

Year 3 Annual Report

Massachusetts Small MS4 General Permit

Reporting Period: July 1, 2020-June 30, 2021

*****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, 2020 and June 30, 2021 unless otherwise requested.

Part I: Contact Information

Name of Municipality or Organization: City of Cambridge

EPA NPDES Permit Number: MAR041076

Primary MS4 Program Manager Contact Information

Name: Catherine Daly Woodbury

Title: Sr. Project Manager, Cambridge DPW

Street Address Line 1: Cambridge DPW

Street Address Line 2: 147 Hampshire Street

City: Cambridge

State: MA

Zip Code: 02139

Email: cwoodbury@cambridgema.gov

Phone Number: (617) 349-4818

Stormwater Management Program (SWMP) Information

SWMP Location (web address): <http://www.cambridgema.gov/stormwater>

Date SWMP was Last Updated: Jun 30, 2021

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)

- In State:**
☐ Assabet River Phosphorus
 ☒ Bacteria and Pathogen
 ☐ Cape Cod Nitrogen
☒ Charles River Watershed Phosphorus
 ☐ Lake and Pond Phosphorus
Out of State:
☐ 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 3 Requirements

- ☒ Inspected and screened all outfalls/interconnections (excluding Problem and Excluded outfalls)
☒ Updated outfall/interconnection priority ranking based on the information collected during the dry weather inspections as necessary
☒ Post-construction bylaw, ordinance, or other regulatory mechanism was updated and adopted consistent with permit requirements

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 3 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:

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:

www.cambridgema.gov/stormwater (see Appendix C in IDDE Program)

- ☒ 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 system map due in year 2 as necessary
- ☒ 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, 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:

- * O&M program for all permittee owned facilities: A Goodhousekeeping Manual (O&M) for Municipal Facilities was previously completed, but requires some updates to include information on maintenance of infiltration systems.
- * Implemented all maintenance procedures for permittee owned facilities: All municipal facilities with infiltration systems and oil/water separators were not inspected during Year 3. A new BMP/SOP will be added to the O&M manual for the maintenance and inspection of infiltration systems.
- * Inspected all permittee owned treatment structures: A new inspection task will be added to our asset management system for annual inspection of infiltration systems, oil/water separators and other treatment systems so they can be more easily tracked for inspection and maintenance.

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:

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)

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:

1. Potential Structural BMPs: Cambridge is still in the process of cataloging and tracking all BMPs implemented to remove phosphorous.

 - The City created a Phosphorous cover sheet/tracking form to be used by all projects to ensure that we are capturing all of the required information from Attachment 3 Appendix F. These forms will be used to maintain a Phosphorous tracking database. The City is still evaluating the potential to include projects that were installed prior to the 2016 MS4 Permit. A copy of the Phosphorous cover sheet can be found at: <https://www.cambridgema.gov/Departments/publicworks/Initiatives/stormwatermanagement> under "Annual Report" for Year 2.
 - Structural BMPs installed during Year 3: One dry well was installed at Riverside Press Park to treat/capture

runoff from a 9,000 SF impervious area and is estimated to reduce Phosphorous loading by 0.145 lbs/year

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
- ☐ 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:

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

- The City finalized the development of a Catch Basin Optimization strategy during year 2. Implementation of the Catch Basin Optimization strategy will begin with the completion of data collection for all existing catch basins. Data collection began at the end of permit Year 1 and is ongoing and includes measuring the depth of sediment and confirming the depth of sumps for each catch basin structure when a catch basin is cleaned. DPW is still in the process of completing the initial round of catch basin inspections and measurements. Our catch basin optimization and prioritization program will be implemented for the cleaning of sumps greater than 50% full once all existing catch basins have had an initial cleaning and inspection. The City has over 6,000 catch basins of which 3200 are within the MS4. This optimization program is being used to measure the depth of deposits and sump depths for all catch basin in the City. Through permit Year 3 the City has inspected 1118 of the 3200 catch basins within the MS4 area.

Charles River Watershed Phosphorus TMDL

- ☒ Completed the funding source assessment

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:

Charles River Watershed Phosphorous TMDL: The Funding Source Assessment was completed in Year 2 and was submitted with the initial Legal Analysis. This assessment is an attachment to the Year 2 Annual Report and can be found under "Annual Reports and Information" (July 1, 2019 to June 30, 2020) at:

<http://www.cambridgema.gov/stormwater>

(https://www.cambridgema.gov/-/media/Files/publicworksdepartment/stormwatermanagement/annualreports/annualreportsept2020/cambridgema4legalanalysisandfundingsourceassessmentmemorandum_final.pdf)

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:

A new outfall was opened at Lechmere Canal (D03D) within the Charles River (Segment MA 72-36). This outfall is included in the updated SWMP.

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: Annual Message on Grass Clippings and Fertilizer (Lawn Care)

Message Description and Distribution Method:

Cambridge is participating in the Mystic River Watershed Association's (MyRWA) Mystic River Stormwater Education Collaborative (Stormwater Collaborative). Using materials supplied by Mystic River Watershed Association (www.mysticriver.org) DPW issued social media posts about composting or bagging grass clippings and limiting fertilizer use or using non Phosphorous containing fertilizers.

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

- DPW social media (April - May 2021): Facebook: 1,503 impressions, 31 engagements. Twitter: 7,474 impressions, 56 engagements (Limit fertilizer use)
- DPW social media (September - October 2020): Facebook: 338 impressions, 8 engagements. Twitter: 1,710 impressions, 10 engagements (compost/bag grass clippings)

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: Annual Message on Leaf Litter

Message Description and Distribution Method:

- Using materials supplied by the MyRWA Stormwater Collaborative and ThinkBlue Massachusetts DPW shared social media posts on Facebook and Twitter about bagging or composting your leaves and their impact on water quality.
- DPW included information on the importance of collecting leaves from sidewalks and the street to keep nutrients out of the Charles River and Alewife Brook in our Recycling eNewsletter.
- City of Cambridge in its Daily Update email included a story entitled "New Contractor for Recycling and Yard Waste Collection Begins November 2". This story includes information on how yard waste collection helps us keep our waterways clean and request help by collecting all leaves, twigs and branches on sidewalks

and other areas adjacent to your property. Leaves on streets get into storm drains. Once in the drainage system phosphorous and nitrogen are released, polluting the Charles River and Alewife Brook.

- DPW issues a News Release "New Contractor to Provide Recycling and Yard Waste Collection". The article includes information on how yard waste collection helps us keep our waterways clean and request help by collecting all leaves, twigs and branches on sidewalks and other areas adjacent to your property. Leaves on streets get into storm drains. Once in the drainage system phosphorous and nitrogen are released, polluting the Charles River and Alewife Brook.

