

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:

EPA NPDES Permit Number:

Primary MS4 Program Manager Contact Information

Name: Title:

Street Address Line 1:

Street Address Line 2:

City: State: Zip Code:

Email: Phone Number:

Stormwater Management Program (SWMP) Information

SWMP Location (web address):

Date SWMP was Last Updated:

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

Part II: Self-Assessment

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

Impairment(s)			
<input checked="" type="checkbox"/> Bacteria/Pathogens	<input checked="" type="checkbox"/> Chloride	<input type="checkbox"/> Nitrogen	<input checked="" type="checkbox"/> Phosphorus
<input checked="" type="checkbox"/> Solids/ Oil/ Grease (Hydrocarbons)/ Metals			
TMDL(s)			
<i>In State:</i>	<input type="checkbox"/> Assabet River Phosphorus	<input checked="" type="checkbox"/> Bacteria and Pathogen	<input type="checkbox"/> Cape Cod Nitrogen
	<input checked="" type="checkbox"/> Charles River Watershed Phosphorus	<input type="checkbox"/> Lake and Pond Phosphorus	
<i>Out of State:</i>	<input type="checkbox"/> Bacteria/Pathogens	<input type="checkbox"/> Metals	<input type="checkbox"/> Nitrogen
			<input type="checkbox"/> 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:

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:

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:

A final report on assessing street design and parking lot guidelines and a final report assessing local regulation to determine the feasibility of making green infrastructure practices allowable was not completed prior to the end of permit Year 4 and therefor recommendations were not updated in the SWMP. A final report that covers both requirements was completed in September 2022 and the SWMP will be updated to incorporate the

schedule for potential updates to regulations. Zoning amendments are under development that address both parking requirements and low impact development recommendations. A copy of the report is an attachment to the Year 4 Annual Report and can be found under "Annual Reports and Information: July 1, 2021 to June 30, 2022" at: <http://www.cambridgema.gov/stormwater>

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)

- 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:

* Enclosed all road salt storage piles or facilities and implemented winter road maintenance procedures to minimize the use of road salt: DPW's salt storage facility and storage piles are enclosed. DPW currently implements a road salt reduction program that includes pre-wetting roadways with a brine solution and calibrates spreaders before the winter season. This program will be reviewed against the requirements for chloride impairments in Attachment H to the permit. Chloride is listed as a new impairment in the Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 report for segments in the Little River and Alewife Brook.

- * 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. These updates are still in progress.
- * Implemented all maintenance procedures for permittee owned facilities: We made significant progress in identifying and inspecting all infiltration systems on permittee owned facilities, although not all infiltration systems inspections were completed in Year 4. However, all infiltration systems have been inspected as of the time of this annual report.
- * 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:

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:

In November 2021 MassDEP released the Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 reporting cycle. On January 5, 2022 the 2018/2020 §303(d) list of water quality limited segments (WQLSs) was submitted to EPA for review. EPA determined that Massachusetts' list of WQLSs still requiring total maximum daily loads (TMDLs) meets the requirements of §303(d) of the Clean Water Act and EPA implementing regulations and approved them on February 7, 2022.

The changes to receiving waters in Cambridge include the addition of Chloride as a new impairment to the Alewife Brook segment MA71-20 and Little River segment MA71-21. The updates in the §303(d) list of WQLS will be incorporated into the City's SWMP during Permit Year 5. These changes were updated in our IDDE Program and catchment area map in September 2022 and is available Appendix B of the IDDE Program at <https://www.cambridgema.gov/stormwater>.

Public Education and Outreach requirements for private road salt applicators and commercial industrial site owners was not a requirement during Year 4. The other requirements in Appendix H section IV will be addressed in the following years.

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:

The Phosphorus Source Identification Report and Best Management Practice Suitability Analysis is an attachment to the Year 4 Annual Report and can be found under "Annual Reports and Information: July 1, 2021 to June 30, 2022" at:
<http://www.cambridgema.gov/stormwater>

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 under "Annual Reports and Information: July 1, 2019 to June 30, 2020" at:
<https://www.cambridgema.gov/stormwater>
- Structural BMPs installed during Year 4: 305.5 SY of permeable paverstrips (infiltration trenches) were installed along Franklin Street between Brookline and Landsdowne Streets under the Chapter 90 Contract 23B project. This contract is still in construction and the Phosphorous tracking for this work will be completed along with the as-built drawings. Estimated Phosphorous removal is 0.46 lbs/yr.

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:

<https://www.cambridgema.gov/services/streetcleaning>

- 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 within the MS4 area. 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 4 the City has completed an initial inspected of a total of 1,825 out of 3,200 catch basins within the MS4 area.

Charles River Watershed Phosphorus TMDL

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:

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:

● Year 2:

A new outfall was opened at Talbot Street at the end of June 2020 within the Charles River (MA 72-38) section of the river. This outfall was included in the updated SWMP.

Waterbody impairments for Alewife Brook (MA 71-04), Charles River (MA 72-36) and Charles River (MA 72-38) were revised based upon the Massachusetts Year 2016 Integrated List Waters. These updates were included in the updated SWMP for Year 2.

