City of Nashua, NH
NPDES Phase II Small MS4
General Permit No. NHR041021

2019 Annual Report

May 1, 2018 to June 30, 2019

Prepared by:
City of Nashua
Public Works Division
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City of Nashua
New Hampshire Small MS4
General Permit No. NHR041021

Reporting Period: May 1, 2018-June 30, 2019

Part I: Contact Information

Name of Municipality or Organization: Nashua, NH

EPA NPDES Permit Number: NHR041021

Primary MS4 Program Manager Contact Information

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The following annual report is intended to document on the activities undertaken over the reporting period from May 1, 2018 – June 30, 2019 in accordance with the Notice of Intent. NOI can be found at the following web address:

https://www.epa.gov/npdes-permits/regulated-ms4-new-hampshire-communities

Part II: Self-Assessment

Introduction

The City continues to experience a lack of funding dedicated to providing maintenance to culverts, wetlands, brooks, catch basins, and drain lines and capital improvements to the drainage system. While the City's Wastewater Department through its sewer user fee has primarily supported the efforts required for the MS4 Permit, these funds should be directed only to the sanitary and combined sewer system, not the storm drainage system. This funding deficiency is expected to grow since the 2018 MS4 General Permit puts further requirements relating to stormwater upon the City.

Knowing that legal authority was given to NH municipalities in 2008 to form stormwater utilities under RSA 149-I, the City applied for and received a grant from the NH Department of Environmental Services (NHDES), and, using additional City fund, completed a feasibility study for a stormwater utility in the City of Nashua. The feasibility study determined that a stormwater fee is a practical and advantageous option for Nashua because it would fairly distribute the cost of stormwater management amongst property owners, provide a stable source of funds dedicated to fulfilling mandated requirements for stormwater management, and allow for proactive maintenance of and necessary improvements to the drainage infrastructure. However, at this time, pursuing a stormwater fee will be delayed until citizens or elected officials champion the cause.

CSO Program

The City of Nashua is under an EPA Consent Decree (Civil Action No. 05-376-PB), dated December 26, 2005 (based on the Long-Term Water Quality and Infrastructure Control Plan), to mitigate combined sewer overflows (CSOs). The oldest, most urbanized portion of the City is served by a combined sewers system. Currently, there are nine CSO outfalls that are a part of the city's sewer collection system, four that discharge to the Nashua River and four that discharge to the Merrimack River. CSOs have been identified as a probable source for the Escherichia coli impairment within reaches of the Nashua and Merrimack Rivers located nearest to the city. While a statewide TMDL has been approved for all waterways impaired with Escherichia coli, the City continues to complete projects related to the Consent Decree, and as discussed below, are ongoing and will reduce the amounts of CSOs, and thus Escherichia coli being discharged into the Nashua and Merrimack Rivers.

The CSO program was designed based on the philosophy that urban runoff, particularly in the urbanized areas dictated by the MS4 Permit, contains pollutants that are harmful to the waterways. The City moved from a complete separation program to a hold and treat philosophy. The inner city areas are served by combined sewers. The stormwater runoff enters a sewer in the street that also conveys sanitary wastes. Up to a two year storm event, particularly the most polluted first flush, will be collected/stored and conveyed to combined sewage treatment facilities.

Projects completed to contain urbanized runoff include:

- The 60 MGD Wet Weather Flow Treatment Facility (WWFTF), located at the Nashua Wastewater Treatment Facility (NWTF), to capture and treat combined sanitary and stormwater, continues to operate, reducing the occurrence of CSOs and the volume of combined flows that is discharged to the rivers. Also, more urban stormwater runoff from approximately 30 percent of the city, which is part of the combined flow, is now conveyed to the WWFTF where it will be treated before being discharged to the Merrimack River.