Targeted Audience: Residents, Institutions and Businesses

Responsible Department/Parties: DPW

Measurable Goal(s):

- DPW social media: Facebook: 864 impressions, 13 engagements. Twitter: 4,645 impressions, 53 engagements
- Recycling eNewsletter: Yard Waste Season is Here article: 9,476 emails sent, 4,076 opens
- City of Cambridge Daily Update email: 17,485 delivered, 8,921 opened
- DPW News Release: 1,431 views

Message Date(s):

- Social media posts: October - November 2020
- Recycling eNewsletter: October 22, 2020
- City of Cambridge Daily Update: November 2, 2020
- DPW News Release: 1,431 views

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 Message on Pet Waste

Message Description and Distribution Method:

- DPW with assistance for the Cambridge Water Department (CWD) and Cambridge Animal Commission (AC) continued to promote its Canines for Clean Water campaign (pledge form and pet waste bag dispenser giveaways, and brochure/poster) to inform pet owners of their responsibilities regarding pet waste management. Due to COVID the CWD set up a passive display area with dog waste dispensers, pledge information and a poster discussing the reasons why it is important to pick up after your pet. Visitors to CWD/Fresh Pond were able to take dog waste bag dispensers.
- DPW worked with MyRWA's Stormwater Collaborative on advertising pet waste messaging on Facebook and Twitter.
- City of Cambridge (CoC) posted on social media the importance of picking up after your pet to protect local waterways
- Animal Commission included an information poster with each dog license sent out in the mail about importance of picking up after pets and impact to waterways.

Targeted Audience: Residents

Responsible Department/Parties: DPW

Measurable Goal(s):

- DPW Social Media: Facebook: 777 impression, 22 engagements: Twitter 2,807 impressions, 32 engagements (July 2020)
- DPW Social Media: Facebook: 247 impression, 6 engagements: Twitter 2,053 impressions, 6 engagements (June 2021)
- MyWRA shared Social Media: Facebook posts: 455 views (July 2020) and 298 (June 2021)
- CoC Social Media: Twitter: 4,831 impression, 85 engagements (July - August 2020)
- Animal Commission poster distribution with dog license: 297 flyers and 3 Canines for Clean Water pledges
- CWD/Fresh Pond dispenser distribution: 236

Message Date(s):

- DPW Social media: July 2020 and June 2020
- MyWRA Social Media: July 2020 and June 2021
- CoC Social Media: July - August 2020
- Animal Commission poster/brochure mailing: May - June, 2021
- CWD/Fresh Pond Canine dispenser display distribution: September 2020 - June 30, 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:

BMP: Annual Message on Septic System Maintenance

Message Description and Distribution Method:

The majority of properties in Cambridge are directly connected to the sanitary system. We were able to identify nine (9) potential properties where the sanitary connection is unknown: 7 residential properties, one commercial (automotive), and one institutional (cemetery). A letter was mailed to these business and property owners discussing the proper care of septic systems and requesting updated information regarding a possible connection to the sanitary system. Letters were sent to 9 property owners and 1 business owner.

Targeted Audience: Residents and Businesses, Institutions and Commercial Facilities

Responsible Department/Parties: DPW

Measurable Goal(s):

Ten (10) letters were mailed regarding nine (9) properties. No updated information was provided to DPW therefore we will continue to track these properties for messaging next year.

Message Date(s): October - November 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:

BMP: Erosion and Sediment Control Management**Message Description and Distribution Method:**

- Erosion and Sediment Control (ESC) information/requirements is attached to all issued Excavation Permits.
- DPW shared a video on ESC measures to contractors and DPW inspectors/construction project managers during the May 10, 2021 weekly construction meeting (virtual). The video "TLC for Construction Site BMPs" from Endeavor Business Services Media on Vimeo stepped through what to look for on a construction site. This video is also linked to the Developer/Contractor stormwater webpage.
- DPW staff attended EPA's "MS4 Construction Site Inspection Key Elements and Best Practices" webinar that provided an overview of ESC inspections and what to look for.
- DPW held weekly construction meetings (virtual) from July through November 2020 and April 5 through June 2021 providing opportunities to discuss ESC and reminders about additional measures to take prior to rain events. ESC reminders were included in meeting notes sent out to contractors, utility companies municipal staff responsible for construction management and the major universities.
- DPW shared ThinkBlue social media post on Facebook and Twitter about BMPs to prevent pollution and soil from running off and polluting local rivers.

Targeted Audience: Developers (construction), utility companies and municipal staff

Responsible Department/Parties: DPW

Measurable Goal(s):

- 1205 Excavation permits were issued with Erosion and Sediment Control (ESC) information/requirements attached.
- 83 contractors, utility company representatives, and municipal staff DPW viewed "TLC for Construction Site BMPs" during the May 10th construction meeting. Meeting notes with a link to the presentation was emailed out to 47 contractors, 76 municipal staff and 32 utility company representatives.
- The video "TLC for Construction Site BMPs" received 16 views from the Developer/Contractor stormwater webpage.
- 5 DPW staff attended EPA's "MS4 Construction Site Inspection Key Elements and Best Practices".
- During at least 10 weekly construction meeting ESC was discussed to ensure proper care prior to and during rain events. DPW held weekly construction meetings (virtual) from July through November 2020 and April 5 through June 2021 providing opportunities to discuss ESC and reminders about additional measures to take prior to rain events and during dry conditions.
- DPW social media posts about construction BMPs to prevent runoff: Facebook 197 impressions, 7 engagements; Twitter 1056 impressions, 13 engagements

Message Date(s):

- Excavation permits: July 1, 2020 - June 30, 2021
- Presented "TLC for Construction Site BMPs": May 10, 2021
- Posted "TLC for Construction Site BMPs": on Developer/Contractor website: March 17, 2021
- EPA's "MS4 Construction Site Inspection Key Elements and Best Practices": May 12, 2021 and individually after live virtual presentation.
- Discussed ESC at weekly construction meetings: July through November 2020 and April 5 through June 2021 (periodically through this time period)
- DPW social media posts: June 30, 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:

BMP: Proper Use of Salts/Deicers

Message Description and Distribution Method:

- DPW posted social media posts about the proper use of salt/deicers and the benefits of the Brine Program (Facebook/Twitter/)
- City of Cambridge (CofC) posted social media posts about the proper use of salt/deicers and the benefits of the Brine Program (Facebook/Twitter/) including a link to a video clip about the Brine Program.
- News release "Proper Use of Salts and Deicers"
- DPW's brine pretreatment pilot program video on YouTube to reduce salt use citywide
- DPW Snow Center website with information about the proper use of deicers and proper snow clearing

Targeted Audience: All audiences: Residents, Businesses, Developers (construction), Industrial Facilities

Responsible Department/Parties: DPW

Measurable Goal(s):

- DPW posted social media posts about proper use of deicers: Facebook 379 impressions, 11 engagements; Twitter 2,578 impressions, 85 engagements
- DPW posted social media posts about Brine Program: Facebook 1,116 impressions, 113 engagements; Twitter 7,419 impressions, 300 engagements
- CofC posted social media post about proper use of deicers: Twitter 22,652 impressions, 564 engagements
- CofC posted social media post about the Brine Program: Twitter 15,552 impressions, 275 engagements, 3,001 video views
- DPW News release: 291 views
- DPW Snow Center website: 57,636 views

Message Date(s):

- All DPW and CoC social media posts: winter 2020/2021
- News Release: January 6, 2021
- Snow Center website views: July 1, 2020 - June 30, 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:

BMP: Street Sweeping messaging

Message Description and Distribution Method:

- DPW social media posts about cleaner streets = clean rivers
- City of Cambridge (CoC) social media posts about street sweeping informing residents that to ensure that streets are properly cleaned, cars must be removed from the side being swept. Provides links to the street sweeping webpage where information on the importance of sweeping at reducing pollutants like leaves, sand, particles, chemicals, etc from getting to receiving waters is included.