● Year 3:

A new outfall was opened at Lechmere Canal (D03D) within the Charles River (Segment MA 72-36). This outfall was included in the updated SWMP for Year 3.

● Year 4:

See "Optional" comment section under Chloride above.

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 (MyRWA) (www.mysticriver.org) DPW issued social media posts about composting or bagging grass clippings for yard waste pick up.
- Also using materials supplied by MyRWA DPW issued social media posts about how too much fertilizer is harming waterways with a video about using fertilizer responsibly and limiting the use of fertilizers with Phosphorous.

Targeted Audience:

Responsible Department/Parties:

Measurable Goal(s):

- DPW social media on Fertilizer with video link (June 2022): Facebook: 530 impressions, 62 engagements, 218 video views . Twitter: 1,282 impressions, 5 engagements, 332 video views.
- DPW social media on Grass Clippings (June 2022): Facebook: 1,943 impressions, 6 engagements. Twitter: 1,560 impressions, 13 engagements

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 DPW shared social media posts on Facebook and Twitter about bagging leaves for curb side pick up or composting, but don't dump near a storm drain, or leave on a sidewalk, causes nutrient pollution and flooding.
- DPW included information on the importance of collecting leaves to keep leaves out of landfills and the benefits of yards waste collection to keep nutrients out of the Charles River and Alewife Brook in our

Recycling eNewsletter.

Targeted Audience: Residents, Institutions and Businesses

Responsible Department/Parties: DPW and MyRWA

Measurable Goal(s):

- DPW social media: Facebook: 864 impressions, 13 engagements. Twitter: 4,645 impressions, 53 engagements
- MyRWA shared social media: Facebook: 214 people reached, 5 reactions. Twitter: 1,144 impressions, 22 engagements
- Recycling eNewsletter: "Let's Keep Leaves Out of the Landfill!" articles: (10/19/2021) 9,255 emails sent, 3,661 opens, (11/9/2021) 9,256 emails sent, 3,156 open

Message Date(s):

- DPW Social Media posts: November 2021
- MyRWA Social Media posts: October 16 and 17, 2021
- Recycling eNewsletter: 10/19/2021 and 11/9/2021

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 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. 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 you 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. The message during summer 2021 included: Be a good neighbor AND a steward of the rivers- clean up after your dog! Pet waste left on streets and sidewalks can flow down storm drains and out to the river, polluting water with bacteria, viruses and parasites. The message during June 2022 included: You hate stepping in it. And fish hate swimming in it, too! Regularly scoop your dog's poop from public areas AND your back yard, before it washes into our waterways with links to MyRWA and DPW stormwater websites for further information.
- Animal Commission included an information poster with each dog license sent out in the mail about important of picking up after pets and impact to waterways.
- Canine's for Clean Water Pledge: receive a free pet waste bag dispenser by signing a pledge to clean up after your dog.
- DPW news: "Keep Waterways Clean - Pick Up Pet Waste" Storm water picks up pollutants in its path and is transported, untreated, directly into the Charles River and Alewife Brook. Dog waste left on the ground is a major source of harmful bacteria, viruses, and parasites polluting these waterways, and the only way to prevent it is by dog owners cleaning up after their dogs.... receive a free pet waste bag dispenser (while supplies last) and join a responsible community of dog owners in Cambridge, come into the Animal

Commission office (344 Broadway, 1st floor Cambridge, MA 02139) to sign the “Canines for Clean Water” pledge form.

Targeted Audience: Residents

Responsible Department/Parties: DPW, AC, MyRWA, CWD

Measurable Goal(s):

- DPW Social Media: Facebook: 736 impression, 20 engagements: Twitter 2,537 impressions, 25 engagements (August - September 2021)
- DPW Social Media: Facebook: 2018 impression, 66 engagements: Twitter 1,625 impressions, 33 engagements (June 2022)
- MyWRA shared Social Media: Facebook: (English) 298 people reached (June 26, 2022)
- MyWRA shared Social Media: Twitter (English) 257 impressions, 5 engagements, (Spanish) 108 impressions, 0 engagements (June 27, 2022)
- Animal Commission poster distribution with dog license: 106 flyers
- Canines for Clean Water pledges: 14 signed pledges
- CWD/Fresh Pond dog waste bag dispenser distribution: 147 dispensers with bags
- DPW news: 78 views

Message Date(s):

- DPW Social media: August - September 2021 and June 2022
- MyWRA Social Media: June 26 - 27, 2022
- Animal Commission poster/brochure mailing and pledge forms: July 2021 - June 2022
- Canines for Clean Water pledge forms: July 2021 - June 2022
- CWD/Fresh Pond Canine dispenser display distribution: July 2021 - June 2022
- DPW news: August 16, 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. One owner contacted DPW indicating he did not have a septic system and is connected to the city sewer. We will continue to tract the remaining eight (8)

properties for messaging next year.

