

Municipality/Organization: Town of Holden, MA

EPA NPDES Permit Number: MAR041121

MA DEP Transmittal Number: W040559

Annual Report Number

& Reporting Period: No. 11: April 1, 2017 -March 31, 2018

**NPDES Phase II Small MS4 General Permit
Annual Report**

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: **Peter Lukes**

Title: **Town Manager**

Date: **5/7/2018**

Part II. Self-Assessment

The Town of Holden has successfully implemented several Measurable Goals noted in Holden's Notice of Intent. Prior to the development of Holden's Comprehensive Stormwater Management Program, including Measurable Goals, the Town had an assessment performed of current activities, programs and regulations that could support the NPDES Phase II Stormwater Program. This assessment became the basis for modifying current activities, recommending new programs, and informing Town boards and departments of their obligation toward successful implementation of Holden's Comprehensive Stormwater Program. In 2016 after the release of the new MS4 permit, the Town had entered into contract with a consulting engineering firm to perform an updated assessment of compliance with the 2003 MS4 permit and the new 2016 MS4 permit requirements. The results of the assessment will be used for the basis of our Notice of Intent. In general the assessment indicated that the Town is in compliance with the 2003 MS4 permit and has been implementing best management practices (BMPs) that are part of the new MS4 permit requirements.

During permit Year 15, the Town continued the implementation of its local stormwater bylaws, adopted and implemented the Massachusetts Stormwater Standards included in Stormwater Policy Handbook, continued implementation of the IDDE program, and coordinated public outreach/participation and construction inspection efforts through its partnership with the Massachusetts Department of Conservation and Recreation (DCR), the Wachusett Greenways, the Central Massachusetts Regional Stormwater Coalition (the Coalition), and the Statewide Stormwater Coalition. In Year 15, the Town continued to be an active participant in the Coalition. The Coalition's work in Year 15 was funded completely by its members -approximately 30 Towns, including Holden- each contributing \$4,000 for fiscal year 2018 (FY2018). This work was focused on training for Best Management Practices (BMP), public education and outreach for stormwater – focus on students; and preparation towards the upcoming new permit requirements. It should be noted that attached to this report is a summary of the activities performed by the Coalition and DCR activities within the Town of Holden.

In 2016, the Town hired Fuss & O'Neill (F&O) to develop a MS4 Permit Gap Analysis. The report was completed in Nov 2017. The report provided a summary of the Town's compliance with the 2003 permit, new compliance challenges in the 2016 MS4 permit, including compliance cost, and indicated where the Town already meets some of the 2016 permit requirements. A copy of this report is available upon request.

Holden is pleased to present the following summary describing the Town's success at implementing the program through the fifteenth year of the Town's Comprehensive Stormwater Program.

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 1 through 15	Planned Activities – Year 2018 - 2019
1	Create a Stormwater Program	Department of Public Works Planning Board Conservation Commission Board of Health Board of Selectmen	Holden will present to the public at public meeting Holden’s draft Comprehensive Stormwater Management Program.	Compliant in Year 1- 14. The Town of Holden has completed <i>Stormwater Management Phase II Assessment</i> report. Copies are available for review by town departments and the public. The Town’s IDDE Plan was last updated in December 2012 by Environmental Partners Group. Year 15: As a result of the implementation of the Stormwater Program, the Town continues with a systematic implementation of the six minimum control measures as described under BMP #1 - #23.	The Town of Holden will update its Stormwater Program based on the new 2016 MS4 permit and schedule a presentation with the Board of Selectmen and a public meeting to request comments
2	Create a Stormwater Program	Department of Public Works Planning Board Conservation Commission Board of Health Board of Selectmen	Holden will identify appropriate sources of funding assistance (SRF, 319 Grant Program, 604(b) Grant Program, Lakes and Ponds Grant Program, Source Water Protection Grant Program, Recycling Grant Program) and apply for assistance in implementing portions of Holden’s Comprehensive Stormwater Management Program, including public education and outreach.	Year 9: The Town of Holden received funding from the Department of Conservation and Recreation (DCR), for regulations development related to stormwater management. Through this funding, the Town of Holden finalized and adopted a new Stormwater Management bylaw. Year 10: In 2012, the Town of Holden and 12 other communities within Central Massachusetts have established the Central Massachusetts Regional Stormwater Coalition (Coalition) using a Community Innovation Challenge (CIC) grant to develop a regional municipal stormwater program. Year 11 - 14: Holden, as a member of the Coalition implemented a regional municipal stormwater management program along with 30 other towns. In 2016, MassDEP provided \$50,000 to the Coalition for technical assistance. In 2018, MassDEP provided \$200,000 to the Statewide Coalition for a statewide education program. Year 15: Holden continued the implementation of the regional municipal stormwater management program, fully funded by the 30 communities, each contributing \$4,000.00.	The Town plans to support the continuance of the Coalition with Town funds. The Coalition is working with USEPA and MassDEP to identify available grants.

1. Public Education and Outreach (Continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
3	Address specific groups	Department of Public Works Board of Health	Distribute EPA and other relevant educational brochures to targeted audiences. Distribution points include Town hall, Library, and Transfer Station	<p>Year 8: The Town is in receipt of EPA educational materials on disk for easy printing and distribution.</p> <p>Year 9: The Town provided several informational brochures to the public including Recycling Information, Requirements for Construction over 1 acre, Earth Day events, Mercury Collection by the Massachusetts Board of Health. Holden partnered with Rangers from the DCR to educate 1,788 persons at over 20 separate events on the local watershed and stormwater protection. Letters explaining the MS4 permit and a flyer on BMPs for the Food Service Industry were mailed to each food establishment licensed by the Board of Health. The DEP’s Horsekeepers’ BMPs Guidelines were sent to owners in Holden that have horses.</p> <p>Year 10, 11 and 12: The Town provided informational brochures to the public including Recycling Calendar, Earth Day events, Mercury Collection by the Massachusetts Board of Health. Holden partnered with Rangers from the DCR to educate on local watershed and stormwater protection. Hazardous Waste, Dog Waste and Surface Water Quality brochures were provided.</p> <p>Year 12, 13 and 14: Holden partnered with DCR Rangers to educate 524, 1285 and 616 students at 5, 16 and 616 events respectively on local watershed protection. This events were held at the elementary schools.</p> <p>Year 15: Holden partnered with DCR Rangers to educate 719 individuals on 11 separate events on stormwater issues at the schools and other public events. The Town performed stormwater educational presentations as described in BM#4.</p>	<p>Relevant educational brochures will continue to be printed and made available at town buildings.</p> <p>A box deposit for “Button Cell Battery Recycling Program” will continue to be present in the Town Hall through the Board of Health.</p> <p>The Town will continue to implement the construction site inspection practices developed through the Coalition for compliance with the 2017 CGP to ensure compliance with the MS4.</p> <p>The Town has reviewed the changes of the 2017 CGP and updated inspection procedures accordingly.</p>