- The construction of a CSO storage tank located near Burke Street was completed in December 2013. This 40,000 gallon tank contains overflow up to a 2 year storm event and reduces the amount of combined sewage discharging to the Merrimack River.
- Sewer separation work completed upstream of CSO 003 has eliminated the discharge of combined sewage at CSO 3 up to a 2 year storm event. A stormwater treatment train constructed in 2006 which included a Vortechnic swirl concentrator, a detention pond and a created wetland allows treated stormwater to be discharged to the Merrimack River.
- The drops over structures constructed on the North Merrimack River Interceptor continue to operate. These structures reduce discharges to the Merrimack River at CSO 005 by allowing combined sewage flow from a 2-year and higher storm event in sewer pipes on East Hollis and Crown Streets to flow directly into the larger interceptor that flows directly to the NWTF and the WWFTF where the combined flow is treated prior to being discharged into the Merrimack River.
- Separation of the 60 acre combined sewered Harbor Avenue area resulted in reducing the volume of combined sewage flowing to the CSO 005 regulator on the Merrimack River. An additional benefit of this work was that localized flooding of combined sewage in the streets was eliminated.
- The Screening and Disinfection Facility (SDF) at CSOs 005/006, the last CSO plan element, was completed and became operational in 2015. This CSO facility has the capacity to hold one million gallons of wet weather wastewater, containing overflow up to a 2 year storm event, and reducing the amount of combined sewage discharging to the Merrimack River. In addition, this CSO facility screens and disinfects combined sewer overflows that previously were discharged untreated from CSO 005, located on the Merrimack River, and CSO 006, located on the Nashua River slightly upstream of its confluence with the Merrimack River. The new outfall for this facility is located on the Merrimack River.
- The City documents the volume of combined sewer overflows discharging into the Nashua and Merrimack Rivers. An annual monitoring program provides information for the volume of discharge at each of the eight CSOs. Rainfall data is also recorded. A plan for the Post Construction Monitoring Program for the CSO program was submitted to the EPA for comment. Included in the program is testing of the Nashua and Merrimack Rivers to determine water quality.

The Separated Storm Sewer System outfalls also discharge to the Nashua and Merrimack Rivers as well as numerous other waterbodies as listed in the NOI. Many of these waters are identified with bacteria impairments and the list is included as Table 1.

Public Education and Participation

The City continues to be a member of the Nashua/Manchester Area Stormwater Coalition to share ideas, discuss the 2018 permit and to foster a unified direction is dealing with issues of the Merrimack River watershed of which all the communities lie. During the reporting period the group met eight times. The groups also discussed successes and challenges in addressing their stormwater management programs and compliance with the MS4 regulations.

The Paulie the Pickerel “Let Only Rain Go down the Storm Drain” logo continues to be used for marketing the stormwater management program in the city. Magnets with the logo continue to be distributed during educational presentations. Door hangers containing information about stormwater dos and don’ts were distributed during presentations and are available in locations frequented by residents in public buildings.

The Mine Falls Park Advisory Committee sponsored six Trail Days during the period. In addition to general park maintenance, trash and debris were removed from the waterways and banks of the Nashua River, Nashua Canal and Mill Pond. These events are well attended and include families, high school groups, business teams and the general public.

Table 1. Waterbodies in Nashua Identified as Bacteria Impaired Waters Covered by the Statewide TMDL

Waterbody Name	Assessment Unit #
Pennichuck Brook, Witches Brook	NHRIV700061001-07
Nashua River -Nashua Canal Dike	NHRIV700040402-03
Nashua River - Jackson Plant Dam Pond	NHIMP700040402-05
Nashua River	NHRIV700040402-08
Nashua River	NHRIV700040402-09
Merrimack River	NHRIV700061002-14
Salmon Brook - Hassell's Brook - Old Maids Brook - Hale Brook	NHRIV700061201-05
Salmon Brook	NHRIV700061201-07
Merrimack River	NHRIV700061206-24

Source: Appendix F, 2017 NH Small MS4 General Permit

Updates of stormwater issues are reported at monthly meetings of the Board of Public Works. The Board of Public Works is a five member body of the elected officials that are responsible for the overall direction and performance of the Division of Public Works. This is a public meeting that is recorded and broadcasted repeatedly on the government access channel. The stormwater update discusses city-wide drainage issues, the progress made on addressing them, and any other items that are related to the management of stormwater.

The waterways continue to have issues with invasive species. There are 5 documented invasive aquatic plants in the Nashua River, Mill Pond, and Nashua Canal. City staff collaborates with the State Exotic Species Program Coordinator to monitor invasive species and update the Long-Term Exotic Aquatic Plant Management Plan annually for these waterbodies. In the Nashua River, Water Chestnut is removed by hand pulling done by City staff, the local watershed association, and volunteers. The dominant invasive species present now are fanwart and milfoil; these are being managed with herbicide treatments. The Mill Pond and Nashua Canal are also treated with herbicide to control invasive species every other year. During summer 2017, curly leaf pondweed was identified in Sandy Pond, a 4.5 acres pond in the urban core of Nashua. During the reporting period, as detailed in the City's annual Long-Term Exotic Aquatic Plant Management Plan, annual aquatic invasive species management to ensure the health of the Nashua River and Sandy Pond and reduce the threats to the ecological, aesthetic, recreational, and economic values of both water bodies is performed.

