

Year 4 Annual Report

Massachusetts Small MS4 General Permit

Reporting Period: July 1, 2021-June 30, 2022

****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, 2021 and June 30, 2022 unless otherwise requested.

Part I: Contact Information

Name of Municipality or Organization: Town of Ludlow

EPA NPDES Permit Number: MAR041014

Primary MS4 Program Manager Contact Information

Name: James Goodreau

Title: Assistant Town Engineer

Street Address Line 1: 198 Sportsmen's Road

Street Address Line 2: N/A

City: Ludlow

State: MA

Zip Code: 01056

Email: jgoodreau@ludlow.ma.us

Phone Number: (413) 583-5625

Stormwater Management Program (SWMP) Information

SWMP Location (web address): <https://ludlow.ma.us/html/dpw/more.htm>

Date SWMP was Last Updated: 9/28/2022

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

N/A

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 4 Requirements

- ☐ Developed a report assessing current street design and parking lot guidelines and other local requirements within the municipality that affect the creation of impervious cover, made it available as part of the SWMP, and:

- ☐ No updates were recommended
- ☒ Updates were recommended. The anticipated date or date of completion for updates is/was:

The updates are scheduled to occur between June 30, 2024 and June 30, 2028

- ☐ Developed a report assessing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist, made it available as part of the SWMP, and:

- ☐ No updates were recommended
- ☒ Updates were recommended. The anticipated date or date of completion for updates is/was:

The updates are scheduled to occur between June 30, 2024 and June 30, 2028

- ☒ Identified a minimum of 5 permittee-owned properties that could potentially be modified or retrofitted with BMPs to reduce impervious cover

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

The two reports above were not completed by 6/30/2022, but have been completed by the time of the annual report submission (9/28/2022).

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:
- ☒ Updated system map due in year 2 as necessary
- ☒ Provided training to employees involved in IDDE program within the reporting period
- ☒ Properly stored and disposed of catch basin cleanings and street sweepings so they did not discharge to receiving waters
- ☒ All curbed roadways were swept at least once within the reporting period
- ☒ Enclosed all road salt storage piles or facilities and implemented winter road maintenance procedures to minimize the use of road salt
- ☒ Implemented SWPPPs for all permittee owned or operated maintenance garages, public works yards, transfer stations, and other waste handling facilities
- ☒ Updated inventory of all permittee owned facilities as necessary
- ☒ O&M programs for all permittee owned facilities have been completed and updated as necessary
- ☒ Implemented all maintenance procedures for permittee owned facilities in accordance with O&M programs
- ☒ Implemented program for MS4 infrastructure maintenance to reduce the discharge of pollutants
- ☐ Inspected all permittee owned treatment structures (excluding catch basins)

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:

Staffing limitations have have impacted the inspection of catch basins and other permittee owned treatment structures. SWMP has been posted online; however, the Town did not receive any comments from the public. Town inspected permittee-owned structures on DPW site, but after the permit period ended (inspection occurred in August 2022).

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:

Chloride

- ☐ Completed the Salt Reduction Plan due in Year 3, updated if necessary
 - ☐ The Salt Reduction Plan is attached to the email submission
 - ☐ The Salt Reduction Plan can be found at the following website:

Annual Requirements

Public Education and Outreach

- Included an annual message in November/ December to private road salt applicators and commercial
- ☐ industrial site owners on the proper storage and application rates of winter deicing material, along with the steps that can be taken to minimize salt use and protect local waterbodies

Please fill out the following information on salt usage over Year 4 of the permit. Be sure to include units for amount of salt:

Type(s) of salt applied:

Amount of salt applied:

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)

Nitrogen Source Identification Report

- ☒ Completed the Nitrogen Source Identification Report
- ☒ The Nitrogen Source Identification Report is attached to the email submission
 - ☐ The Nitrogen Source Identification Report can be found at the following website:

The Nitrogen Source Identification Report was prepared by the Pioneer Valley Planning Commission (PVPC) in June 2021. Further review and updates to the Nitrogen Report were completed after the close of the Year 4 Reporting Period but prior to the submission of this Annual Report, and have been included in the attachment to the email submission of the Annual Report.

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:

Roads in high traffic areas were swept at least twice within the reporting year, but not all municipal owned streets and parking lots were swept twice.