1. Public Education and Outreach (Continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
4	Address specific groups	Department of Public Works Board of Health Planning Department	The Town of Holden will compile a library of educational materials that can be distributed to youth organizations, the Garden Club, etc. EPA stormwater BMP's targeting specific activities and audiences will be included	<p>Year 9: The Town offered brochures described in BMP #3 as well as information listed on the Town website and brochures enclosed with the monthly utility bill. Brochures sent to residents include: "Wachusett Earthday Collection" a yearly brochure describing the Household Hazardous Product and Recycling Event; Town of Holden, a Resident's Guide to DPW Snow Removal OP; "2012 Recycling Calendar". Information on the Town website includes: "Trash and Recycling Calendar"; "Leaf Composting and Brush Chipping"; "Septic System Maintenance."; "Trash Collection by Street". Year 10: same as Year 9. Also, the Town received the following cable ready DVD's from the DCR: "After the Storm"; "Reduce Runoff, Slow it Down, Spread it Out, Soak It In"; "Think Again, Think Blue MA" and "Cityscope Clean Water Act and SW". The documentary "Liquid Assets" obtained through the Coalition.</p> <p>Year 13, 14 and 15: The Town provided target informational brochures and posted this information in the Town's website. A "Residential Stormwater Management" brochure was mailed (with the light bill) to all residents. As described in BMP #8, various documentaries were broadcasted throughout the permit year on our local channels. In 2016, a 4-minute video titled "It's in your hands keep it clean" was created by WPI students as a result of the partnership between the MassDEP, WPI and the Coalition. The video targets residents and it was uploaded to the Town's facebook and website.</p> <p>Year 14 and 15: The Town and MassDEP used the Enviroscope table to educate students about sw public system and its impact to water bodies. We presented at Mayo and Dawson Elementary Schools 4th graders approximately 200 students were engaged.</p>	<p>Relevant educational brochures/information will continue to be made available to the public.</p> <p>Relevant information will continue to be made available on the Town website.</p> <p>The Town will continue to broadcast the acquired documentaries. We will continue to use the Enviroscope stormwater model table to educate our elementary school students at the schools and other forums.</p> <p>The Town plans to implement the requirements included in the 2016 MS4 permit.</p>

1. Public Education and Outreach (Continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
5	Target groups likely to impact stormwater	Department of Public Works Board of Health Planning Department	<p>Brochures targeting specific audiences and activities will be available. These target groups include homeowner and lawn maintenance activities, disposal of household waste, and pet maintenance. Other groups include commercial business and waste disposal, parking lot maintenance, and floor drains.</p> <p>Educational brochures on the proper disposal of household hazardous wastes will be attached to transfer station permits.</p>	<p>Year 8: The Town of Holden presented several brochure/information to the public. The Town offered brochures/information described in BMPs #3 and #4. Also, the DPW provided written notice to residents for practices that violate Town regulations. Year 9: All newly permitted parking lots have been reviewed and included structural and non-structural BMP's. Year 10: The Town has continued to make available the information/brochures described in BMPs #3 and #4.</p> <p>Through the Coalition, the Town has access to water quality monitoring kits from the World Water Monitoring Challenge program which engages citizens to conduct basic monitoring of their local water bodies.</p> <p>Year 11 -15: The Town made available the information described in BMPs #3 and #4. "Liquid Assets" was broadcasted several times.</p> <p>Year 12 - 15: In addition to the brochures described in BMPs #3 and #4, the Town made available a "pet waste management" brochure. The Coalition's website addresses target groups including homeowners, kids, and educators providing info on car care, fertilizing application, agricultural, septic system maintenance, landscape, residential runoff, etc.</p> <p>Year 13 and 15: The Town added to its Annual Truck Day (May) and Holden Days (August) a SW education section using the Enviroscape model table aprox. 150 / 300 people were engaged respectively.</p> <p>Year 14 /15: Through the Coalition, videos about MS4 IDDE and SWPPP were created and are included in the Coalition's website. The videos target Town's officials. The town's website SW section is linked to the Coalition's.</p>	<p>The Town DPW will continue to inform the public regarding stormwater protection practices.</p> <p>The Town will coordinate the broadcasting and advertisement of the documentaries on Holden's Local Access Cable Station.</p> <p>The Town will investigate opportunities to present the water quality monitoring kits to targeted audience.</p> <p>For Year 16: The Town plans to continue to host a stormwater education section on DPW Open House (May), Truck Day (July), and possibly on Holden Days (August).</p> <p>The Town plans to implement the requirements included in the 2016 MS4 permit.</p>

1. Public Education and Outreach (Continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
5 (cont'd)				<p>Year 14: Through the Coalition, WPI students developed three handouts related to stormwater management targeting students and families. They developed the following documents: a flyer titled “Ask your child what they learned today”; take home stormwater chaser activity book; and in-classroom activity.</p> <p>Year 14 -15: These documents were used and handed out during our presentation to the elementary schools, described in BMP#4, and during the outreach events Truck Day and Holden Days.</p>	
6	Promote household waste recycling	Department of Public Works Board of Health MIS Department	The Town of Holden and the Board of Health will promote recycling and hazardous waste collection opportunities through brochures and postings on the Town’s website and local access channel.	<p>Year 8 and 9: The Town of Holden advertised the yearly hazardous waste collection event via brochures (enclosed in the Holden Municipal Light Bill), website and public access television</p> <p>Year 10 - 15: The Town advertised the hazardous waste collection events via brochures (enclosed in the Holden Municipal Light Bill), website, and public access television.</p> <p>Year 12 - 15: The Town’s electronic sign boards located in conspicuous places advertised the dates for household hazardous waste recycling. The Town also uses Facebook to promote recycling.</p> <p>Year 14 – 15: The Town has initiated Twiter and Instagram accounts and it is actively sending daily messages related to recycling and stormwater management to its followers.</p>	<p>Brochures/information will continue to be made available to the public.</p> <p>In partnership with the Wachusett Watershed Regional Recycling Center the Town will continue to advertise the hazardous waste collection events.</p> <p>The Town plans to implement the requirements included in the 2016 MS4 permit.</p>

1. Public Education and Outreach (Continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
7	Utilize local public access channel	Department of Public Works Board of Health	Links to stormwater BMP's and other water quality education resources, including EPA and DEP will be posted on the Town of Holden's website: http://www.townofholden.net/	<p>Year 8 and 9: The Town of Holden website has several web links to environmental and public health organizations and other environmental information, including the DEP and the EPA.</p> <p>Year 10: As previously described in BMP #4, the Town has received 5 documentaries for broadcasting on the local access channel. The Coalition developed an educational website, www.centralmastormwater.org focused on providing information about the project to a number of audiences including the general public, educators and kits. Through the Coalition, the Town has access to an Enviroscape table. This is a portable interactive environmental education model intended for use in schools and community education on non-point source issues that affect the environment.</p> <p>Year 11 and 12: "Liquid Assets: The story of our water infrastructure" was broadcasted several times. Year 13 - 15: "Liquid Assets" and "Water Blues, Green Solutions" were broadcasted throughout the permit year. As indicated in BMP#4, the Town used the Enviroscape table to educate 4th graders on the stormwater pollution prevention.</p> <p>Year 14 -15: Through the Coalition, a number of educational videos were developed in 2016 and are available to the various audiences. These videos include: MS4 Introduction, Outfall Inspection and Water Quality Sampling, Stormwater Data Management, Stormwater BMP and LID, Stormwater Pollution Prevention Plan, etc. The Town's website includes a link to the Coalition's website. The Coalition's website includes is updated on a regular basis to include SW news from DEP, EPA and the Coalition.</p>	<p>The Town will coordinate the broadcasting and advertisement of the documentaries recently acquired on Holden's Local Access Cable Station.</p> <p>The town will continue to investigate opportunities to partnership with schools for the presentation of the Watershed/Non-point Enviroscape model to various audiences.</p> <p>The Town plans to implement the requirements included in the 2016 MS4 permit.</p>