The Environment and Energy Committee organizes environmental events to complement the work of the Nashua Conservation Commission. Meeting continue during the reporting periods with water quality a consist topic in the meeting.

Construction Site and Post-Construction Runoff Control

The Nashua Land Use Code addresses land use planning issues through a variety of provisions related to stormwater management including the protection of wetlands, floodplain regulations, landscaping requirements, impervious surface requirements, open space requirements, and designs issues discussed during the development review process. The technical review process affords an interdisciplinary review of all applications submitted for Planning Board approval. Stormwater, drainage, and improved landscaping elements are included in discussions for every site and contribute to improving the stormwater directly or indirectly. The open space, impervious surface, parking and other zoning provisions are addressed as part of the process as well. The current land use code (with revisions incorporated dated September 1, 2012), is routinely discussed at staff meeting, noting areas where future amendments may be warranted.

Wetlands and wetland buffer areas are protected and proposals to impact these areas are carefully reviewed by the Nashua Conservation Commission who makes a formal recommendation to the Zoning Board of Adjustment. Wetland Buffer Markers continue to be required to be installed in the buffer areas of impacted by site development. The purpose of the markers is to encourage residents not to dump debris in wetland areas.

The building permit process includes review of not only zoning and building issues, but proximity to local conservation lands and practical things to do or not do. For example, no construction materials shall be stored or left in the wetland buffer areas, best management practices to be followed during construction and site cleanup upon project completion.

Staff provides ongoing assistance to residents with flood insurance and floodplain management questions. This serves as an opportunity to educate the public about floodplain management and the relationship to stormwater management.

Staff routinely provided educational literature to the NCC and Planning Board on issues related to environmental protections such as stormwater management, erosion control and use of salt/sand in winter deicing applications.

Good Housekeeping

Good housekeeping measures included the continuous street sweeping program. Sweepers operate 16 hours a day on week days from April 1 to June 1 and 8 hours per day until December 1. Winter salt and sand use was monitored and controlled. All curbed Streets are swept at least once.

The Parks and Recreation Department continues its practice of Integrated Pest Management (IPM) principles and reduced the amount of pesticides that was applied. The annual 2017 Pesticide Usage Report was submitted to the NH Department of Agriculture. The Department has started experimenting with the use or turf growth regulators which slow down the rate of turf growth which reduces mowing frequency and yard waste. The use of the growth regulator in our field paint has also cut down on the amount of paint that is used.

The Cartegraph Operations Management System is used to track work orders which allows entering and tracking of all work orders within the Division of Public Works, many of which are related to stormwater management.

Additional activities completed during the permit period are included in Part IV of this report.

Stormwater Management Program (SWMP) Information

The SWMP was completed in June 2019 and is available in an electronic format and as a hard copy document. The City is revamping its web site and when practical will post the SWMP to the web site.

Part III: Receiving Waters/Impaired Waters/TMDL

Chloride Impairment and Chloride TMDL

One change has been made to the list of Impaired Waters requiring a TMDL.

In Section 2.2.2.d, Nashua was identified as having a waterbody where chloride is the cause of the impairment. On the 303 (d) list approved in 2006, the Nashua River- Mine Falls Dam Pond, NHIMP700040402-02 was first listed as having chloride impairment. This impairment was identified using two samples from 1998. This impairment remained on each updated 303 (d) list through 2016. This MS4 permit was written using the most current impairments on the 2016 303 (d) list.

Since the NOI was submitted, the NHDES Draft 2018 303(d) was released. In this draft list the Nashua River-Mine Falls Dam Pond, NHIMP700040402-02 was delisted due to an error in the sampling location of the Nashua River where chloride was identified as an impairment. From the NHDES document R-WD-19-05, titled "Impairments Removed (i.e. Delisted) from the 2018 303(d) List of Threatened or Impaired Waters (i.e. Category 5)" dated August 8, 2019:

> *The Nashua River - Mine Falls Dam Pond (NHIMP700040402-02) was originally impaired for chloride for the aquatic life integrity designated use in 2006 based on data collected at station MINNASD. In 2014, it was discovered that station MINNASD was mistakenly tied to The Nashua River - Mine Falls Dam Pond (NHIMP700040402-02), but was actually located within Nashua River - Nashua Canal Dike (NHIMP700040402-03). It has since been re-associated within the Nashua River*

and all the data transferred to Nashua River - Nashua Canal Dike (NHIMP700040402-03). When the data was transferred to the correct waterbody in 2014 the chloride data from 1998 and 1999, which was used to impair the Nashua River - Mine Falls Dam Pond (NHIMP700040402-02) originally, was outside of the current period and therefore not used in the assessment of Nashua River - Nashua Canal Dike (NHIMP700040402-03), hence in 2016 the AU was categorized as potentially attaining standards (3-PAS) for chloride. Because the basis for the original impairment in 2006 was based on data not within the waterbody, and there is no additional data available, NHDES has delisted the Nashua River - Mine Falls Dam Pond (NHIMP700040402-02) for chloride for the aquatic life integrity designated use.

Because there is no other data in which to make an assessment, it has been placed in category 3-ND (no current data) for the 2018 cycle. Similarly, had the data been assigned to the correct waterbody, the Nashua River - Nashua Canal Dike (NHIMP700040402-03) would have received the impairment designation in 2006. The current data from the Nashua River - Nashua Canal Dike (NHIMP700040402-03) does not provide enough information in which to lift that impairment due to different sampling stations and sampling depths, therefore, the Nashua River - Nashua Canal Dike (NHIMP700040402-03) has been moved from 3-PAS to 5-M for chloride for the aquatic life integrity designated use.

The sampling data used to identify the above waterway, now identified as NHIMP700040402-03 was from 1998. In order to determine if chloride impairment currently exists, Nashua will perform water quality sampling on these two waterbodies as part of the Mine Falls Hydroelectric facility's relicensing process. If a chloride impairment is identified,

Solids, Oil and Grease (Hydrocarbons), or Metals Impairments

Sweepers operate 16 hours a day on week days from April 1 to June 1 and 8 hours per day until December 1. Winter salt and sand use was monitored and controlled. During the reporting period, the initial construction of a brine system began so roads can be treated prior to icing/snowfall so that less salt can be applied during the event. All curbed areas are swept at least once with commercial areas, the urbanized downtown area, arterial and collector streets and critical streets. This includes the sub –watersheds that are identified with impairments.

The City owns and maintains a landfill. All street sweeping deposits are disposed of in the lined section of the landfill.

Outfall Ranking

Outfalls to receiving waters with an impairment identified above have been ranked as high priority for the IDDE implementation in the initial outfall ranking and enhanced BMP's have been implemented in accordance with the SWMP.

Part IV: Minimum Control Measures

MCM1: Public Education

The City continues to educate and involve the public by:

- Presenting the Enviroscape Watershed Model at public events like Public Works Day and visiting middle school classrooms. The presentation was given ten times to about 205 seventh graders.

- Installing Wetland Buffer Markers in wetlands areas near new development
- Visiting Industrial Facilities through the Industrial Pretreatment program and including information on Stormwater Awareness
- Discussing stormwater requirements and issues ay the monthly Boards of Public Works Meeting,
- Initiated development of outreach regarding pet waste, septic and yard waste using flyers and a public bulletin board display with resources for assistance.

In addition, “Mutt Mitt" dog convenience stations are located throughout the City in public parks, rail trails, river walks and other public space. They are monitored and refilled as needed. Signage discussed the requirement to dispose of pet waste is included.

Also, through the City Public Health department, educational messages regarding proper septic systems maintenance are distributed.

MCM2: Public Participation

Updates of stormwater issues are reported at monthly meetings of the Board of Public Works. This is a public meeting that is recorded and broadcasted repeatedly on the government access channel. The stormwater update discusses city-wide drainage issues, the progress made on addressing them, and any other items that are related to the management of stormwater. A public comment period during the meeting allows the public to address any issues related to the Stormwater Management Program (SWMP).

MCM3: Illicit Discharge Detection and Elimination (IDDE)

BMP: IDDE Legal Authority

The City has established legal authority as outlined in the IDDE plan.

Sanitary Sewer Overflows (SSOs)

During the reporting period, five SSOs were reported that may have discharged into the MS4 system or surface waters. Notification of all citywide SSOs whether located in the MS4 section of the city or in the combined sewer sections were sent to the EPA and NHDES following established protocol with the City’s NPDES Wastewater discharge permit. The SSOs were attributed to blockages in the sanitary sewers, power failure at a pump station and excessive wet weather flow in a combined sewer. All SSOs were resolved.