Phosphorus (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) encouraging the proper use and disposal of grass clippings and encouraging the proper use of slow-release and phosphorus-free 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)

Phosphorus Source Identification Report

- ☐ Completed the Phosphorus Source Identification Report
- ☒ The Phosphorus Source Identification Report is attached to the email submission
 - ☐ The Phosphorus Source Identification Report can be found at the following website:

Potential structural BMPs

- Any structural BMPs already existing or installed in the regulated area by the permittee or its agents was tracked and the phosphorus removal by the BMP was estimated consistent with Attachment 3 to Appendix F. The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated phosphorus 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:

Solids, Oil and Grease (Hydrocarbons), or Metals**Annual Requirements***Good Housekeeping and Pollution Prevention for Permittee Owned Operations*

- ☐ Increased street sweeping frequency of all municipal owned streets and parking lots to a schedule that targets areas with potential for high pollutant loads
- ☐ The street sweeping schedule is attached to the email submission
 - ☐ The street sweeping schedule can be found at the following website:

- ☐ Prioritized inspection and maintenance for catch basins to ensure that no sump shall be more than 50 percent full; Cleaned catch basins more frequently if inspection and maintenance activities indicated excessive sediment or debris loadings

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:

- ☐ Defined the scope of the Phosphorus Control Plan (PCP). *Please select one of the following:*
- ☐ The PCP scope is the entire area within our jurisdiction within the Charles River Watershed
 - ☐ The PCP scope is the urbanized area portion of our jurisdiction within the Charles River Watershed

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:

NON-TRADITIONAL AND TRANSPORTATION MS4s ONLY- municipalities please skip this section:

- ☐ Estimated the current impervious area of permittee owned property, determined the Land Use information for permittee owned property, calculated the phosphorus removal in pounds per year for any structural BMP owned by the permittee in accordance with Appendix F Attachment 3, and recorded the date of last maintenance activity for all structural BMPs for which phosphorus removal is calculated
- ☐ The above information is attached to the email submission
 - ☐ The above information can be found at the following website:

Lake and Pond Phosphorus TMDL

- ☒ Defined the scope of the Lake Phosphorus Control Plan (LPCP). *Please select one of the following:*
- ☒ The PCP scope is the entire area within our jurisdiction discharging to the impaired waterbody
 - ☐ The PCP scope is the urbanized area portion of our jurisdiction discharging to the impaired waterbody
- ☒ Calculated baseline phosphorus, allowable phosphorus load, and phosphorus reduction requirement

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:

The Lake and Pond Phosphorus TMDL Report was prepared by the Pioneer Valley Planning Commission (PVPC) in June 2021. Further review of the Phosphorus report was performed after the close of the Year 4 Reporting Period but prior to the submission of this annual report.

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:

An existing outfall that had not previously been shown in GIS mapping was identified during site investigations. The corresponding catchment area for this outfall was drawn in, and two nearby catchment areas were re-delineated. The connections of existing infrastructure were confirmed in the field and catchment infrastructure and delineations were adjusted as necessary based on field investigations and record plans. The outfall list was updated during the Year 4 reporting period, and the catchment areas were redrawn after the Year 4 reporting period had ended but prior to submission of the Year 4 Annual Report.

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 Businesses

Message Description and Distribution Method:

Pollution prevention document for businesses is posted on the town website. Provides an overview of pollution prevention and information on source reduction, reuse/recycling, and energy recovery as three methods of accomplishing pollution prevention.

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: "Pollution Prevention: For Businesses"

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:

Stormwater management document for developers is posted on the town website. The document encourages wise site selection, careful development, and the use of Low Impact Development (LID) practices. The document also addresses perceived barriers of cost, cold weather impacts, drinking water quality, and public safety.

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: "Pollution Prevention: For Developers".

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:

Construction Stormwater Tips document is posted on the town website. The document includes a diagram that portrays various methods of preventing pollution and reducing stormwater runoff during construction.

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: "Pollution Prevention: During Construction"

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:

Stormwater Pollution Prevention document for industrial sites is posted on the town website. This document addresses erosion prevention, sediment control, and runoff management; dust control; and eliminating unauthorized non-stormwater discharges. It also describes the need for a Stormwater Pollution Prevention Plan, a spill prevention and response procedure, employee training, and proper salt storage.

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: "Pollution Prevention: For Industrial"

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:

Stormwater Pollution Prevention guide for homeowners is posted on the town website. This document highlights ways homeowners can reduce stormwater pollution, including picking up after their dogs and using proper practices and materials when: working on the lawn and garden, using chemicals and salts, washing cars and boats, repairing automotives, and maintaining swimming pools and hot tubs.

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: "Pollution Prevention: For Homeowners"

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:

Fertilizing the Lawn document posted on the town website notes the impact lawn fertilizers can have on the environment and provides tips for the proper use of fertilizers to reduce this impact. 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.

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: "Fertilizing your lawn". The website message is available year round, and the local cable access station runs the message in the Spring.

