

Year 2 Annual Report
Massachusetts Small MS4 General Permit
Reporting Period: July 1, 2019-June 30, 2020

Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form

Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed. Please ONLY report on activities between July 1, 2019 and June 30, 2020 unless otherwise requested.

Part I: Contact Information

Name of Municipality or Organization:

EPA NPDES Permit Number:

Primary MS4 Program Manager Contact Information

Name:

Title:

Street Address Line 1:

Street Address Line 2:

City:

State:

Zip Code:

Email:

Phone Number:

Stormwater Management Program (SWMP) Information

SWMP Location (web address):

Date SWMP was Last Updated:

If the SWMP is not available on the web please provide the physical address:

Part II: Self-Assessment

First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4. Make sure you are referring to the most recent EPA approved Section 303(d) Impaired Waters List which can be found here: <https://www.epa.gov/tmdl/region-1-impaired-waters-and-303d-lists-state>

Impairment(s)			
☒ Bacteria/Pathogens	☐ Chloride	☐ Nitrogen	☐ Phosphorus
☐ Solids/ Oil/ Grease (Hydrocarbons)/ Metals			
TMDL(s)			
<i>In State:</i>	☐ Assabet River Phosphorus	☐ Bacteria and Pathogen	☐ Cape Cod Nitrogen
	☐ Charles River Watershed Phosphorus	☒ Lake and Pond Phosphorus	
<i>Out of State:</i>	☐ Bacteria/Pathogens	☐ Metals	☒ Nitrogen
			☐ Phosphorus
Clear Impairments and TMDLs			

Next, check off all requirements below that have been completed. **By checking each box you are certifying that you have completed that permit requirement fully.** If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.

Year 2 Requirements

- ☒ Completed Phase I of system mapping
- ☒ Developed a written catchment investigation procedure and added the procedure to the SWMP
- ☒ Developed written procedures to require the submission of as-built drawings and ensure the long term operation and maintenance of completed construction sites and added these procedures to the SWMP
- ☒ Enclosed or covered storage piles of salt or piles containing salt used for deicing or other purposes
- ☒ Developed written operations and maintenance procedures for parks and open space, buildings and facilities, and vehicles and equipment and added these procedures to the SWMP
- ☒ Developed an inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment and added this inventory to the SWMP
- ☐ Completed a written program for MS4 infrastructure maintenance to reduce the discharge of pollutants
 - Developed written SWPPPs, included in the SWMP, for all of the following permittee owned or
 - ☐ operated facilities: maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above year 2 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

For the two requirements above which are not checked as complete, they were not completed by 6/30/2020, but have been completed by the time of the annual report submission (9/28/2020).

Annual Requirements

- ☐ Provided an opportunity for public participation in review and implementation of SWMP and complied with State Public Notice requirements
- ☒ Kept records relating to the permit available for 5 years and made available to the public
- ☒ The SSO inventory has been updated, including the status of mitigation and corrective measures implemented
 - ☐ This is not applicable because we do not have sanitary sewer
 - ☐ This is not applicable because we did not find any new SSOs
 - ☒ The updated SSO inventory is attached to the email submission
 - ☐ The updated SSO inventory can be found at the following website:
- ☐ Properly stored and disposed of catch basin cleanings and street sweepings so they did not discharge to receiving waters
- ☒ Provided training to employees involved in IDDE program within the reporting period
- ☒ All curbed roadways were swept at least once within the reporting period
- ☐ Updated outfall and interconnection inventory and priority ranking as needed

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above annual requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

SWMP has been posted online; however, the Town has been unable to conduct a public meeting for discussion on the SWMP due to the ongoing COVID-19 pandemic.

The outfall and interconnection inventory and priority ranking was not completed by 6/30/2020, but has been completed by the time of the annual report submission (9/28/2020).

Bacteria/ Pathogens (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)Annual Requirements*Public Education and Outreach**

- ☒ Annual message was distributed encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Permittee or its agents disseminated educational material to dog owners at the time of issuance or renewal of dog license, or other appropriate time
- ☒ Provided information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Nitrogen (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☒ Distributed an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers
- ☒ Distributed an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Distributed an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

- ☐ Increased street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

Potential structural BMPs

- Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H already existing or installed in the regulated area by the permittee or its agents was tracked and the nitrogen removal by the BMP was
- ☐ estimated consistent with Attachment 1 to Appendix H. The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated nitrogen removed in mass per year by the BMP were documented.