Message Date(s): October 19, 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: 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 training video from Excal Visual Inc. "Ground Controls: Stormwater Pollution Prevention Training for Construction sites" with contractors , developers and DPW inspectors/construction project managers during the June 13, 2022 weekly construction meeting (virtual).
- DPW held weekly construction meetings (virtual) from July, 2021 through November 5,2021 and April 4, 2022 through June 30, 2022 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 social media post on Facebook and Twitter about importance of erosion control to stop soil from running off and polluting local rivers.

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

Responsible Department/Parties: DPW

Measurable Goal(s):

- 1,444 Excavation permits were issued with Erosion and Sediment Control (ESC) information/requirements attached.
- 79+ contractors, utility company representatives, and municipal staff viewed "Ground Controls: Stormwater Pollution Prevention Training for Construction Sites" during the June 13th construction meeting.
- A letter was emailed to 60 developers/contractors, 74 municipal staff and 32 utility company representatives announcing the beginning of the construction season and included information on the importance of erosion and sedimentation control during construction activities.
- During at least 14 weekly construction meeting ESC was discussed. DPW held weekly construction meetings (virtual) from July through November 15, 2021 and April 4, 2022 through June 30, 2022 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 470 impressions, 6 engagements; Twitter 2,262 impressions, 4 engagements

- Excavation permits: July 1, 2021 - June 30, 2022
- Presented "Ground Controls: Stormwater Pollution Prevention Training for Construction Sites": June 13, 2022

Message Date(s):

- Letter to contractors, etc: March 24, 2022
- Discussed ESC at weekly construction meetings: July through November 2021 and April 4 through June 2022 (periodically through this time period)

• DPW social media posts: July 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:

BMP: Proper Use of Salts/Deicers

Message Description and Distribution Method:

- DPW shared social media posts using materials supplied by the MyRWA Stormwater Collaborative on Facebook and Twitter about shoveling first and using deicing agents sparingly.
- City of Cambridge (CofC) posted social media posts about what can be done to keep pavement safe and our waters clean (Twitter)
- CofC News release "Snow Operations for January 7, 2022"
- Daily Update (email): "Snow Emergency Parking Ban Lifted, Remember to Clear Sidewalks" discusses using alternatives to salt and applying only a small amount, avoid rock salt (NaCl or sodium chloride) and do not use sand. it gets into street drains .
- CityView magazine (Winter 2021/2022): Winter Weather Tips and Reminders - discusses how the city manages snow operations by pretreating roadways to reduce the use of salts, reminds residents to clear sidewalks and catch basins.
- 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, CofC and MyRWA

Measurable Goal(s):

- DPW social media posts: Facebook 2,227 impressions, 75 engagements; Twitter 3,818 impressions, 47 engagements
- City of Cambridge (CofC) social media posts: Twitter 4,215 impressions, 85 engagements
- Shared MyRWA social media post and/or video: Facebook 522 people reached
- Shared MyRWA social media post and/or video: Twitter page 883 impressions, 21 engagements and (Spanish) Twitter 345 impressions, 10 engagements
- Shared MyRWA social media post and/or video: Instagram 420 people reached
- Shared MyRWA social media post and/or video: Instagram Stories 120 people reached
- CofC News release: 1,272 views
- Daily Update (email): 16,329 subscribers, 9,892 opened
- CityView magazine (Winter 2021/2022): 52,000 printed copies distributed throughout the city, and 590 online views. The online magazine is translated into Amharic, Arabic, Bangla, Chinese, Haitian Creole, Portuguese and Spanish.
- DPW Snow Center website: 70,872 visits

- DPW social media posts: throughout January 2022
- City of Cambridge (CofC) social media posts: January 6, 22 and February 3, 2022
- Shared MyRWA social media post and/or video: Facebook 522 people reached
- Shared MyRWA Twitter: December 22, 2021 and (Spanish) January 6, 2022
- Shared MyRWA Instagram : January 6, 2022

Message Date(s):

- Shared MyRWA Instagram Stories: January 6, 2022
- CofC News release: January 6, 2022
- Daily Update (email): January 30, 2022
- CityView magazine(Winter 2021/2022): November 2021
- DPW Snow Center website: winter 2021/2022

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:

BMP: Street Sweeping messaging

Message Description and Distribution Method:

- DPW social media posts about how sweeping helps keep pollutants and trash out of rivers.
- City of Cambridge (CoC) social media posts #1 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.
- City of Cambridge (CoC) social media posts #2 about why there is street cleaning and how rain washes pollutants into storm drains where they flow -untreated - into our water. Sweeping keeps dirt, trash and other pollutants out, preserving water quality. keeping pollutants out of the river.
- DPW News: "Street Cleaning and Yard Waste Pickup Resume April 1: reminds readers that to ensure streets are properly cleaned, cars must move off the side of the street being swept.
- Street Cleaning webpage contains information on the importance of street sweeping and monthly sweeping schedule.