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:

Two documents are posted on the town website that raise awareness of the pollution pet waste can cause to waterways and detail proper disposal of pet waste. The message will remain on the Town website and will be available throughout the year. The message encourages the proper management of pet waste. Educational material on pet waste and surface water quality is provided to dog owners at the time of issuance and renewal of dog licenses.

Targeted Audience: Residents

Responsible Department/Parties: DPW Operations

Measurable Goal(s):

These documents have been posted on the Town of Ludlow website, under the Department of Public Works Additional Information: "Pet waste - Info" and "Pet waste - How - To". The 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:

Links to EPA and DEP General Stormwater Information are posted on the town website.

Targeted Audience: Residents

Responsible Department/Parties: 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

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

Responsible Department/Parties: DPW Operations

Measurable Goal(s):

The Town directs residents to nearby facilities to encourage residents to dispose of hazardous waste properly.

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:

The Town did not host an in-person hazardous waste collection day, but instead directed residents to nearby facilities to properly dispose of hazardous waste.

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. A document is posted on the town website and includes a diagram that provides guidelines for the proper use and maintenance of a septic system.

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: "Septic Smarts".

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:**

A document is posted on the town website that encourages mulching, composting, and proper local disposal of leaf litter to reduce contamination of waterways. Annual message distributed 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: "Leaf Litter Options". A public service announcement was run on the local cable access channel in the Fall.

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 Management for Small Businesses

Message Description and Distribution Method:

A stormwater management document for small businesses is posted on the town website highlighting low impact development practices that collect, slow down, spread out, and filter stormwater into the soil.

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: "Slow the Flow w/ Low Impact Practices (Business)".

Message Date(s): September 2020 - 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:Anti-icing BMPs**Message Description and Distribution Method:**

An anti-icing BMP document is posted on the town website. This document includes proper mixing and treatment methods for anti-icing.

Targeted Audience: Businesses, institutions and commercial 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: "Anti-Icing Best Practices".

Message Date(s): 2021- 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 Small Residential Construction Sites

Message Description and Distribution Method:

A stormwater pollution prevention document has been posted on the town website for small residential construction sites. This document includes a diagram with 10 steps to prevent stormwater pollution on a small residential construction site, as well as information regarding the EPA's Construction General Permit (CGP) Small Residential Lot Stormwater Pollution Prevention Plan (SWPPP) Template.

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: "Pollution Prevention: On Small Residential Construction Sites".

Message Date(s): 2021 - 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:Oil spills from your vehicle**Message Description and Distribution Method:**

A document has been posted on the town website highlighting the importance of checking for oil leaks in vehicles, containing spills when working on vehicles, and proper disposal of motor oil.

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: "Oil spills from your vehicle".

Message Date(s): 2021 - 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:

Reducing water pollution from motor oil is pertinent to the Town of Ludlow's overall Stormwater Management Plan, and specific messaging related to proper vehicle maintenance and repair practices, and disposal of used oil was determined to be an important supplement to the public education and outreach originally outlined in the NOI.

BMP:Put Waste in its Place for Clean Water

Message Description and Distribution Method:

A waste management document for businesses has been posted on the town website providing a list of practices for properly storing and disposing of trash in a manner that will reduce pollution to waterways.

Targeted Audience: Businesses, institutions and commercial 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: "Put Waste In It's Place (Business)".

Message Date(s): 2021 - 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:

Waste management for businesses is pertinent to the Town of Ludlow's overall Stormwater Management Plan, and specific messaging related to proper storage and disposal of trash was determined to be an important supplement to the public education and outreach originally outlined in the NOI.

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: "Spill Prevention (Industrial)".

Message Date(s): 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:Washing your Car

Message Description and Distribution Method:

A document has been posted on the town website highlighting practices to reduce water pollution when washing vehicles.

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: "Washing your car".

Message Date(s): 2021 - 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:

Reducing water pollution caused by car washing is pertinent to the Town of Ludlow's overall Stormwater Management Plan, and specific messaging related to car washing practices that reduce water pollution was determined to be an important supplement to the public education and outreach originally outlined in the NOI.

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 Connecticut River Stormwater Committee members

Measurable Goal(s):

A total of 2,114 people visited the Think Blue Connecticut River website during Year 4 and spent an average of 36 seconds on viewing pages on stormwater best practices.

Message Date(s): July 1, 2021 through June 30, 2022

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:

As indicated in previous annual reports, the website was not mentioned in the NOI and SWMP, but with development now completed is most central to all messaging in the region.

BMP:Nip bottles – residents

Message Description and Distribution Method:

Materials and messaging for this campaign to reduce nip bottles litter were developed in Year 4. The campaign, however, will be launched starting early in Year 5 to capture the largest audience possible, including students that come to the region for university studies.