- ☒ The BMP information is attached to the email submission
- ☐ The BMP information can be found at the following website:

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Currently, the Town sweeps all streets and parking lots, curbed and uncurbed, once per year. Streets in critical areas and in the downtown area swept twice per year. The Town's street sweeping schedule will be updated to include to include sweeping of Town-owned parking lots twice per year.

The BMP inventory including the required information was not completed by 6/30/2020, but has been completed by the time of the annual report submission (9/28/2020).

Lake and Pond Phosphorus TMDL

- ☐ Completed Legal Analysis

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

A review of regulatory mechanisms was not completed by 6/30/2020, but has been completed by the time of the annual report submission (9/28/2020).

Optional: Use the box below to provide any additional information you would like to share as part of your self-assessment:

Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

☒ Yes

☐ No

If yes, describe below, including any relevant impairments or TMDLs:

The Town of Ludlow added E.Coli as impairment for Chicopee River (MA36-24) based on updated 303d list (2016 - previously used 2014)

Part IV: Minimum Control Measures

Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.

MCM1: Public Education

Number of educational messages completed **during this reporting period:**

*Below, report on the educational messages completed **during this reporting period**. For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.*

BMP: Pollution Prevention for Business

Message Description and Distribution Method:

Post pollution prevention document for businesses on Town website.

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

This document has been posted on the Town of Ludlow website, under the Department of Public Works
Additional Information.

Message Date(s):

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP: Stormwater Management for Developers

Message Description and Distribution Method:

Post Stormwater Management for Developers document on Town website.

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

This document has been posted on the Town of Ludlow website, under the Department of Public Works
Additional Information.

Message Date(s): June 2019 - ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP:Construction Stormwater Tips

Message Description and Distribution Method:

Post Construction Stormwater Tips document on Town website.

Targeted Audience: Developers (construction)

Responsible Department/Parties: DPW Operations

Measurable Goal(s):

This document has been posted on the Town of Ludlow website, under the Department of Public Works
Additional Information

Message Date(s): June 2019 - ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP: Stormwater Pollution Prevention for Industrial Sites

Message Description and Distribution Method:

Post Stormwater Pollution Prevention for Industrial Sites document on Town website.

Targeted Audience: Industrial facilities

Responsible Department/Parties: DPW Operations

Measurable Goal(s):

This document has been posted on the Town of Ludlow website, under the Department of Public Works
Additional Information.

Message Date(s): June 2019 - ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP: Maintaining BMPs at Industrial Facilities

Message Description and Distribution Method:

Post Maintaining your BMPs document on Town website.

Targeted Audience: Industrial facilities

Responsible Department/Parties: DPW Operations

Measurable Goal(s):

This document has been posted on the Town of Ludlow website, under the Department of Public Works
Additional Information.

Message Date(s): June 2019 - ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP:Stormwater Pollution Prevention for Homeowners

Message Description and Distribution Method:

Post Overall Stormwater Pollution Prevention Guide for Homeowners document on Town website.

Targeted Audience: Residents

Responsible Department/Parties: DPW Operations

Measurable Goal(s):

This document has been posted on the Town of Ludlow website, under the Department of Public Works
Additional Information.

Message Date(s): June 2019 - ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP:Education for Residents on Lawn Fertilizing

Message Description and Distribution Method:

Post Stormwater Pollution Education: Fertilizing the Lawn document on Town website. Distribute an annual message in the Spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers.

Targeted Audience: Residents

Responsible Department/Parties: DPW Operations

Measurable Goal(s):

The "Fertilizing the Lawn" document has been posted on the Town DPW website, under additional information and will be posted as an announcement on the local cable access station. The document will remain on the Town DPW website year-around.

Message Date(s): June 2019 - ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP:Dog Waste and Surface Water Quality

Message Description and Distribution Method:

Post Dog Waste and Surface Water Quality document on Town website. Provide educational material on pet waste and surface water quality to dog owners at time of issuance and renewal of dog licenses. The message will remain on the Town website and will be available throughout the year. The message will encourage the proper management of pet waste.

Targeted Audience: Residents

Responsible Department/Parties: DPW Operations

Measurable Goal(s):

The "Dog Waste and Surface Water Quality" document has been posted on the Town DPW website, under additional information. This message will remain on the Town DPW website year-round to encourage the proper management of pet waste. The Town Clerk has educational materials on pet waste and surface water quality available to dog owners at time of issuance and renewal of dog licenses.

Message Date(s): June 2019 - ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP:EPA & DEP General Stormwater Information

Message Description and Distribution Method:

Post links to EPA and DEP General Stormwater Information on Town website.

