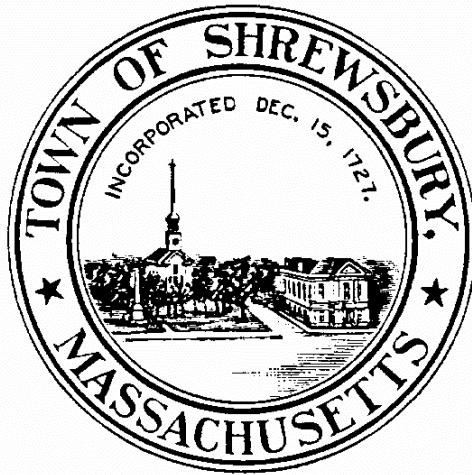




STORMWATER MANAGEMENT PLAN

EPA NPDES Permit Number MAR041158
Revised JULY 1, 2019



Town of Shrewsbury
Department of Public Works
100 Maple Avenue, Shrewsbury, MA 01545

(508) 841-8502
stormwater@shrewsburyma.gov
<https://shrewsburyma.gov/stormwater>



1 Table of Contents

2	Certification.....	4
3	Background.....	5
3.1	Stormwater Regulation.....	5
3.2	Permit Program Background.....	5
3.3	Stormwater Management Plan	5
4	Stormwater Management Program (SWMP) Team	6
4.1	SWMP Team Contact Information	6
4.2	SWMP Team Coordinator.....	6
4.3	SWMP Team.....	6
5	Small MS4 Authorization.....	9
6	Receiving Waters.....	9
7	Eligibility: Endangered Species and Historic Properties.....	9
8	MCM #1: Public Education and Outreach	10
8.1	Targeted Audience: General.....	10
8.2	Targeted Audience: Residential	10
8.3	Targeted Audience: Businesses + Commercial + Institutions	11
8.4	Targeted Audience: Developers + Contractors	11
8.5	Targeted Audience: Industrial	11
8.6	Seasonal Message: Autumn	11
8.7	Seasonal Message: Spring.....	12
8.8	Seasonal Message: Summer	13
8.9	Bacteria/Pathogens.....	13
9	MCM #2: Public Involvement and Participation.....	14
9.1	Public Review of the SWMP	14
9.2	Public Implementation of the SWMP	15
10	MCM #3: Illicit Discharge Detection and Elimination (IDDE) Program	17
10.1	IDDE Legal Authority.....	17
10.2	Sanitary Sewer Overflow (SSO) Reporting.....	17
10.3	SSO Inventory	17
10.4	Map of Storm Sewer System.....	18
10.5	IDDE Program.....	18



10.6 Employee Training..... 19

12 MCM #4: Construction Site Stormwater Runoff Control 20

12.1 Sediment and Erosion Control Ordinance..... 20

12.2 Site Plan Review Procedures..... 20

12.3 Site Inspections and Enforcement of Sediment and Erosion Control Measures
Procedures 20

12.4 Waste Control..... 21

13 MCM #5: Post-Construction Stormwater Management in New Development and
Redevelopment 22

13.1 Post-Construction Ordinance 22

13.2 Street Design and Parking Lot Guidelines Report 22

13.3 Green Infrastructure Report 22

13.4 List of Municipal Retrofit Opportunities (Part I) 22

13.5 List of Municipal Retrofit Opportunities (Part II)..... 23

13.6 List of Municipal Retrofit Opportunities (Part III) 23

13.7 Regulatory Support 23

14 MCM #6: Good Housekeeping and Pollution Prevention for Permittee-Owned Operations 25

14.1 Operations and Maintenance (O&M) Procedures for Municipally-Owned Facilities ... 25

14.1.1 Parks and Open Spaces 25

14.1.2 Buildings and Facilities..... 25

14.1.3 Vehicles and Equipment Operations..... 25

14.2 O&M Procedures for Municipally-Owned Infrastructure..... 26

14.2.1 Infrastructure..... 26

14.2.2 Catch Basin Cleaning..... 26

14.2.3 Street Sweeping 27

14.2.4 Winter Road Maintenance 27

14.2.5 Stormwater Pollution Prevention Plan..... 28

16 Total Mass Daily Loads and Water Quality Limited Waters 29

16.1 Bacteria/Pathogens 29

16.1.1 Annual Requirements Beginning Year 1 29

16.2 Solids, Oils and Grease (Hydrocarbons), or Metals..... 30

16.2.1 Annual Requirements Beginning Year 1 30

16.2.2 Annual Requirements Due by Year 2 30



16.3	Lake and Pond Phosphorus TMDL.....	31
16.3.1	Lake Phosphorus Control Plan.....	31
17	Annual Evaluations.....	32



2 Certification

Authorized Representative: All reports, including SWPPPs, inspection reports, annual reports, monitoring reports, reports on training and other information required by this permit must be signed by a person described in Appendix B, Subsection 11.A or by a duly authorized representative of that person in accordance with Appendix B, Subsection 11.B. If there is an authorized representative to sign MS4 reports, there must be a signed and dated written authorization.