Targeted Audience: Residents, Businesses, Industry

Responsible Department/Parties: DPW and CofC

Measurable Goal(s):

- DPW social media posts: Facebook 1,264 impressions, 24 engagements; Twitter 2,071 impressions, 21 engagements
- City of Cambridge (CoC) social media posts #1: Twitter 11,934 impressions, 162 engagements
- City of Cambridge (CoC) social media posts #2: Twitter 3,039 impressions, 60 engagements
- DPW News: "Street Cleaning and Yard Waste Pickup Resume April 1: reminds readers that to ensure streets are properly cleaned, cars must move off the side of the street being swept.
- Street Cleaning webpage: 46,556 visits

Message Date(s):

- DPW social media posts: April 14, 19, 20, 25, 27 and May 10, 2022
- City of Cambridge (CoC) social media posts #1: March 27, 29, 31 and April 5, 2022
- City of Cambridge (CoC) social media posts #2: April 21, 27 and May 2, 2022
- DPW News: "Street Cleaning and Yard Waste Pickup Resume April 1": March 16, 2022
- Street Cleaning webpage: Winter 2021/2022

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:

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: 2,263 visits
 Residents webpage: 105 visits
 Industry: 5 visits
 Developers and Contractors: 443 visits
 Businesses: 31 visits

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:

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 news release: "Cambridge residents eligible to participate in the Great American Rain Barrel Program" Rain barrels offer homeowners an alternate free water supply to use on lawns, gardens, or plants by capturing rainwater from the roof for later use. With the increasing intensity and frequency of rainfall, rain barrels also reduce stormwater runoff and allow for groundwater to recharge, keeping local waterways cleaner.
- DPW Recycling eNewsletter: promoted the benefits of using a rain barrel including capturing rainwater reduces runoff, lowers municipal water demand and improves residential stormwater management.
- City of Cambridge Daily Update (email): "Cambridge residents eligible to participate in the Great American Rain Barrel Program" Rain barrels offer homeowners an alternate free water supply to use on lawns, gardens, or plants by capturing rainwater from the roof for later use. With the increasing intensity and frequency of rainfall, rain barrels also reduce stormwater runoff and allow for groundwater to recharge, keeping local waterways cleaner..

Targeted Audience: Residents

Responsible Department/Parties: DPW and CofC

Measurable Goal(s):

- 84 residents participated and purchased 111 rain barrels
- DPW News Release: 1,297 views
- DPW Recycling eNewsletter: 9,337 sent, 5,620 opened
- City of Cambridge Daily Update emails: was sent to 16,329 subscribers, opened by 9,793 and 469 clicks on the story (included in above total views).

Message Date(s):

- Rain Barrel distribution/pick: June 14, 2022
- DPW News Release: May 17, 2022
- DPW Recycling eNewsletter: June 2, 2022
- City of Cambridge Daily Update email: May 22, 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:

BMP: Prevent Flooding - Clear Storm Drains

Message Description and Distribution Method:

- DPW posted on social media the importance of clearing catch basins to reduce flooding around homes and businesses
- CofC posted on social media the importance of clearing catch basins to reduce flooding around homes and businesses

Targeted Audience: Residents and Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW and CofC

Measurable Goal(s):

- DPW social media posts: Facebook 1,593 impressions, 36 engagements; Twitter 5,416 impressions, 150 engagements
- CofC social media posts: Twitter 12,752 impressions, 126 engagements

Message Date(s): DPW Twitter: August 20, 21, September 1, October 25, 2021
 DPW Facebook: August 20, September 10, October 25 and November 12, 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: Don't Dump Fats, Oil and grease

Message Description and Distribution Method:

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: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW

Measurable Goal(s):

- DPW inspected 44 business/restaurant facilities and provided each with brochure and flyer

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:

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 31st to June 17th 2022. The "Fowl Water" (in both English and Spanish) video helps viewers visualize how 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 English impressions 55,229 YouTube English Impressions 72,539; Facebook/Instagram Spanish Impressions 6,956; YouTube Spanish Impressions 8,937; Total impressions 144,661
- Mystic: Facebook/Instagram English impressions 46,442 YouTube English Impressions 77,380 Facebook/Instagram Spanish Impressions 7,142 YouTube Spanish Impressions 9,174 Total impressions 140,137

Message Date(s): May 31st to June 17th 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:

BMP: Water Quality, Stormwater and Combined Sewer Overflows

Message Description and Distribution Method:

- DPW News: "Notice of CSO Control measures to improve Water Quality of the Alewife Brook and Charles River" discusses water quality and impairments during both dry and wet weather.
- DPW social media about water quality and CSOs. Are you wondering how significant rainfall events impact local waterways' quality? Learn about Combined Sewer Overflows and how the City is working to better manage stormwater.
- CofC social media about water quality and CSOs. Are you wondering how significant rainfall events impact local waterways' quality? Learn about Combined Sewer Overflows and how the City is working to better manage stormwater.
- DPW, the City of Somerville and the Massachusetts Water Resources Authority held a joint virtual public meeting to discuss collaborative efforts to further reduce CSOs and water quality. The presentation was posted online prior to the meeting.
- CofC social media about how stormwater management initiatives reduce flooding and CSOs.
- CityView magazine Spring/Summer 2022): article "Stormwater Management Initiatives Help Reduce Flooding and Sewer Overflows" discusses how years of infrastructure improvements have had impacts on water quality and reduced flooding.