PVPC staff took a staged photo of nip bottles along a stream bank that will serve as the image for this campaign and worked with Connecticut River Stormwater Committee membership to refine the message itself. The campaign includes:

- Message displayed on internal and external signs on PVRTA buses servicing the region in both English and Spanish
- Web page on Connecticut River Think Blue website with additional information on nip bottle litter
- Social media mini ad campaign that links to information on Think Blue CT River web page to be shared with large membership organizations in the region
- Press release to local media

Targeted Audience: Residents, all audiences in the Connecticut River Stormwater Committee region

Responsible Department/Parties: PVPC staff and Connecticut River Stormwater Committee members

Measurable Goal(s):

To be reported in Year 5 report.

Message Date(s): To be reported in Year 5 report.

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:

Campaign has not yet started, but one adjustment made to increase reach of campaign includes translation of PVRTA bus panels ads into Spanish. Furthermore, the SWMP had indicated messaging would occur in Year 4, but we have decided to push to Year 5 to reach wider audience (when area colleges back in session).

BMP:Installation of hooded catch basins to keep fuels from local surface waters

Message Description and Distribution Method:

Messaging to commercial and business owners with large parking lots involved development and distribution of a letter on the benefits of retrofitting with hooded deep sump catch basins and an offer of technical assistance from local public works officials. PVPC staff provided the draft letter to member communities to be customized and sent to local property owners.

Staff also drafted an article with similar content for publication in Business West.

Targeted Audience: Businesses, institutions, commercial, and industrial facilities

Responsible Department/Parties: PVPC staff and Connecticut River Stormwater Committee members

Measurable Goal(s):

Member communities reported that the letter was sent to 31 property owners in South Hadley and 241 property owners in East Longmeadow. Agawam revised the letter into a flyer, and sent the flyer to 13,557 residents (including both households and businesses) as an insert to a publication being sent out.

Message Date(s): Letters were sent between June 1 and June 30, 2022. The article in Business West is anticipated to be published in the first part of Year 5.

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:

To optimize engagement with this audience, decided to add preparation and submission of an article to Business West. Furthermore, the work under this message will extend into Year 5 to respond to insights provided by Northampton: that letter ought to go beyond installation of hooded catch basins and recommend retrofit with planted green infrastructure facilities in parking lots. Both the letter and the article for Business West are being modified to include this additional recommendation for Year 5. Communities can opt to send out this updated letter in Year 5.

Note that to better target industrial facilities, will plan to mail updated letter directly to those industries in region that have multi-sector general permits.

BMP:Low Impact Development Technologies and Strategies workshop - developers

Message Description and Distribution Method:

PVPC had several conversations with staff from the Center for Watershed Protect to prepare for a developers workshop in Western Massachusetts that would highlight new development standards in the MS4 permit and updated MA Stormwater Handbook, advance better site design practices, and promote several important new tools, including the 5 to 7 green infrastructure stormwater control measure template designs that PVPC and partner communities are developing with an engineering consultant thanks to a Section 604b grant from MassDEP. Stormwater Committee members agreed to postpone the workshop to Year 5 when it is hoped an updated Stormwater Handbook will be issued and the stormwater control measure design templates will be completed.

Targeted Audience: Developers (construction)

Responsible Department/Parties: PVPC staff and Connecticut River Stormwater Committee members

Measurable Goal(s):

Number of people reached, including:
attending workshop
results from post workshop survey

Message Date(s): Now planned for Year 5

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:

The workshop had been planned for Year 4, but given that it will be important to promote new development standards as part of the workshop, it seemed important to await issuance of the draft stormwater handbook. The workshop has been postponed to Year 5.

BMP:Proper disposal of leaf litter - residents

Message Description and Distribution Method:

PVPC reprised messaging used previously based on a Be a Leaf Hero social media posts developed by the Cape Cod Commission, but now customized for the Connecticut River Stormwater Committee.

The social media posts provide a series of tips and all tips contain a link to a page on the Think Blue Connecticut River website with more in-depth content and links. See website page at: <https://thinkblueconnecticutriver.org/be-a-leaf-hero/>. The content seeks to promote better practices with leaf litter and build understanding about potential contamination of stormwater with leaf litter.

PVPC also prepared a PDF document for member communities use on their municipal websites.

Targeted Audience: Residents

Responsible Department/Parties: PVPC staff and Connecticut River Stormwater Committee members

Measurable Goal(s):

The Facebook ad was shown 101,008 times to 18,800 people, approximately 5 times per person, which drew 73 clicks to the website landing page.

Analytics for the Think Blue Connecticut River website, indicate that there were a total of 104 views of the Leaf Hero landing page with average time spent by visitors on that resource page at 2 minutes and 27 seconds, and 97 clicks to download posted PDF resources.