Targeted Audience: Residents

Residents

Responsible Department/Parties: DPW Operations

DPW Operations

Measurable Goal(s):

The EPA and DEP links have been posted on the Town of Ludlow website, under the Department of Public Works Additional Information.

Message Date(s): June 2019 - ongoing

June 2019 - ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP:Hazardous Waste Collection Day

Message Description and Distribution Method:

Host a hazardous waste collection day.

Targeted Audience: Residents

Residents

Responsible Department/Parties: DPW Operations

DPW Operations

Measurable Goal(s):

A Hazardous Waste Collection Day was held in 2018. The Town directs residents to nearby facilities to encourage residents to dispose of hazardous properly. No Hazardous Waste Collection was held in 2020 due to difficulties in holding in-person event during COVID-19 pandemic.

Message Date(s): June 2019 - ongoing

June 2019 - ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP:Maintenance of Septic Systems in Impaired Water Body Catchment

Message Description and Distribution Method:

Provide information on proper maintenance to owners of septic systems within any catchment that discharges to the Chicopee River (MA36-24), which has a fecal coliform impairment.

Targeted Audience: Residents

Responsible Department/Parties: DPW Operations

Measurable Goal(s):

To educate septic system owners during septic system inspections, the proper maintenance document has been posted on the Town of Ludlow website, under the Department of Public Works Additional Information.

Message Date(s): June 2019 - ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP:Annual Leaf Litter Disposal Message

Message Description and Distribution Method:

Distribute an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

Targeted Audience: Residents

Responsible Department/Parties: DPW Operations

Measurable Goal(s):

This document has been posted on the Town of Ludlow website, under the Department of Public Works Additional Information. A public service announcement was run on the local cable access channel over a month in October 2019.

Message Date(s): June 2019 - ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP:Think Blue Connecticut River Website

Message Description and Distribution Method:

The Think Blue Connecticut River website is at the core of all regional messaging about stormwater. The website at www.thinkblueconnecticutriver.org does the following:

- Covers major areas of messaging about reducing polluted stormwater flows, including lawn and yard care, pet waste management, car care, controlling soil erosion, soaking up the rain, and septic system care
- Addresses the key 4 audiences plus educators
- Serves as the “landing place” for information on nearly all social media messaging

Targeted Audience: Residents, business/institutional/commercial, developers, and industrial

Responsible Department/Parties: PVPC staff and web site consultant

Measurable Goal(s):

1,477 people visited the Think Blue Connecticut River website during Year 2 and spent an average of 1 minute, 53 seconds on viewing a total of 3,252 pages on stormwater best practices.

Message Date(s): July 1, 2019 through June 30, 2020

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP:Covid-19 litter

Message Description and Distribution Method:

Connecticut River Stormwater Committee members noted at the April 6, 2020 meeting that all are seeing a tremendous increase in three types of waste likely attributable to Covid-19 and recent stay at home orders. The waste includes: protective latex gloves and alcohol nip bottles strewn on the ground in many places, and increased pet waste either unbagged, but even bagged and left in place. The heightened concern of disease transmission likely plays a part in the uptick in this type of litter. As such, PVPC staff worked on a press release and boosted Facebook post with the key messaging being, “storm flows carry this waste to the river, and we don’t want to be swimming in it come summer.” The press release yielded a high visibility evening news segment on Channel 22/WWLP, on April 9.

Targeted Audience: Residents, and business/institutional/commercial

Responsible Department/Parties: PVPC staff

Measurable Goal(s):

PVPC April 10 Facebook post: 3,450 impressions, 1,234 engagements, and 19 likes and 124 shares
WWLP, Channel 22 news story views and blog post views could not be obtained, but these numbers are likely in the thousands or tens of thousands.

Message Date(s): April 2020

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP:Cigarette butts - residents

Message Description and Distribution Method:

Materials and messaging for this campaign to reduce cigarette butt litter were developed within the reporting period. Due to general sense that messaging would get lost in the mix given far greater public concern with the Covid-19 pandemic, actual launch of campaign messaging was postponed from Year 2 to Year 3. The campaign includes:

- Image of baby bird with cigarette butt in its mouth with message
- Large decals (2x3 feet) for public works vehicles throughout the region
- Web page with additional information on cigarette butt litter and link to informational video from Canadian public broadcasting
- Press release to local media
- Boosted FB post to be shared with MA Audubon and the Connecticut River Conservancy and that links to resources on Think Blue Connecticut River website

Targeted Audience: Residents

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

NA for this reporting period – postponed to Year 3

Message Date(s): NA for this reporting period

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP: Dumpster waste and avoiding contaminated flows message - businesses