Targeted Audience: Residents

Responsible Department/Parties: DPW and CofC

Measurable Goal(s):

- DPW News: 89 views
- DPW social media posts: Facebook 581 impressions, 24 engagements; Twitter 2,577 impressions, 27 engagements
- CofC social media posts about water quality: Twitter 6,113 impressions, 101 engagements
- Joint public meeting presentation: 260 views
- CofC social media posts about stormwater management initiatives: Twitter 1,705 impressions, 13 engagements; Facebook 1,790 impressions, 47 engagements
- CityView magazine Spring/Summer 2022): 52,000 printed copies distributed throughout the city, and 4,369 online views. The online magazine is translated into Amharic, Arabic, Bangla, Chinese, Haitian Creole, Portuguese and Spanish.

Message Date(s):

- DPW News: April 14, 2022
- DPW social media posts: July 15 and 18, 2021
- CofC social media posts about water quality: July 16, August 22 and September 2, 2021
- Joint Public meeting online presentation: June 23 - June 30, 2022
- CofC social media posts about stormwater management initiatives:
- CityView magazine (Spring/Summer 2022): June 2, 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, institutions and commercial facilities

Responsible Department/Parties: DPW

Measurable Goal(s):

14 posters were installed during Year 3 (end of May 2021) at 14 Blue Bike Stations citywide and they were removed mid October 2021 from the stations. Estimated views during Year 4 (July 1 - October 15, 2021) estimated at 100 views/day per station (approximately 148,400 total views).

Message Date(s): July 1, 2021 through October 15, 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: Cambridge Stormwater Management and the MS4 Permit

Message Description and Distribution Method:

DPW developed an informational video to highlight ongoing efforts to keep the City's receiving waters clean as part of its Stormwater Program during Year 3 and it is maintained on our stormwater website. 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 and how you can provide feedback. The video is posted on Youtube (https://youtu.be/ULUKpaU_VO4) and linked on the main Stormwater Management webpage: <http://cambridgema.gov/stormwater>. The availability of the video was advertised through social media during Year 4.

Targeted Audience: all audiences: Residents, Businesses, Developers, Industrial Facilities

Responsible Department/Parties: DPW

Measurable Goal(s):

- Video: 245 views
- DPW social media posts: Facebook 558 impressions, 13 engagements; Twitter 2,641 impressions, 24

engagements

Message Date(s):

- Video posted: July 1, 2021 through June 30, 2022
- DPW social media posts: August 18, 30 2021 and September 10, 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: Guide to Reducing Risks of Climate Change

Message Description and Distribution Method:

The release of the Resilient Cambridge Plan was advertised through social media and was featured in an article in the city's magazines, CityView (Winter 2021/2022) "Resilient Cambridge Plan Serves as Guide to Reducing Risks of Climate Change" and (Spring/Summer 2022) "Climate Change Preparedness Update". The Resilient Cambridge Plan, serves as the road map to reduce the risks from climate change and help prepare the community for impacts that cannot be avoided. The plan focuses on the climate change driven risks from increasing temperatures, increasing precipitation, and rising sea levels, looking out to 2030 and 2070. Residents, businesses, institutions, and community organizations were engaged through public meetings, workshops, focus groups, and surveys to understand what climate change means to Cambridge and what kinds of strategies could be effective, feasible, and equitable. Extreme heat risks can be reduced by installing more vegetated surfaces like rain gardens, green roofs, more park areas, expanding tree canopy, and increasing how much solar energy is reflected away with lighter colored roofs and roads. Flood risk from more intense rainfall can be reduced with underground stormwater storage tanks, green and blue roofs (i.e., store water temporarily on roofs), and green infrastructure like rain gardens.

Targeted Audience: all audiences: Residents, Businesses, Developers, Industrial Facilities

Responsible Department/Parties: CofC and DPW

Measurable Goal(s):

- CityView magazine (Winter 2021/2022): 52,000 printed copies distributed throughout the city, and 590 online views. The online magazine is translated into Amharic, Arabic, Bangla, Chinese, Haitian Creole, Portuguese and Spanish.
- CityView magazine (Spring/Summer 2022): 52,000 printed copies distributed throughout the city, and 4,369 online views. The online magazine is translated into Amharic, Arabic, Bangla, Chinese, Haitian Creole, Portuguese and Spanish.
- City of Cambridge (CofC) social media posts: Twitter 12,478 impressions, 209 engagements

Message Date(s):

- CityView magazine (Winter 2021/2022): November 2021
- CityView magazine (Spring/Summer 2022): June 2, 2022
- DPW social media posts: July - September 2021 (multiple dates)

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 DPW set up a booth with stormwater education materials, a display that explains important elements of the City's SWMP, and an interactive stormwater drainage model at two (2) City events.

The SWMP display contains information on 2 - 6' x 2.5' double sided display panels that explains Cambridge's stormwater management program, engages people and creates conversation, connects what the City has been doing and supports future work, identifies simple best practices and encourages participation by residents and businesses, and explains why it matters.