1. Public Education and Outreach (Continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
8	Utilize local public access channel	Department of Public Works Board of Health	Stormwater BMP's, solicitation for stream team cleanup volunteers, and EPA produced water quality videos will be considered for presentation on Holden's public access channel.	<p>Year 8 and 9: DCR was contacted to use their copy of the EPA presentation, "<i>After the Storm</i>" that is in cable-ready format.</p> <p>Year 10: As described under BMP #4, the Town received copies of 4 cable ready DVD's from the DCR and a copy of a documentary from Penn State University. All of these videos are aimed to educate the public on stormwater management.</p> <p>Year 11: the Town has the documentaries listed in BMP #4. "Liquid Assets: The story of our water infrastructure" was broadcasted several times..</p> <p>Year 12 and 15: the Town broadcasted the following videos throughout the year:</p> <ul style="list-style-type: none"> - Reigning in the Storm - Think Again Think Blue - Nonpoint Source Pollution - Reduce Runoff Slow it Down, Spread it Out, Soak it In! - Cityscope Clean Water Act - After the Storm EPA <p>Year 13 - 15: The Town broadcasted the following additional videos on our local channels throughout the year:</p> <ul style="list-style-type: none"> - Liquid Assets - Water Blues, Green Solutions <p>Year 15: Also, see BMP #7</p>	<p>The Town will continue the broadcasting and advertisement of the documentaries on Holden's Local Access Cable Station.</p> <p>The Town plans to implement the requirements included in the 2016 MS4 permit.</p>

1. Public Education and Outreach (Continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
9	Develop, conduct and document educational programs	Department of Public Works	The Town of Holden Water Department will apply for funding assistance from DEP’s Source Water Protection Program for grant assistance to develop wellhead protection plans and stormwater management plans within Zones II. The proposed tasks will include education component.	<p>Year 10: As described above, the DCR worked with Holden education staff and conducted training and workshops. There were several watershed field trips conducted. A total of 14 events were performed which engaged 1,341 4th grade students.</p> <p>Year 11: The DCR worked with Holden school staff and conducted 22 events including classes and field trips focusing on topics related to watershed history, watershed model, watershed mapping, reservoir history, and forest succession which engaged 2,063 4th and 5th grade students. Through the Coalition, the Town assisted WPI students on their IQP related to the development of a catchment ranking tool which processes user input data or other criteria to suggest ranking into one of the four catchment categories defined in the Draft 2013 New Hampshire MS4 Permit.</p> <p>Year 12: The DCR conducted 5 events including classes and field trips focusing on topics related to watershed model and water mapping which engaged 524 students. Through the Coalition, the Town worked with WPI students on their IQP related to evaluation cost for compliance with the new draft 2014 MS4 permit. The project was presented to the public at the 495/Metrowest Partnership in Spring 2015.</p> <p>Year 13: the DCR conducted 16 separate events (primarily in the 4th and 5th grade classes at Davis Hill) and engaged 1,285 individuals. The MassDEP provided a \$50,000 stormwater technical assistance grant to the Coalition to develop training material and outreach tools.</p> <p>Year 14: the DCR conducted 7 separate events at Davis Hill and Mayo schools and engaged 616 individuals.</p>	<p>The Town of Holden will continue to work on a combined effort with the DCR to educate students and the public.</p> <p>The Town as a member of the coalition will work on developing the new training materials and outreach tools to meet the requirements of the 2016 MS4 permit.</p>

1. Public Education and Outreach (Continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
9 (cont'd)	Develop, conduct and document educational programs	Department of Public Works	The Town of Holden Water Department will apply for funding assistance from DEP's Source Water Protection Program for grant assistance to develop wellhead protection plans and stormwater management plans within Zones II. The proposed tasks will include education component.	<p>Year 15: the DCR conducted 11 separate events at Davis Hill and Mayo schools and engaged 719 individuals.</p> <p>Holden DPW conducted 5 events: two at the elementary schools, Truck Day, DPW Open House and Holden Days and engaged approx. 770 individuals. Through the Coalition, 12 new videos were produced that feature the various BMPs visited during a BMP tour.</p> <p>Through the Coalition, WPI students have developed Stormwater Management educational material that is used during our public outreach events. This material includes: in classroom activities (8 pages)' stormwater chaser activity book (8 pages) and backpack mail (2 pages).</p> <p>Through the Coalition, WPI students worked to develop a 5th grade watershed curriculum that meets the new Massachusetts Next Generation science standards. Components of the curriculum include the water cycle, watersheds, stormwater runoff and other environmental features that demonstrate to children how runoff and contaminants affect water quality.</p>	

1. Public Education and Outreach (Continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
10	Conduct public meetings/create citizen panels	Board of Selectmen Department of Public Works	The Town of Holden will contact the Nashua River Watershed Association to review opportunities in Holden. These opportunities include hosting a watershed association meeting in Holden with notice on website and local access channel, and televising a meeting reviewing watershed activities or needs specific to Holden	<p>Year 8, 9, 10, 11 and 12: The Wachusett Greenways provided recreational trail maintenance within the Town of Holden. The DCR has regulatory jurisdiction (350CMR 11) over much of the land bordering waterways in Holden (within 400 feet of water) including regulating land use and density. Through the Town’s partnership, the Nashua River Watershed Association has included sw related protection for Holden in its 5 (five) year action plan. The plan includes acquiring GIS capacity, recreation, open space protection, and water quality. The Association also suggests potential funding sources.</p> <p>Year 11 and 12: Representatives of the Coalition presented its work at two public conferences one in Woonsocket, RI and one in Worcester, MA. Through the Coalition, the Town has collaborated with other groups with a similar sw focus, sharing the tools developed by the Coalition in a reciprocate manner.</p> <p>Year 12: The DPW Director gave a presentation called “<i>MA MS4 Permits: A Municipal Perspective – Implementing Stormwater Programs</i>” at the Environmental Business Council’s Water Resource Management Program. Other presentations by the Coalition.</p> <p>Year 13 and 14: Through the Coalition, the Town met twice in Year 13 and three times in Year 14 with other sister groups with a similar sw focus, including the Merrimack Valley Stormwater Collaborative, Neponset Stormwater Partnership, Northern Middlesex Stormwater Collaborative, Connecticut River Stormwater Committee, and Southeast Regional Service Group, Pioneer Valley Regional Approach, and FRCOG Deerfield River Watershed sharing tools and ideas. The Town of Holden is actively participating in the Statewide Stormwater Educational Committee which have had one meeting within the permit year.</p>	<p>The Town of Holden will continue to work with the Wachusett Greenways, DCR, and Nashua River Watershed Association to determine opportunities for collaboration.</p> <p>The Town’s DPW will review the new permit and provide recommendations to the Stormwater Committee on how to address the new requirements, residents and stakeholders will be invited to provide comments.</p> <p>The Town will continue to collaborate with other stormwater groups through the Coalition.</p>

1. Public Education and Outreach (Continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
10 (cont'd)	Conduct public meetings/create citizen panels	Board of Selectmen Department of Public Works	The Town of Holden will contact the Nashua River Watershed Association to review opportunities in Holden. These opportunities include hosting a watershed association meeting in Holden with notice on website and local access channel, and televising a meeting reviewing watershed activities or needs specific to Holden	Year 15: the Town participated in the Coalition’s steering committee meetings which met 8 times. Also, the Town participated in 6 statewide stormwater coalition meetings. The Town is actively participating in the Statewide Stormwater Educational Committee. The DEP has provided a \$200,000.00 grant for a public education program. Currently, the Statewide Stormwater Educational Committee is managing this effort.	