Between calendar years 2013 and 2018, the City has reported twelve SSOs to the MS4 system. The SSOs were attributed to blockages in the sanitary sewers, power failure at a pump station and excessive wet weather flow in a combined sewer. All SSOs were resolved.

MS4 System Mapping

Map of storm sewer system and associated outfalls is in progress in accordance with the accepted NOI.

The Geographic Information System (GIS) mapping is used to track and identify assets. During the reporting period, The Sanborn Mapping Company was hired to update the Orthoimagery and Photogrammetric base layer

mapping for GIS. During this reporting period, the data on the MS4 system was corrected and updated as necessary.

IDDE Progress

A written IDDE plan has been developed. Procedures to identify initial outfall identification, characterization and prioritization have been included in the IDDE plan. Written investigation deliverables will progress in accordance with the accepted NOI and is scheduled to be complete by April 1, 2020.

Employee Training

As a routine IDDE, materials and training, including information on how to identify illicit discharges and SSOs are made available to applicable employees in accordance with IDDE plan. In addition staff attended various conferences and seminars (APWA, UNH T2, NEWEA, and NHPWA) where illicit discharges, water quality and other associated topics were discuss.

Household Hazardous Waste

Nashua, along will 10 other regional towns, collected household hazardous wastes on eight days during the reporting period.

MCM4: Construction Site Stormwater Runoff Control

Ordinance §190-215 H details the requirements for erosion and sediment control ordinance on sites being developed and includes written procedures of site inspections and enforcement procedures. Prior to a receiving a certificate of occupancy, each site is inspected to make sure the site is incompliance with the plan including checking for erosion issues and no discarded building materials are left on site.

During the reporting period:

Number of site plan reviews completed: 69
Number of inspections completed: 165
Number of enforcement actions taken: 3

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

Ordinance Development

The City has a Land Use Code in place for procedures which includes a site plan checklist.

Low impact development ideas continued to be discussed with developers. Developers have proposed permeable pavement, infiltration systems, rain gardens and other LID components at various sites.

As-built Drawings

Nashua has Land Use Ordinances that requires the submission of as-built drawings and an operation and maintenance plan for private best management practices for onsite stormwater.

MCM6: Good Housekeeping

Catch Basin Cleaning

A schedule for catch basin cleaning has been established that is practical and affordable, with the goal of ensuring that a catch basin should not be more than 50% full. The city owns over 10,000 catch basins and is aware of the locations that require routine maintenance. The aggressive street sweeping program helps to limits the debris in the catch basins.

Catch basins are inspected during the City's paving, sewer lining, sewer replacement and routine maintenance e programs. As part of the paving program, which paved approximated 16 miles in the MS4designated area, all catch basins and drain manholes are inspected.

It is estimated that at least 715 catch basins were inspected. At least 125 catch basins were cleaned.

The City owns and maintains a landfill. All catch basins deposits are disposed of in the lined landfill.

Street Sweeping

Sweepers operate 16 hours a day on week days from April 1 to June 1 and 8 hours per day until December 1. Winter salt and sand use was monitored and controlled. During the reporting period, the initial construction of a brine system began so roads can be treated prior to icing/snowfall so that less salt can be applied during the event. All curbed areas are swept at least once with commercial areas, the urbanized downtown area, arterial and collector streets and critical streets. This includes the sub –watersheds that are identified with impairments.

The City owns and maintains a landfill. All street sweeping deposits are disposed of in the lined section of the landfill.

Winter Road Maintenance

A winter road maintenance program has been established with a goal of reducing salt usage. All truck spread systems were calibrated in November 2018. A salt reduction strategy implemented this year includes implementing a brine system with the goal of reducing the amount of granular material applied to the road so the overall amount of salt applied is reduced.

O&M Procedures for Stormwater Treatment Structures

The cleaning frequency and maintenance for the CDS and Vortechnic units are based on the Operation and Maintenance manuals provided for the units. The units were inspected and maintained as needed.

Activities for the Next Reporting Cycle

Nashua will continue to implement activities in accordance with the approved Notice of Intent.

Part V: Certification of Small MS4 Annual Report 2019

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:	Lisa Fauteux	Title:	Director, Public Works
Signature:		Date:	9-27-19

[Signatory may be a duly authorized representative]