DPW created an interactive drainage model that helps people understand how the stormwater drainage system carries water to the receiving water and the difference between a separated and combined sewer systems. The model also helps the public better understand what the City is doing to address stormwater pollution and better understand what is involved during sewer separation projects.

1. The Port Party, October 21, 2021 - open house at Clement Morgan Park, approximately 500 people attended and we engaged with over 40 individuals.

Stormwater educational materials distributed included: Canine's for Clean Water pet waste dispensers (15), Flooding Brochures (6), Fats, Oils and Grease management for homes brochures (5), Green Infrastructure brochures (12), HHHW Brochures (6), Dwayne the Storm Drain Books (37).

The meeting Notice was posted on the City's calendar of events and was advertised through DPW's Facebook (369 impressions, 17 engagements) and Twitter (805 impressions, 31 engagements).

2. Arts in the Park (The Port), June 25, 2022 - approximately 600 people attended and we engaged with over 75 people.

Stormwater educational materials distributed included: Canine's for Clean Water pet waste dispensers (35), Flooding Brochures (4), Fats, Oils and Grease management for homes brochures (5), Dwayne the Storm Drain Books (25), and HHHW Brochures (4).

The meeting Notice was posted on the City's calendar of events.

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 August 21, 2021, October 30, 2021, April 9, 2022 and June 11, 2022. DPW and the

City of Cambridge used social media to promote participation at the HHW events. DPW social media was posted in August 2021, October 2021 and June 2022. The DPW social media posts received 2,066 impressions, 69 engagements on Facebook; 4,212 impressions, 57 engagements on Twitter. The City of Cambridge social media was posted in August and October 2021, and March, April, May and June 2022 and received 21,154 impressions, 405 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 with a groundwater insert is typically provided to most classrooms, but the EnvironScape was not used during this school year. When it is used 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 (Alewife Stormwater Wetland) 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 2021 - June 2022 was 465 students. 85 students 5th graders from 2 different schools (Kennedy-Longfellow School and the Graham & Parks School) visited the Alewife Engineered Wetland during the school year. The school year was impacted by COVID protocols, disrupted routines, and additional assessments in order to assess the amount of academic loss in students K-12.

- 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. On October 21, 2021 MyRWA staff participated in the Cambridge STEAM Fest and on May 11, 2022 staff participated at an event at the Haggerty Preschool (1st-4th grade) demonstrating the following:

- * How water from heavy rainstorms picks up trash and other pollution on streets and sidewalks. That water goes into storm drains that empty directly into streams and rivers. Find out about this problem.

- * Examine maps of the watershed to see where stormwater ends up. Make a model of a natural system to manage stormwater.

- * Find out about the kinds of pollution that gets into storm drains. Discover what the City of Cambridge is doing to reduce stormwater pollution.

At the Cambridge STEAM Fest on October 21, 2021 staff interacted with 125+ people - adults and kids.

At the Haggerty School event on May 1, 2022 staff interacted with 75 people (35 students and 40 adults).

- Cambridge Friends School: On May 3, 2022 DPW staff participated in a field trip with 11 eight grade students from the Cambridge Friends School to discuss how stormwater is managed at Danehy Park, a former landfill site.

3. Stormwater Wetland Tours: There were two (2) tours at the Alewife Stormwater Wetland and one virtual presentation as follows:

- * March 31, 2022 for a group of approximately 22 municipal employees that are members of the Resilient Mystic Collaborative (RMC). RMC members are from communities within the Mystic River Watershed and are exploring strategies that can be used as regional stormwater management facilities.

- * June 13, 2022 for 4 DPW employees.

* February 25, 2022 a virtual presentation to approximately 22 Harvard Graduate students at the Graduate School of Design on the design, permitting and construction process for the creation of the Alewife Stormwater Wetland.

4. Participation in community/neighborhood events: City staff and consultants participated in The Port Pride Day on August 14, 2021 at Clement Morgan Park in The Port neighborhood. Staff spoke to approximately 100 people about stormwater and upcoming projects in The Port neighborhood.

5. Solid Waste, Recycling and Composting: In FY22, the City launched a Small Business Compost Pilot to provide weekly food scraps collection at 60 Cambridge businesses starting November 2021. The program will expand in November 2022. The City also started a curbside textiles recycling program. The program also has drop-off bins for textiles around the City. Lastly, the City ramped up our efforts to increase composting citywide. Efforts to pivot the compost program as a rodent-prevention strategy is gaining traction and is supported by our Inspectional Services Department.

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

- * Compost: 1680 tons
- * Recycling: 8758 Tons
- * Trash: 13,315 Tons
- * Yard waste: 1826 tons
- * Hazardous waste: 29 tons

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:

A copy of the current Stormwater Catchment Area and Outfalls map can be found in Appendix B of the IDDE Report at <https://www.cambridgema.gov/stormwater> . The City maintains an online interactive sewer system map of the sewer and drain systems at <https://www.cambridgema.gov/GIS/interactivemaps/Cambridgecityviewer> showing all gravity mains, force mains, catch basins, underground structures and other elements related to the sewer and drain systems.