- Cambridge Traffic, Parking & Transportation Department (TP&T) included a message about street sweeping "Help Keep Our Streets Clean: Importance of Street Sweeping and What You Can Do" in their resident information brochure that they give to every resident receiving a parking permit/sticker. The message also included BMPs such as pet waste pick up, deicing properly, bag and compost leaves/grass and report illegal dumping.
- Street Cleaning webpage contains information on the importance of street sweeping and monthly sweeping schedule.

Targeted Audience: Residents, Businesses, Industry

Responsible Department/Parties: DPW

Measurable Goal(s):

- DPW social media posts: Facebook 428 impressions, 32 engagements; Twitter 1379 impressions, 14 engagements
- CoC social media posts: Twitter 19,060 impressions, 302 engagements
- TP&T distributed 9,613 resident information brochures with parking permits
- Street Cleaning webpage views: 48,178

Message Date(s):

- DPW social media posts: 10/01/2020 and 04/22/2021
- CoC social media posts: 01/04/2021, 03/19/2021 to 04/12/2021
- TP&T resident information brochure distribution: July 1 - December 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:

BMP: DPW Website Stormwater Information

Message Description and Distribution Method:

DPW maintains a stormwater management webpage that has separate pages for information geared to each target audiences; Residents, Developers (construction), Industrial Facilities and Businesses.

Targeted Audience: All audiences: Residents, Businesses, Developers (construction), Industrial Facilities

Responsible Department/Parties: DPW

Measurable Goal(s):

Stormwater Management homepage visits: 2068 visits
Residents webpage: 214 visits
Industry: 140 visits
Developers and Contractors: 568 visits
Businesses: 138 visits

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

BMP: Special Event - Rain Barrel Program,

Message Description and Distribution Method:

- DPW sponsored rain barrel purchase and distribution programs with The Great American Rain Barrel Company. Reduce runoff by capturing rain and infiltrate rainwater to recharge rivers.
- DPW provided a stormwater management package of brochures to residents on proper management of pet waste, building rain gardens, Low Impact Development, protecting properties from sewer backups and other stormwater management best management practices at time of rain barrel pick up. (May25,2021)
- DPW promoted rain barrel use on social media (Facebook and Twitter) and in a News Release. The news release encouraged the use of rain barrels to reduce runoff, infiltrate rainwater and recharge groundwater.
- City of Cambridge promoted the rain barrel program to reduce runoff and infiltrate and recharge rain water on social media and through its "Daily Update" email.

Targeted Audience: Residents

Responsible Department/Parties: DPW

Measurable Goal(s):

- 89 residents participated and purchased 95 rain barrels
- 89 stormwater management information packages given out. The stormwater management package included information on the management of pet waste to support Appendix F and H Requirements.
- News Release: "Spring Showers Bring Discounted Rain Barrels..." received 1889 views
- City of Cambridge Daily Update emails: "Spring Showers Bring Discounted Rain Barrels..." was sent to 17,825 subscribers, opened by 8,641, 572 clicks on the story (included in above total views).
- DPW Social Media (April - May 2021): Facebook 524 people reached, 27 engaged: Twitter 3,194 people reached, 67 engaged.
- City of Cambridge Social Media (April 2021): Twitter 3,194 people reached, 114 engaged

Message Date(s):

- DPW Social Media: April - May 2021
- City of Cambridge Social Media: April, 2021
- News Release: April 9, 2021
- City of Cambridge Daily Update email: April 12, 2021
- Rain Barrel distribution/pick up and stormwater management brochure distribution: May 25, 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:

BMP: LID: Infiltrate stormwater on site/Use Porous Options

Message Description and Distribution Method:

- Using materials supplied by Mystic River Watershed Association Stormwater Education Collaborative (www.mysticriver.org) a PSA entitled "Infiltrate Stormwater Onsite/ Replace Lawn" was broad casted on local community television from June 2020 (permit year 2) through September 2020 permit year 3.
- DPW and MyRWA social media posts about using porous options to allow water to soak into the ground instead of flowing down the storm drain and taking pollutants with it.
- Using materials supplied by Mystic River Watershed Association Stormwater Education Collaborative (www.mysticriver.org) a PSA entitled "Porous Pavement, Protect Our Environment and Clean Water" was broad casted on local community television from November 2020 through August 2021 (permit year 4). This PSA was aired in both English and Spanish.

Targeted Audience: Residents

Responsible Department/Parties: DPW, Cambridge CCTV and MyRWA

Measurable Goal(s):

- Cambridge CCTV aired the video "Infiltrate Stormwater Onsite/ Replace Lawn" approximately 700 times. Viewership cannot be verified, but there are 27,000 cable subscribers and the PSA aired 10 times per day over 3 different channels (8, 9, and 96).
- DPW social media posts: Facebook 413 impressions, 11 engagements Twitter 2,321 impressions, 26 engagements
- MyRWA shared social media posts: 270 views
- Cambridge CCTV aired the video entitled "Porous Pavement, Protect Our Environment and Clean Water" approximately 360 times each in English and Spanish. Viewership cannot be verified, but there are 27,000 cable subscribers and the PSA aired 1 - 2x/day times per day over 3 different channels (8, 9, and 96).

Message Date(s):

- CCTV broad cast "Infiltrate Stormwater Onsite/ Replace Lawn" : July 1, 2020 to September 10, 2020
- MyRWA social media: September 2020
- DPW social media: October 2020
- CCTV broad cast "Porous Pavement, Protect Our Environment and Clean Water": November 2020 beyond June 30, 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:

BMP: Explore Alternatives to Pesticides**Message Description and Distribution Method:**

Using materials supplied by the MyRWA Stormwater Collaborative DPW and City of Cambridge shared social media posts on Exploring alternatives to pesticide use, these chemicals can be washed into waterways and are toxic to fish, swimmers and boaters.