Message Description and Distribution Method:

Materials and messaging for this campaign on dumpster waste and avoiding contaminated flows were developed within the reporting period. Due to general sense that messaging would get lost in the mix given far greater public concern with the Covid-19 pandemic, actual launch of campaign messaging was postponed from Year 2 to Year 3. The campaign includes:

- Presentation that was to be given at March 12 Western Mass Health Officers Association/MassDEP annual spring seminar focused on environmental health
- Flyer to inform Boards of Health on proactive regulatory and educational steps to curb stormwater pollution from dumpsters
- Flyer for Boards of Health for use as part of routine interactions with retail complexes, restaurants/food establishments, and apartment complexes
- Check list for Boards of Health (developed by Town of Palmer Conservation Agent) to use when inspecting restaurants and looking at dumpsters and oil storage

Targeted Audience: Business, institutions, and commercial facilities

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

NA for this reporting period – postponed to Year 3

Message Date(s): NA for this reporting period

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP: New MS4 development standards and erosion and sediment control - developers

Message Description and Distribution Method:

The plan was to conduct a workshop at the regional Western Massachusetts Development Conference. Leading up to the conference - scheduled for May and now postponed to October - conference organizers, however, indicated that a workshop on this topic does not fit with their programming. As an alternative, they offered the ability to have a Think Blue Connecticut River table where we could talk with developers and hand out information. The conference is now planned to be held virtually on October 21. Organizers have indicated through communications with PVPC that, "We are using a very cool 3d platform that will provide multiple opportunities for vendors to feature chats, content, videos and other digital material."

Targeted Audience: Developers

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

NA for this reporting period – postponed to Year 3

Message Date(s): NA for this reporting period

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP:Erosion and sediment control - developers

Message Description and Distribution Method:

To get some messaging out to developers for Year 2, municipal members agreed that it makes good sense to distribute a letter on municipal letterhead and an EPA brochure on erosion and sediment control to drainlayers operating within their communities. This was a strategy used by Tewksbury Public Works Director Arthur Marcos, kindly shared his draft letter language. PVPC staff developed a contact list for drain layers operating in the region, updated Mr. Marcos' letter and sent those materials along with the EPA brochure on erosion and sediment control for member use.

Some 72 drain layers have been identified in the region. Only East Longmeadow made use of the mailing this year, but other members have indicated they may follow through with this mailing to those operating within their respective jurisdictions in Year 3.

Targeted Audience: Developers and drainlayers specifically

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

Letters and brochure sent to nine drainlayers in the region that are operating specifically in East Longmeadow.

Message Date(s): Letters sent spring of 2020

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP:Fleet Maintenance to avoid spills and leaks - industrial facilities

Message Description and Distribution Method:

This message is aimed at ensuring that industrial operators with vehicle fleets take care to manage vehicles so as to avoid spills and leaks. The press release to be distributed through the region, as well as the flyer to be distributed to industries in the region are based on the Think Blue Massachusetts flyer developed by Water Words that Work. After several attempts to acquire MSGP permittees through various on-line sources, PVPC obtained the list of MSGP permittees in Massachusetts directly from EPA Region 1 staff. The list shows permittees in every Stormwater Committee community except Southampton and Longmeadow.

Targeted Audience: Industrial facilities

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

NA for this reporting period – postponed to Year 3

Message Date(s): NA for this reporting period

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP: Proper disposal of leaf litter - residents**Message Description and Distribution Method:**

Messaging for this campaign was adapted from a series of four Be a Leaf Hero social media posts developed by the Cape Cod Commission and customized for the Connecticut River Stormwater Committee. The posts provide a series of tips and all tips contained a link to a more in-depth document posted on the Think Blue Connecticut River website. The in-depth document promotes better practices with leaf litter and seeks to build understanding about potential contamination of stormwater with leaf litter.

Targeted Audience: Residents

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

Boosted Facebook posts that reached a total of 6,903 people, 353 of whom clicked to the link provided for more information. It is important to note here that Facebook posts present ongoing challenges. Despite best efforts, the 3rd boosted post in this series was taken down by Facebook part way through and the 4th post blocked for boosting by zip code altogether. This led to a month-long verification process for PVPC staff with Facebook.

Article in PVPC's Regional Reporter that received views from 883 people, 29 of whom clicked to the link provided for more information.

Message Date(s): Facebook posts ran mid-October through mid-November; article in PVPC's Regional Reporter October and November issues

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI..