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
11	Community cleanups	Department of Public Works MIS Department Board of Selectmen	Town of Holden will coordinate local stream team cleanups with area Scout groups. Town will provide notice of event on local access channel and website.	<p>Year 8 and 9: Wachusett Greenways is a volunteer based organization that provides trail development in several communities, including Holden. The Holden DPW worked with Wachusett Greenways on trail construction, which includes proper drainage.</p> <p>The DCR has regulatory jurisdiction (350CMR 11) over much of the land bordering waterways in Holden (within 400 feet of the water) including regulating land use and density.</p> <p>Year 10: The Wachusett Greenways provided maintenance to the Central Mass Rail Trail. The Town was provided with a stencil for catch basins from the DCR. Through the Coalition’s website public in general is encouraged to become volunteers to help address stormwater concerns. The Coalition developed a presentation on stormwater management focused on educating elected officials and municipal department head on the requirements of the MS4 General Permit.</p> <p>Year 11: Wachusett Greenways re-routed a section of the White Oak Trail.</p> <p>Year 11 - 13: The DPW street sweeping’s schedules are posted on the Town’s website by street which allows residents and business owners to remove winter debris from their front yards into the street to be removed by the sweepers. .</p> <p>Year 14 and 15: The DPW continue the street sweeping program similar to previous years. In addition to street sweeping, the Town offers spring cleaning, chipping and composting to all residents and businesses. The dates of these activities are posted on the Town’s website.</p> <p>Year 15: the Coalition conducted a Members Needs Survey. Details of this survey are appended to this report as part of the Coalition activities.</p>	<p>The Town of Holden will continue to work with the DCR and Wachusett Greenways to protect the quality of waterways within Holden and to provide environmentally safe public recreation opportunities.</p> <p>The Town plans to implement the requirements included in the 2016 MS4 permit.</p>

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
12	Mapping of storm water management infrastructure	Department of Public Works Planning Department	Holden will develop a multi-year plan to complete mapping of entire storm drain system. Development of plan will include review of water, sewer, and other infrastructure.	<p>Year 8: Holden completed mapping under the IDDE of UA. The outfalls within the UA were surveyed. Survey information included condition, presence of dry weather flows, location, source of flow, and receiving water body. The outlet locations were mapped using AutoCAD and MassGIS.</p> <p>Year 10: The Coalition had created an integrated mapping and inspection database. The database can be access by all members into a single GIS-based system, accessible online. The Town’s mapping system has been integrated to the Coalition’s database.</p> <p>Year 11 and 12: The Town added to its stormwater mapping system the new subdivision’s stormwater structures using the share RTK GPS surveying device provided through the Coalition.</p> <p>The Town stormwater mapping is available on the Town’s website. Also, the Coalition provides an integrated online mapping and inspection database. The database is cloud-base and can be accessed by desktop or tablet computer.</p> <p>Year 12: Through the Coalition, the Town obtained an additional Samsung tablet to be used in the field during catch basin cleaning and outfall inspections. Cleaning of catch basins were logged into the Coalition’s online mapping system.</p> <p>Year 13 and 14: The Town updated its stormwater system to map new roadways and attributes using the Coalition’s GPS surveying device. The Town intends to use a tablet during inspections of the sw system to log maintenance records.</p> <p>Year 15: the Town mapped 110 culverts and collected data pertaining to its physical condition and connectivity to other infrastructures.</p>	<p>The Town of Holden will continue to refine the details of the stormwater management infrastructure and database during Operations and Maintenance (O&M) and IDDE activities.</p> <p>On a rotating schedule, the Town will use the GPS surveying unit to continue to map the stormwater system. Connecting pipes, BMPs and beaver dams, can now be mapped and identified through the Coalition’s stormwater mapping system.</p> <p>The Town intends to utilize the tablet computer during stormwater maintenance operations.</p> <p>The Town plans to update the stormwater database to include flow direction data</p> <p>The Town plans to implement the requirements included in the 2016 MS4 permit.</p>

3. Illicit Discharge Detection and Elimination (Continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
13	Identification/ description of problem areas	Department of Public Works	Holden will develop and implement an Illicit Discharge Detection and Elimination (IDDE) plan.	<p>Year 9: Follow up activities from Permit Year 8 were conducted. Outfalls exhibiting elevated /anomalous conditions were resampled with clean results. As part required by the IDDE plan.</p> <p>Year 10: The Town contracted the services of an environmental consultant to update its IDDE plan. The Town has an updated IDDE plan that includes the requirements of the 2010 MS4 Draft Permit. The Coalition developed a Standard Operating Practice (SOP) “Locating Illicit Discharges” intended to define the types of illicit discharges and provide tools to identify each. The Coalition developed an IDDE Documentation Packet, which specifies how illicit discharges are detected and what department or person is responsible for ensuring elimination. The Coalition developed a Sump Pump Discharge policy. Through the Coalition, the Town has access to water quality field kits and meters which are focused on identifying illicit discharges.</p> <p>Year 11: Through the coalition, the Town assisted WPI students on developing a web-based program that will facilitate the ranking of catchment areas based on the requirements of the NH 2013 draft permit. See BMP #9.</p> <p>Year 12: Through the Coalition, the Town and WPI students sample outfalls to Chapin Pond from the Industrial Park parking lot area and from Gail Drive. As well as outfalls to a stream that ultimately discharges to Unionville Pond.</p> <p>Year 13 - 15: The Town implemented the IDDE plan. SW inspections of key outfalls during wet and dry weather conditions were conducted. There were not ID found during the permit year.</p> <p>Year 15: the Town’s consultant F&O prepared a permit gap analysis report.</p>	<p>The Town will continue to implement the requirements of the updated IDDE plan.</p> <p>The Town is studying available options to best implement the recommendations and policies identified in the SOP, IDDE Document Packet and Sump Pump policy.</p> <p>The Town plans to work with the Coalition members to refine and test the developed software and use it as a tool for compliance with the upcoming permit.</p> <p>The Town has established a way of communication with DCR to combined efforts in the detection of illicit discharges. DCR now shares the results of samples collected within the Wachusett Watershed.</p> <p>The Town plans to meet the requirements of the new 2016 MS4 permit.</p>