Targeted Audience: Residents, bussineses, Industry

Responsible Department/Parties: DPW

Measurable Goal(s):

- DPW social media posts: Facebook 617 impressions, 17 engagements; Twitter 2,104 impressions, 34 engagements
- City of Cambridge social media posts: Twitter 2,972 impressions, 83 engagements

Message Date(s):

- DPW social media posts: August o September 2020
- City of Cambridge social media posts: September 14, 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:

BMP: Prevent Flooding - Clear Storm Drains

Message Description and Distribution Method:

Social media posts from DPW and City of Cambridge on Prevent Flooding: To prevent flooding on your property, clear catch basins in front of your home or business. Clear leaves, trash and other debris from above and around the catch basin. Items that go into the catch basin flow untreated to the local waterways so let's make sure only water flows in!

Targeted Audience: Residents and Businesses

Responsible Department/Parties: DPW

Measurable Goal(s):

- DPW social media posts: Facebook 474 impressions, 19 engagements; Twitter 3,534 impressions, 47 engagements
- City of Cambridge social media posts: Twitter 3,382, impressions, 75 engagements

Message Date(s):

- DPW social media posts: November 2020
- City of Cambridge social media posts: December 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:

BMP: Don't Dump Fats, Oil and Grease

Message Description and Distribution Method:

- DPW social media post Thanksgiving Tip: Do Not dump fat, oils or grease from your turkey down the drain! It can clog your plumbing and harm the environment.
- DPW distributed brochures on the management of fats, oils and grease to prevent clogs and back ups from grease from residential properties (https://www.cambridgema.gov/-/media/Files/publicworksdepartment/stormwatermanagement/Resources/fog_greasepamphlet_home_accessibledocument_2.pdf) for distribution to

a large apartment complex. Brochures were given to every resident and included in information packages for new tenants at Rindge Towers.

- DPW does inspections for proper management of fats, oils and grease at restaurants and other businesses that have grease traps. Brochures developed by DPW on the management of Fats, Oils, and Grease for "Fat Free Sewers" (<https://www.cambridgema.gov/-/media/Files/publicworksdepartment/stormwatermanagement/Resources/foggreasecommercialaccessibledocument122617.pdf>) and a flyer from the MyRWA Stormwater Collaborative on "Clean Water Tips For Restaurants & The Food Industry" are handed out with each inspection.

Targeted Audience: Residents and Businesses

Responsible Department/Parties: DPW

Measurable Goal(s):

- DPW social media posts: Facebook: 261 impressions, 12 engagements; Twitter 1,382 impressions, 29 engagements
- 500+ brochures were provided to the property manager at Rindge Towers for distribution with their monthly newsletter to tenants.
- DPW inspected 47 business/restaurant facilities and provided each with brochure and flyer

Message Date(s):

- DPW social media posts: November 26, 2020
- Residential brochure distribution: June 2, 2021
- FOG inspections: July 1, 2020 through June 30, 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:

BMP: Fowl Water: Stormwater Pollution from motor oil, pet waste and trash

Message Description and Distribution Method:

On behalf of the members of the Charles River Stormwater Collaborative and the Mystic River Watershed Stormwater Education Collaborative, Think Blue Massachusetts ran an educational advertising campaign from May 17th to June 4th, 2021. The "Fowl Water" advertisement helps viewers visualize stormwater pollution from motor oil, pet waste, and trash become stormwater pollution.

Targeted Audience: Residents

Responsible Department/Parties: Think Blue Massachusetts and DPW

Measurable Goal(s):

- Charles: Facebook/Instagram impressions 41,793; YouTube Ad Impressions 98,888; Spanish Language Impressions 19,835; Total impressions 160,516
- Mystic: Facebook/Instagram impressions 46,387; YouTube Ad Impressions 34,780; Spanish Language Impressions 19,835; Total impressions 101,002

Message Date(s): May 17th to June 4th, 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:

BMP: Provide opportunity for the public to report violations

Message Description and Distribution Method:

The City of Cambridge through social media advertised the Commonwealth Connect program as a way for people to report over 30 non-emergency service request types to the City of Cambridge either online or on the go. One of the issues residents can report is "Dumping in Storm Drains".

Targeted Audience: Residents

Responsible Department/Parties: DPW

Measurable Goal(s):

The City of Cambridge social media post: Twitter 15,739 impressions, 175 engagements

Message Date(s): August - October 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:

BMP: Pet Waste, Fertilizer Use and Grass Clippings

Message Description and Distribution Method:

Working with the MyRWA the MyRWA designed a stormwater poster with information about What is Stormwater Pollution, What is the City Doing, and What You Can Do with an emphasis on picking up pet waste, rethinking fertilizer use by using 0 - Phosphorous fertilizer or an alternative to fertilizer, and keeping grass clippings out of the storm drain by composting or collecting grass clippings for yard waste disposal. 14 Posters were placed at 14 Blue Bike stations throughout the City.

Targeted Audience: Residents and Businesses

Responsible Department/Parties: DPW

Measurable Goal(s):

14 posters installed at the end of May 2021 at 14 Blue Bike Stations citywide. Estimated views is 100/day per station (approximately 42,000 total views)

Message Date(s): end of May 2021 - current (into Year 4)

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: Information about catch basin cleaning

Message Description and Distribution Method:

Cambridge is participating in the Mystic River Watershed Association's (MyRWA) Mystic River Stormwater Education Collaborative (Stormwater Collaborative). Using materials supplied by Mystic River Watershed Association (www.mysticriver.org) DPW issued social media posts about how cleaning out storm drain protects our rivers - Ever wonder what the trucks in your neighborhood are doing? They're cleaning out our storm drains to keep them working properly! And why is this important? Well, storm drains - which carry rain from our streets to the nearest water body - lessen flooding in our neighborhood and keep trash, debris, and pollutants out of our rivers!

Targeted Audience: Residents

Responsible Department/Parties: DPW

Measurable Goal(s):

DPW social media posts: Facebook: 1,297 impressions, 53 engagements

Message Date(s): March 9, 2021 - May 28, 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:

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:**

● Cambridge's Stormwater Management Plan was updated in June 2021 and is posted on the DPW stormwater website: <https://www.cambridgema.gov/Departments/publicworks/Initiatives/stormwatermanagement>

- Cambridge DPW developed an informational video to highlight ongoing efforts to keep the City's receiving waters clean as part of its Stormwater Program . The video was presented in conjunction with a virtual public meeting on Wednesday, June 16, 2021. The video presentation aired at 6 p.m., followed by Q&A beginning at 6:20 p.m. The video was also available for viewing prior to the meeting date. Residents were encouraged to view the video in advance and to submit feedback about the Stormwater Program ahead of the meeting, email stormwater@cambridgema.gov

The 18-minute video explores what happens to rain or snowmelt once it hits the ground, why it matters, and the role the city, residents, businesses, developers, contractors, and institutions play in improving water quality. It also summarizes the Stormwater Program's permit requirements under the MS4 Permit.