BMP:Importance of soil test, proper use of fertilizers, disposal of grass clippings - residents

Message Description and Distribution Method:

Social media post, using idea of keeping lawns safe for families. The link provided in the social media post connects to the Think Blue Connecticut River web page on lawn and yard care, which lays out important best practices and links to useful resources, including a video by Paul Tukey, organic lawn care celebrity, as well as guides to popular lawn care chemicals and their hazards.

Targeted Audience: Residents

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

Boosted Facebook post reached 5,922 people, 110 of whom clicked to the website link for more information. Analytics indicate that the average time spent by visitors on that resource page was nearly 4 minutes. Article in PVPC's Regional Reporter that received views from 431 people, 15 of whom clicked to the link provided for more information.

Message Date(s): Facebook post on May 21, 2020; article in PVPC's Regional Reporter May issue

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP:Proper management of pet waste - residents

Message Description and Distribution Method:

A series of messages were issued this year to drive people to the Think Blue Connecticut River website resources on pet waste, particularly a pledge to pick up pet waste. These messages included multiple Facebook posts, pet waste instructions added to the website, and an electronic form to pledge pet waste pick up. Some communities also did electronic and direct mail distribution of post cards to dog owners. An additional Facebook post was added during "stay at home orders" for Covid-19 given the amount of pet waste Connecticut River Stormwater Committee members were seeing at parks, along streets, and in storm drains. All of this effort was further boosted for summer with a banner pet waste message on MassLive targeting dog owners specifically.

Targeted Audience: Residents

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

The boosted Facebook posts reached 15,552 people who followed through with 406 clicks. The articles placed in 6 issues of PVPC's Regional Reporter were viewed by 2,740 people, 48 of whom clicked to a link for more information. A MassLive banner provided 175,015 impressions with 296 clicks to more information. During Year 2, Think Blue Connecticut River pet waste page on the website had 730 page views with the analytics indicating that the average time spent by visitors on that resource page was 1 minute and 33 seconds. Of the 189 visitors who proceeded to the pick up pet waste pledge, 70% or 122 people made the commitment to pick up pet waste.

Message Date(s): Message dates:

- For summer 2019 message, issued posters and Facebook post on July 30, 2019 (pledge was not yet set up); also placed article in PVPC's Regional Reporter (summer and September).
- Time of licensing 2020, Facebook posts on January 31, February 3, February 6, and boosted post by zip code on February 10; also placed article in PVPC's Regional Reporter (February, March, and April).
- Electronic and direct mail distribution of post cards during February and March
- For Covid-19 messaging, Facebook post boosted by zip code on April 8
- For summer 2020 message, MassLive Banner ad from June 25 through July 24; also placed article in PVPC's Regional Reporter (summer)

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP:Proper septic system care - residents

Message Description and Distribution Method:

The Think Blue Connecticut River website contains a great resource page on septic system care that includes an infographic on maintenance. To promote the resources on this page for homeowners, the Connecticut River Stormwater Committee did a boosted Facebook post timed to coincide with EPA's Septic Smart Week in September.

PVPC also prepared a draft letter for distribution by Boards of Health to septic system owners. Several communities used this letter in Year 2, while others are planning to use in Year 3. It is important to note that among Connecticut River Stormwater Committee there are several member communities that are highly urbanized with no properties presumed to be using septic systems for sanitary waste disposal.

Targeted Audience: Residents

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

Boosted Facebook posts reached 1,586 people, 176 of whom clicked to the website link for more information. Analytics on the Think Blue Connecticut River web page on septic system care indicate that the average time spent by visitors on that resource page was just over 2 minutes.

Message Date(s): September 16, 2019

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP:Proper disposal of leaf litter - business

Message Description and Distribution Method:

Mailing to landscapers in the region that promotes best practices and identifies locations for proper disposal of leaf litter. Best practices noted in letter are:

- Keep leaves off of driveways and roadways where they can easily wash into storm drains and contribute to higher nutrient flows during the fall season.
- Use a mulching mower. By mulching the leaves into the lawn, you avoid having to rake/blow and bag and you offer a way to manage autumn leaves while providing your client with free fertilizer. Mulched leaves put nutrients back into the ground and reduce the overall need for more soluble fertilizer products, which present greater problems for our local waterways.
- Alternatively, if your client has an existing compost pile, you can recommend that they consider allowing you to add leaves to the pile. Leaves provide a critically important element (carbon) to the composting process, making for a more soil enriching product to be used in the next growing season. Be sure compost piles are located away from streams, lakes, or storm drains as these decomposing materials and nutrients could easily leach to these water resources.