The authorization letter is publicly available at the website below:

<https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/shrewsbury.pdf#page=38>

“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 gathered and evaluated 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.”

Name: Jeffrey W. Howland, P.E.

Title: Director of Public Works

Signature: _____

Date: _____



3 Background

3.1 Stormwater Regulation

The Stormwater Phase II Final Rule was promulgated in 1999, and was the next step after the 1987 Phase I Rule in the United States Environmental Protection Agency's (USEPAs) effort to preserve, protect, and improve the Nation's water resources from polluted stormwater runoff. The Phase II program expands the Phase I program by requiring additional operators of municipal separate storm sewer systems (MS4s) in urbanized areas and operators of small construction sites, through the use of the National Pollutant Discharge Elimination System (NPDES) permits, to implement programs and practices to control polluted stormwater runoff. Phase II is intended to further reduce adverse impacts to water quality and aquatic habitat by instituting the use of controls on unregulated sources of stormwater discharges that have the greatest likelihood of causing continued environmental degradation. Under the Phase II rule, all MS4s with stormwater discharges from Census-designated-Urbanized-Areas are required to seek NPDES permit coverage for those stormwater discharges.

3.2 Permit Program Background

On May 1, 2003, EPA Region 1 issued its Final General Permit for Stormwater Discharges from Small MS4s (2003 Small MS4 Permit) consistent with the Phase II rule. The 2003 Small MS4 Permit covered "traditional" (i.e., cities and towns) and "non-traditional" (i.e., Federal and state agencies) MS4 Operators located in the state of Massachusetts and New Hampshire. This permit expired on May 1, 2008, but remained in effect until operators were authorized under the 2016 MS4 General Permit, which became effective on July 1, 2018.

3.3 Stormwater Management Plan

The Stormwater Management Plan (SWMP) describes and details the activities that will be implemented to meet the terms and conditions of the permit. The SWMP accurately describes the permittee's plans and activities. The document should be updated and/or modified during the permit term as the permittee's activities are modified, changed, or updated to meet the permit conditions during the permit term. The main elements of the SWMP are:

1. A public education program in order to affect public behavior causing stormwater pollution;
2. An opportunity for the public to participate and provide comments on the stormwater program;
3. A program to effectively find and eliminate illicit discharges within the MS4;
4. A program to effectively control construction site stormwater discharges to the MS4;
5. A program to ensure that stormwater from development projects entering the MS4 is adequately controlled by the construction of stormwater controls; and
6. A good housekeeping program to ensure that stormwater pollution sources on municipal properties and from municipal operations are minimized.



4 Stormwater Management Program (SWMP) Team

4.1 SWMP Team Contact Information

Department: Department of Public Works
Phone: 508-841-8502
Fax: 508-841-8497
E-mail: stormwater@shrewsburyma.gov

4.2 SWMP Team Coordinator

Name: Jeffrey Howland, P.E.
Department: Department of Public Works
Title: Director of Public Works
Responsibilities: Duly authorized representative
Supervision of compliance with the Permit.

4.3 SWMP Team

Name: Vincent Thai
Department: DPW - Engineering Division
Title: Jr. Civil Engineer / Compliance
Responsibilities: MCM 1 + 2 + 3 + 4 + 5 + 6
Coordination of Permit-related activities
Day-to-day compliance of Permit-related activities
Stormwater permit application review + site inspections

Name: Valerie Clemmey
Department: Town Manager
Title: Public Engagement Specialist



Responsibilities: MCM 1
Dissemination of educational material via Facebook & Twitter

Name: Sandra Wright & Department
Department: Town Clerk
Title: Town Clerk
Responsibilities: MCM 1
Dissemination of educational material for proper pet waste management in conjunction of dog renewal licenses.

Name: Angela Snell & Division
Department: DPW - Parks & Recreation Division, Public Buildings Division
Title: Director of Public Facilities
Responsibilities: MCM 1 + 2 + 6
Coordination for public participation activities incl. DPW & Earth Day
Dissemination of educational material via Twitter
Management of parks & open spaces, and buildings & facilities

Name: Dan McCullen
Department: DPW - Engineering Division
Title: GIS Coordinator
Responsibilities: MCM 3
System mapping
Catchment investigations

Name: Andrew Truman, P.E.
Department: DPW - Engineering Division
Title: Sr. Civil Engineer



Responsibilities: MCM 4 + 5
Stormwater permit application review + site inspections

Name: Bradford Stone
Department: DPW - Engineering Division
Title: Conservation and Stormwater Coordinator
Responsibilities: MCM 4 + 5
Stormwater permit application review + site inspections

Name: Nick Repekta & Division
Department: DPW - Highway Division
Title: Highway Division Manager
Responsibilities: MCM 6
Catch basin cleanings
Street sweepings
Winter road maintenance



5 Small MS4 Authorization

The NOI was submitted on October 1, 2018.

The NOI can be found at the following web address:

<https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/shrewsbury.pdf>

Authorization to Discharge was granted on April 5, 2019.