3. Illicit Discharge Detection and Elimination (continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
14	Enforcement procedures addressing illicit discharges	Department of Public Works Planning Department	Holden will review whether local authority is appropriate and able to respond to potential illicit discharges. New by-laws, if necessary, will be proposed. DCR grant will support this effort.	<p>Year 9: The Town was in the process of finalizing a new IDDE bylaw that went before Town Meeting in Spring 2012.</p> <p>Year 10: The Town has adopted a new Illicit Discharge Control bylaw on May 21, 2012.</p> <p>Year 11 and 12: In addition to the scheduled maintenance of sw structures throughout the Town, the Town emphasized the inspection of the sw structures within areas of higher industrial activity. No signs of illicit discharges were found. These areas included the Industrial Park Complex and Oriol Medical Building Complex, and denser neighborhoods.</p> <p>Year 13: The DCR performed weekly samples for bacteria at four tributaries in Holden and monthly nutrient samples were collected at two locations. No problems were identified.</p> <p>Year 13 and 14: The DPW routinely inspected on-going construction sites for operation and maintenance of existing sw systems including BMP.</p> <p>Year 14: The DCR performed weekly samples for bacteria at three tributaries in Holden and monthly nutrient samples were collected at two locations. No significant problems were identified.</p> <p>Year 15: The DCR performed weekly samples for bacteria, turbidity and specific conductance at four tributaries in Holden and monthly nutrient samples were collected at two locations. No significant problems were identified. The Town sampled at the inlet to the infiltration pond of the Bullard Estates subdivision. The sample was tested for boron, potassium, ammonia, chloride, color, fluoride, conductivity, hardness, foaming agents, ph and turbidity. The results were below background levels.</p>	<p>The Town will continue to implement the requirements of the Illicit Discharge Control bylaw.</p> <p>The Town will implement the recommendations provided in the 2013 IDDE program.</p> <p>The Town will update the IDDE program to include the requirements of the new 2016 permit.</p>

3. Illicit Discharge Detection and Elimination (continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
15	Initiation of recycling programs	Department of Public Works Board of Health	Holden will apply for funding assistance from DEP's Recycling Grant Program for assistance in public education and the purchase of recycling materials.	<p>Year 10: The Town continued to advertise the Recycling and Household Hazardous Product Collection events via brochures (enclosed in the Holden Municipal Light bill), website and public access television.</p> <p>Year 11 - 15: The Town continued its recycling program as described in Year 10. As describes in BMP#6, the Town uses two electronic sign boards to publicize the various recycling events as well as the facebook and Town website.</p> <p>Year 14: The Town has initiated Twiter and Instagram accounts. The Town is actively posting daily messages related to recycling and stormwater management.</p> <p>Year 15: The Town continues to pushed messages through Twiter and Instagram accounts. The Town is posting messages related to recycling and stormwater management.</p>	<p>The Town in collaboration with the Wachusett Watershed Regional Recycling Center will continue to advertise the Hazardous Product Collection Events.</p> <p>The Town will continue to monitor funding sources for applicability for recycling.</p>

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
16	Bylaw: Storm water management regulations for construction sites 1 acre or larger	Planning Board Conservation Commission Town Counsel Board of Health Zoning Board of Appeals	Holden will review model by-law developed by DEP in consultation with the Attorney General's Office.	<p>Year 9: The DPW placed a poster titled "Is your construction project disturbing 1 or more acres of land..." within the Town Hall for public viewing. This poster describes EPA regulations; The Town of Holden drafted and Town Meeting passed a new local ordinance: Stormwater Management and Erosion Control Bylaw which regulates construction in areas 20,000 square feet and larger or more or disturbs land with 15% or greater slope where the land disturbance is greater than or equal to 400 square feet within the sloped area.</p> <p>Year 10: The Town has continued to enforce the State and Federal stormwater regulations on new and redevelopment. The Coalition developed a SOP "Erosion and Sedimentation Control" intended to help communities minimize land disturbance addressing design, planning, construction, and inspection tools. The SOP outlines inspection requirements for BMPs for long-term purpose.</p> <p>Year 11 - 15: The Town required compliance with the Massachusetts Stormwater Handbook on all applicable BMP proposed to be constructed. During construction, the Town in as far as possible oversaw the installation of new BMPs to ensure its construction is in accordance with the design specification. The Town patrols existing construction sites on a regular basis and a notification was sent to the developers if sediments extended outside the disturbed areas.</p>	<p>The Town will work on implementing the stormwater regulations related to the new bylaw.</p> <p>The Town intends to incorporate the SOP "Erosion and Sedimentation Control" in the implementation of the new bylaw as applicable.</p> <p>The Town plans to develop rules and regulations for the implementation of the sw and illicit discharge control bylaws. The rules and regulations will incorporate the requirements of the new 2016 MS4 permit.</p>

4. Construction Site Stormwater Runoff Control (continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
17	Bylaw: Procedures for creating a Storm Water Pollution Prevention Plan (SWPPP)	Planning Board Conservation Commission Town Counsel Board of Health Zoning Board of Appeals	Utilizing funding assistance from MDC grant, Holden will review current by-laws and develop and recommend approval for by-laws responding to MM4.	<p>Year 9: The Town of Holden drafted and Town Meeting passed a new local ordinance: Stormwater Management and Erosion Control Bylaw.</p> <p>Year 10: The Town has continued to enforce the State and Federal stormwater regulations on new and/or redevelopments.</p> <p>Year 11 and 12: Through the Coalition, the Town has a list of existing facilities that have coverage under the MSGP and prepared a SWPPP for their sites. The Town completed a review of industrial facilities located in Holden that applied for coverage under the MSGP and the compliance status of each.</p> <p>Year 13 and 14: The Town inspected construction sites including Stoney Brook, Oak Hill, St. Mary’s, and others, on a regular basis. Contractors were notified via email when issues occurred and were asked to report on correction measures implemented.</p> <p>Year 14 and 15: The Town inspected various subdivision construction sites including: Oak Hill, Red Tails, Wachusett Valley Estates.</p> <p>Year 15: the Town also inspected Parsons Rest. These sites were inspected on a regular basis and contractors were asked, when needed, to implement mitigation measurements. Contractors were notified via email when issues occurred and were asked to report on corrective measures implemented.</p>	<p>The Town will work on implementing the stormwater regulations related to the new bylaw.</p> <p>The Town will make an effort to contact industrial facilities that should be complying with the MSGP permit and have not applied for it.</p> <p>The Town will inspect on-going construction sites on regular basis for compliance with stormwater regulations.</p> <p>The Town plans to meet the requirements of the new 2016 MS4 permit.</p>

Additional Activities: DCR, in partnership with the Town of Holden, inspected a total of 69 dry weather and 26 wet weather inspection at 15 different construction sites that disturb more than one acre in the Town of Holden. Only a few minor issues were noted and all were quickly addressed.

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 1 through 15	Planned Activities – Year 2018 - 2019
18	Bylaw: Require post-construction runoff controls	Planning Board Conservation Commission Town Counsel Board of Health Zoning Board of Appeals	Holden will review model by-law developed by DEP in consultation with the Attorney General's Office	<p>Year 9: The DPW placed a poster titled "Is <i>your construction project disturbing 1 or more acres of land...</i>" within the Town Hall for public viewing. This poster describes EPA regulations; The Town of Holden drafted and Town Meeting passed a new local ordinance: Stormwater Management and Erosion Control Bylaw which regulates construction in areas 20,000 square feet and larger or more or disturbs land with 15% or greater slope where the land disturbance is greater than or equal to 400 square feet within the sloped area.</p> <p>Year 10: The Town has continued to enforce the State and Federal stormwater regulations on new and/or redevelopments. The DCR staff constantly monitors agricultural sites for stormwater and manure run off. The Coalition's website includes a BMP Toolbox section which is intended to compile the stormwater post-development tools currently permitted for small In Year 13, DCR monitored 25 small hobby farm sites for sw related issues, minor issues were found and corrections were implemented promptly. development or redevelopment.</p> <p>Year 11 - 15: It is the Town's policy to request new development and redevelopments to provide an O&M program for the maintenance of BPM that are privately owned. The Town requests that a Homeowners Association be established to provide the economic means and set a maintenance schedule and initial cost.</p> <p>In Year 15: DCR monitored agricultural sites regularly. DCR sent letters to two agricultural sites recommending BMP.</p>	<p>The Town will work on implementing the stormwater regulations related to the new bylaw.</p> <p>The Town will work with the Coalition to communicate the BMP Toolbox section to developers.</p> <p>The Town plans to meet the requirements of the new 2016 MS4 permit.</p>