The virtual meeting NOTICE was posted on the City's calendar of events and received three views and was advertised through DPW's Facebook (502 impressions, 10 engagements) and Twitter (3,489 impressions, 30 engagements) social media accounts, and a News Release "Protectiing Cambridge Waterways Through Stormwater Management" posted on June13, 2021 (36 views). The video received 70 online views and the virtual public meeting was attended by four city staff and two consultants. No members of the public attended nor submitted questions/comments.

The video is posted on Youtube (https://youtu.be/ULUKpaU_VO4) and linked on the main Stormwater Management webpage: <http://cambridgema.gov/stormwater> .

Due to COVID-19 we were unable to participate in in-person City events and utilize our interactive models and SWMP displays.

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:**

1. Household Hazardous Waste (HHW) Collection: Cambridge sponsored four (4) HHW collection days during this permit year on Aug 22, 2020, Nov 7, 2020, April 3, 2021 and June 12, 2021. A total of 30 tons of waste was collected from approximately 1,000 vehicles/participants. DPW and the City of Cambridge used social media to promote participation at the HHW events. DPW social media was posted in Noveber 2020 and March 2021. The DPW social media posts received 879 impressions, 33 engagements on Facebook; 5,264 impressions, 74 engagements on Twitter. The City of Cambridge social media was posted in August 2020 and received 1,605 impressions, 76 engagements on Facebook; 28,721 impressions, 468 engagements on Twitter.

2. Stormwater Outreach Activities for Children:

- Cambridge Public Schools (CPS): As part of the 5th grade curriculum students learn about non-source stormwater pollution and visit the Alewife Stormwater Wetland. As preparation for a visit to the Alewife Stormwater Wetland, a demonstration of the EnviroScape Watershed model is provided to most classrooms, that has a groundwater insert. The students pretend the model is of Cambridge and they discuss different types of particulates that might enter into stormwater runoff when it rains e.g. plastic, paper trash, sediments, pesticides, fertilizers, road salt, automobile waste such as gasoline and oil, animal waste. A visit to the engineered wetland then allows students to see an engineered solution that addresses the nonpoint source pollution from our city streets. Students move through the wetland as water molecules would (settling over time, absorbing thru soil & plants and evaporating in the deep pool areas) leaving behind particulates they collected as runoff before they are discharged to the Little River. CPS has a goal to get all 5th grade students out to the wetland annually so they can apply their understanding to a local, real, engineered and novel application. The 5th grade student enrollment number for September 2020 - June 2021 was 489

students. Unfortunately, due to COVID-19 visits to the wetland were canceled. However, a virtual Wetland Tour was created to support their remote science learning. It was made available to all 5th grade teachers.

- **Mystic River Stormwater Education Collaborative:** Cambridge is a member of the Mystic River Watershed Association's (MyRWA) Stormwater Education Collaborative. As part of the MyRWA Stormwater Collaborative MyRWA staff provides educational outreach to children in member communities. Due to COVID-19 in person programs and activities for children were canceled. MyRWA staff was able to do reach educators and children through virtual program as follows:

- * April 9, 2021: MyRWA held a stormwater webinar as part of Cambridge Science Festival. There were 17 participants during the live webinar. The video/webinar was also posted on the MyRWA website and received 24 views: https://www.dropbox.com/s/5fekrphya2r5kqb/Stormwater%204.9.21_Trimmed.mp4?dl=0

- **Cambridge Science Festival:** Due to COVID-19 the Cambridge Science Festival was a virtual event. Several City departments participated in Science in the City virtually through an online platform of activities, games, and videos to demonstrate how science is at play in all aspects of City of Cambridge programming. The virtual event received 71 views:

(<https://www.cambridgema.gov/Departments/communitydevelopment/sciencefestival>).

Stormwater management programs included the following

- * Flood Viewer
- * Combined Sewers and Sewer Separation
- * Think Blue Water Fowl
- * Improve Local Rivers – MyRWA PSA
- * Sweeping and Rain Gardens – Learn what Cambridge is Doing

3. Stormwater Wetland Tours: Due to COVID-19 no stormwater wetland tours were given during Year 3.

4. Participation in community/neighborhood events: Due to COVID - 19 there were no in person community events where stormwater management information was displayed/distributed during Year 3.

5. Solid Waste, Recycling and Composting: During permit Year 3 the curbside compost program was suspended for 10 months due to COVID-19. During that time, the number of food scraps drop-off locations was increased from 3 to 5, which enabled Cambridge residents to compost approximately 250 tons of food waste. The curbside compost program was relaunched in May 2021. It is anticipated that starting in September 2021 (permit Year 4) DPW will work to expand collection service to 50 additional large residential buildings (13 units and up) and (starting November 2021) a Small Business Compost Pilot will provide weekly food scraps collection to 100 Cambridge businesses. In addition, the city expanded its yard waste collection program by two weeks, it now runs April 1st through December 31st.

The following is a summary of the amount (Tons) of wastes collected through the City's Solid Waste, Recycling and Compost Programs:

- * Recycling: 9,305
- * Organics (Yardwaste and Food Waste): 2,570
- * Trash: 16,151.5
- * Hazardous Waste: 30

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:

The City's Stormwater Catchment Areas and Outfalls map was updated June 15, 2021 to refine some catchment delineations and include a newly opening outfall at Lechmere Canal (D03D). A copy of the revised map can be found in Appendix B of the IDDE Report on <https://www.cambridgema.gov/stormwater>

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:

<https://www.cambridgema.gov/stormwater>
under "Annual Report" (July 1, 2020 to June 30, 2021)

*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:

Thirty seven (37) outfalls and one (1) interconnection were screened including one Problem outfall (D44 Matignon Rd) and two Excluded outfalls (IC-1 Shady Hill School and D56 Cemetery Range 104). As a result of the outfall screenings two additional outfalls were re-prioritized in the catchment investigation rankings as priority catchments for investigations (D33 Blanchard Road at Wellington and D46 Acorn Park Drive making a total of eight (8) High Priority Outfalls and one Problem Outfall requiring prioritization for catchment investigation. Some outfalls had standing water upstream into their catchments and could not be sampled.

Although the new outfall at Lechmere Canal (D03D) was screened it was erroneously omitted from the updated ranking of outfalls/interconnections. Since this is a new outfall with a new drain line, limited catchment area and will only have connections from catch basin within the public right of way it will be listed as a Low Priority catchment.

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:

<https://www.cambridgema.gov/stormwater>
under "Annual Report" (July 1, 2020 to June 30, 2021).

In addition to this year's investigations dry weather investigations and data was collected for the following catchments in conjunction with sewer separation projects completed prior to this reporting period. Wet weather sampling is outstanding for these catchments.