The Authorization Letter can be found at the following web address:

<https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/shrewsbury-auth.pdf>

6 Receiving Waters

The following web address lists all receiving waters, impairments, and number of outfalls discharging to each waterbody segment:

<https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/shrewsbury.pdf#page=2>

7 Eligibility: Endangered Species and Historic Properties

The results of the Appendix C U.S. Fish and Wildlife Service endangered species screening determination is publicly available at the web address below:

<https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/shrewsbury.pdf#page=23>

The Town of Shrewsbury determined eligibility for the ESA as Criterion C

The results of the Appendix D historic property screening investigations is publicly available at the web address below:

<https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/shrewsbury.pdf#page=20>

The Town of Shrewsbury determined eligibility for the Historic Properties as Criterion A.



8 MCM #1: Public Education and Outreach

Objective: The permittee shall implement an education program that includes educational goals based on stormwater issues of significance within the MS4 area. The ultimate objective of a public education program is to increase knowledge and change behavior of the public so that the pollutants in stormwater are reduced.

Responsible Party: Department of Public Works

8.1 Targeted Audience: General

Description

The Town will provide stormwater-related and/or educational material to the property owners of Shrewsbury.

Measurable Goals

1. [Placeholder] The Town is awaiting an update from the Central Massachusetts Stormwater Regional Coalition, of which the Town is a member of, for an update on the Coalition's actions to meet the education requirement.

8.2 Targeted Audience: Residential

Description

The Town will provide two (2) targeted public education messages to the residents of Shrewsbury over the permit term.

Measurable Goals

1. On January of 2019, the Town of Shrewsbury retweeted a post from @MAStormH2O regarding stormwater runoff and pollutants. As of June 20th of 2019, the Twitter account has 2,201 followers with the post seeing 2 Retweets and 5 Likes.
 - a. Twitter - <https://twitter.com/MAStormH2O/status/1080983400419389442>
2. On June 1st of 2019 from 9:00 AM to 1:00 PM, the Town of Shrewsbury held a DPW Kid's Day. As part of the event, a Think Blue banner was set up along with an Enviroscape model to demonstrate stormwater pollution and educational material was distributed to both the parents and the kids. An estimated 500 people attended the event with about 100 coloring books distributed.
 - a. Do Your Doody - <https://shrewsburyma.gov/DocumentCenter/View/4559/>
 - b. Lawn and Garden Tips to Curb Stormwater Pollution - <https://shrewsburyma.gov/DocumentCenter/View/5337/>
 - c. Stormwater Pollution Prevention Guide for Homeowners - <https://shrewsburyma.gov/DocumentCenter/View/4568/>
 - d. Dwayne the Storm Drain - <http://www.mwra.com/02org/html/dwayne.htm>



8.3 Targeted Audience: Businesses + Commercial + Institutions

Description

The Town will provide two (2) targeted public education messages to the businesses, institutions, and commercial facilities in Shrewsbury over the permit term.

Measurable Goals

1. The Town is in the process of planning to distribute brochures to the targeted audience via their Stormwater Utility Bill. The expected start date for this BMP is CY 2020 or 2021.

8.4 Targeted Audience: Developers + Contractors

Description

The Town will provide two (2) targeted public education messages to developers and contractors working in Shrewsbury over the permit term.

Measurable Goals

1. The Town is in the process of planning to distribute brochures to the targeted audience via the Stormwater Management Permit. The expected start date for this BMP is CY 2020 or 2021.

8.5 Targeted Audience: Industrial

Description

The Town will provide two (2) targeted public education messages to the industrial facilities in Shrewsbury over the permit term.

Measurable Goals

1. The Town is in the process of planning to distribute brochures to the targeted audience via their Stormwater Utility Bill. The expected start date for this BMP is CY 2020 or 2021.

8.6 Seasonal Message: Autumn

Description

The Town will annually distribute messages in the fall season (August, September, October) encouraging the proper disposal of leaf litter.

Measurable Goals



1. Starting October of 2018, the Town will provide educational material, as described above, on their Stormwater Management webpage and Yard Waste Program. This material will be available to everyone 24/7.
 - a. Leaf Litter - <https://shrewsburyma.gov/DocumentCenter/View/4558/>
 - b. Stormwater Management webpage - <https://shrewsburyma.gov/stormwater>
 - c. Yard Waste Program - <https://shrewsburyma.gov/322/Yard-Waste>
2. Every August, September, or October; the Town will post educational material, as described above, via their Twitter and Facebook (starting in 2019) accounts.
 - a. Leaf Litter - See above.
 - b. Twitter - <https://twitter.com/ShrewsburyMAGov>
 - c. Facebook - <https://www.facebook.com/ShrewsburyMassachusetts/>
 - d. On October of 2018, the Town posted educational material, as described above, via their Twitter account and distributed at least 100 of the Leaf Litter flyers at the Town Hall 2nd Floor Billboard and Board of Health desk. As of June 10, 2019, the Twitter account has 2,201 followers and the post has seen 1 Retweet and 1 Like.
 - i. Twitter - <https://twitter.com/ShrewsburyMAGov/status/1058009493823467521>

8.7 Seasonal Message: Spring

Description

The Town will annually distribute messages in the spring season (March, April) encouraging the proper use and disposal of grass clippings and the proper use of slow-release and phosphorus-free fertilizers.