5. Post-Construction Stormwater Management in New Development and Redevelopment (continued)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
19	Identify structural and non-structural long-term runoff control strategies BMPs	Planning Board Conservation Commission Town Counsel Board of Health Zoning Board of Appeals	Utilizing funding assistance from MDC grant, Holden will review current by-laws and develop and recommend approval for by-laws responding to MM5.	<p>Year 9: The Town of Holden drafted and Town Meeting passed a new local ordinance: Stormwater Management and Erosion Control Bylaw.</p> <p>Year 10: The Town has continued to enforce the State and Federal stormwater regulations on new and/or redevelopments.</p> <p>Year 11: The Town continued to enforce the State and Federal stormwater regulation on new and/ redevelopments through its SW Management and Erosion Control Bylaw.</p> <p>Year 12 - 15: As described in BMP #16, the Town required compliance with the Massachusetts Stormwater Management Standards. A long term O&M plan was required for all new developments as applicable. For single lot construction sites, the Town requested developers to meet the Stormwater Management and Erosion Control bylaw in as far as possible. The Town used the mapping tools and training provided by the Coalition and applied it to new development and redevelopment projects. Through the Coalition, the Town attended a BMP tour, three sites were visited encompassing industrial, commercial and highway activities. This effort was recorded and videos of each site will be available in the Coalition’s website.</p>	<p>The Town will work on implementing the stormwater regulations related to the sw and illicit discharge control bylaws.</p> <p>The Town will update the sw and illicit discharge control bylaws in accordance with the requirements of the new 2016 MS4 permit.</p> <p>The Town plans to meet the requirements of the new 2016 MS4 permit.</p> <p>The Town is working on updating its subdivision Rules & Regulations to include the additional requirements related to drainage design and LID.</p>

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 1 through 15	Planned Activities – Year 2018 - 2019
20	Develop a municipal Operations and Maintenance Plan	Department of Public Works	Using regulations and recommendations from DEP and EPA, Holden will develop and update an operations and maintenance plan to include proper disposal of street sweepings, catchbasin cleanout, snow disposal, roadway deicing procedures, vehicle washing, and outside storage of materials.	<p>Year 1-15: The Town of Holden DPW cleans catch basins and sweeps all streets yearly. The Town notifies residents of the street sweeping schedule in the newspaper and on the Town website.</p> <p>Year 10 -15: The Town has stopped using sand except for ice storms and began using a treated salt for snow treatment. The Town contracted the services of an environmental consultant to perform an audit of municipal buildings focused on pollution prevention and good housekeeping. Fourteen buildings were audited. The Town has implemented all viable recommendations that resulted from the audit. Through the Coalition, the Town has prepared Stormwater Pollution Prevention Site Plans for each of the DPW garages.</p> <p>Year 11: The Spill Prevention Control and Countermeasure Plan (SPCC) for the DPW garage was completed. The Town implemented viable recommendations provided in the 2013 audit of municipal buildings and the SPCC Plan for the Highway Garages. Also see BMP #22.</p> <p>Year 12 - 15: The Town hired an environmental cleaning company to clean all floor drains and oil water separator for both highway garages and Public Safety Building. This process will be maintained annually.</p> <p>Year 14 and 15: The Town has continued to implement in as far as possible the recommendations from the 2013 SPCC Plan. The Town is going through the process of designing a new DPW facility that will meet these recommendations and will comply with the new permit.</p>	<p>The Town will continue to implement the O&M plan regarding catch basins and street maintenance.</p> <p>The Town will review BMPs for applicable O&M practices.</p> <p>The Town plans on continue to implement recommendations provided in the IDDE audit and SPCC Plan.</p> <p>The Town is evaluating viable solutions for the collection and management of runoff from vehicle washing.</p> <p>The Town is engaged in the site acquisition and design for a new DPW facility that will comply with the permits requirements. .</p>

6. Pollution Prevention and Good Housekeeping in Municipal Operations (cont'd)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
21	Develop and implement training programs for municipal employees	Department of Public Works	Holden will send a minimum of 5 public works employees annually to training seminars sponsored by MassHighway, BayState Roads, and other relevant agencies or vendors.	<p>Year 1-10: Town employees attended several trainings on a yearly basis.</p> <p>Year 11: The Town provided to the DPW employees a Spill Prevention Control and Countermeasure training. Hazardous Communications and Right to Know Act was provided to DPW and Light Department employees.</p> <p>Year 12 - 15: Town employees attended BayState Roads training seminars related to Safety and Environmental Sustainability.</p> <p>Year 14: Town employees and stakeholders attended training and workshops related to the new MS4 permit.</p> <p>Year 15: Town employees and stakeholders attended MS4 conferences and seminars related to the MS4 permit.</p>	<p>The Town of Holden will continue to provide training and educational development opportunities to its employees regarding stormwater pollution prevention.</p> <p>The Town plans to meet the requirements of the new 2016 MS4 permit.</p>

6. Pollution Prevention and Good Housekeeping in Municipal Operations (cont'd)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
22	Develop a municipal Operations and Maintenance Plan	Department of Public Works	Holden will implement a formal inspection program, including maintenance logs and scheduling, for catch basin cleaning, repairs, and new installation.	<p>Year 1-10: The Town of Holden DPW cleans catch basins and sweeps all streets yearly. The Town notifies residents of the street sweeping schedule in the newspaper and on the Town website. As previously mentioned, the Town has acquired a field tablet computer provided with an online database of the Town's stormwater infrastructure to be used during system cleaning and maintenance.</p> <p>Year 12: The Town replaced a deteriorated and undersized culvert on Reservoir St following the Massachusetts Crossing Standards. This work included the installation of 40-feet of 60" HDPE and reconstruction of headwalls. Also, a culvert on South Road was improved using slip lining technology. This work included the lining of 70-feet of pipe and reconstruction of headwalls.</p> <p>Year 13: The Town performed upgrades to bridge culvert crossing on Reservoir St. including new cast-in-place approach slabs, sleeper pad, reinforced deck, and crash barrier; and ~400-ft highway guard rail. Reconstruction of the Shrewsbury St drainage system from Arizona to Doyle Rd. The design for replacement of 500-ft of 30-in drainage pipe at Wyoming Dr.</p> <p>Year 11 - 15: The Town performed maintenance of the sw infrastructure including cleaning of existing catch basins, drainage pipes and BMPs, and repair/replacement of aging structures. Most of these activities are being recorded in the database. This is the sixth year that the Town has been using green salt for the deicing operations resulting in a significant reduction of sediment accumulation within CB.</p> <p>...it continues below...</p>	<p>The Town will continue to implement the O&M plan regarding catch basins and street maintenance.</p> <p>The Town will review BMPs for applicable O&M practices.</p> <p>The Town will continue the implementation of using the field tablet to establish a web-based data management system for the cleaning and inspection activities of the stormwater infrastructure.</p> <p>The Town plans to meet the requirements of the new 2016 MS4 permit.</p>