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:

Outfall screening data was provided with the Year 3 annual report and is available under "Annual Report and Information: July 2020 to June 2021" at www.cambridgema.gov/stormwater

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:

www.cambridgema.gov/stormwater
under "Annual Reports and Information: July 2021 to June 2022"

*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:

Dry weather catchment investigations have been completed for (4) catchments, but due to system vulnerability factors (SVFs) wet weather sampling is required prior to completion of catchment investigations. No wet weather sampling was performed during Year 4.

Catchment investigations were continued in 9 catchment areas in Year 4. Investigations were also undertaken in 2 catchments that are tributary to combined sewer areas as part of future sewer separation work.

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:

www.cambridgema.gov/stormwater
under Annual Reports and Information: July 2021 to June 2022

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:

The illicit discharge reported on Healy Street during Year 2 was able to be officially confirmed in Year 4, but is continuing to be tracked as a Year 2 illicit discharge for this report. Of the 4 outstanding illicit discharges still to be removed: one is an internal plumbing correction and the City is coordinating repairs with the property owner, two require additional investigation/testing prior to a final repair solution, and one will be corrected under an upcoming city contract for CIPP lining (Year 5).

Employee Training

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

- IDDE Training, May 3, 2022 (10 DPW staff attended): City of Cambridge, Stantec & SDE, Inc. This training included a classroom presentation, discussion and field kit demonstration/training. Topics included:
 1. Cambridge MS4 System
 2. MS4 Permit Overview
 3. IDDE
 - Illicit Discharges
 - SSOs
 - Dry Weather Outfall Screening & Sampling
 - Catchment Investigations – D31 Sparks Street Example
 4. Test Kit Demonstration

- Illicit Discharge Detection & Elimination BayState Roads/UMASS/VHB online presentation, December 16, 2021 (1 DPW staff attended) topics included:
 1. MS4 Permit & IDDE requirements
 2. EPA Perspectives
 3. Successes & Hurdles Discussion
 4. Best Practices
 - Catchment Investigations
 - Wet Weather Outfall Screening & Sampling
 5. Municipal Perspectives

- Erosion and Sediment Control virtual workshop (UMassAmherst), March 3, 2022: (10 city staff attended) The workshop focused on common erosion prevention and sediment control BMPs associated with linear projects, including primarily roadway and utility infrastructure work, addressing the MS4 permit's MCM Construction Measures BMPs. Topics included:
 1. Regulatory context under EPA's NPDES Construction General Permit, including the requirements of the Stormwater Pollution Prevention Plan ("SWPPP"), and a basic review of erosion and sedimentation processes.
 2. Types of information ordinarily included in the SWPPP, including a discussion of BMP selection and site management, engineering design considerations, importance of understanding stormwater flows, and construction sequencing and phasing.
 3. Culminate with interactive exercises and a review of lessons learned from "real-world" project examples. Ideally, the lessons learned from these case studies can be applied to future situations and result in the implementation of better overall erosion prevention and sediment control practices.

- SWPPP/SPCC Trainings: Three separate trainings were held as follows:
 - * May 4, 2022 (10 municipal staff from various departments that oversee SWPPP inspections): SWPPP only training included:
 1. Introductions
 2. Massachusetts Stormwater Regulations
 3. Stormwater Pollution Prevention Plans (SWPPPs) Overview
 4. Facility specific information (2021 Info)
 5. Questions
 6. Practice Site Inspection
 - * June 14, 2022 (11 DPW senior staff) SWPPP and SPCC: to review the reason for inspections, frequency and procedures.
 - * June 27, 2022 (14 DPW staff) SWPPP and SPCC Training: same as above SWPPP only Training but also included a section on SPCC requirements for the DPW Garage Facility. Reasons why SPCC is required and how to inspect.

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 12 Stormwater Control Permits (SCP) during this permit year which accounts for the 12 site plan reviews identified above. In addition to the 12 Stormwater Control Permit Projects, the DPW reviewed 336 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 336 building permits, at least 73 of them included review of a civil site plan.

* In addition to the 45 Erosion and Sediment Control inspections reported under MCM4 above an additional 47 inspections were performed for smaller projects not covered under the MS4 Permit requirements.

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

Ordinance or Regulatory Mechanism

Date update was completed (due in year 3):

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):

1. River Street

The River Street project consists of upgrades to all infrastructure in its corridor, including subsurface utilities, and surface elements. Sewer separation is required for a portion of the project area, and the project also includes 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. Installed BMPs include: replacement of all catch basins with deep sump catch basins with hoods and incorporation of green infrastructure features, including a pervious asphalt bicycle lane the full length of River Street. Estimated impervious reduction is approximately 30,000 sf.

2. The Port

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. The Port Phase 1 project, consisting of the PL6 stormwater storage tank and pump station, was completed in early 2021, Phase 2 and Phase 3 will include completion of storm/sanitary separation in the neighborhood, construction of additional underground sanitary storage and pump stations, connections to existing storm and sewer systems for post-storm discharge, and full reconstruction of neighborhood streets including green infrastructure.

3. Inman Square

The Inman Square project is currently in construction. Upon completion this project will decrease impervious surfaces 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.