Measurable Goals

1. Starting on March of 2019, the Town will provide educational material, as described above, on their Stormwater Management webpage. This material will be available to everyone 24/7.
 - a. Lawn Fertilization - <https://shrewsburyma.gov/DocumentCenter/View/4950/>
 - b. Stormwater Management webpage - <https://shrewsburyma.gov/stormwater>
2. Every March or April, the Town will post educational material, as described above, via their Facebook and Twitter accounts.
 - a. Lawn Fertilization - See above.
 - b. Twitter - <https://twitter.com/ShrewsburyMAGov>
 - c. Facebook - <https://www.facebook.com/ShrewsburyMassachusetts/>
 - d. In March of 2019, the Town posted the educational material, as described above, on their Facebook and Twitter accounts. As of June 20 of 2019, the Twitter account has 2,201 followers with the post seeing 1 Retweet and 1 Like; and the Facebook account has 1,923 followers with the post seeing 2 Shares and 7 Likes.
 - i. Twitter - <https://twitter.com/ShrewsburyMAGov/status/1119284843421020165>



ii. Facebook -

<https://www.facebook.com/1373563282785248/posts/1381628428645400/?sfnsn=mo>

8.8 Seasonal Message: Summer

Description

The Town will annually distribute messages in the summer season (June, July) encouraging the proper management of pet waste.

Measurable Goals

1. Starting October of 2019, the Town will provide educational material, as described above, on their Stormwater Management and (starting in June 2019) Town Clerk - Licenses webpage. This material will be available to everyone 24/7.
 - a. Do Your “Doody” for Clean Water -
<https://shrewsburyma.gov/DocumentCenter/View/4559/>
 - b. Stormwater Management webpage - <https://shrewsburyma.gov/stormwater>
 - c. Town Clerk - Licenses webpage - <https://shrewsburyma.gov/354/Licenses>
2. Starting in 2020 and every year thereafter, the Town will provide educational material, as described above, with every dog license. As of 2019, there are about 2,500 dog licenses issued annually.
 - a. Do Your “Doody” for Clean Water - See above.

8.9 Bacteria/Pathogens

Description

The Town will provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria or pathogens.

Measurable Goals

1. Starting June of 2019, the Town will provide educational material, as described above, on their Stormwater Management and Title V webpage. This material will be available to everyone 24/7.
 - a. Do your Part - Be SepticSmart! -
<https://shrewsburyma.gov/DocumentCenter/View/5377/>
 - b. Stormwater Management webpage - <https://shrewsburyma.gov/stormwater>
 - c. Title V webpage - <https://shrewsburyma.gov/title-v>
1. Starting on September 2019 and every year thereafter, the Town will coordinate with USEPA’s SepticSmart week by posting the educational material provided by USEPA to educate homeowners and communities on the proper care and maintenance of their septic systems.
 - a. SepticSmart Week - <https://www.epa.gov/septic/septicsmart-week>



9 MCM #2: Public Involvement and Participation

Objective: To provide public opportunities for the public to engage in the review and implementation of the Town's Stormwater Management Program.

Responsible Party: Department of Public Works

9.1 Public Review of the SWMP

Description

The Town will provide the public an opportunity to participate in the review of the Stormwater Management Program (SWMP).

Measurable Goals

1. On October of 2018, the Town created the Stormwater Management webpage where all stormwater-related material include, but not limited to, background, educational material, regulatory ordinances/mechanisms, and applications.
 - a. Stormwater Management webpage - <https://shrewsburyma.gov/stormwater>
2. On October of 2018, the Town created a Stormwater Management group e-mail. This e-mail is available 24/7 for the public to send their questions, comments, responses, forms, and applications.
 - a. Email - stormwater@shrewsburyma.gov
3. Starting in July of 2019, the Town will post the Stormwater Management Plan to their Stormwater Management webpage for the public to review and comment on.
 - a. Stormwater Management webpage - See above.
4. In Winter of 2018/2019, the Town and Board of Sewer Commissioners provided the public opportunities to discuss the implementation of several stormwater-related regulatory mechanisms and policies, and the funding of the stormwater management program. In addition, the Town compiled an FAQ (frequently asked questions) document to educate the public regarding the stormwater pollution and the stormwater Utility. These documents were made publicly available on the Stormwater Management webpage for review and comment through the stormwater e-mail.
 - a. Stormwater Management Rules & Regulations - <https://shrewsburyma.gov/DocumentCenter/View/4595/>
 - b. Stormwater Utility Rates - <https://shrewsburyma.gov/DocumentCenter/View/4667/>
 - c. Stormwater Credit Policy - <https://shrewsburyma.gov/DocumentCenter/View/4666/>
 - d. Stormwater Management Application Review & Inspection Fee - <https://shrewsburyma.gov/DocumentCenter/View/4756/>
 - e. Stormwater Utility FAQ - <https://shrewsburyma.gov/DocumentCenter/View/4786/>



The public meetings took place on November 19th of 2018, December 18th of 2018, and January 15th of 2019. In total, between all three meetings, an estimated 60-70 different property owners and interested parties attended with a total of 85 online viewers during the December (23 online views) and January (62 online views) during the meetings.