6. Pollution Prevention and Good Housekeeping in Municipal Operations (cont'd)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
22 (cont'd)				<p>Year 14: The Town upgrade 500-ft of 30" drainage pipe that was 50+ years old that connects a perennial stream and collects road runoff along Wyoming Dr. The system was upgraded to include deep sump catch basins. The Town performed the upgrade of several drainage structures as described in BMP#23.</p> <p>Year 15: The Town performed replacement and/or repair of drain manholes, catch basins and pipes on all streets that received new hot mix asphalt, approx. 4.8 miles. 118 miles of roads were swept. 20 miles of sidewalks were swept. Over 130 manholes and catch basins were repaired. 220-feet of drainage pipe were replaced. The Town replace a failing outfall and associated pipe in General Hobbs that transfers storm water from the subdivision to the infiltration pond. Approx. 100-ft of pipe were added and a manhole.</p>	

6. Pollution Prevention and Good Housekeeping in Municipal Operations (cont'd)

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 through 15	Planned Activities – Year 2018 - 2019
23	Review storm drainage infrastructure needs	Department of Public Works	Holden will consider storm drain improvements in development of annual road maintenance plan subject to funding from Chapter 90	<p>Year 1-10: The Town of Holden DPW performs maintenance to the storm drain infrastructure as needed.</p> <p>Year 10: The Town performed significant drainage improvements on Quinapoxet Street including the adjustment of drainage structures and replacement of 18-inch metal drain pipeline. Other drainage work include the installation, replacement and/or repair of 87 structures and 1,185 feet of piping on various streets as reported in the 2012 Annual Town Report posted on the website.</p> <p>Year 11: The Town performed drainage improvements to a culvert crossing on Newell Road which included the addition of two deep sump catch basins and installation of riprap for erosion control on the banks of the culvert. Numerous catch basins were repaired on an as needed basis.</p> <p>Year 12: The Town made repairs of catch basins and other storm drain structures within several streets as part of the annual highway maintenance. A total of 122 structures and 100 feet of pipe were improved.</p> <p>Year 13: The Town made repairs of catch basins and other storm drain structures within several streets as part of the annual highway maintenance. A total of 88 structures and 80 feet of pipe were improved.</p> <p>Year 14: The Town made repairs of numerous catch basins and storm drain structures within several streets as part of the annual highway maintenance.</p> <p>Year 15: the Town made repairs of 130 catch basins/manholes and 220-ft of pipe.</p>	The Town's DPW will continue to perform maintenance to the storm drain infrastructure as part of the annual roadway maintenance.

7. BMPs for Meeting Total Maximum Daily Load (TMDL) waste Load Allocations (WLA) – NOT APPLICABLE

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Year 2018 - 2019
				No TMDLs in the Town of Holden	

7b. WLA Assessment

To date, the Town has focused on completing GIS mapping of the drainage system and receiving waters, as approved by the DEP. The Town is incorporating additional mapping information including BMPs, piping, culverts, flow direction and outfall physical characteristics as described in the 2016 permit. When applicable, the Town will comply with the requirements to meet WLA.

Town of Holden

FY2017/2018

**Summary of Activities
through the Coalition**

Central Massachusetts Regional Stormwater Coalition Coalition Activities in Year 15 (April 1, 2017-March 31, 2018)

Introduction

The Central Massachusetts Regional Stormwater Coalition (CMRSWC) is an MS4 resource for all 30 member communities. CMRSWC has three 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 required by the MS4 permit. The Education sub-committee is also responsible for planning and scheduling the Annual Meeting, educational workshops, and other forums for discussion of MS4 topics. The committee is CMRSWC's primary liaison to professional organizations and university partnerships.
- **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 November 15, 2017 in Worcester. Members of CMRSWC also attended and actively participated in the Massachusetts Statewide Municipal Stormwater Coalition meetings.

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

Best Management Practices Technical Tour

On October 25, 2017, CMRSWC sponsored a technical tour and workshop for DPWs, Highway, and other staff in member communities responsible for the operations and maintenance of local roads, drainage, sidewalks, parking lots, and other public infrastructure. The tour was led by a team from Fuss & O'Neill and took attendees from 14 communities on a "road trip" to visit sites at Dennison Lubricants (Worcester), Tufts Veterinary School (North Grafton), and several Mass DCR sites. At each site, participants had the opportunity to learn about the BMPs in use at the site from a variety of staff from DCR and Mass DOT, as well as engineers and project owners. A lunch program offered additional opportunities to discuss stormwater management techniques. Handouts, presentation materials, and video footage of the tour are being offered to CMRSWC members through the website.

Videos and Templates (Minimum Control Measures 1, 3, 4, 5, 6)

As a follow-up to the Best Management Practices Technical Tour, 12 new CMRSWC videos were produced that feature the various BMPs visited on the tour, presentations from the day, and additional detailed footage recorded at the BMP sites after the event.

Department of Conservation and Recreation Education and Outreach Materials (Minimum Control Measures 1 and 2)

As part of the Stormwater BMP Technical Tour, Kelley Freda from the Department of Conservation and Resources presented participants with stormwater education and outreach materials available from DCR. She distributed a packet of various brochures targeting a diverse audience. These materials are available from the DCR website www.mass.gov/dcr/watersupply

Worcester Polytechnic Institute Water Resource Outreach Center (Minimum Control Measures 1 and 2)

Worcester Polytechnic Institute's (WPI) Massachusetts Water Resource Outreach Center (WROC) is dedicated to assisting Central and Eastern Massachusetts municipalities and watershed associations with their water resource needs through student project collaboration. CMRSWC has been working with the WPI-WROC and MassDEP on Interactive Qualifying Projects (IQPs) since 2012.

The CMRSWC and MassDEP sponsored a 2017 WPI-WROC project called "Stormwater Management Educational Materials for Central Massachusetts Municipalities." Municipalities are required to distribute educational materials on stormwater issues to comply with the MS4 permit; "the ultimate objective being to increase knowledge and change behavior of the public so that pollutants in stormwater are reduced." The project team used public surveys and questionnaires to assess the public's understanding of stormwater and stormwater runoff. The results showed that most people do not understand what stormwater is, how it gets into our waterbodies and the impacts it has on water quality and public health. Focusing on increasing awareness of the importance of protecting our water among our elementary school student population, the 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.

Building on the previous work for educational materials, the 2018 student team worked with stormwater experts at MassDEP, MA Department of Education representatives and school teachers from Shrewsbury and Holden to develop a 5th grade watershed curriculum that meets the new Massachusetts Next Generation science standards. Components of the curriculum include the water cycle, watersheds, stormwater runoff and other environmental features that demonstrate to children how runoff and contaminants affect water quality. The students will be presenting their findings on May 1, 2018 at 4:00 p.m. at the MassDEP Central Regional Office in Worcester.

More information is available at: <http://wp.wpi.edu/wroc/>

EnviroScape Nonpoint Source Pollution Model (Minimum Control Measures 1 and 2)

The CMRSWC owns two 3D EnviroScape® Watershed/Nonpoint Source models which are available for use by our members. These models provide a hands-on, interactive demonstration of the sources and effects of water pollution and ways to prevent pollution. The CMRSWC sponsored a booth at the EcoTarium's Earth Day Celebration in April using the model to teach about stormwater education. Several member communities including Holden, Charlton, Framingham, Hopkinton, Lunenburg, Palmer, Shrewsbury, Auburn, & Dudley have used the EnviroScape model for presentations at Earth Day festivals, school programs, scouting events, and public works open houses.

