain manhole structures and pipe and culvert infrastructure, in conjunction with catch basin cleaning and other maintenance or repair events, utilizing Coalition tools. In Year 14, the Town will develop a web site for further sharing and implementation of the culvert inspection and assessment tool developed by WPI students for the Town of Spencer.
Revised	Identify and map outfalls in urban area	U/F Dept. Steven Tyler	Develop storm sewer map (ongoing w/ GIS)		

ID-4	Remove source of contamination		When pollution is evident	In Year 14, 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. In Year 13, the Town purchased a customized trailer for our pipe inspection robot to improve efficiency.	Continue to enforce the permanent removal of illicit discharges. Continue to utilize the new pipe inspection robot to investigate and identify issues or concerns with damage, infiltration, illicit connections, etc.
Revised	Enforce removal of illicit discharge	U/F Dept. Steven Tyler Town Administrator Adam Gaudette	Ensure permanent elimination of illicit discharge.		

3a. Additions

ID-5	Develop Discharge 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 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations. In Year 13 our recommendations for updates and improvements to the Stormwater Bylaw and Regulations were approved/adopted by Town Meeting Vote in May 2016.	Continue to implement November 2011 Stormwater Regulations as amended in Year 14. Continue to consider and evaluate suggestions and revisions into our Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.
Revised					
ID-6	Screening of urban outfalls	Highway Dept. Eben Butler	Trace system outfalls in urban area using CCTV	In Year 14, CCTV of stormwater and sanitary sewer systems included Main Street and Maple Street as part of	Identify and begin screening outlying areas.

Revised				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 Maple Street. New catch basins have deep sump design to improve collection of sediments.	In Year 12, the Town of Spencer purchased a new pipe inspection robot for approximately $65,000.00. In Year 13, the Town purchased a customized trailer for our pipe inspection robot to improve efficiency. The Town will incorporate inspection tools developed as part of the Coalition project into its catch basin cleaning program, especially those related to IDDE.
ID-7 Revised	Smoke Testing Sewer Mains	Sewer Dept. Mark Robidoux	IDDE Investigation and Elimination	In Year 13 smoke testing of the Mechanic Street project area sewer mains was conducted. The smoke testing did not identify any illicit connections, however, private property issues such as cracked sewer pipes in basement were identified and the property owners were directed to make repairs.	Additional sanitary sewer and storm drain lines will be tested as part of programmed roadway improvements. In Year 15, the Town will perform additional pipe inspections on roadway locations in advance of planned projects.
ID-8 Revised	Smoke Testing of Urban Outfalls	Highway Dept. Eben Butler	IDDE Investigation and Elimination	In Year 14, 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					

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15
CS-1	Develop Bylaws	Stormwater Committee & Planning Board	By the end of permit Year 2.	Adopted new Stormwater Bylaw at May 7, 2009 Town Meeting. Adopted new Stormwater Regulations in November 2011. In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations. In Year 13 our recommendations for updates and improvements to the Stormwater Bylaw and Regulations were approved/adopted by Town Meeting Vote in May 2016.	Continue to implement November 2011 Stormwater Regulations as amended in Year 15. Continue to consider and evaluate suggestions and revisions into our Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.
Revised	Develop Construction Site Stormwater Runoff Control Bylaw and Regulations		Adopt Stormwater Regulations		
CS-2	Pre-Construction Informational Meetings	ConCom Margaret Washburn	Each construction project after bylaws are in place.	In Year 14, the Conservation Commission completed site approximately 190+ inspections of projects under construction at various stages of development. Of these, 22 notices of violations were issued and 10 stop work orders for immediate corrective actions. Violations identified are tracked until resolved	Continue performing inspections of projects under construction. Continue identifying and tracking violations
Revised	Site Inspections	ConCom Margaret Washburn	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 14, the U/F Superintendent completed a review of over 30 proposed projects as part of the preliminary technical review committee and in support of significant Conservation Commission filings.	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.
CS-4	Increase awareness of sedimentation and erosion requirements.	U/F Dept. Steven Tyler	Make information available at more locations	In Year 14 further information was distributed to staff and made available to the public via our internet web site. Also, the Town developed new BMP standards for inclusion in permitting documents and requirements	In Year 15, the Town will track the effectiveness of BMP standards for construction project types that have has erosion and sedimentation issues in the past.