Targeted Audience: Businesses/institutions/commercial facilities

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

Mailing to 120 professional land care companies operating in Stormwater Committee member municipalities

Message Date(s): November 4, 2019

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP:Importance of soil test, proper use of fertilizers, disposal of grass clippings - businesses

Message Description and Distribution Method:

In-person workshop for land care companies in the region on the need for better practices based on water quality considerations, new state regulations on use of nutrients, and best practices. Updated mailing list of professional land care companies operating in Stormwater Committee member municipalities with help from regional professional association.

Targeted Audience: Business/institutions/commercial facilities

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

Workshop invitation mailing to 130 professional land care companies operating in Stormwater Committee member municipalities

This in-person workshop had been planned for April 1 and an invitation issued to landscapers in the region. With the emergence of Covid19 the workshop was going to be moved to the Zoom virtual meeting platform, but there was little interest expressed from landscapers. Mary Owen of UMass Extension and Hotze Wijnja of MassDAR recommended cancellation of the event as the industry was in upheaval with the pandemic. Also, the audience here was intended to be large institutions with lawns, but some difficulty in identifying these places in practice. For year 3, plan to conduct workshop and invite both these audiences.

Message Date(s): November 4, 2019

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP:Proper management of goose waste - businesses

Message Description and Distribution Method:

Letter to property owners identified as having goose problems, with specific strategies and resources. Chief recommended strategies are signage to discourage people feeding geese and managing "residential" goose populations, by undertaking a program to addle eggs and modify landscapes. Contact information for USDA Wildlife Services in Amherst, was offered as a source of technical assistance and operational management. Also included in the letter were two illustrations of landscaping along water's edge to provide idea of modifications that could help to reduce direct stormwater flows and creates barriers for goose movement from water to foraging area.

Targeted Audience: Businesses/institutions/commercial facilities

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

Letters sent to owners of 25 properties with likely ongoing residential goose problems

Message Date(s): October 21, 2019

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP:Proper management of pet waste - businesses

Message Description and Distribution Method:

Development and distribution of resources for businesses to address improper pet waste disposal on their properties. Resources include a designed sign template, cost estimates for sign production from vendors in the region, and social media material for use in posts by businesses. To promote availability of resources, PVPC reached out to the 11 chambers of commerce operating in the region and provided an article to run in member newsletters. All pet waste resources are made available through the businesses page on the Think Blue Connecticut River website.

Targeted Audience: Businesses/institutions/commercial facilities

Responsible Department/Parties: PVPC staff and member municipalities

Measurable Goal(s):

Reporting back from Chambers was uneven, but hope is to smooth these lines of communications as this seems good way to reach this audience. Based on Chambers reporting back, newsletters with Poop Fairy article went to 3,295 businesses in the region.

Message Date(s): Various through June and July, 2020

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI.

BMP:Fowl Water messaging through state-wide campaign

Message Description and Distribution Method:

On behalf of the members of the Connecticut River Stormwater Committee, Think Blue Massachusetts ran two educational advertising campaigns using the 30-second video entitled, "Fowl Water." The "Fowl Water" advertisement helps viewers visualize how stormwater runoff carrying motor oil, pet waste, and trash pollutes local waterways. One campaign ran early in Year 2, from July 1 to July 12, 2019, and the other ran from May 16 to June 5, 2020. Each campaign entailed sponsored video on Facebook and Instagram and pre-roll advertisements on YouTube. See the video at: <http://bit.ly/tbm-fowl-water>

Targeted Audience: Residents and businesses/institutions/commercial facilities

Responsible Department/Parties: Think Blue Massachusetts and Water Words that Work

Measurable Goal(s):

Water Words that Work reports that within the Connecticut River Stormwater Committee region: 1st campaign resulted in 1,009,224 Facebook and Instagram and 318,970 You Tube ad impressions; 2nd campaign resulted in 708,781 Facebook and Instagram and 619,562 You Tube ad impressions

Message Date(s): July 1 to July 12, 2019
May 16 to June 5, 2020

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☒ No ☐

If yes, describe why the change was made:

Ludlow is a member of the Connecticut River Stormwater Committee and therefore participates in MS4 measures completed by this organization in addition to the Town's NOI..

Add an Educational Message

MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) **during this reporting period:**

SWMP has been posted to the Town's website; however, the Town has been unable to conduct a public meeting for discussion on the SWMP due to the ongoing COVID-19 pandemic.