Member Needs Survey

In March 2018, CMRSWC contracted with Fuss & O’Neill to develop a technical needs survey that measured the concerns of member communities with respect to compliance with the updated MS4 General Permit for Stormwater Discharges (which is currently stayed pending judicial review). The survey served as a follow-up to the first coalition member survey in the fall of 2016 and asked members to rank certain programs/tasks that CMRSWC could support to assist members in complying with the MS4 Permit. The survey also requested that respondents identify the CMRSWC tools, resources, and events that they made use of during 2017 or provide feedback on why they chose not to take advantage of such tools or events.

Coalition members ranked their needs as follows:

1. Maintain the CMRSWC Website with Available Tools and Templates
2. Provide Written IDDE Program Template and Training
3. Provide NOI/SWMP Template and Training

Coalition members ranked their compliance concerns as follows:

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

Statewide Stormwater Coalition Grant Award

CMRSWC announced at its January 8th Steering Committee Meeting a \$200,000 grant from the State to the Statewide Stormwater Coalition to develop and implement a statewide stormwater education and outreach campaign. The project will provide stormwater education materials to communities across the state, including CMRSWC member communities. The funds, issued through the Commonwealth’s Fiscal Year 2018 “MS4 Municipal Assistance Grant Program,” recognize the important work of stormwater coalitions and regionalized stormwater management. Materials will be made available in July 2018.

Conclusion

Working as a group, CMRSWC collectively protects regional water resources while assisting communities with meeting requirements of the MS4 permit in an efficient and cost-effective manner. Member communities continue to benefit from the use of CMRSWC tools, resources, and events to continue to implement their MS4 program with local staff and resources.

Department of Conservation and Recreation

FY2017/2018

**Summary of Activities
in the Town of Holden**

Many MS4 control measures are now being addressed cooperatively by area communities through efforts of the Central Massachusetts Regional Stormwater Coalition. The DCR Division of Watershed Management continues to work on its own and with communities to address stormwater issues. The following material may be helpful when compiling information to include in your latest MS4 Annual Report.

Public Education and Outreach (CM1)

The permittee shall implement an education program that includes goals based on specific stormwater issues within the small MS4 community. The ultimate goal is to create a change in public behavior and knowledge so that pollutants in stormwater are reduced.

The DCR Division of Water Supply Protection continues to assist watershed communities with public education and outreach efforts. Copies of all DCR brochures that address a range of stormwater issues specific to homeowners, businesses, and developers have been made available at the Town Hall. Additional copies can be obtained upon request. The stormwater outreach tote full of educational materials was loaned to the Holden DPW for two open houses during the year. The DCR Household Stormwater Pollution Prevention brochure is included in mailings to all new homeowners listed in land transfers. A copy of the DCR Dog Waste Video PSA was provided to Holden Community TV.

DCR Rangers and education staff provide educational programs to students and the general public throughout the year that address a variety of topics including stormwater issues. Stormwater pollution prevention public service announcements are read by Ranger staff at all public interpretive programs. Programs were held in Holden on eleven separate occasions during this reporting period and were attended by a total of 719 individuals.

Public Involvement and Participation (CM2)

The permittee shall provide opportunities for public participation in the review and implementation of the SWMP.

Opportunities for public involvement and participation in stormwater management decisions and activities have increased as a result of the efforts of the Central Massachusetts Regional Stormwater Coalition. Actions taken by the group are cooperative measures focused on more efficient and cost effective efforts to manage stormwater and should be very familiar to town officials.

The DCR remains open to any and all proposals to work cooperatively with citizens in the watershed communities on activities that engage the public in efforts to control stormwater runoff and protect surface water quality. A "thank you letter" was mailed to a condominium complex in Holden for their efforts on eliminating dog waste.

Illicit Discharge Detection and Elimination (IDDE) Program (CM3)

The permittee shall implement a program to eliminate sources of non-stormwater from the storm sewer system and prevent illicit connections and discharges. The permittee must develop a storm sewer system map with locations of all outfalls and names of all waters that receive discharges. The permittee must effectively prohibit, through ordinance or other regulatory mechanism, non storm water discharges into the system and implement appropriate enforcement procedures.

The DCR has done extensive mapping of catchbasins and stormwater drainage structures. DCR staff continues to improve and update maps with both online corrections and field inspections and will coordinate efforts with the watershed communities. An effort is underway to develop connectivity and flow direction information for compliance with the updated MS4 permit. This information will be shared with Holden.

DCR personnel continue to look for illicit discharges or other stormwater problems during routine stream investigations and will pass on any relevant information to the towns. Weekly samples for bacteria, turbidity, and specific conductance were collected from four tributaries in Holden and monthly nutrient samples were collected at two locations. No significant problems were identified although bacteria concentrations were sometimes high following rain events. This is not necessarily indicative of illicit discharges as bacteria concentrations in watershed tributaries increase during storm events even in undeveloped forested areas. Annual water quality summary statistics and raw data are available upon request.

Construction Site Stormwater Runoff Control (CM4)

The permittee shall continue to enforce a program to reduce pollutants in stormwater runoff discharged to the MS4 from construction activities that result in a land disturbance of more than one acre. The program should include an ordinance that requires use of sediment and erosion control practices at construction sites.

Routine inspections of construction sites that disturb more than one acre are done by the DCR during dry and wet weather. The following site inspections were completed during the April 2017-March 2018 period. Staff concentrated on visiting sites prior to storm events to identify any potential problems and request corrections before negative impacts could occur. Only a few minor issues were noted and all were quickly addressed.

<u>TOWN</u>	<u># OF SITES</u>	<u>TOTAL # OF DRY INSPECTIONS</u>	<u>INSPECTIONS DURING STORM EVENT</u>
Holden	15	69	26

Post Construction Stormwater Management – New Development/Redevelopment (CM5)

The permittee shall continue to implement and enforce a program to address post construction stormwater runoff from new development and redevelopment projects that disturb one or more acres and discharge into the municipal stormwater system. The objective of this control measure is for the hydrology resulting from new development to mirror or improve pre-development hydrology of the site and reduce discharge of stormwater. An ordinance or other regulatory mechanism to address post construction runoff from new development and redevelopment should be in place.

The DCR continues to monitor structural best management practices in the watershed on a rotating basis to determine if there are any maintenance needs. Only one of the 49 sites in Holden was inspected during the reporting period and it was found to have no outstanding issues.

All agricultural sites are regularly monitored by DCR staff for stormwater related issues such as erosion and manure runoff. Most sites do not pose a risk to storm drain systems or surface waters. A letter was sent to two agricultural operations suggesting potential BMPs for stormwater pollution prevention. Inspections were done at three sites in Holden during the previous reporting period and inspections will be done again at all sites in the future, but most agricultural properties in town are small with no observed violations or need for remediation and do not require annual visits.

Good House Keeping and Pollution Prevention for Permittee Owned Operations (CM6)

The permittee shall implement an operations and maintenance program for municipal operations that includes a training component and will prevent or reduce pollutant runoff and protect water quality.

The DCR continues to offer a Stormwater Pollution Prevention Training Program for municipal employees in watershed communities. Towns should contact the DCR if they are interested. The EPA document “Green Infrastructure in Parks” was sent to the DPW and Recreation Department, and a letter that discusses restrictions on the spraying of herbicides was sent to the DPW.