* D36 Alewife Stormwater Wetland

* D17 Western Ave

* D10 Endicott St and D12 Talbot St

Each of the above catchments has more than one System Vulnerability Factor and will require wet weather sampling prior to completing the catchment investigation.

An SVF analysis was completed for all stormwater catchments and will be posted to the website with this report and will be added to the Year 4 IDDE Manual update. Since all non-Excluded catchments have more than one SVF all catchments will require wet weather sampling prior to completion of catchment investigations.

*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:

Four (4) out of thirty six (36) catchments have been fully investigated for dry weather. As mentioned above wet weather sampling is outstanding before considered complete. Previous investigation reports will be attached to this report at: <https://www.cambridgema.gov/stormwater> under "Annual Report" (July 1, 2020 to June 30, 2021) .

SDE, Inc continues to assist the City with catchment investigations of problem and high priority catchments. At the end of March 2020, the IDDE investigation was put on hold due to the COVID-19 pandemic shutdown. In August of 2020 the dry weather work portion of the IDDE investigation resumed and in February of 2021 dye testing resumed to a limit capacity with only educational and commercial/retail type buildings being tested. Catchments under investigation include: Matignon Rd (D44), DeWolfe (D21), Broad Canal (D07), Jackson Place (D38 – CAM401a), Flagg St (D19), University Rd (D27) and Sparks St (D31). A summary of these investigations is attached to this report at:

<https://www.cambridgema.gov/stormwater>
under "Annual Report" (July 1, 2020 to June 30, 2021) .

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:

<https://www.cambridgema.gov/stormwater>
under "Annual Report" (July 1, 2020 to June 30, 2021) .

*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:

DPW is scheduling CCTV inspection and cleaning of suspect lines to determine scope of repair required for the illicit connections on Healy and Hemlock Streets. DPW is working with the property manager at 255 Main Street on the repair work required.

Employee Training

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

May 14, 2021 (10 DPW staff attended and 4 consultants): City of Cambridge, Stantec & SDE, Inc.
This training included a classroom presentation and discussion and field training. Due to social distancing and COVID requirements the classroom training was held outdoors. Topics included:

1. Dry Weather Outfall Screening & Sampling
2. Catchment Investigations
 - Desktop Review
 - Dry Weather Manhole Inspections
 - Source Isolation and Confirmation
 - Wet Weather Outfall Screening
3. Test Kit Demonstration (classroom and in the field)

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:

Number of inspections completed:

Number of enforcement actions taken:

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

- The DPW issued 14 Stormwater Control Permits (SCP) during this permit year which accounts for the 14 site plan reviews identified above. In addition to the 14 Stormwater Control Permit Projects, the DPW reviewed 312 Building Permit Applications for projects that did not trigger a SCP and were not jurisdictional under MS4 Permit Requirements. The review of these smaller projects sought to, amongst other things, identify opportunities for smaller projects to make improvements to contribute to the goals of the MS4 Permit. Of the 312 building permits, at least 39 of them included review of a civil site plan.
- In addition to the 84 Erosion and Sediment Control inspection reported under MCM4 above an additional 77 inspections were performed for Erosion and Sediment Control for smaller projects not covered under the MS4 Permit requirements

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

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:

As-built documents were a requirement in our original Stormwater Control Permit (SCP) and Land Disturbance Regulations (LDR) adopted in March 31, 2008. During the updating of our LDR in Year 3 we included a requirement that a surety be provided at the time of application for a SCP to further ensure the submittal of as-built drawings. We will work with our Law Department to develop an appropriate format for the bond for submittal with SCPs. The updated section in the LDR includes the following:

Performance Bond. Together with the Stormwater Management Plan, Erosion and Sediment Control Plan, and Operation and Maintenance Plan, the applicant shall be required to post a surety bond, irrevocable letter of credit, cash, or other acceptable security. The form of the bond shall be approved by the City Solicitor, and be in an amount deemed sufficient by the DPW to ensure that the work will be completed in accordance with the Stormwater Control Permit. The bond shall guarantee

completion and compliance with conditions within a specific time. The adequacy, conditions and acceptability of any bond shall be determined by the DPW. If the project is phased, the DPW may release part of the bond as each phase is completed and in compliance with the permit but the bond security may not be fully released until the DPW has received the as-built documents and final Operations and Maintenance Plan as further described in Article VIII, and the applicant has obtained a Certificate of Occupancy, if applicable.

The updated regulations are posted on the Stormwater Management webpage:
<https://www.cambridgema.gov/stormwater>

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:

In progress. The City will develop a report assessing current street design, parking lot guidelines, and other applicable local requirements that impact the creation of impervious cover. This report will focus on highlighting current impediments to using low impact design options, and detailing improvements for promoting the use of such options. As a precursor to this report:

- The City's Five Year Sidewalk and Street Reconstruction Plan, a comprehensive plan for designing and reconstructing streets, identifies stormwater management and green infrastructure as an important component of street design by the City and private entities. This document was released in May 2021.

www.cambridgema.gov/theworks/fiveyearplan

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:

In progress. The City will develop a report assessing existing local regulations to determine how to promote the implementation of green infrastructure. In particular, the City will assess the feasibility of allowing green roofs, infiltration practices, and water harvesting devices. As a precursor and basis of this report the City has been working on the following efforts that support zoning changes and green infrastructure:

- The Resilient Cambridge Plan, the roadmap for climate change preparedness and resilience for Cambridge, was released in June 2021. The plan addresses the climate change driven risks from increasing temperatures, increasing precipitation, and rising sea levels looking out to 2030 and 2070. The plan is based on the idea that Cambridge is built for the climate of the past and that it must adapt to the shifting climate of the future. The 34 strategies in the plan aim to increase physical and social resilience through four categories of actions: Closer Neighborhoods, Better Buildings, Stronger Infrastructure, and Greener City. The strategies within Stronger Infrastructure and Greener City place strong emphasis on the importance of incorporating green infrastructure.

www.cambridgema.gov/ResilientCambridge

- The City's Climate Resilience Zoning effort is building upon the City's 2017 Climate Change Vulnerability Assessment (CCVA) and ongoing citywide CCPR planning efforts to create development standards that can be incorporated into the Zoning Ordinance that would result in zoning changes to support green infrastructure. The Climate Resilience Zoning Task Force met 19 times between January 2019 and March 2021 and released a Draft Final Report in April 2021. Task Force members are currently in the process of reviewing the Draft Final Report detailing their process and recommendations.