Message dates: Facebook ad ran from October 22 to October 29,2021.

PVPC Facebook message was posted October 19, 2021.

Message Date(s): Facebook ad ran from October 22, 2021 to October 29,2021.

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:

The change to this messaging began in Year 2, where initially the plan had been for one social media post and press release. Given the other elements we have learned are important to social media messaging, especially a call to action, we also developed a Think Blue Connecticut River web page on best practices to which posts could link.

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

Message Description and Distribution Method:

A social media ad and regional Facebook post, using idea of keeping lawns safe for families, were central to messaging on lawn care in Year 4. 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. The link to Think Blue Connecticut River is: <https://thinkblueconnecticutriver.org/lawn-and-yard-care/>.

PVPC reached out to eight large garden centers in the region to see if they would be willing to share the Facebook ad on their own pages. Of those contacted, only Randall's Farm in Ludlow responded and shared the Facebook ad both on their own Facebook page and on their website. The Facebook page for Randall's Farm has 9,561 followers.

Targeted Audience: Residents

Responsible Department/Parties: PVPC staff and Connecticut River Stormwater Committee members

Measurable Goal(s):

The Facebook ad reached 19,744 individuals in Stormwater Committee communities who match "gardening," "home improvement," or "do it yourself" identifiers in Connecticut Stormwater Committee zip codes. Two-hundred seventy-three people clicked on the "Learn More" button to go the Think Blue Connecticut River landing page on lawn care. Social media consultants noted that the audience tended to be older women and younger men (18 to 65 range) and that there was lots of engagement from mobile devices.

The PVPC Facebook post in the region was shared by several Stormwater Committee communities, as well as Randall's Farm in Ludlow, which has 9,561 followers, MassAudubon Sanctuary at Arcadia, with 6,600 followers, and Connecticut River Conservancy, with 7,100 followers. Despite the many followers who likely saw these posts, the likes and shares indicated from these other organizations was limited.

There were a total of 105 views on the website landing page, with average time spent by visitors on that resource page at 1 minute and 27 seconds, and 81 downloads of posted resources. The number of views indicated in the website analytics does not jibe with the social media click counts on the "Learn More" button. PVPC will confer with the social media and website consultants to determine what may be occurring so that this issue is resolved for Year 5.

Message Date(s): Facebook ad ran for 7 days, from May 31st through June 7th; PVPC posted the regional Facebook message on May 26th. Randall's Farm shared the Facebook post on their page on June 21st, and on their website from June 15th through June 30th.

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:

Proposed work had included creating a fact sheet and social media post on the Think Blue website. Over the course of the permit term to date, the social media work became more sophisticated and work has become a bit more targeted with use of advertising that makes use of zip codes and certain terms defining users.

Advertising and posts include a call to action as well to "learn more," which aims to get people to the Think Blue website content on lawn care.

BMP: Proper management of pet waste – residents**Message Description and Distribution Method:**

Pet waste messaging in Year 4 was multifaceted at both the time of licensing and during the summer. All messaging is based on the “Think picking up Spike’s poop is gross? Try swimming in it,” and aimed at driving people to the pet waste pick up pledge on the Think Blue Connecticut River website.

At time of licensing

Based on a survey of municipal clerks/dog officers done in Year 3 about what might be the most effective methods for messaging through their licensing process, PVPC provided Towns an electronic message to be placed on the local licensing web page (something we learned that most municipalities now have) and an electronic postcard that could be printed and used in tandem with license distributions. To stress the importance of placing the message on dog licensing pages, PVPC sent an e-mail note with attachments to municipal clerks and licensing officers with a cc and referral to their respective Stormwater Committee representatives.

The Connecticut River Stormwater Committee had also planned to run a Facebook ad during this period, but the social media firm contracted for this work withdrew from its contract with PVPC. PVPC scrambled to find a new firm to handle social media advertising on stormwater, but locating and contracting with a new firm did not occur until spring of Year 4.

During summer months

Summer messaging included running a Facebook ad and preparing and distributing a media release to once again drive people in the region to the pick up poop pledge on the Think Blue Connecticut River website. Given the audience reached through the Facebook ad in July—largely women over 55—the Committee’s social media consultant will post another ad to Instagram in August in an effort to test reach to a younger audience. PVPC also included pet waste information in the August edition of the Pioneer Valley Progress Report, which goes to 1,876 people.

Targeted Audience: Residents

Responsible Department/Parties: PVPC staff and Connecticut River Stormwater Committee members

Measurable Goal(s):

The Facebook ad reached 16,180 individuals in Stormwater Committee communities who match “pets at home” and “dog walking,” identifiers in the Connecticut Stormwater Committee zip codes. Three hundred seventy-four people clicked on the “Pledge Here” button to go to the Pick Up Poop pledge on the Think Blue Connecticut River website. Social media consultants noted that the audience tended to be women over 55 and 80% of those accessing the ad did so through mobile devices.