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 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15
PC-1	Visual Monitoring	ConCom Margaret Washburn	Minimum of one time after completion	In Year 14, the Conservation Commission completed site approximately 190+ inspections of projects under construction at various stages of development. Of these, 22 notices of violations were issued and 10 stop work orders for immediate corrective actions. Violations identified are tracked until resolved	Continue performing inspections of projects under construction. Continue identifying and tracking violations
Revised	Site Inspections	ConCom Margaret Washburn	Identifying and Tracking Violations		

5a. Additions

PC-2	Develop Post-Construction Stormwater Management Regulations	Stormwater Committee & Planning Board	Adopt Stormwater Regulations	Adopted Stormwater Bylaw in 2009 and Stormwater Regulations in 2011. In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations. In Year 13 our recommendations for updates and improvements to the Stormwater Bylaw and Regulations were approved/adopted by Town Meeting Vote in May 2016.	Continue to implement November 2011 Stormwater Regulations as amended in Year 15. Continue to consider and evaluate suggestions and revisions into our Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.
Revised					
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 14, the U/F Superintendent completed a review of over 30 proposed projects as part of the preliminary technical review committee and in support of significant Conservation Commission filings.	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.

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 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15
GH-1 Revised	Employee Training	U/F Dept. Steven Tyler	Annual training meeting Provide training to appropriate employees based on nature of activities.	In Year 14, U/F staff members continued to receive training and/or refreshers on an as needed basis. U/F Superintendent Steven Tyler attended other training on stormwater related equipment, systems and implementation. 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 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. The Town will continue to train staff internally on procedures necessary to implement the Environmental Management System.
GH-2 Revised	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

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 14, 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 implements the Town's Environmental Management System (EMS) policy and procedures, as necessary.

GH-6 Revised	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. 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 continue its program of cleaning catch basins at least once. 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 Revised	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.
GH-8	Minimize salt and sand use & exposure	Highway Dept. Eben Butler	Monitor salt and sand use – cover pile off season	In Year 14, 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 400-500 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	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.

Revised					
GH-10	Implement pollution prevention practices at Town properties	U/F Dept. Steven Tyler	Implement pollution prevention practices at Crash Derby	In Year 14, 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 the other newly added vehicular events 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 and other vehicular events 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.
Revised					

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 13 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 14
Revised				In Year 14 we are continuing to prepare for the new permit and TMDL requirements.	In Year 15 we will implement our CWA Sect. 319 grant with matching local funds to make TMDL improvements within the Sevenmile River watershed.

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, 2016 through March 31, 2017)

Programmatic

	(Preferred Units)	Response
Stormwater management position created/staffed	(y/n)	Yes (Committee)
Annual program budget/expenditures **	($)	±$40,000
Total program expenditures since beginning of permit coverage	($)	±$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.)	8 mi.
Household Hazardous Waste Collection Days		
▪ days sponsored **	(#)	1
▪ community participation **	(# or %)	44
▪ material collected **	(tons or gal)	72 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 in Review	Adopted
Regulatory Mechanism Status (indicate with "**X**")					
▪ Illicit Discharge Detection & Elimination					X
▪ Erosion & Sediment Control					X
▪ Post-Development Stormwater Management					X
Accompanying Regulation Status (indicate with "**X**")					
▪ Illicit Discharge Detection & Elimination					X
▪ Erosion & Sediment Control					X
▪ Post-Development Stormwater Management					X

Mapping and Illicit Discharges

	(Preferred Units)	Response
Outfall mapping complete	(%)	98%
Estimated or actual number of outfalls	(#)	100
System-Wide mapping complete (complete storm sewer infrastructure)	(%)	98%
Mapping method(s)		
▪ Paper/Mylar	(%)	<2%
▪ CADD	(%)	<2%
▪ GIS	(%)	98%
Outfalls inspected/screened **	(# or %)	80%
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	99%
Illicit discharges identified **	(#)	1
Illicit discharges identified (Since beginning of permit coverage)	(#)	6
Illicit connections removed **	(#); and (est. gpd)	1; (gpd unknown)
Illicit connections removed (Since beginning of permit coverage)	(#); and (est. gpd)	5; (gpd unknown)
% of population on sewer	(%)	50%
% of population on septic systems	(%)	50%

Construction

	(Preferred Units)	Response
Number of construction starts (>1-acre) **	(#)	31
Estimated percentage of construction starts adequately regulated for erosion and sediment control **	(%)	95%
Site inspections completed **	(# or %)	190+
Tickets/Stop work orders issued **	(# or %)	10
Fines collected **	(# and $)	$300
Complaints/concerns received from public **	(#)	12

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	95%
Site inspections (for proper BMP installation & operation) completed **	(# or %)	190 +/-
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 vactor **	(%)	0%

	(Preferred Units)	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) **	(times/yr)	2+ times/year
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	±900 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% <15%
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/ln mi. or %)	5% increase
Estimated net reduction or increase in typical year sand application rate **	(±lbs/ln 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