<https://www.cambridgema.gov/CDD/Projects/Zoning/climateresiliencezoning>

- A Green Roof Ordinance was accepted by City Council on May 3, 2021 and became effective on June 1, 2021. The new ordinance applies to most new non-residential building or structure of twenty-five thousand

(25,000) gross square feet or more. At least 80% of the roof area of the building (with some exclusions), shall be devoted to Green Roof Area, Biosolar Green Roof Area, or Solar Energy Systems. For most commercial, labs, and mixed-use buildings (with a majority of square footage not dedicated to housing), must provide at least 80% of the roof area of the building (with exceptions), shall be devoted to Green Roof Area, or Biosolar Green Roof Area.

https://library.municode.com/ma/cambridge/codes/zoning_ordinance?nodeId=ZONING_ORDINANCE_ART22.000SUDEDE_22.30GRRO

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:

In progress: As part of the City's Five Year Sidewalk and Street Reconstruction Plan (<http://www.cambridgema.gov/theworks/fiveyearplan>) the City evaluates each street that is scheduled for reconstruction for green infrastructure opportunities and identifies plazas and other hardscape areas where plantings can be enhanced and pavement removed. The City is tracking the expansion of planting beds and installation of rain gardens/biobasins during street reconstruction and landscape improvement efforts. In addition, the City is looking at opportunities within capital improvement plans for municipal properties for ways to reduce imperviousness on site during reconstruction and/or retrofit with BMPs. This Five Year Sidewalk and Street Reconstruction Plan was updated in June 2021 and released in May 2021.

Some recent/proposed retrofit projects include:

1. Timothy J. Toomey, Jr Park (Rogers Street Park - 71 Rogers St.): This project is expected to be completed by September 2021 and replaced the pre-existing developed site with a community park, resulting in a reduction of approximately 70,534 sf of impervious surfaces. An infiltration system will treat an 8,034 Sf contributing area. An additional 3,688-cf infiltration system was installed in March, 2020 to treat runoff from the roadways surrounding the park.

2. The Port (Parking Lot 6 - 38 Bishop Allen Drive): The Port Phase 1 project was completed in early 2021. The Port neighborhood is vulnerable to flooding, and climate change is increasing the risk of flooding due to more frequent, short, very intense rainstorms. This project will reduce the frequency and severity of stormwater flooding and sewer backups in the neighborhood, and upgrade the neighborhood's surface infrastructure, including streets, sidewalks, shade trees, landscaping, and open spaces.

Phase 1 of the project consisted of:

- * Parking Lot 6 (PL6) stormwater tank/pump station, and related force main connections to provide conveyance to the Mass Ave storm drain and outfall to the Charles River. Also included related upstream separation of storm and sanitary pipes and removal of illicit sewer connections.

- * A 3,575 cf storage infiltration system to treat stormwater runoff from a 19,000 SF contributing area of a municipal parking lot. Although the overflow from the infiltration system will still discharge to a combined sewer system, it is designed to be connected to the separated system in the future.

Phase 2 and Phase 3 will include completion of storm/sanitary separation in the neighborhood as needed, and construction of additional underground stormwater and sanitary tanks, pump stations, and connections to existing storm and sewer systems for post-storm discharge. Phase 2 is currently in design.

3. Cushing Street Plaza - is still in design, includes reconstruction of a large impervious intersection and plaza

4. Chetwyne Road - scheduled for design in 2022, evaluate opportunity to create a shared street

5. River Street: Reconstruction of River St is currently in design and expected to start construction in 2022.

The project consists of upgrades to all infrastructure in the River Street corridor, including subsurface utilities, and surface elements. Sewer separation is required for a portion of the project area drainage improvements to reduce flooding. Final street design is to be to complete street standards, including a separated bicycle facility, stormwater improvements and additional tree plantings. Project also includes redesign and reconstruction of Carl Barron Plaza in Central Square, Tubman Plaza and Blackstone Street. Project is targeting a minimum of

65% TP reduction from River Street catchment area. Proposed BMP's include: replacement of all catch basins with deep sump catch basins with hoods and incorporate green infrastructure features, including a previous asphalt bicycle lane the full length of River Street. Estimated impervious reduction is approximately 30,000 sf.

6. Willard St: The Willard Street neighborhood is a combined sewer system and has experienced flooding on several occasions. The flooding appears to be caused by insufficient hydraulic capacity in the existing City stormwater infrastructure (and downstream MWRA combined sewer) during significant precipitation events. Sewer separation in this area will include replacing and/or rehabilitating the sewer and stormwater infrastructure and the construction of a new stormwater pipe and outfall at the Charles River, evaluation and implementation of stormwater best management practices, and water main replacement. Following subsurface work, the street will be reconstructed along "complete streets" principles, including traffic calming elements and improvements to bicycle and pedestrian accessibility. During Year 3 the new outfall project was in design and construction is expected to begin in spring 2022.

* Willard Street BMPs : The goal is recharge groundwater to the maximum extent practicable. Features include deep sump catch basins with hoods for pre-treatment; tree pits with extended underground infiltration trenches; permeable surface strips over subsurface gravel infiltration trenches. The infiltration trenches are sized to store/infiltrate runoff exceeding ½-inch across the contributing impervious area. A subsurface infiltration system in Longfellow Park, sized to infiltrate runoff from up to the 10-year storm was completed in fall 2019 and reduces stormwater inflow into the combined sewer system.

* Project will also contribute to long-term improvements in Charles River water quality by contributing to a reduction in CSO frequency and volume.

7. Tobin Montessori/Vassal Lane School (TMVL): The TMVL project will demolish and rebuild the TMVL facility. The project is currently in design and will include a 1.25 MG stormwater storage tank and 100K gallon bioretention system to manage flooding in the neighborhood from extreme and high intensity rain events. The site will also include a number of bioretention raingardens to treat stormwater.

8. Triangle Park: Triangle Park will convert an unused gravel lot into a new public park, including the addition of over 300 new trees. Stormwater gardens, infiltration trenches and a subsurface chamber system will capture and infiltrate rainwater as a part of the park's stormwater management system, decreasing the rate and volume of surface runoff in all modeled storm events. Construction is expected to start in Permit Year 4 and is anticipated to be completed in the Fall of 2022.

9. Inman Square: This project is still in construction, but is scheduled to be completed next year. The total area of impervious surfaces will be decreased by approximately 7,000 SF with the installation of porous cycle tracks, permeable pavers, and planting beds. Overflow from the infiltration systems discharge to a combined sewer system, however the majority of which is planned for separation in the future. Additionally, the infiltration systems are designed to promote plant and tree growth.

10. Various expanded planting areas and impervious reduction areas: 4,239 SF of impervious areas were converted to expanded plantings/pervious areas through our street reconstruction contracts during Year 3.

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: 194.74 tons

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

Total number of catch basins: 3,200

If applicable:

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

Not yet applicable. The City began its inspection and tracking of depth of catch basin sediment in June 2019. Since then the City has completed an initial inspection of a total of 1,118 out of 3,200 catch basins within the MS4. A total of 2,316 out of a citywide total of 6,069 catch basins has been inspected citywide (includes non MS4 catch basins).

During this reporting period 172 MS4 inspected catch basins had sediment depths greater than 50% during this round of initial inspections. We will continue to measure and track sediment depth and take action when a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events.