Was this opportunity different than what was proposed in your NOI? Yes ☐ No ☒

Describe any other public involvement or participation opportunities conducted **during this reporting period**:

The Town of Ludlow's goal was to hold a public cleanup in the Spring. However, due to COVID-19 no in-person events were held. Similarly, due to COVID-19 no public meetings were held where the stormwater bylaws or SWMP were discussed.

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

Check off the box below if the statement is true.

- ☐ This SSO section is NOT applicable because we DO NOT have sanitary sewer

*Below, report on the number of SSOs identified in the MS4 system and removed **during this reporting period**.*

Number of SSOs identified:

Number of SSOs removed:

MS4 System Mapping

Below, check all that apply.

The following elements of the Phase I map have been completed:

- ☒ Outfalls and receiving waters
- ☒ Open channel conveyances
- ☒ Interconnections
- ☒ Municipally-owned stormwater treatment structures
- ☒ Waterbodies identified by name and indication of all use impairments
- ☒ Initial catchment delineations

Optional: Describe any additional progress you made on your map during this reporting period or provide additional status information regarding your map:

The Town further refined the storm sewer and drainage network based on available information and field inspections.

Screening of Outfalls/Interconnections

If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses.

- ☒ The outfall screening data is attached to the email submission
- ☐ The outfall screening data can be found at the following website:

*Below, report on the number of outfalls/interconnections screened **during this reporting period.***

Number of outfalls screened: 16

Catchment Investigations

If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.

- ☐ The catchment investigation data is attached to the email submission
☐ The catchment investigation data can be found at the following website:

*Below, report on the number of catchment investigations completed **during this reporting period.***

Number of catchment investigations completed this reporting period: 0

*Below, report on the percent of catchments investigated **to date.***

Percent of total catchments investigated: 0

Optional: Provide any additional information for clarity regarding the catchment investigations below:

The Town has initiated some data collection to start catchment investigations but has not completed any investigations.

IDDE Progress

If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.

- ☐ The illicit discharge removal report is attached to the email submission
☐ The illicit discharge removal report can be found at the following website:

*Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed **during this reporting period.***

Number of illicit discharges identified: 0

Number of illicit discharges removed: 0

Estimated volume of sewage removed: 0 gallons/day

*Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed **since the effective date of the permit (July 1, 2018).***

Total number of illicit discharges identified: 0

Total number of illicit discharges removed: 0

Optional: Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

Employee Training

Describe the frequency and type of employee training conducted **during the reporting period:**

This reporting period, the SWMP Team attended a webinar titled 'Illicit Discharge Detention and Elimination (IDDE) Training Workshop held by Central Massachusetts Regional Stormwater Coalition on May 7, 2020. The video of the webinar can be found at <https://www.centralmastormwater.org/toolbox/pages/2020-idde-workshop-ms4-assistance-grant>

MCM4: Construction Site Stormwater Runoff Control

*Below, report on the construction site plan reviews, inspections, and enforcement actions completed **during this reporting period.***

Number of site plan reviews completed: 8

Number of inspections completed: 8

Number of enforcement actions taken: 0

Optional: Enter any additional information relevant to construction site plan reviews, inspections, and enforcement actions:

MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

Ordinance or Regulatory Mechanism

Below, select the option that describes your ordinance or regulatory mechanism progress.

- ☐ Bylaw, ordinance, or regulations are updated and adopted consistent with permit requirements
- ☒ Bylaw, ordinance, or regulations are updated consistent with permit requirements but are not yet adopted

- ☐ Bylaw, ordinance, or regulations have not been updated or adopted

As-built Drawings

Describe the measures the MS4 has utilized to require the submission of as-built drawings and ensure long term operation and maintenance of completed construction sites:

The Town bylaw requires as-built plans to be submitted at construction completion. If as-built drawings are not submitted the developer will not receive the surety or cash bond which was previously submitted by the developer. The Town bylaws also require a maintenance schedule for the life of any stormwater management facility as well as records of maintenance. Enforcement methods are included in the bylaw.

Street Design and Parking Lots Report

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

The Town of Ludlow is on track to complete this work for Year 4 and will review several resources to help in developing the report, including EPA's technical support document entitled, "Assessing Street and Parking Design Standards to Reduce Excess Impervious Cover in New Hampshire and Massachusetts," at the following link: <https://www3.epa.gov/region1/npdes/stormwater/assets/pdfs/ImperviousAssessment.pdf>

Green Infrastructure Report

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

The Town of Ludlow is on track to complete this work for Year 4 and will review several resources to help in developing the report, including MassAudubon's checklist entitled, "Supporting LID in Your Community: How to Compare Local Land Use Regulations with Best Practices" at <https://www.epa.gov/npdes-permits/stormwater-tools-new-england#pcsm>; and guidance developed by Pioneer Valley Planning Commission within the Green Infrastructure Toolkit at: <http://www.pvpc.org/content/green-infrastructure-toolkit>.