The August media release went to 17 news outlets including, The Valley Advocate, Daily Hampshire Gazette, WWLP, WHMP, Western Mass News, New England Public Media, Westfield News, WAMC, Country Journal, Springfield Republican, Amherst Bulletin, The Register (Ludlow & Indian Orchard), Ware River News, Agawam Advertiser News, Chicopee Register, Belchertown Sentinel, Holyoke Sun. The Register turned the media release into a lead news story on the front page of their August 24th issue, relating the media release information to the work of volunteers working to clean up local ponds. See news article at: <https://www.register.turley.com/lr-archives/LUD082422.pdf>.

These efforts led to 53 new Pick Up Poop pledges in Year 4 to a total of 275. Analytics for the Think Blue Connecticut River website, indicate that there were another 183 people went to the pet waste landing page on the Connecticut River Think Blue website with average time spent by visitors on that resource page at 1 minute and 8 seconds, and 40 downloads of posted PDF resources.

Message Date(s): The Facebook ad ran for 7 days, from July 29 to August 5. The Instagram ad has been delayed due to Facebook/ Instagram identify confirmation obstacles.

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:

To provide additional messaging. The NOI/SWMP indicated pet waste messaging only in summer months as PVPC understood that messaging under the Appendixes could be combined. EPA has indicated that additional messaging to dog owners “at time of licensing” is required. Messaging at time of licensing was added, starting in Year 2, along with additional messaging on pet waste during “stay at home” orders with the pandemic (given the increased visibility of associated problems).

BMP:Proper septic system care - residents

Message Description and Distribution Method:

PVPC again timed messaging on septic system care to coincide with EPA’s Septic Smart Week, from September 20 to 24, with a Facebook ad and regional post to its Facebook page. These posts provide a link to a great infographic on septic system maintenance developed by Whatcome County Public Works and Health Department.

Targeted Audience: Residents

Responsible Department/Parties: PVPC staff and Connecticut River Stormwater Committee members

Measurable Goal(s):

The Facebook ad were shown 5,458 times to 2,897 people whose interest matches “Septic Tank” in Connecticut Stormwater Committee zip codes. Facebook’s estimated ad recall is that 550 of them could remember the ad two days later.

The regional Facebook post drew a total of 16 “shares,” including member communities. There were a total of 142 views of the Think Blue Connecticut River website septic system landing page with people spending an average of 1 minute and 31 seconds. Analytics indicate that there were 214 clicks to download information.

Message Date(s): The Facebook ad ran between September 20, 2021 and September 24, 2021

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:

The NOI/SWMP indicated septic system messaging would be done in Year 3 only as MS4 permit language in Appendix H was not entirely clear on the timing of this message. EPA has since indicated that septic system messaging must occur each year and the Connecticut River Stormwater Committee has adjusted accordingly, starting in Year 2.

BMP:Proper disposal of leaf litter - businesses

Message Description and Distribution Method:

Message description and distribution method: This year, PVPC continued the fruitful relationship with the UMass Extension program to reach the landscaper and landcare business and commercial audience with best practices messaging on disposal of leaf litter. An article appeared at the top of the October UMass Hort Notes e-newsletter, which is geared toward professional landscapers, who make up the bulk of the audience, with additional audience segments that include entities that work with professional landscapers (distributors, materials suppliers, nurseries, etc.) as well as Master Gardener/hobbyist types.

Best practices noted in the article 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 turf areas, you avoid having to rake/blow and bag and you offer a way to manage autumn leaves while providing clients with free fertilizer. Mulched leaves recycle nutrients and reduce the overall need for applied fertilizer, which can help to reduce nutrient loading for local rivers, streams, and lakes.
- 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 reach these water resources.

Targeted Audience: Businesses/institutions/commercial facilities

Responsible Department/Parties: PVPC staff and Connecticut River Stormwater Committee members

Measurable Goal(s):

UMass Hort Notes newsletter goes to 31,362 landscapers and associated land care businesses across Massachusetts.

Message Date(s): October 2021

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:

Year 4 messaging in the NOI/SWMP indicated would involve reprise and update of the Year 2 mailing to landscapers in the region that lists locations for proper disposal of commercial leaf litter. This letter or some iteration of it was issued three years in a row so aimed to do something slightly different. Year 5 program will return to use of letter with landscapers in region.