- f. November 19, 2018 Meeting - Not recorded
 - i. No sign-in sheet
- g. December 18, 2018 Meeting -
https://www.youtube.com/watch?v=ug57s_SmsL0&feature=youtu.be
 - i. No sign-in sheet
- h. January 15, 2019 Meeting -
https://www.youtube.com/watch?v=0m_a3EakJ2s&feature=youtu.be
 - i. Sign-in sheet available upon request

Several announcements were made during prior to these meetings including Twitter posts, Board of Selectmen meetings, and physical mail. As of June 10, 2019, the Twitter account has 2,201 followers and the posts totaled 5 Likes, and 3 Retweets. The mail was sent out to all of the residents of Shrewsbury. During the Winter of 2019, the Department of Public Works - Engineering Division has received a total of over 12 correspondences, primarily by phone call and e-mail.

- i. Twitter
 - i. November -
<https://twitter.com/ShrewsburyMAGov/status/1062333257335824385>
 - ii. December -
<https://twitter.com/ShrewsburyMAGov/status/1081176143498219520>
 - iii. January -
<https://twitter.com/ShrewsburyMAGov/status/1085162875482787840>
- j. Board of Selectmen meeting -
<http://vp.telvue.com/preview?id=T01028&video=341350>
- k. Mail - <https://shrewsburyma.gov/DocumentCenter/View/5338/>

9.2 Public Implementation of the SWMP

Description

The Town will provide the public an opportunity to participate in the implementation of the Stormwater Management Program (SWMP).

Measurable Goals

1. On April 6th of 2019, the DPW - Parks & Recreation Division hosted a Spring Cleanup event, asking residents to participate in a town-wide cleanup. The DPW offered bags and disposable gloves at Dean Park to pick up trash at 37 locations around town. Approximately 150 people participated in the event.
 - a. Another Town-wide cleanup is planned for fall of 2019.



2. On April 27th of 2019, as part of Earth Day, the Shrewsbury Electric & Cable Operations (SELCO) partnered with Grossman Development Group, LLC (GDG) and Lakeway Commons to give residents of Shrewsbury a complimentary free and cooler bag. Approximately 1,000 trees were given away.



10 MCM #3: Illicit Discharge Detection and Elimination (IDDE) Program

Objective: To systematically find and eliminate illicit sources of non-stormwater discharges to the municipal separate storm sewer system and implement procedures to prevent such discharges.

Responsible Party: Department of Public Works

10.1 IDDE Legal Authority

Completed (by May 1, 2008)

Article 21 - The Stormwater Management By-Law -
<https://shrewsburyma.gov/DocumentCenter/View/4546/#page=51>

10.2 Sanitary Sewer Overflow (SSO) Reporting

In the event of an overflow, bypass, or backup; the Town will verbally notify within 24 hours of awareness of overflow or bypass by phone to MassDEP, EPA, and other relevant parties followed by a written report using MassDEP's SSO/Bypass Notification Form within 5 calendar days of the time of awareness.

MassDEP - Central Region

8 New Bond Street

Worcester, MA 01606

(508) 792-7650

United States EPA

5 Post Office Square

Boston, MA 02109

(617) 918-1510

Sanitary Sewer Overflow/Bypass/Backup Notification Form - <https://www.mass.gov/how-to/sanitary-sewer-overflowbypassbackup-notification>

10.3 SSO Inventory

Description

Develop an SSO Inventory in accordance with the permit conditions.

Measurable Goals

Annually track and report the following SSO information:

- The location;
- A clear statement of whether the discharge entered a surface water directly or entered the MS4;
- Date(s) and time(s) of each SSO occurrence;



- Estimated volume(s) of the occurrence;
- Description of the occurrence indicating known or suspected cause(s);
- Mitigation and corrective measures completed with dates implemented;
- Mitigation and corrective measures planned with implementations schedules

Update the SSO Inventory as needed.

Document Name - Illicit Discharge Detection and Elimination Plan

Web Address - <https://shrewsburyma.gov/DocumentCenter/View/5382/>

10.4 Map of Storm Sewer System

Description

Create map and update during IDDE program completion.

Measurable Goals

Within two (2) years of the permit's effective date, map 100% of:

- outfalls and receiving water;
- open channel conveyances;
- interconnections with other MS4s;
- other storm sewer systems;
- municipally-owned stormwater treatment structures;
- waterbodies identified by name and indication of all use impairments; and
- initial catchment delineations.

Phase I Completed (by Year 2)

Within ten (10) years of the permit's effective date, map 100% of:

- outfall spatial locations;
- pipes;
- manholes;
- catch basins;
- refined catchment delineations;
- municipal sanitary sewer system (if available); and
- municipal combined sewer system (if applicable).