Retrofit Properties Inventory

Describe the status of the inventory, due in year 4 of the permit term, of permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas and report on any properties that have been modified or retrofitted:

The Town of Ludlow is on track to complete this work for Year 4 and will review the methodologies developed by the Pioneer Valley Planning Commission for the initial screening of properties.

MCM6: Good Housekeeping

Catch Basin Cleaning

*Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins **during this reporting period**.*

Number of catch basins inspected:

Number of catch basins cleaned: 12

Total volume or mass of material removed from all catch basins: 6 cubic yards

Below, report on the total number of catch basins in the MS4 system.

Total number of catch basins: >2,444

If applicable:

Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:

Street Sweeping

*Report on street sweeping completed **during this reporting period** using one of the three metrics below.*

☒ Number of miles cleaned: 140

☐ Volume of material removed: 830 cubic yards

☐ Weight of material removed: 1,120 tons

O&M Procedures and Inventory of Permittee-Owned Properties

Below, check all that apply.

The following permittee-owned properties have been inventoried:

- ☒ Parks and open spaces
- ☒ Buildings and facilities
- ☒ Vehicles and equipment

The following O&M procedures for permittee-owned properties have been completed:

- ☒ Parks and open spaces
- ☒ Buildings and facilities
- ☒ Vehicles and equipment

Stormwater Pollution Prevention Plan (SWPPP)

*Below, report on the number of site inspections for facilities that require a SWPPP completed **during this reporting period**.*

Number of site inspections completed: 0

Describe any corrective actions taken at a facility with a SWPPP:

No corrective actions were taken at a facility with a SWPPP. Note that the Town of Ludlow's Inspector has inspected the facility outside of the reporting period in September 2020.

Additional Information

Monitoring or Study Results

Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.

- ☒ Not applicable
- ☐ The results from additional reports or studies are attached to the email submission
- ☐ The results from additional reports or studies can be found at the following website(s):

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:

Additional Information

Optional: Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

A SWPPP was created for the DPW Yard; however, it was not completed by 6/30/2020, but was completed by the time of the annual report submission (9/28/2020).

COVID-19 Impacts

Optional: If any of the above year 2 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

The COVID-19 pandemic has presented a range of challenges to the Town of Ludlow. The Department of Public Works has been impacted, as:

- Face-to-face interactions were not possible for several months and are currently limited
- The DPW operations group was substantially reduced with minimal staff for approximately 3 months during the COVID-19 period.

Impacted activities by the reduction of workforce have been identified throughout the annual report.

Activities Planned for Next Reporting Period

Please confirm that your SWMP has been, or will be, updated to comply with all applicable permit requirements including but not limited to the year 3 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

Yes, I agree ☒

- Inspect all outfalls/ interconnections (excluding Problem and Excluded outfalls) for the presence of dry weather flow
- Complete follow-up ranking as dry weather screening becomes available

Annual Requirements

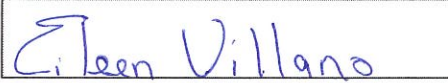
- Annual report submitted and available to the public
- Annual opportunity for public participation in review and implementation of SWMP
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- Annual training to employees involved in IDDE program
- Update inventory of all known locations where SSOs have discharged to the MS4
- Continue public education and outreach program
- Update outfall and interconnection inventory and priority ranking and include data collected in connection with the dry weather screening and other relevant inspections conducted
- Implement IDDE program
- Review site plans of construction sites as part of the construction stormwater runoff control program
- Conduct site inspection of construction sites as necessary
- Inspect and maintain stormwater treatment structures
- Log catch basins cleaned or inspected
- Sweep all uncurbed streets at least annually
- Continue investigations of catchments associated with Problem Outfalls
- Review inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment; update if necessary

Part V: Certification of Small MS4 Annual Report 2020

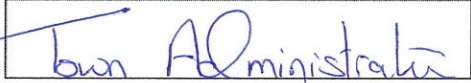
40 CFR 144.32(d) Certification

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, I certify that 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.

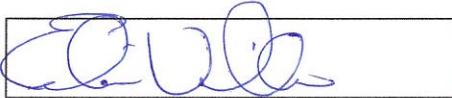
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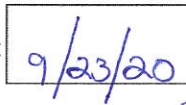
Title:



Signature:



Date:



[Signatory may be a duly authorized representative]