Please also note: there are 6,069 total municipal owned catch basins, 3,200 are within the MS4. A total of 1,264 catch basins were cleaned citywide and a total of 928 catch basins were inspected citywide during Permit Year 3. The total mass of material removed from all cleaned catch basins citywide was 399.88 Tons.

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: 1,589.03 tons

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: 24

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

The city has six (6) SWPPPs and completed four (4) quarterly inspections at each of these facilities. Corrective actions undertaken at these facilities include:

- Alewife Staging Area:

- * Dumpsters – During inspection a leaking dumpster was noted – Corrective action TJ Shea called and scheduled dumpster replacement.

- * Equipment Storage area – Equipment Storage area need more organization (materials stored are from three departments) – Corrective action TJ Shea and YB will work with each department to handle the situation

- Cemetery Garage and Staging area: During inspections full catch basin and dry well was noted as full –

Corrective action YB scheduled catch basin and drywell to be cleaned.

- Police Maintenance Garage: None

- Fire Maintenance Garage:

- * Catch Basin - During inspections full catch basin was noted on Fawcett St – Corrective action YB Scheduled CB to be cleaned.

- * Vehicle washing - During inspection vehicle washing was noted – Corrective action Dan Lopez to use biodegradable, phosphate free detergent for washing vehicle and make sure it goes to the floor drain at or use DPW washing bay for washing cars

- Solomon Maintenance Garage: None

- Water Department Garage:

- * Material Stock pile area – During inspection aggregates were migrating to street – Corrective action – The problem area was added to DPW sweeping schedule and a trench drain was installed. (Trench drain and a proprietary water quality unit was installed at bins and provides additional (80%) TSS removal prior to discharge into site stormwater management system, bioswale, and ultimately to the City's MS4. WQU is on a routine cleaning schedule and trench drain is cleaned out manually as needed.)

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):

<https://www.cambridgema.gov/stormwater>
under "Annual Report" (July 1, 2020 to June 30, 2021)

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:

- Dynamic stormwater management to mitigate phosphorous export, by Sadia Tamanna Khan, R. Edward Beighley, David VanHoven, Kathy Watkins. Paper submitted to Science of the Total Environment for publication to journal. The paper was published May 7, 2021 <https://www.sciencedirect.com/journal/science-of-the-total-environment>

- * This study characterizes within event (i.e., hourly) TP and TS particle size distributions and associated fluxes from urban catchments in the City of Cambridge, Massachusetts, to characterize potential TP and TS removal based on four different diversion and treatment strategies.

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:

MCM2: The City of Cambridge launched its 7th Cycle of Participatory Budgeting (PB7). This year's PB vote took place January 4-9, 2021. Residents age 12 and up (and all 6th graders) voted on-line in English and 7 other languages and over the phone from a wide range of projects. Rain Gardens for Resilience received 3,640 votes and was selected second among a group of seven successful projects receiving \$120,000 for

implementation. In total 7,250 residents voted, representing the second highest vote total in Cambridge PB history. The \$525,000 in FY22 capital funds for the seven winning projects from the seventh PB cycle will become available on July 1, 2021.

Projects are eligible for funding if they:

- * Benefit the public
- * Are capital projects (something bought or built)
- * Are one-time expenditures that cost \$1,000,000 or less
- * Are implemented by the City of Cambridge on City property (streets, sidewalks, parks, libraries, schools, youth centers, senior centers, municipal buildings, etc.)

See <https://pb.cambridgema.gov/pbcycle7> for more information on the Cambridge PB process.

MCM2: The City uses Commonwealth Connect (powered by SeeClickFix) to help residents reach the City on-line or via their smartphone to request services or get help fixing issues. "Dumping Into Storm drains" is a reporting category. During year 3 there were 15 issues reported through the SeeClickFix system.

MCM3: IDDE Training (May 14, 2021: 10 DPW employees responsible for IDDE inspections and 2 consultants)

1. Meet at DPW to review IDDE Plan and demonstrate field sampling test procedures:

- * Ammonia
- * Surfactants
- * Chlorine
- * Conductivity, Salinity, Temperature

2. Meet in the field to review manhole inspection and sampling procedures

MCM5: Ordinance or Regulatory Mechanism: The City's Land Disturbance Regulations govern construction, development and redevelopment requirements. These Regulations were initially adopted on March 31, 2008 and were updated in June 2021. In addition, the City's Wastewater and Stormwater Drainage Use Regulations and a Supplemental Directive to the Wastewater and Stormwater Management Guidance Manual were also updated in June 2021. The purpose of the Supplemental Directive update is to ensure that published guidance aligns with existing regulations and ordinances that pertain to new and redevelopment activities (i.e. land disturbance) within the City. Regulations have been modified to address regulatory requirements under this MS4 Permit. The DPW issued a News Release about these changes

(<https://www.cambridgema.gov/Departments/publicworks/news/2021/06/newwastewater,stormwaterandlanduseregulations>).

These updated regulations and the Supplemental Directive can be found at:

<https://www.cambridgema.gov/stormwater>

MCM5: Post-Construction Stormwater Management in New Development and Redevelopment: The City is working on a self assessment for projects completed under a Stormwater Control Permit. The revised Land Disturbance Regulations includes in Article IV Section 1 (e) the following regarding annual certification: The person responsible for maintenance identified under Section 1 (a) above shall evaluate the effectiveness of the operation and maintenance plan at least once per year and shall note certification of its effectiveness in the log referred to in Section (d) above and shall submit to DPW an annual certification certifying that inspections and maintenance of the stormwater management measures have been performed according to these regulations. In the event that the operations and maintenance plan is no longer effective, applicant shall provide documentation to that effect to DPW in the annual certification with a proposed revised plan for DPW's review and approval.

COVID-19 Impacts

Optional: If any of the above year 3 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:

- Many important in-person elements of our Public Education (MCM1) and Public Participation (MCM2) outreach efforts were again unable to proceed this year due to COVID-19. The Cambridge Science Festival, River Festival, and Science in the City events were held virtually and Fresh Pond Day and the Rabbits Clinic were canceled. Despite COVID-19 the City was able to fulfill its permit requirements during Year 2 and the Cambridge River Festival was able to be streamed virtually as the Stream Festival.

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

Yes, I agree ☒

- Develop a report assessing current street design and parking lot guidelines and other local requirements within the municipality that affect the creation of impervious cover
- Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist
- Identify a minimum of 5 permittee-owned properties that could potentially be modified or retrofitted with BMPs to reduce impervious areas

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)

Provide any additional details on activities planned for permit year 4 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:

Katherine Watkins

Title:

Assistant Commissioner / City Engi

Signature:

Katherine Watkins

Digitally signed by Katherine
Watkins
Date: 2021.09.28 14:50:21 -04'00'

Date:

*[Signatory may be a duly authorized
representative]*