Phase II Completed (by Year 10)

10.5 IDDE Program

Description



Develop and implement an IDDE program in accordance with permit conditions.

Measurable Goals

Conduct 100% of outfall screening on High and Low Priority Outfalls within 3 years of the permit effective date.

Complete catchment investigations for 100% of the Problem Outfalls within 7 years of the permit's effective date.

Complete 100% of all catchment investigations within 10 years of the permit's effective date.

The outfall/interconnection inventory, initial ranking, and dry weather outfall/interconnection screening/sampling results can be found:

Document Name - Illicit Discharge Detection and Elimination Plan

Web Address - <https://shrewsburyma.gov/DocumentCenter/View/5382/>

10.6 Employee Training

Description

Train employees on IDDE implementation

Measurable Goals

Training occurs during the spring season annually.

1. On April 24 of 2019, two employees from the Town attended an IDDE workshop which provided training for public works professionals, stormwater coordinators, and other municipal staff that will be performing outfall investigations and sampling and/or leading those efforts on critical aspects of the IDDE program. The workshop was funded by the Central Massachusetts Regional Stormwater Coalition.



12 MCM #4: Construction Site Stormwater Runoff Control

Objective: To minimize or eliminate erosion and maintain sediment on site so that it is not transported in stormwater and allowed to discharge to a water of the United States through the municipal separate storm sewer system.

Responsible Party: Department of Public Works

12.1 Sediment and Erosion Control Ordinance

Completed (by May 1, 2008)

Article 21 - The Stormwater Management By-Law -
<https://shrewsburyma.gov/DocumentCenter/View/4546/#page=51>

Stormwater Management Rules & Regulations -
<https://shrewsburyma.gov/DocumentCenter/View/4595/>

12.2 Site Plan Review Procedures

Description

Complete written procedures for site plan review within one (1) year of permit effective date or June 30, 2019.

Measurable Goals

Written Procedures Completed (by Permit Year 1)

Written procedures for site plan review is available through the Stormwater Management Rules & Regulations.

12.3 Site Inspections and Enforcement of Sediment and Erosion Control Measures Procedures

Description

Complete written procedures of site inspections and enforcement procedures.

Measurable Goals

Completed (by Permit Year 1)

Written procedures for site inspections is available through Standard Operating Procedure #5. See Appendix A.

Written procedures for enforcement is available through Article 21. See "Sediment and Erosion Control Ordinance", above.



The Town will inspect 100% of construction sites as outline in the above document and take enforcement actions as needed.

12.4 Waste Control

Description

Adoption of requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes

Measurable Goals

Completed (by Permit Year 1)

The requirements to control waste is available through the Stormwater Management Rules & Regulations. See "Sediment and Erosion Control Ordinance", above.



13 MCM #5: Post-Construction Stormwater Management in New Development and Redevelopment

Objective: To reduce the discharge of pollutants found in stormwater to the municipal separate storm sewer system through the retention or treatment of stormwater after construction on new or redeveloped sites and to ensure proper maintenance of installed stormwater controls.

Responsible Party: Department of Public Works

13.1 Post-Construction Ordinance

Completed (by Permit Year 2)

Stormwater Management Rules & Regulations -
<https://shrewsburyma.gov/DocumentCenter/View/4595/>

13.2 Street Design and Parking Lot Guidelines Report

Description

Develop a report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover to help determine if changes to design standards for streets and parking lots can be modified to support low impact design options.

Measurable Goals

Completed (by Permit Year 4)

The expected start date for this BMP is CY 2021.

13.3 Green Infrastructure Report

Description

Develop a report assessing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist.

Measurable Goals

Completed (by Permit Year 4)

The expected start date for this BMP is CY 2021.

13.4 List of Municipal Retrofit Opportunities (Part I)

Description



Identify at least 5 permittee-owned properties that could be modified or retrofitted with BMPs with BMPs designed to reduce the frequency, volume, and pollutant loads of stormwater discharges to and from its MS4 through the reduction of impervious area.

Measurable Goals

- Completed (by Permit Year 4)

The expected start date for this BMP is CY 2021.

13.5 List of Municipal Retrofit Opportunities (Part II)

Description

Evaluate all municipally-owned properties identified as presenting retrofit opportunities or areas for structural BMP installation from the above report or identified in the Phosphorus Source Identification Report that are within the drainage area of the water quality limited water or its tributaries.

Measurable Goals

- Completed (by Permit Year 5)

The expected start date for this BMP is CY 2022.

13.6 List of Municipal Retrofit Opportunities (Part III)

Description

Install a minimum of 1 structural BMP as a demonstration project within the drainage area of the water quality limited water or its tributaries targeting a catchment with a high phosphorus load potential. The Town plans to install the remainder of structural BMPs in accordance with the plan and schedule to be determined in the Year Five Annual Report.

Measurable Goals

- Completed (by Permit Year 6)

The expected start date for this BMP is CY 2023.