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

Message Description and Distribution Method:

For spring messaging on best landcare practices, PVPC staff again collaborated with UMass Cooperative Extension to reach the businesses that are caring for lawns. A newsletter piece published in the May 6 Landscape Message recommended:

Lean into the spring season with better lawn care practices. Here are two great strategies:

Leave grass clippings where they fall. Of course, you want to leave things nice and neat for your clients, but let them know that grass clippings left on the lawn will decompose, returning valuable nutrients back into the soil. This will save them money by reducing the need for applied fertilizer and promote a healthier lawn. To make best use of this free, natural fertilizer: mow high according to the grass species and use of the turf, do not remove more than 1/3 of the blade per mowing event, and mow when grass is dry.

Test your client's soil. A soil test lets you know more specifically what your client's lawn and garden need for nutrients so that you don't waste time and money. UMass Extension provides soil testing services. See: <http://umass.edu/soiltest> Opt for slow-release nitrogen sources if possible, and time applications properly to best align maximum nutrient availability from applied fertilizer with favorable growth periods, to promote maximum nutrient uptake and minimize potential loss.

Targeted Audience: Business/institutions/commercial facilities

Responsible Department/Parties: PVPC staff and Connecticut River Stormwater Committee members

Measurable Goal(s):

Newsletter is e-mailed to a list of approximately 13,000 landcare professionals, as well as posted on UMass Extension's Facebook feed, which has approximately 3,200 followers.

Message Date(s): May 6

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:

Ongoing Covid-19 pandemic required adjusting from in-person workshop for Garden Center staff. To obtain access to likely most robust audience, worked with UMass Cooperative Extension to get notice out to landcare professionals.

BMP:Proper management of geese – businesses

Message Description and Distribution Method:

Reprised Year 2 letter—signed by Connecticut River Stormwater Committee Chair and Vice Chair—to property owners identified as having goose problems. The letter recommends specific strategies and resources, including 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. For Year 4, the property owner distributions list was updated to include 31 landowners (13 in Agawam, 2 in Belchertown, 4 in Northampton, 6 in Southwick, 1 in South Hadley, 4 in Westfield, and 1 in West Springfield). As other stormwater communities note where there may be issues with geese, they will notify PVPC and additional letters to property owners can be sent on a rolling basis. For Year 4, PVPC also re-established contact with USDA to ensure no changes in information from two years ago.

Targeted Audience: Businesses/institutions/commercial facilities

Responsible Department/Parties: PVPC staff and Connecticut River Stormwater Committee members

Measurable Goal(s):

Letters sent to owners of 31 properties with likely ongoing goose problems (animals that are “residential” to the area and not migratory).

Message Date(s): May 16, 2022

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:

To provide additional messaging to reduce pollution due to geese.

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 an educational advertising campaign from May 31 to June 17, 2022. The 30-second video entitled, “Fowl Water,” –in both English and Spanish—helps viewers visualize how stormwater runoff carrying motor oil, pet waste, and trash pollutes local waterways.

The video and social media materials (translated into the top 6 most spoken languages in Massachusetts) are available at: <https://www.thinkbluemassachusetts.org/partner-materials>

To measure the effectiveness of this campaign, Water Words that Work conducted a post campaign survey. The survey showed that 15% of residents in MA MS4 communities said they remembered the ad. Those who remember the ad are more aware of how stormwater pollutes waterways. The complete survey report is available at: [ThinkBlueMassachusetts.org](https://www.thinkbluemassachusetts.org).

Targeted Audience: Residents

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 the campaign resulted in an estimated:

326,019 Facebook and Instagram impressions to English speakers

39,344 Facebook and Instagram impressions to Spanish speakers

426,607 YouTube ad impressions to English speakers

50,546 YouTube ad impressions to Spanish speakers

Message Date(s): May 31 to June 17, 2022

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:

This message is a welcome addition to our program for Year 4.

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:**

The Stormwater Management Program (SWMP) has been posted to the Town's website. The Town will address any questions or comments from the public regarding the development and implementation of the SWMP.

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:**

A Town wide community cleanup day took place on May 7, 2022.

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

Optional: Provide additional status information regarding your map:

During the permit period, Town plans were reviewed for multiple outfall catchments and the GIS was updated to reflect changes to the existing storm and sanitary infrastructure as well as the catchment areas. One existing outfall that had not been previously shown on GIS mapping was identified and added to the map during the Year 4 reporting period. After the Year 4 reporting period, but prior to submission of this Annual Report, the corresponding catchment area of this outfall, as well as two adjacent catchment areas, were re-delineated based on a review of historic plans and site investigations. Minor adjustments to storm drain linework were made based on site investigations.

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. Please also include the updated inventory and ranking of outfalls/interconnections based on monitoring results.