4. Tobin Montessori / Vassal Lane Schools

This project will demolish and rebuild the existing school facility and adjacent recreational facilities. The project began construction in July 2021 and will include a 1.25 MG stormwater storage tank and 100,000 gallon bioretention system to manage flooding and treat stormwater in the neighborhood from extreme and high intensity rain events. The site will also include a number of bioretention raingardens to treat on site stormwater. The site is built on a historic landfill and is relatively impervious due to the landfill cap. All infiltration from any newly installed BMPs will require an underdrain system that will ultimately discharge to the drainage system.

5. Willard Street

The Willard Street neighborhood is a combined sewer system and has experienced flooding on several occasions. 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. The new outfall project is scheduled to start construction in the fall of 2022. Planned BMPs will include deep sump catch basins with hoods for pre-treatment; tree pits with extended underground infiltration trenches; and 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.

6. Triangle Park

Triangle Park will convert an unused gravel lot into a new public park, including the addition of over 400 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 anticipated to be completed in the spring of 2023.

7. Binney Street Park

A new City park is being developed at 322 Binney Street in the East Cambridge neighborhood. Binney Street Park is bound by Binney Street, Galileo Galilei Way, Broadway, and the Grand Junction rail corridor. Binney Street Park will include a segment of the planned Grand Junction Greenway shared use path, a fenced dog run, and a hardscape plaza and include porous pavement and infiltration systems. Construction began Summer of

2022.

In addition 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 current Five Year Sidewalk and Street Reconstruction Plan was updated in June 2022.

Some street reconstruction projects for potential retrofits include:

- * Franklin Street (in construction)
- * Cushing Street Plaza
- * Chetwyne Road

Various expanded planting areas and impervious reduction areas: The City is tracking the expansion of planting beds and installation of rain gardens/biobasins during street reconstruction and landscape improvement efforts. 5,010 SF of impervious area were converted to expanded planting/pervious areas through our pavement removal efforts during Year 4.

Completed Projects in Year 4:

1. Timothy J. Toomey, Jr Park (Rogers Street Park - 71 Rogers St.): This project was completed in 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.

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:

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 inspected of a total of 1,825 out of 3,200 catch basins within the MS4. A total of 3,631 out of a citywide total of 6,072 catch basins have been inspected citywide (includes non

MS4 catch basins).

During this reporting period 399 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 6,072 total municipal owned catch basins, 3,200 are within the MS4. A total of 1,999 catch basins were cleaned citywide and a total of 1,940 catch basins were inspected citywide during Permit Year 4. The total mass of material removed from all cleaned catch basins citywide was 460.96 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:

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:

- * Alewife Staging Area : storage room was organized, dumpsters were covered and leaking dumpsters will be replaced under new contract.
- * Water Department Maintenance Garage: Turbid water entering catch basin - catch basin scheduled for cleaning, trench drain scheduled for cleaning, oil/water separator inspected and cleaned.
- * Cemetery Maintenance Garage: fueling area needed cleaning - area was cleaned before next inspection.

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:

MCM3: 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 4 there were 15 issues reported through the SeeClickFix system.

MCM6: The city actively maintains city-owned sewer and stormwater infrastructure and manages has several contracts that maintain the existing drainage and sanitary systems. Through these contracts the city has conducted/installed the following infrastructure maintenance/improvements:

- * Catch basin hood replacements: 38
- * Installed new deep sumped catch basins: 158
- * Installed catch basin "Do Not Dump" curb markers: 10
- * Remodeled catch basins with deep sumps and hoods: 143
- * Installed grit pits: 3
- * Linear feet of sewer cleaned: 53,077 LF
- * Linear feet of drain cleaned: 32,007
- * Linear feet of drain lined: 2,841 LF
- * Linear feet of sewer lined: 1.418 LF

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:

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:

- The SWMP was last updated June 2021 and will be updated to include:
 - * information from the report on assessing street design and parking lot guidelines and the report assessing local regulation to determine the feasibility of making green infrastructure practices allowable.
 - * Updated list of impairments from the Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 report for segments in the Little River and Alewife Brook.
- Review the City's current road salt reduction program and practices and update to align with the requirements for chloride impairments as outlined in Attachment H of the MS4 General Permit.
- Prepare a Phase I Phosphorous Control Plan.

- Continue public education messages on pet waste, leaf litter, grass clippings and fertilizer, septic system maintenance and proper use of salt and deicers.

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: Title:

Signature: Date:

[Signatory may be a duly authorized representative]

Note: When prompted during signing, save the document under a new file name.

Annual Report Submission

Please submit the form electronically via email to both EPA and MassDEP by clicking on one of the links below or using the email addresses listed below. Please ensure that all required attachments are included in the email and not attached to this PDF.

EPA: stormwater.reports@epa.gov

MassDEP: Stormwater.DEP@mass.gov

Paper Signature:

If you did not sign electronically above, you can print the signature page by clicking the button below.

Optional: If you did not sign electronically above, you may lock the form by clicking the "Lock Form" button below which will prompt you to save the locked version of the form. Save this locked version under a new file name.