13.7 Regulatory Support

Description

Ensure any stormwater controls or management practices for new development and redevelopment meet the retention or treatment requirements of the permit and all applicable requirements of the Massachusetts Stormwater Handbook. The procedures to require submission of as-built drawings and ensure long-term operation and maintenance will be a part of the SWMP.



Measurable Goals

Completed

The Stormwater Management Rules & Regulations provide regulatory support to ensure stormwater controls and management practices for new development and redevelopment, as described above, in addition to the submission of as-built plans within two (2) years of project completion.

The Stormwater Management Rules & Regulations will be amended or modified as needed.



14 MCM #6: Good Housekeeping and Pollution Prevention for Permittee-Owned Operations

Objective: The Town will implement an operations and maintenance program for Town-owned operations with a goal of preventing or reducing pollutant runoff and protecting water quality from all permittee-owned operations.

Responsible Party: Department of Public Works

14.1 Operations and Maintenance (O&M) Procedures for Municipally-Owned Facilities

14.1.1 Parks and Open Spaces

Description

Create and implement O&M procedures including all requirements contained in Part 2.3.7.a.ii of the Permit for municipally owned parks and open spaces.

Measurable Goals

- Written Document Completed (by Permit Year 2)

The Central Massachusetts Regional Stormwater Coalition (CMRSWC), of which the Town of Shrewsbury is a member of, has contracted Fuss & O'Neil to create a template of an Operation & Maintenance procedure for parks and open spaces, as described above. The estimated time of completion for the template is summer of 2019.

14.1.2 Buildings and Facilities

Description

Create and implement O&M procedures including all requirements contained in Part 2.3.7.a.ii of the Permit for municipally owned buildings and facilities.

Measurable Goals

- Written Document Completed (by Permit Year 2)

The Central Massachusetts Regional Stormwater Coalition (CMRSWC), of which the Town of Shrewsbury is a member of, has contracted Fuss & O'Neil to create a template of an Operation & Maintenance procedure for municipally owned buildings and facilities, as described above. The estimated time of completion for the template is summer of 2019.

14.1.3 Vehicles and Equipment Operations

Description



Create and implement O&M procedures including all requirements contained in Part 2.3.7.a.ii of the Permit for municipally owned vehicles and equipment.

Measurable Goals

- Written Document Completed (by Permit Year 2)

The Central Massachusetts Regional Stormwater Coalition (CMRSWC), of which the Town of Shrewsbury is a member of, has contracted Fuss & O'Neil to create a template of an Operation & Maintenance procedure for municipally owned vehicles and equipment, as described above. The estimated time of completion for the template is summer of 2019.

14.2 O&M Procedures for Municipally-Owned Infrastructure

14.2.1 Infrastructure

Description

Establish and implement a program for the repair and rehabilitation of MS4 infrastructure.

Measurable Goals

- Written Document Completed (by Permit Year 2)

The Central Massachusetts Regional Stormwater Coalition (CMRSWC), of which the Town of Shrewsbury is a member of, has contracted Fuss & O'Neil to create a template of an Operation & Maintenance procedure for MS4 infrastructure, as described above. The estimated time of completion for the template is summer of 2019.

14.2.2 Catch Basin Cleaning

Description

Establish a schedule for catch basin cleaning such that each catch basin is no more than 50% full.

Measurable Goals

- Written Procedure Completed (by Permit Year 1)

By default, catch basins are to be cleaned on a biennial basis (once every two years). The fullness of the catch basin will be measured each time they are cleaned. The collected data will be used to determine an adjusted cleaning rate such as if the catch basin was found to be nearly empty after two (2) routine cleanings, or if there is a large construction project nearby.

Recommended cleaning rates include, but are not limited to:

- Quadrennial (once every four years)
- Biennial (once every two years) (default)
- Annual (once per year)



- Biannual (twice per year - Spring, Fall)
- Triannual (thrice per year - Spring, Summer, Fall)

14.2.3 Street Sweeping

Description

Sweep all streets and municipally owned parking lots twice a year - once in the spring following winter operations, and at least once in the fall (September 1st to December 1st, following leaf fall).

Measurable Goals

- Written Procedure Completed (by Permit Year 1)

The Town of Shrewsbury will perform street sweeping in the spring following winter operations. All municipally owned streets and parking lots will be swept at least once. During the spring of 2019, a total of 470.73 tons of debris was picked up.

Starting in fall of 2019, the Town plans to hire outside contractors to sweep all municipally owned streets and parking lots for the second street sweeping following leaf fall but prior to the first snowfall.

To aid with the street sweeping, the Town also offers a Yard Waste Program in the spring, summer, and fall to the residents of Shrewsbury to drop-off their leaves and grass at the Municipal Garage located on 211 South Street, Shrewsbury, MA 01545.

Yard Waste Program - <https://shrewsburyma.gov/322/Yard-Waste>

14.2.4 Winter Road Maintenance

Description

Establish and implement a program to minimize the use of road salt.

Measurable Goals

- Written Procedure Completed (by Permit Year 1)
- Evaluate at least one salt/chloride alternative for use in the municipality.