- ☒ No outfalls were inspected
☐ 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:

*Below, report on the percent of outfalls/interconnections screened **to date**.*

Percent of outfalls screened:

Optional: Provide additional information regarding your outfall/interconnection screening:

During the pandemic, the Town DPW staff worked a reduced schedule which impacted outfall screenings.

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.

- ☒ No catchment investigations were conducted
- ☐ 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:

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

Percent of total catchments investigated:

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

Catchment investigations were completed or initiated for six catchment areas after the Year 4 reporting period had ended but before the annual report submittal. These will be completed and reported on in the Year 5 annual report.

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.

- ☒ No illicit discharges were found
- ☐ 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:

Number of illicit discharges removed:

Estimated volume of sewage removed: 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:

Total number of illicit discharges removed:

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 this reporting period:**

Staff reviewed training information previously provided by VHB on Municipal Stormwater IDDE. This was reviewed on June 6, 2022.

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: 9

Number of inspections completed: 19

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

Date update was completed (due in year 3): The bylaw has proposed language as of 2021, which is under review but has not yet been adopted.

As-built Drawings

*Below, report on the number of as-built drawings received **during this reporting period.***

Number of as-built drawings received:

Optional: Enter any additional information relevant to the submission of as-built drawings:

Retrofit Properties Inventory

Below, list the permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas (at least 5):

The following properties were identified in the "Nitrogen Source Identification Report":

- 1) 24 Center Street, Ludlow, MA (Hubbard Memorial Library / Memorial Park)
- 2) 508 East Street, Ludlow, MA (East Street Elementary School)
- 3) 53 Chestnut Street, Ludlow, MA (Ludlow Senior Center / Exit Seven Theater)
- 4) 167 Howard Street, Ludlow, MA (Whitney Park)
- 5) 488 Chapin Street, Ludlow, MA (Ludlow Town Hall)

Further review of these properties was performed after the close of the Year 4 reporting period. By the submittal of this Year 4 Annual Report, the five properties have been reviewed, and a sixth property was added:

- 6) 486 Chapin Street, Ludlow, MA (Veterans Park Elementary School and Parking Lot)

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:

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

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

Total number of catch basins:

If applicable:

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

Town has not encountered catch basin sumps more than 50% full during two consecutive cleanings.

Street Sweeping

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

- ☒ Number of miles cleaned:
- ☐ Volume of material removed: [Select Units]
- ☐ Weight of material removed: [Select Units]

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:

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

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:

Regarding MCM1 (Public Education and Outreach), two documents outlined in the NOI are available on the Town of Ludlow website: "Going Green with Stormwater - Rain Gardens" and "Builder's Guide to Low Impact Development". These documents were posted in August, 2022, after the close of the Year 4 reporting period, and thus were not listed in the MCM1 section. However, they are available as of the submission of the Annual Report, on the Town of Ludlow Website, under the Department of Public Works Additional Information: "Builder's Guide to Low Impact Development" and "Going Green with Rain Gardens". Regarding MCM6, the DPW Yard was inspected in August 2022 and so the inspection was completed, but not within the reporting period and is therefore not listed above.

COVID-19 Impacts

Optional: If any of the above year 4 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:

Continued staffing shortages since COVID have impacted the ability of the town to fully complete some requirements.

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 5 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

Yes, I agree ☒

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 curbed streets at least annually
- Continue investigations of catchments associated with Problem Outfalls
- Implemented SWPPPs for all permittee owned or operated maintenance garages, public works yards, transfer stations, and other waste handling facilities
- 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
- Review O&M programs for all permittee owned facilities; update if necessary
- Implement all maintenance procedures for permittee owned facilities in accordance with O&M programs
- Implement program for MS4 infrastructure maintenance to reduce the discharge of pollutants
- Enclose all road salt storage piles or facilities and implemented winter road maintenance procedures to minimize the use of road salt
- Review as-built drawings for new and redevelopment to ensure compliance with post construction bylaws, regulations, or regulatory mechanism consistent with permit requirements
- Inspect all permittee owned treatment structures (excluding catch basins)
- Identify additional permittee-owned properties that could potentially be modified or retrofitted with BMPs to reduce impervious areas so that the permittee maintains a minimum of 5 sites in their inventory, until such a time when the permittee has less than 5 sites remaining

Provide any additional details on activities planned for permit year 5 below:

Part V: Certification of Small MS4 Annual Report 2021

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.

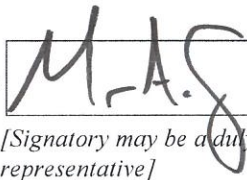
Name:

Marc Strange

Title:

Town Administrator

Signature:



Date:

9-26-22

[Signatory may be a duly authorized representative]