Since 2015, the Town of Shrewsbury has utilized the Cirus Spread Smart ground speed controllers in all of their de-icing spreaders. All spreaders are calibrated on a yearly basis to ensure proper and accurate applications of de-icing materials. The Cirus controllers also allows the Town to track the quantity of materials applied to the road surface on a yearly and storm-to-storm basis.

The Town has observed a savings of one load of material applied per truck over this period of time. Rock salt has been the primary material for de-icing. The Town also utilizes on-board pre-



wetting systems on all of the de-icing trucks and have been using calcium chloride liquid as the primary pre-wetting solution.

In 2018, the Town has constructed a new salt storage shed capable of storing up to 5,000 tons of salt. Prior to 2018, the old salt shed was only capable of storing 1,000 tons of salt with an additional 1,000 tons kept under a tarp during the winter.

Currently, the Town does not have a snow-hauling program or dumping area.

14.2.5 Stormwater Pollution Prevention Plan

Description

Create SWPPPs for maintenance garages, transfer stations, and other waste-handling facilities.

Measurable Goals

Completed (by Permit Year 2)

Develop and implement SWPPPs for 100% of facilities.



16 Total Mass Daily Loads and Water Quality Limited Waters

16.1 Bacteria/Pathogens

Applicable Receiving Waterbodies

Lake Quinsigamond (MA 51125)

Poor Farm Brook (MA 51-17)

16.1.1 Annual Requirements Beginning Year 1

Rank outfalls to these receiving waters as high priority for IDDE implementation in the initial outfall ranking.

Outfalls that discharge to the applicable receiving waters has been marked as high priority in the initial outfall ranking.

Document Name - Illicit Discharge Detection and Elimination Plan

Web Address - <https://shrewsburyma.gov/DocumentCenter/View/5382/>

16.1.1.1 MCM #1: Public Education and Outreach

Annual message encouraging the proper management of pet waste, including noting any existing ordinances where appropriate.

The relevant BMP listed above in the Stormwater Management Program is MCM #1: Public Education and Outreach > Seasonal Message: July.

Permittee or its agents disseminate educational material to dog owners at the time of issuance or renewal of dog license, or other appropriate time.

The relevant BMP listed above in the Stormwater Management Program is MCM #1: Public Education and Outreach > Seasonal Message: July.

Provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria.

The relevant BMP listed above in the Stormwater Management Program is MCM #1: Public Education and Outreach > Bacteria/Pathogens.



16.2 Solids, Oils and Grease (Hydrocarbons), or Metals

Applicable Receiving Waterbodies

Poor Farm Brook (MA 51-17)

Flint Pond NB (51188)

Mill Pond (MA 51105)

16.2.1 Annual Requirements Beginning Year 1

Rank outfalls to these receiving waters as high priority for IDDE implementation in the initial outfall ranking.

This is not required by the MS4-2016 Permit, but was included in the USEPA provided SWMP document.

16.2.1.1 MCM #6: Good Housekeeping and Pollution Prevention for Permittee-Owned Operations

Increase street sweeping frequency of all municipally owned streets and parking lots to a schedule to target areas with potential for high pollutant loads.

...

Prioritize inspection and maintenance for catch basins to ensure that no sump shall be more than 50% full; clean catch basins more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.

...

16.2.2 Annual Requirements Due by Year 2

16.2.2.1 MCM #5: Stormwater Management in New Development and Redevelopment

Stormwater management systems designed on commercial and industrial land use area draining to the water quality limited water body shall incorporate designs that allow for shutdown and containment where appropriate to isolate the system in the event of an emergency spill or other unexpected event.

...



16.3 Lake and Pond Phosphorus TMDL

Applicable Receiving Waterbodies

Lake Quinsigamond (MA 51125)

Flint Pond (MA 51050)

Flint Pond (MA 51188)

Jordan Pond (MA 51078)

Mill Pond (MA 51105, MA51-43)

Newton Pond (MA 51110)

Shirley Street Pond (MA 51196)

16.3.1 Lake Phosphorus Control Plan

- Legal Analysis Completed (by Year 2)
- Funding Source Assessment Completed (by Year 3)
- LPCP Scope/Area Completed (by Year 4)
- Calculations Completed (by Year 4)
- Description of Planned Non/Structural Controls Completed (by Year 5)
- Description of O&M Completed (by Year 5)
- Implementation Schedule Completed (by Year 5)
- Cost and Funding Source Assessment (by Year 5)
- Written LPCP Completed (by Year 5)



17 Annual Evaluations

The Town shall submit to the EPA an annual report for each year of the permit term. The reporting period will be a one year period commencing on the permit effective date (July 1, 2018), and subsequent anniversaries thereof, except that the first annual report under the MS4-2016 Permit shall also cover the period from May 1 of 2017 (the year of final permit issuance) to the permit effective date.

The annual report is due ninety (90) days from the close of each reporting period, and shall be submitted electronically to the USEPA at stormwater.reports@epa.gov.

The annual reports can be found at the following web address:

<https://www.epa.gov/npdes-permits/regulated-ms4-massachusetts-communities>